BURIAL HISTORY OF THE COOPER, EROMANGA AND LAKE EYRE BASINS IN NORTHEAST SOUTH AUSTRALIA

Report for the South Australian Department of Mines and Energy

by

Reza Moussavi-Harami

VOLUME II FIGURES AND APPENDICES

FEBRUARY 1996

Envelope 9024

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Appendix II Burial History and Interpretive Burial History Diagrams.

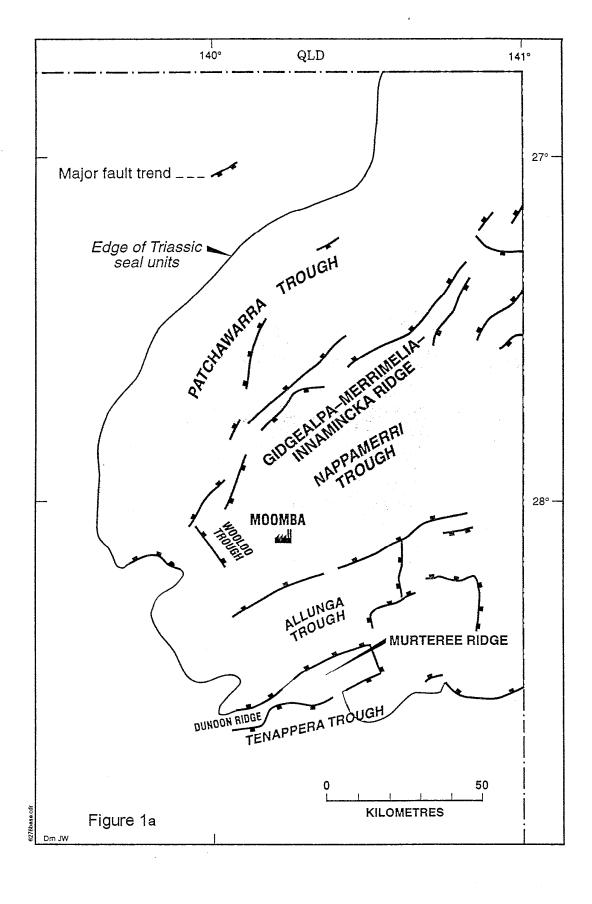
Appendix III Sedimentation Rate Vs Time.

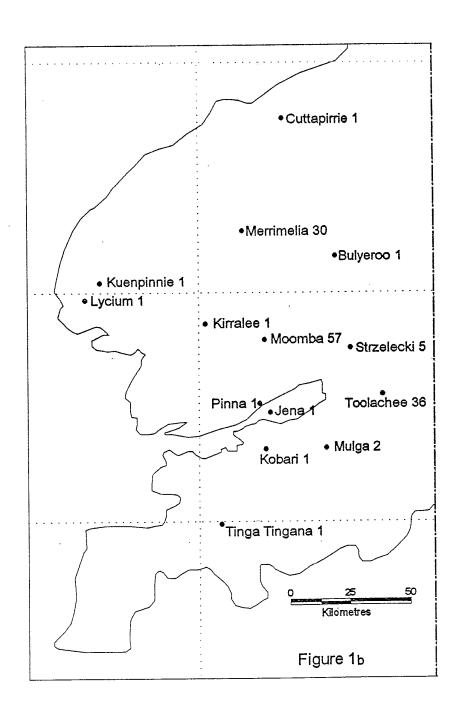
Appendix IV Sedimentation Rate and Tectonic Subsidence Vs Time.

Appendix V Moussavi-Harami (1996), Petroleum Geology of South Australia Volume II,

MESA (in press) and Moussavi-Harami, Alexander and Frears (1996), abstract submitted for 'The Mesozoic of The Eastern Australian Plate Conference'.

F08773.RMH (01/03/96)





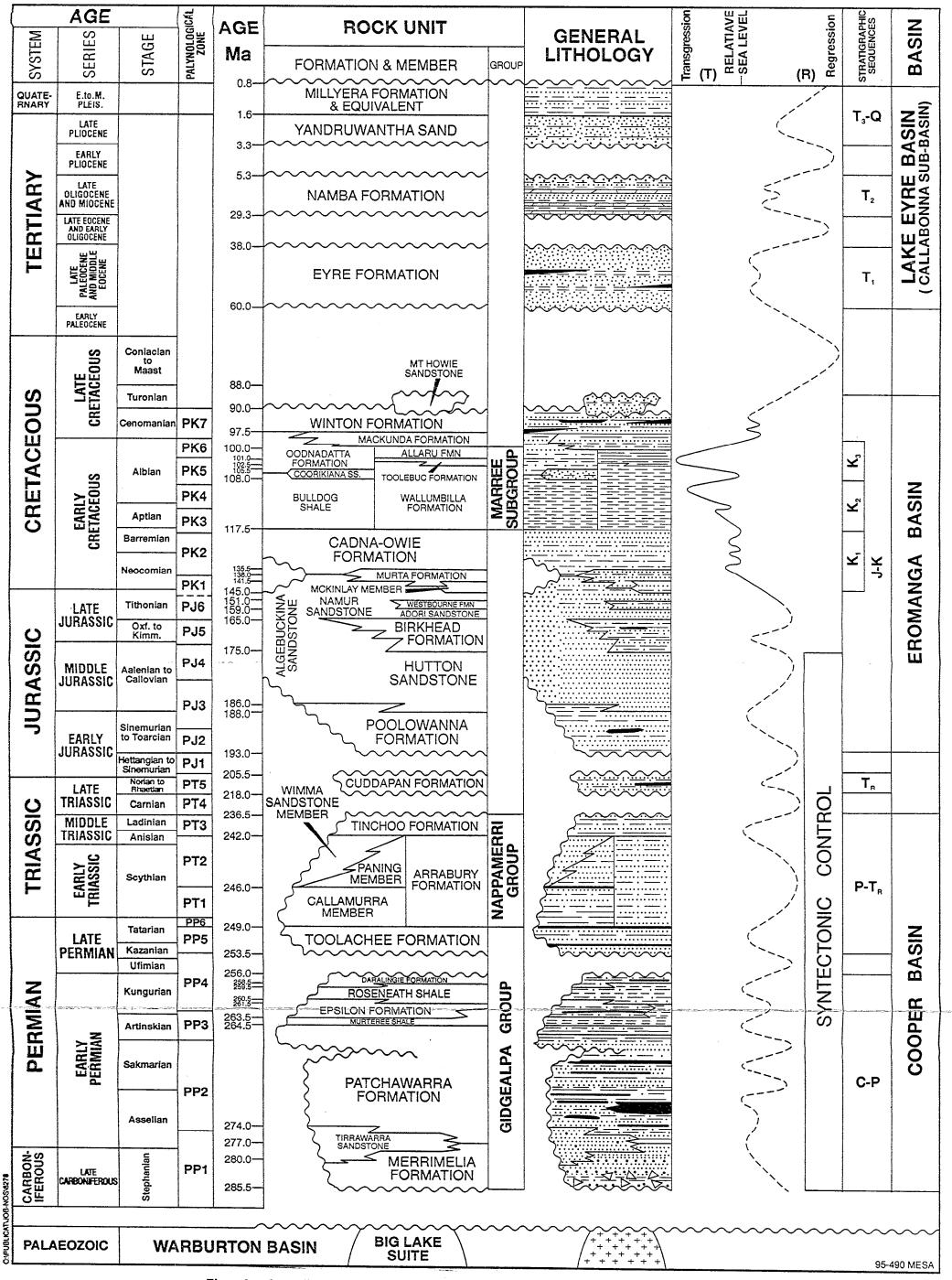
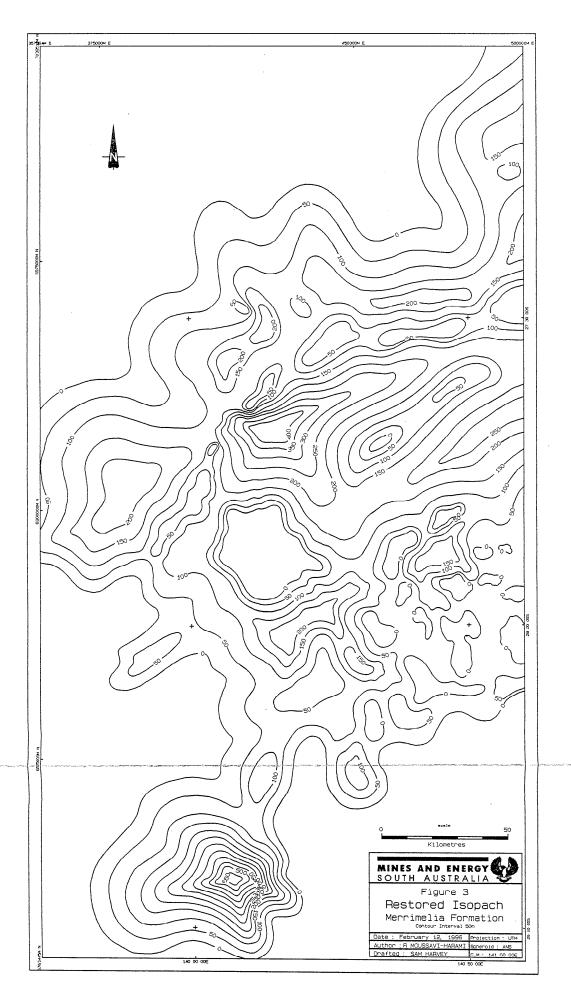
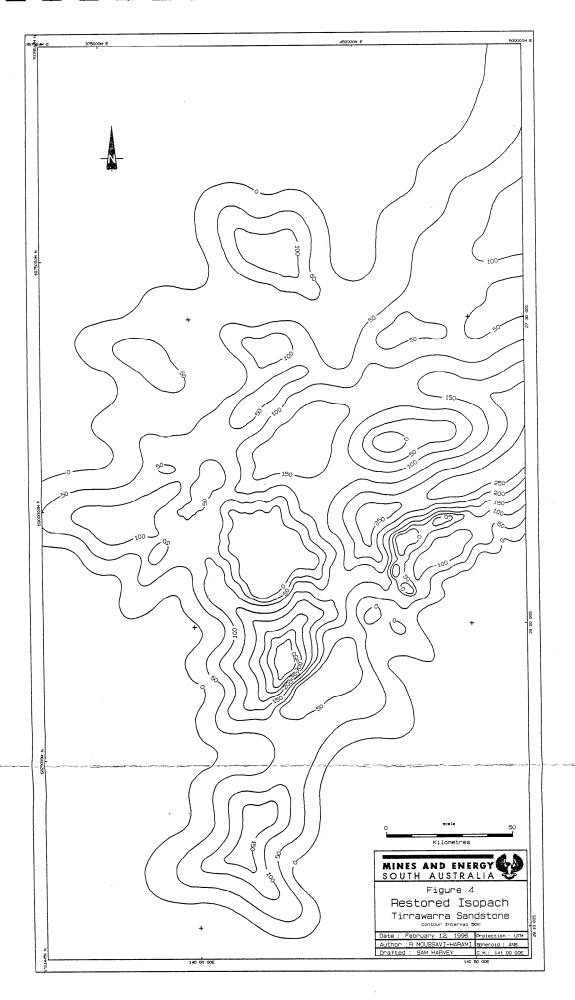
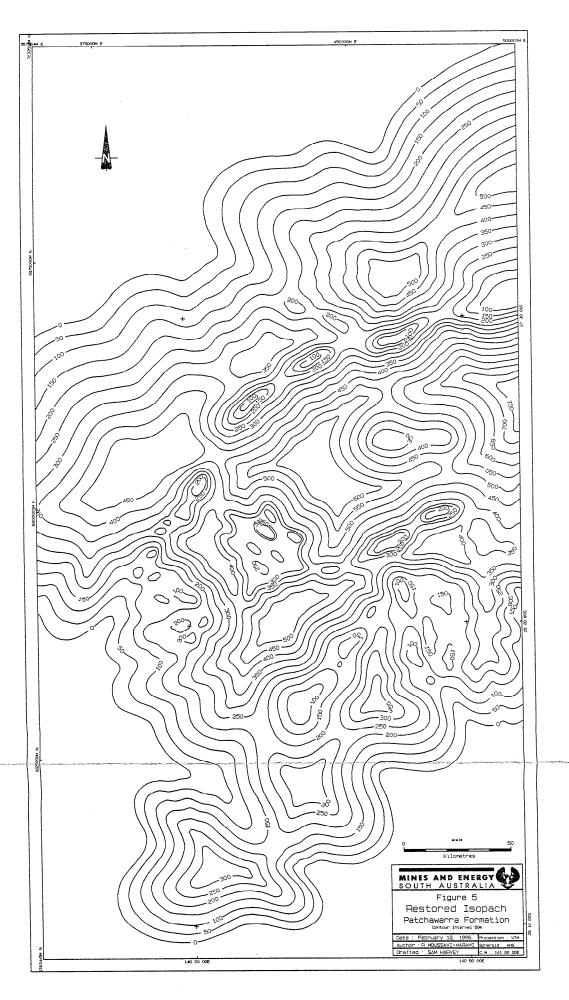
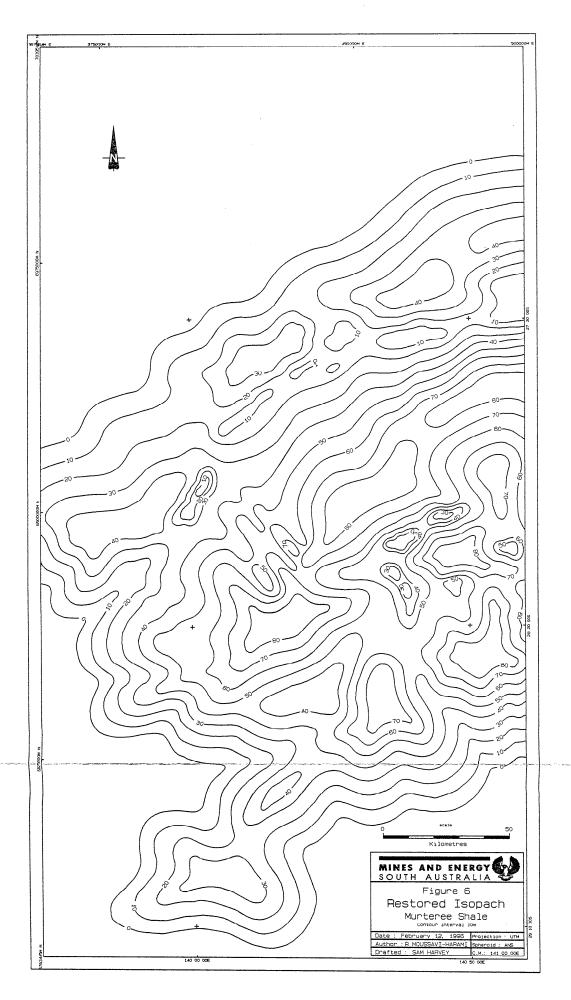


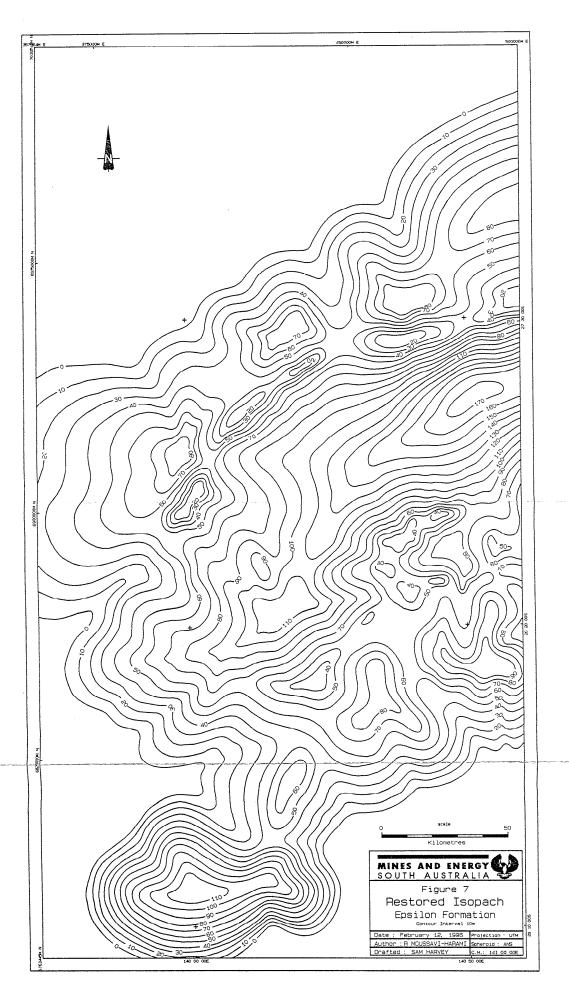
Figure 2 Generalised stratigraphic column and sequences of the Cooper, Eromanga and lake Eyre Basins in northeast South Australia.

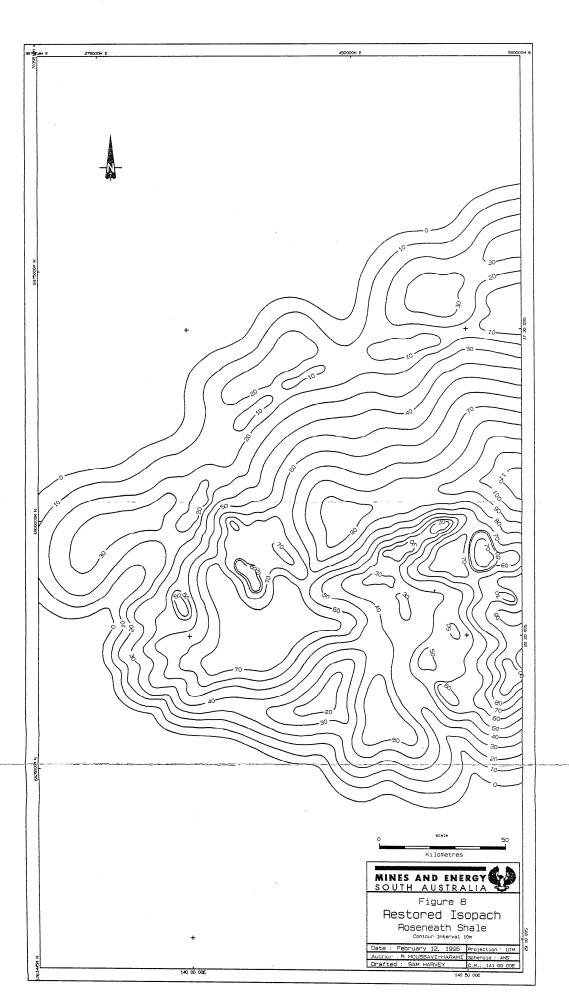


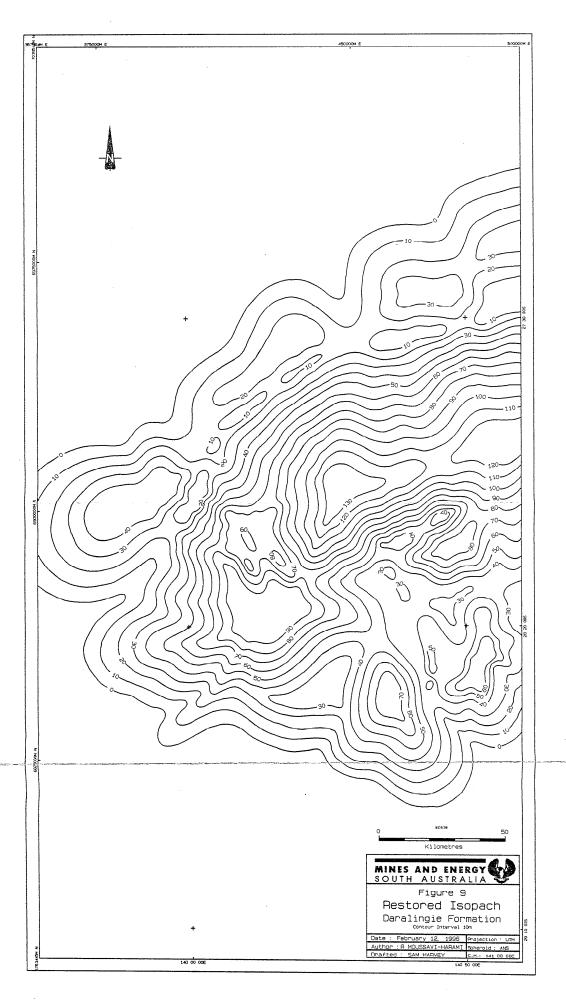


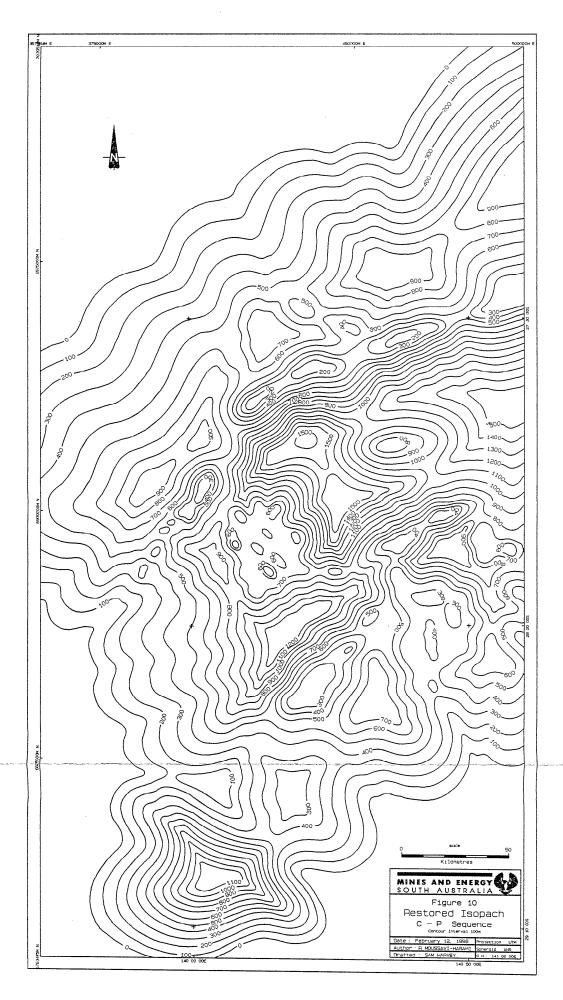


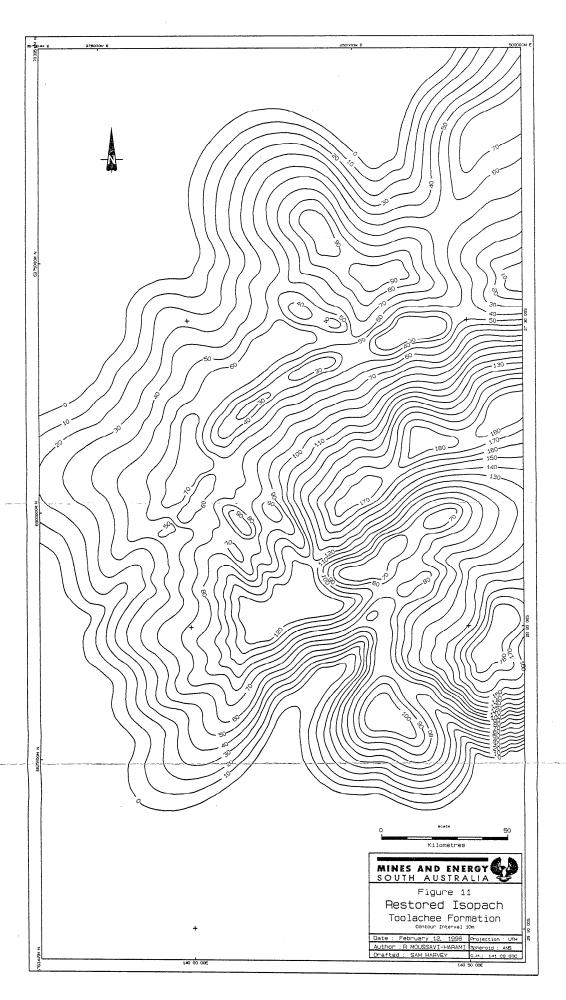


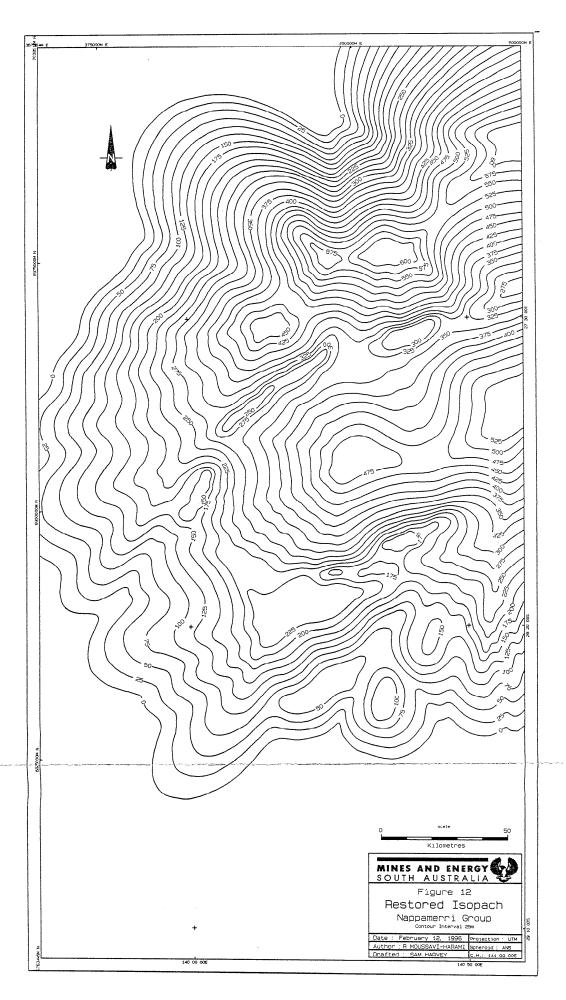


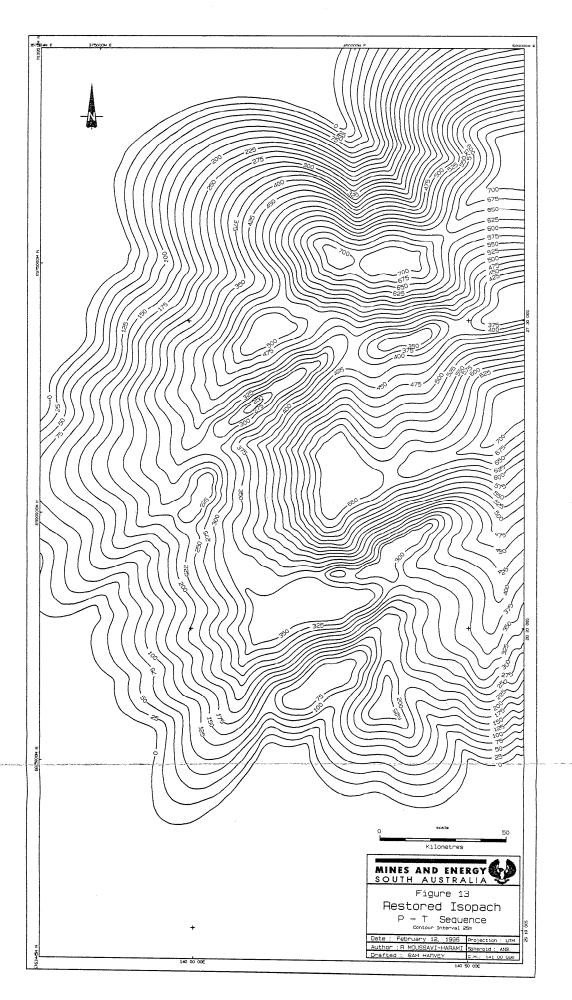












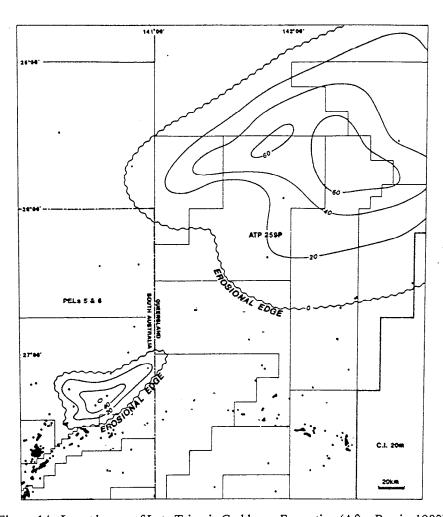
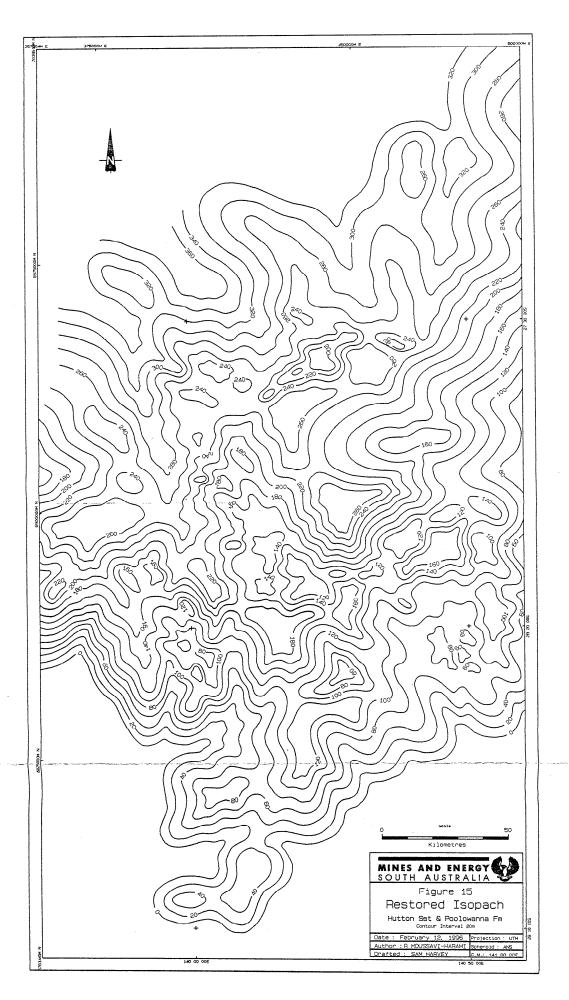
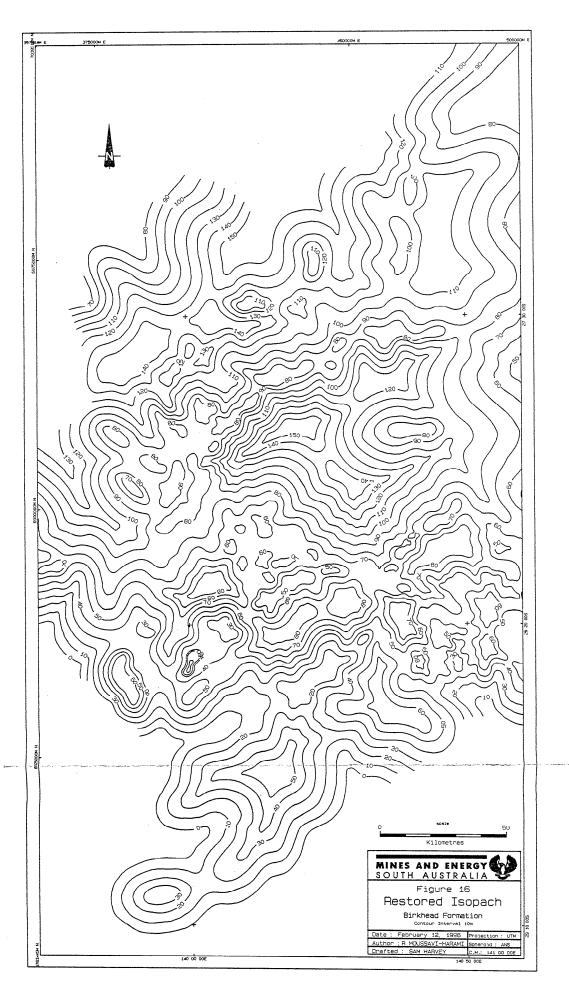
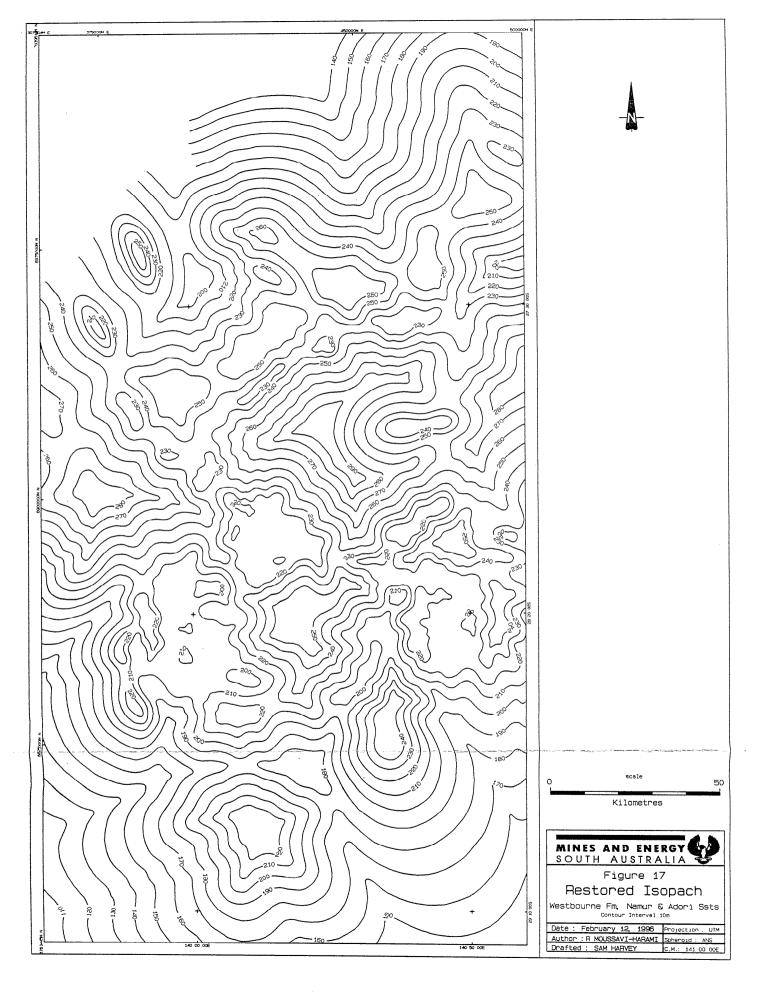
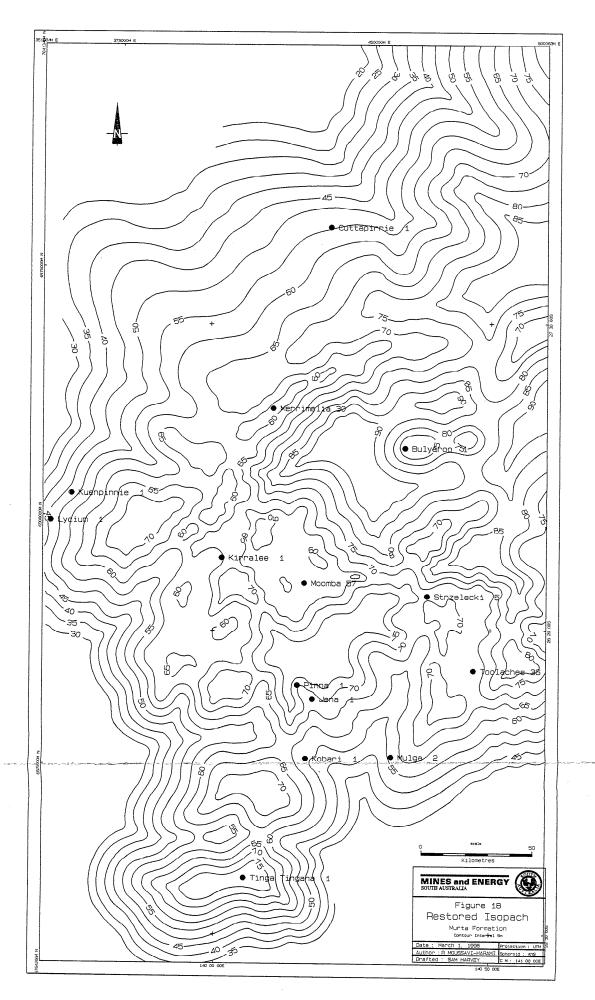


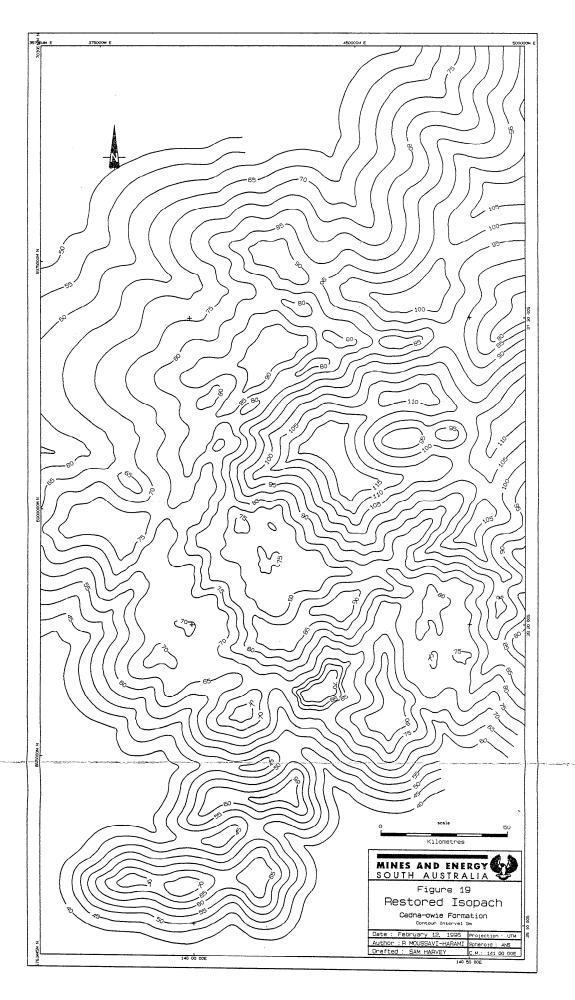
Figure 14 Isopach map of Late Triassic Cuddapan Formation (After Powis, 1989).

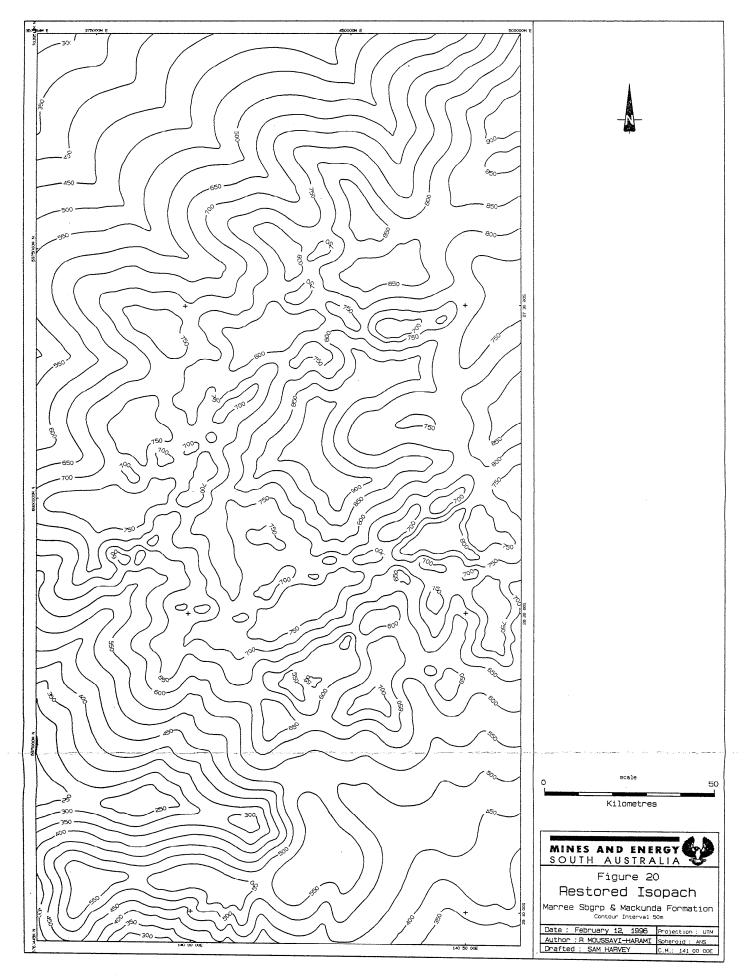


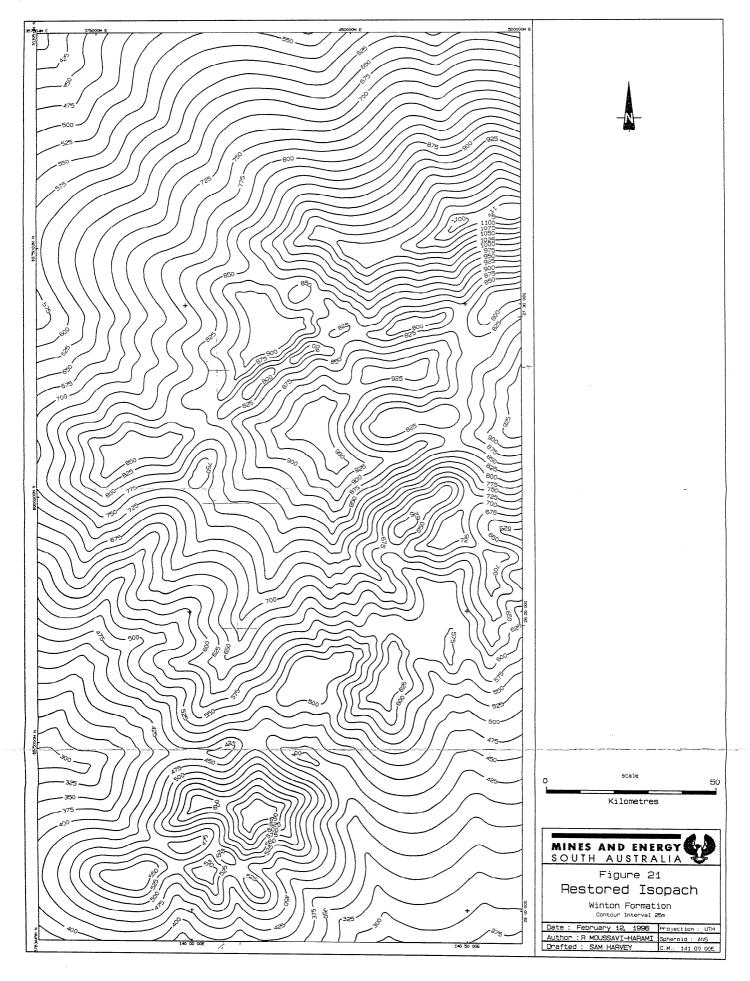


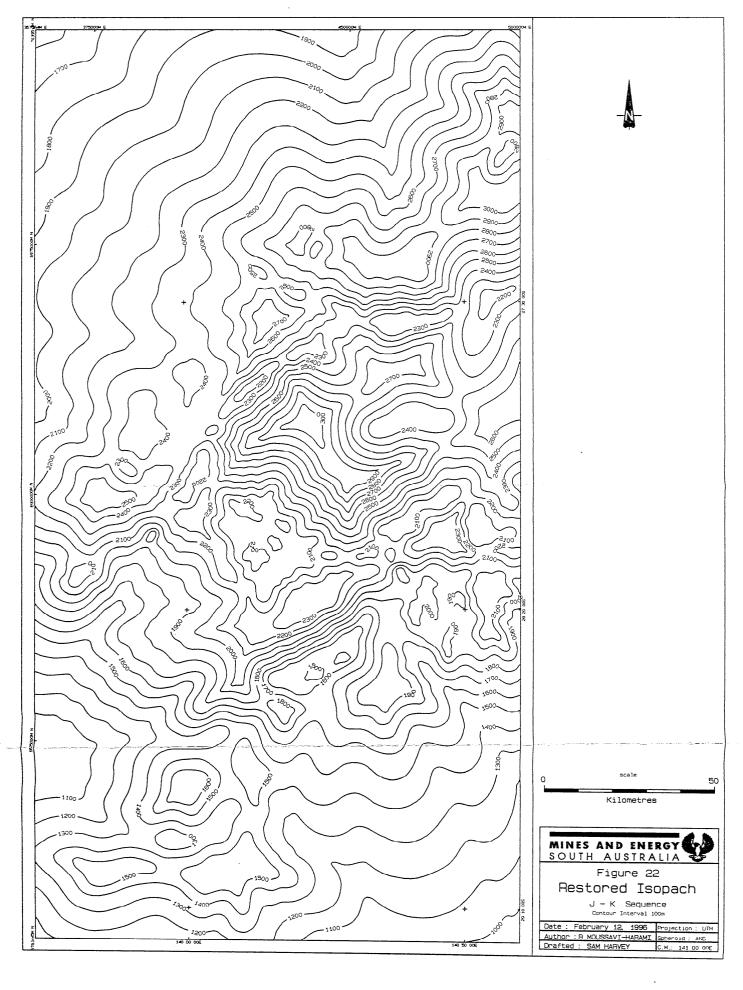


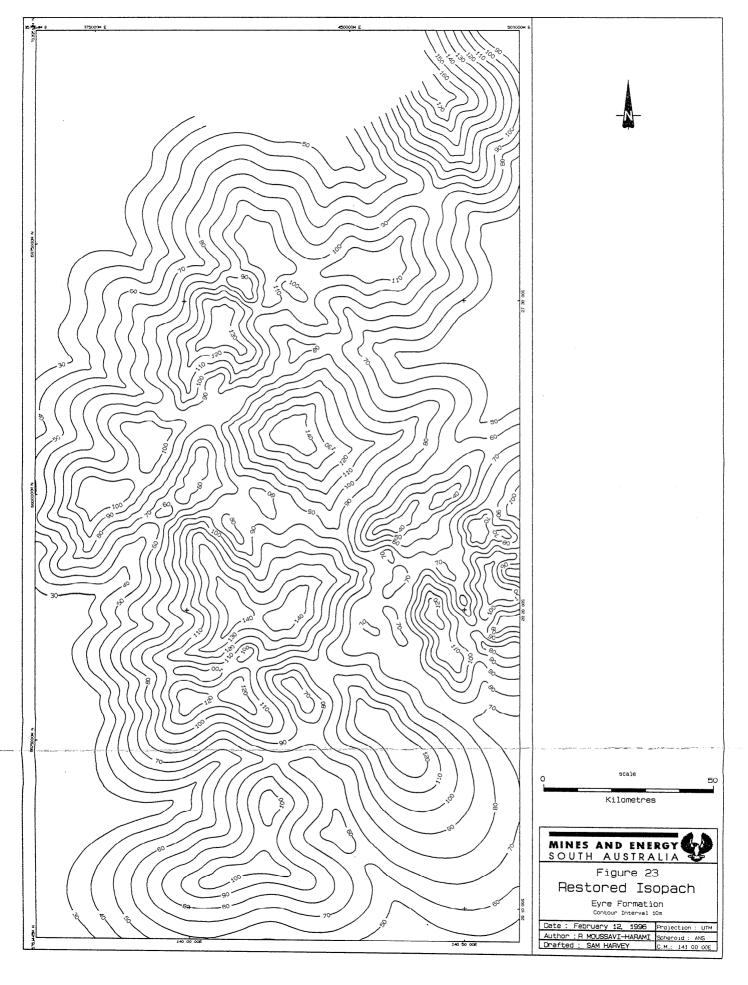


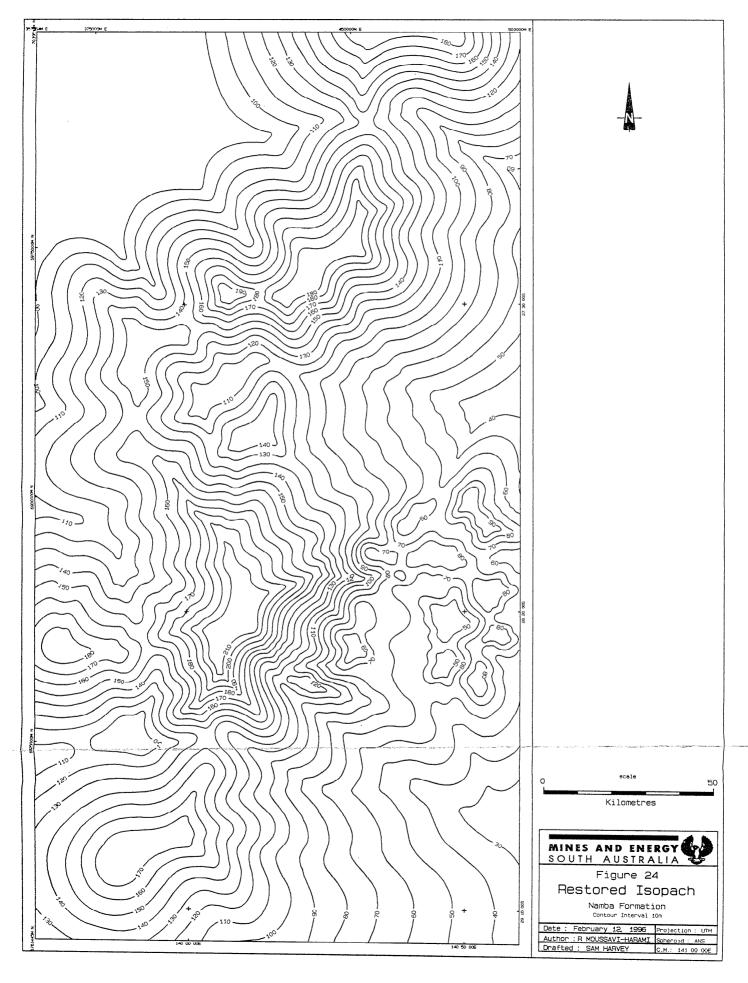


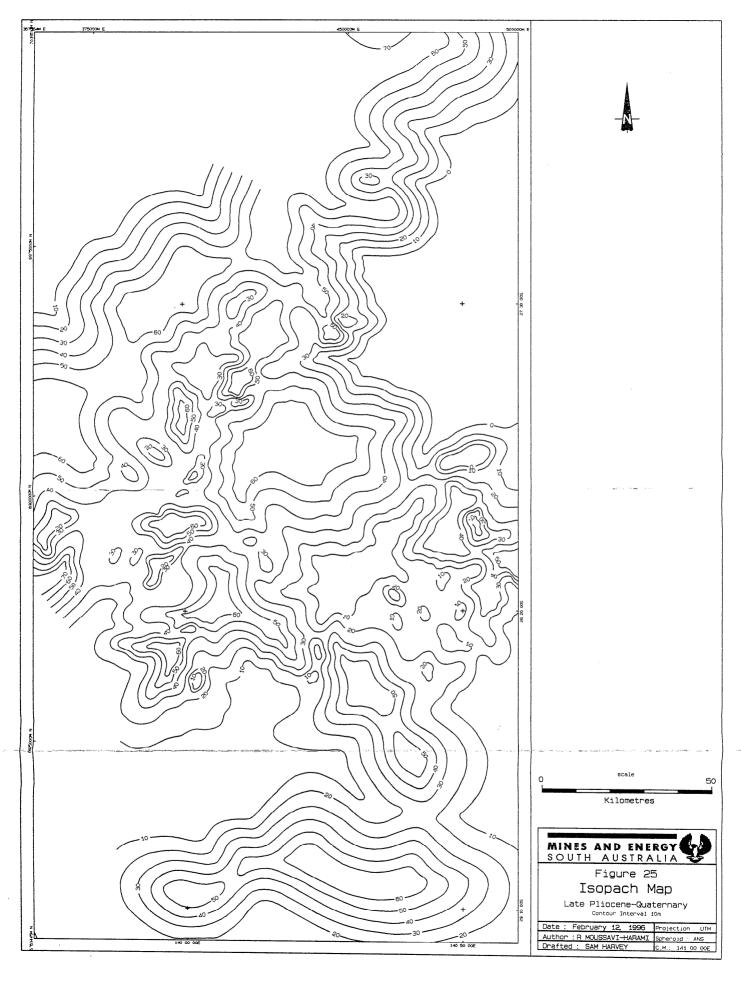












APPENDIX I

DATA REPORT

BasinMod Data Report

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Mr. Peter Tingate

Version: 4.20

Model Name: BULYEROO-1 File Name: BULYEROO-1.mod Date: Feb 5, 1996 Time: 12:15 pm

Stratigraphy Table						
Formation		Begin	Well Top	Present	Lithology	
or		Āge	_	Thick	-	
Event Name		(Ma)	(m)	(m)		
QT/T		3.3	0	55	Sandstone	
HIATUS-1	H	5.3				
NAMBA FM.	F	29.3	55	21	nam14	
HIATUS-2	H	38				
EYRE FM.	F	60	76	77	eyr14	
HIATUS-3	H	90				
WINTON FM.	F	97.5	153	808	win14	
MACKUNDA FM.	F	100	961	82	mac14	
ALLARU/OOD	F	105.5	1043	289	all14	
COORIKIANA Sst.	F	108	1332	17	coo14	
BULLDOG SHALE	F	117.5	1349	363	bull14	
CADNA-OWIE FM.	F	135.5	1712	89	cad14	
MURTA FM.	F	141.5	1801	55	mur14	
McKINLAY Mbr.	F	145	1856	10	mck14	
NAMUR Sst.	F	151	1866	62	namu14	
WESTBOURNE FM.	F	159	1928	81	west14	
ADORI FM.	F	165	2009	87	ador14	
BIRKHEAD FM.	F	175	2096	86	bir14	
HUTTON Sst.	F	188	2182	56	hut14	
POOLOWANNA FM.	F	193	2238	84	pool14	
HIATUS-4	H	236.5			-	
NAPPAMERRI GP.	F	249	2322	397	napp14	
TOOLACHEE FM.	F	253.5	2719	95	too14	
HIATUS-5	H	256				
DARALINGIE FM.	F	258.5	2814	101	dara14	
ROSENEATH SHALE	F	261.5	2915	60	rose14	
EPSILON FM.	F	263.5	2975	122	epsi14	
MURTEREE SHAle	F	264.5	3097	70	mutt14	
PATCHAWARRA FM.	F	274	3167	321	pat14	
Formation	Type	Lith				
		Th 1				

Type	Lith
	Pat
F	
H	
F	1
H	
F	
H	
F	
F	
F	
F	
F	
F	
F	
F	

WESTBOURNE FM. ADORI FM. BIRKHEAD FM. HUTTON SSt. POOLOWANNA FM. HIATUS-4 PPAMERRI GP. TOOLACHEE FM. HIATUS-5 DARALINGIE FM. ROSENEATH SHALE EPSILON FM. MURTEREE SHALE				
Lithology Mixes Table Lithology Name	왕	% Siltstone	% Shale Ker	% Total
Sandstone nam14 eyr14 win14 mac14 all14 coo14 bul114 cad14 mur14 mck14 namu14 vest14 ador14 bir14 hut14 poo114 napp14 too14 dara14 rose14 epsi14 mut14 pat14	24 40 22.5 80 70 16 50 84 48 96 34 100 55	40 15 56 40 43.5 20 20 20 63 50 12 39 4 46.5 . 30 64.5 27 48 75 58.5 75 45	40 5 19 20 34 80 10 21 4 13 15.5 10 21.5 9 16 25 19.5 25 15	100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 25 100.0 8 100.0 8 100.0 100.0 6 100.0
Lithology Values Tab Lithology Name	Initial		Exponential Factor (SC)	
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 coo1 bull1	0.55 0.6 0.6 0.6	1.75 2.2 2.4 1.5 1.5 0 3.5 0 2.16 1.83 2.20 2.17 2.21 1.97 2.36		2.64 2.64 2.72 2.85 2.15 1.8 2.65 2.631 2.638 2.610 2.631 2.630

cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1 nam14 eyr14 win14 mac14 all14 cool4 bull14 cad14 mur14 mck14 namu14 west14 ador14 bir14 hut14 pool14 napp14 too14 dara14 rose14 epsi14 mutt14 pat14	0.551646132967675757324798456053514056764 0554661329676757573247984560563555555555555555555555555555555555	1.99 2.05 1.83 2.15 1.25 1.83 2.15 2.25 2.25 2.25 2.25 2.25 2.25 2.25	0.34 0.42 0.36 0.42 0.38 0.42 0.43 0.44 0.44 0.43 0.44 0.33 0.42 0.34	2.6334 2.6334 2.6338 2.6634 2.6636 2.4632 2.5633 2.5633 2.5633 2.5633 2.6633 2.
Name	(mm)	Matrix Condu (W/m	.*deg C) C	rix Cond.
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 coo1 bul11 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1	0.5 0.0156 0.0004 0.5 0.0004 0.0004 0.0001 0.0137 0.2479 0.0109 0.0125 0.088 0.0883 0.0088 0.0609 0.0888 0.0609 0.0166 0.2678 0.0195		4.4 2 1.5 2.9 4.8 5.4 0.3 2.9 2.329 3.996 2.200 2.279 2.077 3.2 1.6 3.188 2.077 2.885 4.097 2.435 3.968 1.913 2.531	270 170 -180 350 300 470 250 380 116.2 240 113 112.5 97.5 220 -110 180 97.5 157.5 247.5 133.4 252 142.2 131.2

Lithology Name	Heat Capacity (kJ/m^3*deg C)	Heat Capacity Correction
epsil mutt1 pat1 nam14 eyr14	2447. 2512. 2402. 2460 2742.	0 0 0

	win14 mac14 all14 coo14 bul114 cad14 mur14 mck14 namu14 west14 ador14 bir14 hut14 pool14 rose14 cose14 epsi14 mutt14 pat14		2564. 2600 2496. 2770 2210 2700 2558. 2725 2754 2650. 2794 2547. 2800 2592. 2552. 2234 2468 2512. 2427. 2512. 2516.			
Lithology	Fluid Flow Lithology Name		Initial Porosity B	A	B (1/Pa)	Fraction A
	Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 coo1 bul11 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1 nam14 eyr14 win14 mac14 all14 coo14 bul114 cad14	0.0000 0.5500 0.6000 0.6000 0.6000 0.9000 0.9000 0.5625 0.5625 0.55625 0.55625 0.55625 0.55625 0.55625 0.55625	0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.4500	-0.800 -0.800	1.350000e-08 0.000000e+00 0.000000e+00 0.000000e+00 1.350000e-08	0.000 1.000 1.000 1.000 0.000 0.000 0.000 0.820 0.160 0.855 0.840 0.920 0.500 1.000 0.120 0.760 0.180 0.740 0.830 0.860 0.740 0.830 0.900 1.000 0.900 1.000 0.900 0.760 0.900 0.900 0.900 0.900 0.900 0.900 0.900 0.900 0.900 0.900 0.900 0.900 0.900 0.900 0.900 0.900 0.900 0.900 0.900 0.760 0.900

```
0.5625
      mur14
                                                                           0.500
      mck14
                                                                           0.160
     namu14
               0.520
     west14
               0.040
     ador14
               0.660
      bir14
      hut14 0.0000 0.4500 0.0000 1.350000e-08
                                                                           0.000
     pool14 0.6000 0.4500 -0.800 1.350000e-08
                                                                           0.450
    napp14 0.5625 0.4500 -0.800 1.350000e-08
                                                                           0.860
    too14 0.7008 0.4500 -0.800 1.350000e-08 0.610 dara14 0.6000 0.4500 -0.800 1.350000e-08 0.720 rose14 0.5625 0.0000 -0.800 0.000000e+00 1.000 epsi14 0.5625 0.0000 -0.800 1.350000e-08 0.860 mutt14 0.5625 0.0000 -0.800 0.000000e+00 1.000 pat14 0.5931 0.4500 -0.800 1.350000e-08 0.660
                       Initial Permeability
Lithology
       Name Permeability Power
         (milliDarcys)
Sandstone 2.786221e+04 5.500
Siltstone 1.013171e-01 5.500
Shale 1.013171e-01 5.500
Limestone 2.786221e+04 5.500
Dolomite 2.786221e+04 5.500
Evaporite 1.013171e-08 5.500
Coal 1.013171e-01 5.500
                                       5.500
5.500
5.500
5.500
5.500
5.500
5.500
5.500
5.500
5.500
5.500
5.500
5.500
5.500
   Igneous 1.013171e-08
       nam1 9.655232e-01
        eyr1 3.755972e+03
     eyr1 3.755972e+03
win1 6.228538e-01
mac1 7.515815e-01
all1 2.759494e-01
coo1 5.313115e+01
bull1 1.013171e-01
cad1 6.825522e+01
mur1 2.759494e-01
mck1 1.518504e+01
namu1 6.198629e+03
bir1 2.047023e+00
hut1 2.923719e+03
pool1 5.850452e-01
                                             5.500
                                             5.500
                                           5.500
5.500
5.500
5.500
5.500
      pool1 5.850452e-01
      napp1 2.629719e+00
       too1 8.518624e-01
      dara1 4.017996e-01
      rose1 1.013171e-01
                                            5.500
      epsi1 3.544999e-01
                                            5.500
      mutt1 1.013171e-01
                                            5.500
5.500
5.500
5.500
       pat1 7.515815e-01
      nam14 1.240365e+00
eyr14 2.275878e+03
win14 2.047023e+00
mac14 1.518504e+01
all14 1.696417e+00
cool4 2.275878e+03
                                             5.500
                                             5.500
                                             5.500
     bull14 1.013171e-01
                                             5.500
       cad14 6.504527e+02
                                             5.500
      mur14 7.515815e-01
                                             5.500
      mck14 5.313115e+01
                                              5.500
     namu14 3.755972e+03
                                              5.500
     west14 4.135829e+01
                                              5.500
                                              5.500
     ador14 1.688271e+04
      bir14 7.162357e+00
hut14 2.786221e+04
                                              5.500
                                              5.500
```

0.840

```
pool14 9.938385e+01
                                                     5.500
                  napp14 5.850452e-01
too14 1.339746e+01
dara14 3.378283e+00
rose14 1.013171e-01
epsi14 5.850452e-01
mutt14 1.013171e-01
                                                     5.500
                                                     5.500
                                                     5.500
                                                     5.500
                                                     5.500
                                                     5.500
                   pat14 7.162357e+00
                                                     5.500
Geothermal Gradient Table
   Time Depth 1
   (Ma)
         (m)
       0 0
Maturity conversion method: Table
TTI = 4.191876 + 1.817512 * log10(Ro)
Data fit: Least Squares
Model Units
                             Depth = (m)
                          Distance = (m)
          Thermal Conductivity = (W/m*deg C)
Heat Capacity = (kJ/m^3*deg C)
Heat Flow = (mW/m^2)
                 Temperature = (deg C)
Heat Generation = (muW/m^3)
                          Gradient = (\text{deg C/100 m})
              Activation Energy = (kcal/mole)
               Frequency Factor = (1/my)
HC Density = (g/cm<sup>3</sup>)
                          Pressure = (MPa)
                       Grain Size = (mm)
               Seismic Velocity = (m/s)
                       Event Time = (msec)
                         Maturity = (%Ro)
                   HC Generation = (mg/g TOC)
Calculation Options
                       Compaction = Sclater & Christie
         Porosity Depth Method = Linear
     Permeability Calculation = Modified Kozeny-Carman
Geothermal Calculation = Gradient
         Maturity Calculation = LLNL
Expulsion Calculation = None
                   Time Interval = 1.00
                  Depth Interval = 1000.00
                Integrate Depth = No
Advanced Options
             TTI Reference Temp = 105.00
              TTI Doubling Temp = 10.00
          Rock-Eval Correction = 35.00
                    Thermal Gain = 1.000
Critical Fracturing Fraction = 0.850
         Fracture Closure Rate = 0.050
     Conductivity Calculation = Deming/Chapman
                       Initial S1 = 3.00
Rifting HF Options
        Use Rifting Heat Flow = No
                Start Rift Time = 0.00
                   End Rift Time = 0.00
                 Auto-Calc Beta = No
```

Rifting Heat Flow Beta = 2.00

Present Day Info

Model Name = BULYEROO-1

Model Description =
Current Surface Temp = 20.00
Current Elevation = 0.00
Current Heat Flow = 63.00

Seismic Parameters

Shot Point = 0

X = 0.00000000Y = 0.00000000 BasinMod Data Report

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Mr. Peter Tingate Version: 4.20

Model Name: BULYEROO-1 EROSION File Name: BULYEROO-1 EROSION.mod

Date: Feb 5, 1996 Time: 12:16 pm

Ŧ					•
Stratigraphy Tab				_	
Formation			Well Top		Missing
Or Erront Name		Age (Ma)	(m)	Thick (m)	Thick (m)
Event Name		(Ma)	(111)	(111)	(111)
QT/T	म	3.3	0	55	
EROSION-1		4.3	O	33	-54
MISSING SEC-1		5.3			54
NAMBA FM.	F	29.3	55	21	J.
EROSION-2	Ē	34			-28
		3 4 38	•		28
MISSING SEC-2 EYRE FM.	F	60	76	77	
EROSION-3	E	75			-230
		90			230
WINTON FM.	F	97.5	153	808	
MACKUNDA FM.		100	961	82	
MACKUNDA FM. ALLARU/OOD	F	105.5	1043	289	
COORIKIANA Sst.	Ŧ	108	1332	17	
BULLDOG SHALE	F	117.5			
CADNA-OWIE FM.	F	135.5	1712		
MURTA FM.	F	135.5 141.5 145	1801	55	
MCKINLAY Mbr. NAMUR Sst.	F	145 151	1856	10	
NAMUR Sst.	F	151	1866	62	
WESTBOURNE FM.		159		81	
ADORI FM.	F,	165	2009		
BIRKHEAD FM.	E To	175 188 193	2096	86 56	
HUTTON Sst. POOLOWANNA FM.	F	193	2182 2238	84	
EROSION-4	r r	213	2230	04	-108
MISSING SEC-4	ر ت	236.5			108
NAPPAMERRI GP.		249	2322	397	200
TOOLACHEE FM.		253.5	2719	95	
EROSION-5	Ē	254.5	2725	23	-75
EROSION-5 MISSING SEC-5	D	256			75
DARALINGIE FM.	F	258.5	2814	101	
ROSENEATH SHALE		261.5	2915		
EPSILON FM.		263.5	2975	122	
MURTEREE SHAle		264.5	3097	70	
PATCHAWARRA FM.		274	3167	321	
				_	
Formation	Type		Litho:	logy Litl	
or				Pat	5
Event Name					
					-
QT/T	F		Sandst	cone	
EROSION-1	E		Canda	tono	
MISSING SEC-1 NAMBA FM.	D F		Sandsi		L
EROSION-2	r E	-	110	am14 .	L
MISSING SEC-2	D		Sands	tone	
EYRE FM.	F			yr14	
EROSION-3	E		<u> </u>	<i>_</i>	
MISSING SEC-3	D		Sands	tone	
HIDDING DIC 3	2		Jana		

WINTON FM	. F	win14
MACKUNDA FM	. F	mac14
ALLARU/OOD.	. F	all14
COORIKIANA Sst		CO014
BULLDOG SHAL		bull14
CADNA-OWIE FM		cad14
MURTA FM		mur14
CKINLAY Mbr	. F	mck14
NAMUR Sst	. F	namu14
WESTBOURNE FM		west14
ADORI FM	. F	ador14
BIRKHEAD FM	. F	bir14
HUTTON Sst	. F	hut14
POOLOWANNA FM	. F	pool14
EROSION-	Ł E	-
MISSING SEC-4	<u>L</u> D	Sandstone
NAPPAMERRI GP	. F	napp14
TOOLACHEE FM	. F	t0014
EROSION-	5 E	
MISSING SEC-	5 D	Sandstone
DARALINGIE FM	. F	dara14
ROSENEATH SHALL	F	rose14
EPSILON FM	F	epsi14
MURTEREE SHALE	e F	mutt14
PATCHAWARRA FM	. F	pat14
		-
Lithology Mixes	Table	
Litho	ology	ે
	Name Sandsto	ne Siltstone

Lithology Mixes Tabl	.e	9
----------------------	----	---

Lithology	왕	앙	왕	왕	Total
Name	Sandstone	Siltstone	Shale	Kerogen	왕
Sandstone	100				100.0
nam14	20	40	40		100.0
eyr14	80	15	5		100.0
win14	24	56	19	1	100.0
mac14	40	40	20	_	100.0
all14	22.5	43.5	34		100.0
coo14	80	20			100.0
bull14		20	80		100.0
cad14	70	20	10		100.0
mur14	16	63	21		100.0
mck14	50	50			100.0
namu14	84	12	4		100.0
west14	48	39	13		100.0
ador14	96	4			100.0
bir14	34	46.5	15.5	4	100.0
hut14	100				100.0
pool14	55	30	10	5	
napp14	14	64.5	21.5		100.0
_too14	39	27	9	25	100.0
dara14	28	48	16	8	100.0
rose14		75	25		100.0
epsi14	14	58.5	19.5	8	100.0
mutt14		75	25	_	100.0
pat14	34	45	15	6	100.0

Lithology Values Table Lithology Initial

			Factor (SC)	
Sandstone Siltstone Shale Limestone Dolomite	0.45 0.55 0.6 0.6	1.75 2.2 2.4 1.5	0.27 0.41 0.51 0.22 0.22	2.64 2.64 2.6 2.72 2.85

Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 coo1 bul11 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1 nam14 eyr14 win14 mac14 all14 coo14 bul114 cad14 mur14 mck14 namu14 too14 bir14 hut14 pool14 napp14 too14 dara14 rose14 epsi14 mutt14 pat14 Lithology	0.50 0.45 0.53 0.45 0.51 0.54 0.60 0.55 0.56 0.57 0.56 0.54 Grain Size	0 3.5 0 2.16 1.83 2.20 2.17 2.21 1.97 2.36 9 2.21 2.05 1.81 2.12 2.45 2.25 2.27 2.25 2.29 2.19 1.84 2.36 2.12 2.14 2.06 2.16 1.84 2.30 2.17 1.97 1.83 2.17 1.97 1.83 2.17 1.97 1.83 2.17 1.97 1.83 2.17 1.97 1.83 2.18 2.19 1.76 2.17 1.97 1.83 2.18 2.19 1.76 2.11 2.25 2.25 2.15 Matrix Condu	0 . 7 0 . 40 9 0 . 40 9 0 . 41 0 . 42 4 9 4 2 6 8 0 . 42 4 9 0 . 42 4 9 0 . 42 4 9 0 . 42 4 9 0 . 42 8 0 . 42 8 0 . 42 8 0 . 42 8 0 . 42 8 0 . 42 8 0 . 42 8 0 . 42 8 0 . 42 8 0 . 42 8 0 . 43 8 0 . 43 9 0 . 44 1 3 3 0 . 43 9 0 . 44 3 1 0 . 43 1 0	2.15 1.6318 2.6338 2.63300 2.63300 2.63300 2.63300 2.63300 2.63300 2.63300 2.63300 2.6
Name	(mm)	(W/m	n*deg C) Co	
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1	0.5 0.5 0.0004 0.0004 0.0001		4.4 2 1.5 2.9 4.8 5.4 0.3 2.9 2.329 3.996 2.200 2.279 2.077	270 170 -180 350 300 470 250 380 116.2 240 113 112.5 97.5

cool bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 tool dara1 rose1 epsi1 mutt1 pat1 nam14 eyr14 win14 mac14 all14 cool4 bull14 cad14 mur14 mck14 namu14 west14 ador14 bir14	0.0883 0.0008 0.0609 0.0088 0.0360 0.2954 0.0166 0.2678 0.0066 0.0195 0.0069 0.0070 0.0062 0.0082 0.0062 0.0095 0.0072 0.2080 0.0172 0.2080 0.0172 0.0300 0.0172 0.0300 0.0172 0.0300 0.0097	3.2 1.6 3.188 2.077 2.885 4.097 2.435 3.968 1.913 2.531 1.942 1.948 1.875 2.033 1.875 2.121 2.28 3.895 2.464 2.86 2.37 3.92 1.6 3.63 2.279 3.94 3.96 3.96 3.96 3.97 4.304 2.670	220 -110 180 97.5 157.5 247.5 133.4 252 142.2 131.2 152.9 124.9 82.5 111.3 82.5 129.2 50 232.5 128.3 140 73.5 250 -110 205 112.5 220 240 172.5 152.9
			266
bir14 hut14	0.0248 0.5	2.670 4.4	152.9 270
pool14	0.0606	3.185	194
napp14	0.0115	2.228	108.7
t0014	0.0173	2.466	197.5
dara14	0.0170	2.456	148.4
rose14	0.0062	1.875	82.5
epsi14	0.0092	2.102	122.1
mutt14	0.0062	1.875	82.5
pat14	0.0234	2.639	156.3
ithology	Hoot Connaity	Jost Canadity	

	Heat Capacity (kJ/m^3*deg C)	
bull1 cad1 mur1 mck1 namu1 bir1 hut1	2210 2662 2535. 2627. 2765. 2536 2773	0 0 0 0 0 0

pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1 nam14 eyr14 win14 mac14 all14 coo14 bull14 cad14 mur14 mck14 namu14 west14 ador14 bir14 hut14 pool14 napp14 too14 dara14 rose14 epsi14 mutt14 pat14		2240. 2587. 2202 2341 2512. 2447. 2512. 2402. 2460 2742. 2564. 2600 2496. 2770 2210 2700 2558. 2725 2754 2650. 2794 2547. 2800 2592. 2512. 2427. 2512. 2516.			
Lithology Fluid Flow Lithology Name	Table Initial Porosity A	Initial Porosity B	A	B (1/Pa)	Fraction A
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 cool bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1	0.0000 0.5500 0.6000 0.6000 0.6000 0.0000 0.9000 0.5625	0.0000 0.0000 0.0000 0.0000	-0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800	1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08 0.000000e+00 1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08	0.000 1.000 1.000 1.000 0.000 0.000 0.820 0.160 0.855 0.840 0.920 0.500 1.000 0.480 0.920 0.600 0.120 0.760 0.180 0.740 0.830 0.890 1.000 0.890

mutt1	0.5625	0.0000	-0.800	0.000000e+00	1.000
pat1	0.6026	0.4500	-0.800	1.350000e-08	0.840
nam14					
	0.5750	0.4500	-0.800	1.350000e-08	0.800
eyr14	0.5625	0.4500	-0.800	1.350000e-08	0.200
win14	0.5671	0.4500	-0.800	1.350000e-08	0.760
mac14	0.5666	0.4500	-0.800	1.350000e-08	0.600
all14	0.5719	0.4500	-0.800	1.350000e-08	0.775
coo14	0.5500	0.4500	-0.800	1.350000e-08	0.200
bull14	0.5900	0.0000	-0.800	0.000000e+00	1.000
cad14	0.5666	0.4500	-0.800	1.350000e-08	0.300
mur14	0.5625	0.4500	-0.800	1.350000e-08	0.840
mck14	0.5500	0.4500	-0.800	1.350000e-08	0.500
namu14	0.5625	0.4500	-0.800	1.350000e-08	0.160
west14	0.5625	0.4500	-0.800	1.350000e-08	0.520
ador14	0.5500	0.4500	-0.800	1.350000e-08	0.040
bir14	0.5829	0.4500	-0.800	1.350000e-08	0.660
hut14	0.0000	0.4500	0.0000	1.350000e-08	0.000
pool14	0.6000	0.4500	-0.800	1.350000e-08	0.450
napp14	0.5625	0.4500	-0.800	1.350000e-08	0.860
t0014	0.7008	0.4500	-0.800	1.350000e-08	0.610
dara14	0.6000	0.4500	-0.800	1.350000e-08	0.720
rose14	0.5625	0.0000	-0.800	0.000000e+00	1.000
epsi14	0.5938	0.4500	-0.800	1.350000e-08	0.860
mutt14	0.5625	0.0000	-0.800	0.000000e+00	1.000
pat14	0.5931	0.4500	-0.800	1.350000e-08	0.660
Pacta	0.000	0	5.000	1.3333300	0.000

pacit	0.555 0.9	±300 0.000 ±.
Lithology Name	Initial Permeability (milliDarcys)	Permeability Power
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 cool bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 tool dara1 rose1 epsi1 mutt1 pat1 nam14 eyr14 win14 mac14 all14	2.786221e+04 1.013171e-01 2.786221e+04 2.786221e+04 1.013171e-08 1.013171e-08 1.013171e-08 9.655232e-01 3.755972e+03 6.228538e-01 7.515815e-01 2.759494e-01 5.313115e+01 1.013171e-01 6.825522e+01 2.759494e-01 1.518504e+01 6.198629e+03 2.047023e+00 2.923719e+03 5.850452e-01 2.629719e+00 8.518624e-01 4.017996e-01 1.013171e-01 3.544999e-01 1.013171e-01 3.544999e-01 1.013171e-01 7.515815e-01 1.240365e+00 2.275878e+03 2.047023e+00 1.518504e+01 1.696417e+00	5.5000 5.5000 5.55000 5.5555555555555

```
      cool4
      2.275878e+03
      5.500

      bull14
      1.013171e-01
      5.500

      cad14
      6.504527e+02
      5.500

                                                                   5.500
                       mur14 7.515815e-01
mck14 5.313115e+01
namu14 3.755972e+03
                                                                    5.500
                                                                    5.500
                                                                    5.500
                       west14 4.135829e+01
                                                                    5.500
                       ador14 1.688271e+04
bir14 7.162357e+00
                                                                    5.500
                       bir14 7.162357e+00 5.500
hut14 2.786221e+04 5.500
pool14 9.938385e+01 5.500
napp14 5.850452e-01 5.500
too14 1.339746e+01 5.500
dara14 3.378283e+00 5.500
rose14 1.013171e-01 5.500
epsi14 5.850452e-01 5.500
mutt14 1.013171e-01 5.500
pat14 7.162357e+00 5.500
Geothermal Gradient Table
   Time Depth 1
(Ma) (m)
Maturity conversion method: Table TTI = 4.191876 + 1.817512 * log10(Ro)
Data fit: Least Squares
                                  Depth = (m)
                                 Distance = (m)
             Thermal Conductivity = (W/m*deg C)
                         Heat Capacity = (kJ/m^3*deg C)
                                Heat Flow = (mW/m^2)
                            Temperature = (deg C)
                      Heat Generation = (muW/m^3)
                                 Gradient = (deg C/100 m)
                  Activation Energy = (kcal/mole)
Frequency Factor = (1/my)
HC Density = (g/cm^3)
Pressure = (MPa)
                              Grain Size = (mm)
                    Seismic Velocity = (m/s)
Event Time = (msec)
                         Maturity = (%Ro)
HC Generation = (mg/g TOC)
Calculation Options
                              Compaction = Sclater & Christie
            Porosity Depth Method = Linear
       Permeability Calculation = Modified Kozeny-Carman
Geothermal Calculation = Gradient
             Maturity Calculation = LLNL
            Expulsion Calculation = None
                         Time Interval = 1.00
                       Depth Interval = 1000.00
                      Integrate Depth = No
Advanced Options
                 TTI Reference Temp = 105.00
TTI Doubling Temp = 10.00
             Rock-Eval Correction = 35.00
                           Thermal Gain = 1.000
```

0

Model Units

Critical Fracturing Fraction = 0.850 Fracture Closure Rate = 0.050

Conductivity Calculation = Deming/Chapman

Initial S1 = 3.00

Rifting HF Options

Use Rifting Heat Flow = No

Start Rift Time = 0.00

End Rift Time = 0.00

Auto-Calc Beta = No

Rifting Heat Flow Beta = 2.00

Present Day Info

Model Name = BULYEROO-1 EROSION

Model Description =

Current Surface Temp = 20.00 Current Elevation = 0.00

Current Heat Flow = 63.00

Seismic Parameters

BasinMod Data Report

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Mr. Peter Tingate
Version: 4.20

Model Name: CUTTAPIRRIE-1 File Name: CUTTAPIRRIE-1.mod

Date: Feb 5, 1996 Time: 12:17 pm

+				+	
Stratigraphy Tab: Formation or	Type	Begin Age	Well Top	Present Thick	Lithology
or Event Name		(Ma)	(m)	(m)	
QT/T HIATUS-1 NAMBA FM. HIATUS-2	F H	3.3	0	54	Sandstone
NAMBA FM. HIATUS-2	F H	29.3 38	54	97	nam13
EYRE FM. HIATUS-3 WINTON FM. MACKUNDA FM. ALLARU/OOD TOOLEBUC FM.	ਜ਼	60	1 🗆 1	<i>C</i> 1	eyr13
WINTON FM.	F	97.5	212	878	win13
MACKUNDA FM.	F	100	1090	117	mac13
ALLARU/OOD	F	101	1207	175	all13
TOOLEBUC FM.	F	102.5	1382	18	tool13
WALLUMBILLA FM.	H.	11/.5	1400	356	wall13
CADNA-OWIE FM.	F	135.5	1756	73	cad13
MURTA FM. MCKINLAY Mbr. NAMUR Sst. WESTBOURNE FM.	F	141.5	1829	49	mur13
MCKINLAY Mbr.	F.	145	1878 1881	.5	mck13
NAMUR Sst.	F.	151	1881		namu13
WESTBOURNE FM.	E.	159	1942		. west13
ADORI Sst.	F	165 175	2071		ador13
BIRKHEAD FM.		100	2083	115 204	bir13 hut13
DOOLOWANIA EM	r F	102	2402	20 4 74	pool13
HTATITE 4	H.	236 5	2402	74	pooris
HUTTON Sst. POOLOWANNA FM. HIATUS-4 NAPPAMERRI GP.	표	230.3	2476	281	napp13
.1.(1(.)1.72(.)H P. P. H.IAI	ъ.	7545	7767	34	too13
HIATUS-5	H	264.5	2,3,		50013
PATCHAWARRA FM.	F	274	2791	120	pat13
TIRRAWARRA Sst.	F	280	2911	20	tir13
HIATUS-5 PATCHAWARRA FM. TIRRAWARRA Sst. MERRIMELIA FM.	F	285.5	2931	55	merr13
Formation or		Lith Pat			
Event Name		240			
QT/T	F				
HIATUS-1	H				
NAMBA FM.	F	1			
HIATUS-2	H				
EYRE FM.	F				
HIATUS-3	H			•	
WINTON FM.	F				
MACKUNDA FM.	F				
ALLARU/OOD	F				
TOOLEBUC FM.	F				
WALLUMBILLA FM.	F				
NA-OWIE FM.	F				
MURTA FM.	F				
McKINLAY Mbr.	F				
NAMUR Sst. WESTBOURNE FM.	F F				

ADORI SST BIRKHEAD FM HUTTON SST POOLOWANNA FM HIATUS-4 NAPPAMERRI GP TOOLACHEE FM HIATUS-5 PATCHAWARRA FM TIRRAWARRA SST MERRIMELIA FM	. FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF				
	ology	stone	Siltstone		% Limestone
Sands r e v n a to we a to h p o n t	stone lam13 eyr13 vin13 mac13 all13 col13 all13 cad13 mur13 ack13 amu13 est13 dor13 olir13 nut13 col13 app13 cool13	100 25 75 22 18 20 50 84 32 100 30 100 60 44 13 30 44 50	3! 20 3! 50 50 20 21 60 51 51 46 .!	5 40 5 37 30 30 30 80 80 80 1 7 20 2 4 17 5 15.5 8 10 14 18 12.5 14	
Litho		% T ogen	otal %		
m na we act h	stone nam13 syr13 vin13 nac13 all13 col13 all13 cad13 mur13 nck13 amu13 cst13 dor13 dor13 dor13 cir13 dor13	1 2 1 1 1 1 1 1 8 1 1 2 1 1 1 5 1 2 1 1 2 1 1 1 1 1 1 1 1	00.0 00.0 00.0 00.0 00.0 00.0 00.0 00.0 00.0 00.0 00.0 00.0 00.0 00.0 00.0 00.0		

Lithology	Values Tabl Lithology Name	Initial	Compaction Factor (FM)	Exponential Factor (SC)	Density
	Sandstone	0.45	1.75	0.27	2.64
	Siltstone	0.55	2.2	0.41	2.64
	Shale	0.6	2.4	0.51	2.6
	Limestone	0.6	1.5	0.22	2.72
	Dolomite	0.6	1.5	0.22	2.85
	Evaporite	0	0	0	2.15
	Coal	0.9	3.5	0.7	1.8
	Igneous	0	0	0	2.65
	nam1	0.54	2.16	0.40	2.631
	eyr1	0.46	1.83	0.29	2.638
	win1	0.55	2.20	0.41	2.610
	mac1	0.54	2.17	0.40	2.631
	all1	0.55	2.21	0.42	2.630
	cool	0.5	1.97	0.34	2.64
	bull1	0.59	2.36	0.49	2.608
	cad1	0.50	1.99	0.34	2.635
	mur1	0.55	2.21	0.42	2.630
	mck1	0.51	2.05	0.36	2.634
	namu1	0.46	1.81	0.28	2.638
	bir1	0.54	2.16	0.40	2.607
	hut1	0.46	1.83	0.29	2.64
	pool1	0.61	2.43	0.46	2.465
	napp1	0.53	2.12	0.39	2.632
	too1	0.62	2.45	0.46	2.440
	daral	0.59	2.35	0.45	2.523
	rose1	0.56	2.25	0.43	2.63
	epsi1	0.57	2.27	0.43	2.581
_	mutt1	0.56	2.25	0.43	2.63
	pat1	0.57	2.29	0.43	2.548
	nam13	0.54	2.16	0.41	2.624
	eyr13	0.47	1.87	0.31	2.638
	win13	0.55	2.17	0.41	2.611
	mac13	0.54	2.16	0.41	2.629
	all13	0.54	2.17	0.41	2.628
	tool13	0.59	2.36	0.49	2.608
	wall13	0.59	2.36	0.49	2.608
	cad13	0.48	1.89	0.31	2.637
	mur13	0.54	2.15	0.40	2.632
	mck13	0.5	1.97	0.34	2.64
	namu13	0.46	1.83	0.29	2.638
	west13	0.52	2.09	0.38	2.633
	ador13	0.45	1.75	0.27	2.64
	bir13	0.55	2.2	0.40	2.566
	hut13	0.45	1.75	0.27	2.64
	pool13	0.50	1.97	0.34	2.619
	napp13	0.51	2.03	0.36	2.634
	t0013	0.59	2.37	0.45	2.506
	pat13	0.59	2.35	0.43	2.467
	tir13	0.51	2.03	0.36	2.634
	merr13	0.50	2.00	0.35	2.634
	Lithology Name	Grain Siz		nductivity Ma V/m*deg C)	
	Sandstone			4.4	270
	Siltstone	0.015	6	2	170
	Shale			1.5	-180
	Limestone			2.9	350
	Dolomite	0.	5	4.8	300

Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 cool bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1 nam13 eyr13 win13 mac13 all13 tool13 vall13 cad13 mur13 mck13 namu13 mck13 namu13 tool13	0.0004 0.0004 0.0001 0.0137 0.2479 0.0109 0.0125 0.0088 0.0088 0.00609 0.00609 0.0360 0.2954 0.0166 0.2678 0.0069 0.0062 0.0062 0.0062 0.0062 0.0095 0.0095 0.0095 0.0103 0.0103 0.0103 0.0103 0.0103 0.01465 0.0149 0.0253 0.0149 0.0253 0.0186 0.0429 0.0429 0.0134 0.0429	5.4 0.3 2.9 2.329 3.296 2.277 3.6 3.188 2.077 2.885 4.097 2.885 4.097 2.435 3.968 1.942 1.948 1.875 2.033 1.875 2.345 2.345 2.345 2.345 2.345 2.345 2.345 2.345 2.345 2.345 2.345 2.345 2.345 2.345 2.345 2.345 2.345 2.336 3.693 2.386 3.966 3.967 2.386 2.986 2.986 2.986 2.986 2.986	470 250 380 116.2 240 113 112.5 97.5 220 -110 97.5 157.5 247.5 133.4 252 142.2 131.2 152.9 124.9 82.5 111.3 82.5 129.2 227.5 71.3 86.6 85 -110 217.5 120 240 142.5 120 240 142.5 120 217.5 120 120 120 120 120 120 120 120
tir13 merr13	0.0429 0.0509	2.986 3.125	165 167.5
Lithology	Heat Capacity		20110
Name	(kJ/m^3*deg C)	Correction	
Sandstone	2800	0	
Siltstone Shale	2650 2100	0	

	Heat Capacity (kJ/m^3*deg C)	
Sandstone Siltstone Shale	2800 2650 2100	0
Limestone Dolomite	2600 2600 2600	0 0 0
Evaporite Coal	1750 950	0
Igneous nam1	2500 2564.	0
eyr1 win1 mac1	2754 2513. 2558.	0 0 0
all1 coo1	2535. 2725	0
bull1	2210	0

cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1 nam13 eyr13 win13 mac13 all13 too113 wall13 cad13 mur13 mck13 namu13 west13 ador13 bir13 hut13 pool13 napp13 too13 pat13 tir13 merr13		2662 2535. 2627. 2765. 2536 2773 2240. 2587. 2202 2341 2512. 2447. 2512. 2447. 2512. 2447. 2512. 2420. 2451. 2515. 2210 2210 2719. 2570 2725 2754 2604. 2800 2473. 2639 2639 2642.			
Lithology Fluid Flow Lithology Name		Initial Porosity B	A	B (1/Pa)	Fraction A
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 cool bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1	0.5500 0.6000 0.6000	0.0000 0.0000 0.0000 0.0000 0.0000 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500	-0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800	1.350000e-08 0.000000e+00 0.000000e+00 0.000000e+00 1.350000e-08 0.000000e-08 1.350000e-08	0.000 1.000 1.000 1.000 0.000 0.000 0.820 0.160 0.855 0.840 0.920 0.500 1.000 0.480 0.920 0.600 0.120 0.760 0.180 0.860 0.740

tool	0.6560	0.4500	-0.800	1.350000e-08	0.830
dara1	0.6117	0.4500	-0.800	1.350000e-08	0.890
rose1	0.5625	0.0000	-0.800	0.000000e+00	1.000
epsi1	0.5850	0.4500	-0.800	1.350000e-08	0.900
mutt1	0.5625	0.0000	-0.800	0.000000e+00	1.000
pat1	0.6026	0.4500	-0.800	1.350000e-08	0.840
nam13	0.5766	0.4500	-0.800	1.350000e-08	0.750
eyr13	0.5600	0.4500	-0.800	1.350000e-08	0.250
win13	0.5852	0.4500	-0.800	1.350000e-08	0.780
mac13	0.5695	0.4500	-0.800	1.350000e-08	0.820
all13	0.5687	0.4500	-0.800	1.350000e-08	0.800
tool13	0.5900	0.0000	-0.800	0.000000e+00	1.000
wall13	0.5900	0.0000	-0.800	0.000000e+00	1.000
cad13	0.5625	0.4500	-0.800	1.350000e-08	0.280
mur13	0.5625	0.4500	-0.800	1.350000e-08	0.800
mck13	0.5500	0.4500	-0.800	1.350000e-08	0.500
namu13	0.5625	0.4500	-0.800	1.350000e-08	0.160
west13	0.5625	0.4500	-0.800	1.350000e-08	0.680
ador13	0.0000	0.4500	0.0000	1.350000e-08	0.000
bir13	0.6010	0.4500	-0.800	1.350000e-08	0.700
hut13	0.0000	0.4500	0.0000	1.350000e-08	0.000
pool13	0.5800	0.4500	-0.800	1.350000e-08	0.400
napp13	0.5625	0.4500	-0.800	1.350000e-08	0.560
t0013	0.6206	0.4500	-0.800	1.350000e-08	0.870
pat13	0.6589	0.4500	-0.800	1.350000e-08	0.700
tir13	0.5625	0.4500	-0.800	1.350000e-08	0.560
merr13	0.5650	0.4500	-0.800	1.350000e-08	0.500

Lithology Name	Initial Permeability (milliDarcys)	Permeability Power
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 coo1 bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1 nam13 eyr13 win13	1.013171e-01 1.013171e-08 9.655232e-01 3.755972e+03 6.228538e-01 7.515815e-01 2.759494e-01 5.313115e+01 1.013171e-01 6.825522e+01 2.759494e-01 1.518504e+01 6.198629e+03 2.047023e+00 2.923719e+03 5.850452e-01 2.629719e+00 8.518624e-01 4.017996e-01 1.013171e-01 3.544999e-01 1.013171e-01 7.515815e-01 2.320150e+00	5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.

```
mac13 1.240365e+00
all13 1.240365e+00
tool13 1.013171e-01
                                                    5.500
                                                    5.500
                                                    5.500
                 wall13 1.013171e-01
                                                   5.500
                   cad13 8.356076e+02
                                                   5.500
                  mur13 1.240365e+00
                                                   5.500
                  mck13 5.313115e+01
                                                    5.500
                 namu13 3.755972e+03
                                                   5.500
                 west13 5.575314e+00
                                                   5.500
                 ador13 2.786221e+04
                                                   5.500
                  bir13 4.339930e+00
                                                   5.500
                  hut13 2.786221e+04
                                                   5.500
                                                5.500
5.500
5.500
5.500
5.500
                 pool13 1.859013e+02
                 napp13 2.506047e+01
                  too13 5.161740e-01
                  pat13 4.339930e+00
                   tir13 2.506047e+01
                 merr13 5.313115e+01
Geothermal Gradient Table
  Time Depth 1
(Ma) (m)
Maturity conversion method: Table
TTI = 4.191876 + 1.817512 * log10(Ro)
Data fit: Least Squares
                            Depth = (m)
                         Distance = (m)
          Thermal Conductivity = (W/m*deg C)
                  Heat Capacity = (kJ/m^3*deg C)
                       Heat Flow = (mW/m^2)
                Temperature = (deg C)
Heat Generation = (muW/m^3)
                         Gradient = (\text{deg C}/100 \text{ m})
             Activation Energy = (kcal/mole)
Frequency Factor = (1/my)
HC Density = (g/cm^3)
Pressure = (MPa)
              Grain Size = (mm)

Seismic Velocity = (m/s)

Event Time = (msec)

Maturity = (%Ro)

HC Generation = (mg/g TOC)
Calculation Options
                      Compaction = Sclater & Christie
        Porosity Depth Method = Linear
     Permeability Calculation = Modified Kozeny-Carman
Geothermal Calculation = Gradient
         Maturity Calculation = LLNL
        Expulsion Calculation = None
                  Time Interval = 1.00
                 Depth Interval = 1000.00
                Integrate Depth = No
    anced Options
         TTI Reference Temp = 105.00
TTI Doubling Temp = 10.00
Rock-Eval Correction = 35.00
                   Thermal Gain = 1.000
```

0

Model Units

Critical Fracturing Fraction = 0.850

Fracture Closure Rate = 0.050 Conductivity Calculation = Deming/Chapman

Initial S1 = 3.00

Rifting HF Options

Use Rifting Heat Flow = No Start Rift Time = 0.00

End Rift Time = 0.00

Auto-Calc Beta = No

Rifting Heat Flow Beta = 2.00

Present Day Info

Model Name = CUTTAPIRRIE-1

Model Description =

Current Surface Temp = 20.00 Current Elevation = 0.00 Current Heat Flow = 63.00

Seismic Parameters

Shot Point = 0

X = 0.00000000 Y = 0.00000000

+=========+=====++

BasinMod Data Report

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Mr. Peter Tingate

Version: 4.20

Model Name: CUTTAPIRRIE-1 ERO.

File Name: CUTTAPIRRIE-1 EROSION.mod

Date: Feb 5, 1996 Time: 12:18 pm

Stratigraphy Table Formation or Event Name	Type	Begin Age (Ma)	Well Top	Present Thick (m)	Missing Thick (m)
EROSION-1 MISSING SEC-1 NAMBA FM. EROSION-2 MISSING SEC-2 EYRE FM. EROSION-3 MISSING SEC-3 WINTON FM. MACKUNDA FM. ALLARU/OOD TOOLEBUC FM. WALLUMBILLA FM. CADNA-OWIE FM. MURTA FM. MCKINLAY MDr. NAMUR SST. WESTBOURNE FM. ADORI SST. BIRKHEAD FM. HUTTON SST. BIRKHEAD FM. HUTTON SST. POOLOWANNA FM. EROSION-4 MISSING SEC-4 NAPPAMERRI GP. TOOLACHEE FM. EROSION-5 MISSING SEC-5 PATCHAWARRA FM. TIRRAWARRA SST. MERRIMELIA FM. FORMATION OR EVENT NAME	EOREORERRRRRRRRREDERED e	4.3 5.3 29.3 34 38 675 97.5 1001 102.5 135.5 141.5 1451 159 165 175 188 321.5 236.5 24.5 253.5 264.5 274 285.5	151 212 1090 1207 1382 1400 1756 1829 1878 1881 1942 2071 2083 2198 2402 2476 2757 2791 2931 Litho	97 61 878 117 175 18 356 73 49 3 61 129 12 115 204 74 281 34 120 20 55 logy Lith Pat	-19 19 -440 440 -285 285 -230 230
QT/T EROSION-1 MISSING SEC-1 NAMBA FM. EROSION-2 ESSING SEC-2 EYRE FM. EROSION-3 MISSING SEC-3 WINTON FM. MACKUNDA FM.	4 4 0 4 4 0 4 4 0 4 4		Sands e Sands w	tone am13 1 tone yr13	-

TOOLACHEE FM. EROSION-5 MISSING SEC-5 PATCHAWARRA FM. TIRRAWARRA SST. MERRIMELIA FM.	· · · · · · · · · · · · · · · · · · ·	all13 tool13 wall13 cad13 mur13 mck13 namu13 west13 ador13 bir13 hut13 pool13 Sandstone napp13 tool3 Sandstone pat13 tir13 merr13		
Lithology Mixes Table Lithology Name	ુ	% Siltstone	% Shale	% Limestone
Name Sandstone nam13 eyr13 win13 mac13 all13 tool13 wall13 cad13 mur13 mck13 namu13 west13 ador13 bir13 hut13 pool13 napp13 too13 pat13 tir13 merr13	100 25 75 22	35 20 35 50 50 20 20 21 60 50 12 51 0 46.5	Snaie 40 5 37 30 80 80 7 20 4 17 15.5 10 14 18 12.5 14 15	4 2
Lithology Name	% Kerogen	Total %		
Sandstone nam13 eyr13 win13 mac13 all13 tool13 wall13 cad13 mur13 mck13 namu13	2	100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0		

west13	100.0
ador13	100.0
bir13	8 100.0
hut13	100.0
pool13	2 100.0
napp13	100.0
too13	15 100.0
pat13	20 100.0
tir13	100.0
merr13	100.0

Lithology	Values Tabl Lithology Name	Initial	Compaction Factor (FM)	Exponential Factor (SC)	Density (g/cm^3)
	Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 coo1 bul11 cad1 mur1 ncw1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1 nam13 eyr13 win13 mac13 all13 tool13 wall13 namu13 mck13 namu13 mck13 namu13 mck13 namu13 mck13 namu13	7-1-55-66-66-09-04-65-55-56-76-76-76-76-76-76-76-76-76-76-76-76-76	1.75 2.2 2.4 1.5 1.5 0 3.5 0 2.16 1.83 2.20 2.17 2.36 1.99 2.21 2.05 1.81 2.45 2.45 2.25 2.25 2.25 2.25 2.25 2.25	0.27 0.41 0.51 0.22 0.22 0.7 0.40 0.40 0.42 0.34 0.42 0.36 0.28 0.40 0.29 0.46 0.39 0.46 0.43 0.44 0.35 0.45 0.36 0.37 0.46 0.39 0.39 0.39 0.39 0.41 0.41 0.41 0.42 0.39 0	2.64 2.64 2.72 2.85 2.85 2.631 2.631 2.633 2.634 2.633 2.644 2.633 2.644 2.633 2.644 2.644 2.644 2.644 2.644 2.654 2.664 2.664 2.664 2.664 2.664 2.664 2.664
	napp13 too13 pat13 tir13	0.51 0.59 0.59 0.51	2.03 2.37 2.35 2.03	0.36 0.45 0.43 0.36	2.634 2.506 2.467 2.634

merr13 0.50 2.00 0.35 2.634

Lithology Name	Grain Siz		Conductivity (W/m*deg C)	
Sandstone Siltstone	0.015		4.4	270 170
Shale	0.000)4	1.5	-180
Limestone	0.		2.9	350
Dolomite	0.		4.8	300
Evaporite	0.000		5.4	470
Coal	0.000		0.3	250
Igneous	0.000		2.9	380
naml	0.013		2.329	116.2
eyr1 win1	0.247 0.010		3.996	240
mac1	0.012		2.200 2.279	113 112.5
all1	0.002		2.077	97.5
cool	0.088		3.2	220
bull1	0.000		1.6	-110
cad1	0.060		3.188	180
mur1	0.008	88	2.077	97.5
mck1	0.036		2.885	157.5
namu1	0.295		4.097	247.5
birl	0.016		2.435	133.4
hut1	0.267		3.968	252
pool1	0.006		1.913	142.2
napp1	0.019		2.531	131.2
too1 dara1	0.006 0.007		1.942 1.948	152.9 124.9
rose1	0.007		1.875	82.5
epsil	0.008		2.033	111.3
mutt1	0.006		1.875	82.5
pat1	0.009		2.121	129.2
nam13	0.008		2.4	55
eyr13	0.174	.9	3.775	227.5
win13	0.009		2.345	71.3
mac13	0.010		2.3	86.6
all13	0.010		2.33	85
tool13 wall13	0.000		1.6 1.6	-110 -110
cad13	0.146		3.693	217.5
mur13	0.014		2.38	120
mck13	0.088		3.2	220
namu13	0.247		3.996	240
west13	0.025		2.683	142.5
ador13	0.		4.4	270
bir13	0.018		2.506	152.1
hut13	0.		4.4	270
pool13 napp13	0.080 0.042		3.356 2.986	196.6 165
too13	0.042		1.967	132
pat13	0.013		2.317	172.2
tir13	0.042		2.986	165
merr13	0.050	9	3.125	167.5
		_		
	Heat Cap (kJ/m^3*d		t Capacity Correction	
Sandstone		2000	^	
Siltstone		2800 2650	0 0	
Shale		2100	0	
Limestone		2600	Ö	
Dolomite		2600	Ö	
			-	

Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 cool bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 tool dara1 rose1 epsi1 mutt1 pat1 nam13 eyr13 win13 mac13 all13 tool13 wall13 cad13 mur13 mck13 namu13 west13 ador13 bir13 hut13 pool13 napp13 tool3 pat13 tool3 marp13 mck13 namu13 mck13 namu13 mck13 namu13 mck13 namu13		1750 950 2500 2564. 2753. 2558. 2535. 2210 2662 2765. 22765.			
Lithology Fluid Flow Lithology Name		Initial Porosity B	А	B (1/Pa)	Fraction A
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1	0.0000 0.5500 0.6000 0.6000 0.6000 0.0000 0.9000 0.5625 0.5625 0.5625	0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.4500 0.4500 0.4500	-0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800	1.350000e-08 0.000000e+00 0.000000e+00 0.000000e+00 1.350000e-08 0.00000e+00 1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08	0.000 1.000 1.000 1.000 0.000 0.000 0.000 0.820 0.160 0.855 0.840 0.920

cool bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1	0.5500 0.5900 0.5625 0.5625 0.5625 0.5756 0.5756 0.6409	0.4500 0.0000 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500	-0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800	1.350000e-08 0.000000e+00 1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08	0.500 1.000 0.480 0.920 0.600 0.120 0.760 0.180 0.860
napp1 too1	0.5625 0.6560	0.4500 0.4500	-0.800 -0.800	1.350000e-08 1.350000e-08	0.740 0.830
dara1	0.6117	0.4500	-0.800	1.350000e-08	0.890
rosel	0.5625	0.0000	-0.800	0.000000e+00	1.000
epsi1	0.5850	0.4500	-0.800	1.350000e-08	0.900
mutt1	0.5625	0.0000	-0.800	0.000000e+00	1.000
pat1	0.6026	0.4500	-0.800	1.350000e-08	0.840
nam13	0.5766	0.4500	-0.800	1.350000e-08	0.750
eyr13	0.5600	0.4500	-0.800	1.350000e-08	0.250
win13 mac13	0.5852 0.5695	0.4500 0.4500	-0.800 -0.800	1.350000e-08 1.350000e-08	0.780 0.820
all13	0.5687	0.4500	-0.800	1.350000e-08	0.820
tool13	0.5900	0.0000	-0.800	0.000000e+00	1.000
wall13	0.5900	0.0000	-0.800	0.000000e+00	1.000
cad13	0.5625	0.4500	-0.800	1.350000e-08	0.280
mur13	0.5625	0.4500	-0.800	1.350000e-08	0.800
mck13	0.5500	0.4500	-0.800	1.350000e-08	0.500
namu13	0.5625	0.4500	-0.800	1.350000e-08	0.160
west13	0.5625	0.4500	-0.800	1.350000e-08	0.680
ador13	0.0000	0.4500	0.0000	1.350000e-08	0.000
bir13	0.6010	0.4500	-0.800	1.350000e-08	0.700
hut13 pool13	0.0000 0.5800	0.4500 0.4500	0.0000	1.350000e-08 1.350000e-08	0.000 0.400
napp13	0.5625	0.4500	-0.800	1.350000e-08	0.560
too13	0.6206	0.4500	-0.800	1.350000e-08	0.870
pat13	0.6589	0.4500	-0.800	1.350000e-08	0.700
tir13	0.5625	0.4500	-0.800	1.350000e-08	0.560
merr13	0.5650	0.4500	-0.800	1.350000e-08	0.500

Lithology Name	Initial Permeability (milliDarcys)	Permeability Power
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 coo1 bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1	6.228538e-01 7.515815e-01 2.759494e-01 5.313115e+01 1.013171e-01 6.825522e+01 2.759494e-01 1.518504e+01 6.198629e+03	5.500 5.500 5.500 5.500 5.500 5.500 5.500 5.500 5.500 5.500 5.500 5.500 5.500 5.500 5.500 5.500 5.500 5.500 5.500
-		

```
dara1 4.017996e-01
                                                 5.500
                  rose1 1.013171e-01
                                                 5.500
                                                 5.500
                  epsi1 3.544999e-01
                  mutt1 1.013171e-01
                                                 5.500
                   pat1 7.515815e-01
                                                 5.500
                  nam13 2.320150e+00
                                                 5.500
                nam13 2.320150e+00
eyr13 1.216697e+03
win13 2.629719e+00
mac13 1.240365e+00
tool13 1.013171e-01
wall13 1.013171e-01
cad13 8.356076e+02
mur13 1.240365e+00
mck13 5.313115e+01
namu13 3.755972e+03
                                                  5.500
                                                  5.500
                                                  5.500
                                                  5.500
                                                  5.500
                                                  5.500
                                                  5.500
                                                  5.500
                                                  5.500
                                                 5.500
                 west13 5.575314e+00
                                                 5.500
                 ador13 2.786221e+04
                                                 5.500
                  bir13 4.339930e+00
                                                 5.500
                  hut13 2.786221e+04
                                                 5.500
                 pool13 1.859013e+02
                                                 5.500
                 napp13 2.506047e+01
                                                 5.500
                  too13 5.161740e-01
                                                 5.500
                  pat13 4.339930e+00
                                                 5.500
                  tir13 2.506047e+01
                                                 5.500
                 merr13 5.313115e+01
                                                 5.500
Geothermal Gradient Table
  Time Depth 1
         (m)
              0
Maturity conversion method: Table
TTI = 4.191876 + 1.817512 * log10(Ro)
Data fit: Least Squares
                           Depth = (m)
                        Distance = (m)
         Thermal Conductivity = (W/m*deg C)
                  Heat Capacity = (kJ/m^3*deg C)
                       Heat Flow = (mW/m^2)
                    Temperature = (deg C)
               Heat Generation = (muW/m^3)
                       Gradient = (\text{deg C/100 m})
             Activation Energy = (kcal/mole)
Frequency Factor = (1/my)
                     HC Density = (g/cm^3)
                        Pressure = (MPa)
                     Grain Size = (mm)
              Seismic Velocity = (m/s)
                     Event Time = (msec)
                        Maturity = (%Ro)
                  HC Generation = (mg/g TOC)
Calalion Options
                     Compaction = Sclater & Christie
        Porosity Depth Method = Linear
     Permeability Calculation = Modified Kozeny-Carman
Geothermal Calculation = Gradient
         Maturity Calculation = LLNL
```

(Ma)

____ 0

Model Units

napp1 2.629719e+00

too1 8.518624e-01

5.500

5.500

Expulsion Calculation = None
 Time Interval = 1.00
 Depth Interval = 1000.00
 Integrate Depth = No

Advanced Options

TTI Reference Temp = 105.00

TTI Doubling Temp = 10.00

Rock-Eval Correction = 35.00

Thermal Gain = 1.000

Critical Fracturing Fraction = 0.850

Fracture Closure Rate = 0.050

Conductivity Calculation = Deming/Chapman

Initial S1 = 3.00

Rifting HF Options

Use Rifting Heat Flow = No
Start Rift Time = 0.00
End Rift Time = 0.00
Auto-Calc Beta = No
Rifting Heat Flow Beta = 2.00

Present Day Info

Model Name = CUTTAPIRRIE-1 ERO.

Model Description =

Current Surface Temp = 20.00 Current Elevation = 0.00 Current Heat Flow = 63.00

Seismic Parameters

Shot Point = 0

X = 0.00000000Y = 0.00000000

BasinMod Data Report

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Mr. Peter Tingate

Version: 4.20
Model Name: JENA-1
File Name: JENA-1.mod
Date: Feb 5, 1996
Time: 12:13 pm

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Stra	tigrap	hy '	Tab	le
	_			

Formation or	Туре	Begin Age	Well Top	Present Thick	Lithology
Event Name		(Ma)	(m)	(m)	
QT/T		3.3	0	18	Sandstone
HIATUS-1		5.3			
NAMBA FM.		29.3	18	103	nam12
HIATUS-2		38			
EYRE FM.	_	60	121	46	eyr12
HIATUS-3		90			
WINTON FM.		97.5	167	434	win12
MACKUNDA FM.		100	601	100	mac12
ALLARU/OOD		105.5	701	196	all12
COORIKIANA Sst.		108	897	11	coo12
BULLDOG SHALE	F	117.5	908	220	bull12
CADNA-OWIE FM.	F	135.5	1128	61	cad12
MURTA FM.	F	141.5	1189	46	mur12
McKINLAY Mbr.	F	145	1235	9	mck12
NAMUR Sst.	_	151	1244	· 62	namu12
WESTBOURNE FM.	F	165	1306	149	west12
BIRKHEAD FM.	F	175	1455	18	bir12
HUTTON Sst.	F	188	1473	98	hut12

Formation Type Lith or Pat

_ ~ ~		~
		Event Name
	F	QT/T
	H	HIATUS-1
1	F	NAMBA FM.

HIATUS-2 H
EYRE FM. F
HIATUS-3 H
WINTON FM. F
MACKUNDA FM. F

ALLARU/OOD.. F
COORIKIANA Sst. F
BULLDOG SHALE F
CADNA-OWIE FM. F

MURTA FM. F McKINLAY Mbr. F NAMUR Sst. F

WESTBOURNE FM. F BIRKHEAD FM. F HUTTON Sst. F

Lit logy Mixes Table

Lithology	앙	왕	ે	양
Name	Sandstone	Siltstone	Shale	Limestone
Sandstone	100			
nam12	30	34	34	2

eyr12 win12 mac12 all12 coo12 bull12 cad12 mur12 mck12 namu12 west12 bir12 hut12	90 11 12 50 60 2 50 92 65 44 85	60 63 22 46 50 50 20 30 4 72 50 50 22 6 55 42	20 21 42 80 10 24 2 10 14 5	
Lithology Name	% Kerogen	Total %		
Sandstone nam12 eyr12 win12 mac12 al112 coo12 bul112 cad12 mur12 mck12 namu12 vest12 bir12 hut12		100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0		
Limology Values Tabl Lithology Name	Initial	Compaction Factor (FM)	Exponential Factor (SC)	Density (g/cm^3)
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 coo1 bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1	0.45 0.55 0.6 0.6 0.0 0.54 0.554 0.555 0.5	1.75 2.2 2.4 1.5 1.5 0 3.5 0 2.16 1.83 2.20 2.17 2.21 1.97 2.36 1.99 2.21 2.05 1.81 2.16 1.83 2.43 2.43 2.45 2.25 2.27	0.27 0.41 0.51 0.22 0.22 0.7 0.40 0.29 0.41 0.40 0.42 0.34 0.49 0.34 0.42 0.36 0.28 0.40 0.29 0.46 0.39 0.46 0.43 0.43	2.64 2.64 2.72 2.85 2.15 1.8 2.631 2.631 2.631 2.630 2.635 2.630 2.635 2.635 2.630 2.635 2.630 2.635 2.632 2.632 2.632 2.632 2.632 2.633 2.632 2.633 2.632 2.633

mutt1 pat1 nam12 eyr12 win12 mac12 all12 coo12 bull12 cad12 mur12 mck12 namu12 vest12 bir12	0.57 0.53 0.46 0.54 0.55 0.55 0.59 0.49 0.55 0.45 0.49	2.25 2.29 2.11 1.79 2.18 2.17 2.23 1.97 2.36 1.95 2.23 1.97 1.79 1.92 2.03	0.43 0.43 0.39 0.28 0.41 0.40 0.43 0.34 0.34 0.32 0.34	2.63 2.548 2.628 2.64 2.615 2.631 2.623 2.64 2.636 2.630 2.64 2.639 2.636 2.636
hut12	0.46	1.82	0.29	2.638
ithology Name		Matrix Conduct	civity Mata leg C) Co	
andstone iltstone			4.4	27 17

Lithology Name	Grain Size (mm)	Matrix Conductivity (W/m*deg C)	Matrix Cond. Correction
Sandstone Siltstone		4.4	270 170
Shale	0.0004	1.5	-180
Limestone	0.5	2.9	350
Dolomite	0.5	4.8	300
Evaporite	0.0004	5.4	470
Coal	0.0004	0.3	250
Igneous	0.0001	2.9	380
nam1	0.0137	2.329	116.2
eyr1	0.2479	3.996	240
win1	0.0109	2.200	113
mac1 all1	0.0125	2.279	112.5
	0.0088	2.077	97.5
cool	0.0883	3.2	220
bull1	0.0008	1.6	-110
cad1	0.0609	3.188	180
mur1	0.0088	2.077	97.5
mck1	0.0360	2.885	157.5
namu1	0.2954	4.097	247.5
bir1	0.0166	2.435	133.4
hut1	0.2678	3.968	252
pool1	0.0066	1.913	142.2
napp1	0.0195	2.531	131.2
too1	0.0069	1.942	152.9
dara1	0.0070	1.948	124.9
rose1	0.0062	1.875	82.5
epsi1	0.0082	2.033	111.3
mutt1	0.0062	1.875	82.5
pat1	0.0095	2.121	129.2
nam12	0.0136	2.568	84.6
eyr12	0.3534	4.16	260
win12	0.0130	2.298	119.6
mac12	0.0125	2.279	112.5
all12	0.0050	2.078	35
coo12	0.0883	3.2	220
bull12	0.0008	1.6	-110
cad12	0.0866	3.39	195
mur12	0.0074	1.976	90
mck12	0.0883	3.2	220
namu12	0.3521	4.198	255
west12	0.1029	3.51	200
bir12	0.0429	2.986	165
hut12	0.2474	4.015	237.5

Lithology Name	Heat Cay	pacity He deg C)	eat Capa Correc		
Sandstone Siltstone Shale Limestone	,	2800 2650 2100 2600		0 0 0 0	
Dolomite Evaporite Coal Igneous nam1		2600 1750 950 2500 2564.		0 0 0 0 0	
eyr1 win1 mac1 all1 coo1		2754 2513. 2558. 2535. 2725		0 0 0 0	
bull1 cad1 mur1 mck1 namu1		2210 2662 2535. 2627. 2765.		0 0 0 0	
bir1 hut1 pool1 napp1 too1		2536 2773 2240. 2587. 2202		0 0 0 0	
dara1 rose1 epsi1 mutt1 pat1		2341 2512. 2447. 2512. 2402.		0 0 0 0	
nam12 eyr12 win12 mac12 all12 coo12 bull12 can12		2507 2785 2533 2558. 2437 2725 2210 2685		0 0 0 0 0 0	
mur12 mck12 namu12 west12 bir12 hut12		2524 2725 2777 2692. 2639 2750		0 0 0 0 0	
Lithology Fluid Flow Lithology Name	Table Initial Porosity A	Initial Porosity B	•	E (1/Pa)	Fraction A
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1	0.0000 0.5500 0.6000 0.6000 0.6000 0.0000 0.9000 0.5625 0.5625 0.5625	0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.4500 0.4500	-0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800	1.350000e-08 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08	1.000 1.000 1.000 0.000 0.000 0.000 0.820 0.160 0.855

all1 coo1 bull1 cad1 mur1 mck1	0.5625 0.5500 0.5900 0.5625 0.5625 0.5625	0.4500 0.4500 0.0000 0.4500 0.4500	-0.800 -0.800 -0.800 -0.800 -0.800	1.350000e-08 1.350000e-08 0.000000e+00 1.350000e-08 1.350000e-08	0.920 0.500 1.000 0.480 0.920 0.600
namu1	0.5625	0.4500	-0.800	1.350000e-08	0.120
bir1	0.5756	0.4500	-0.800	1.350000e-08	0.760
hut1	0.5500	0.4500	-0.800	1.350000e-08	0.180
pool1	0.6409	0.4500	-0.800	1.350000e-08	0.860
napp1	0.5625	0.4500	-0.800	1.350000e-08	0.740
tool	0.6560	0.4500	-0.800	1.350000e-08	0.830
dara1	0.6117	0.4500	-0.800	1.350000e-08	0.890
rose1	0.5625	0.0000	-0.800	0.000000e+00	1.000
epsi1	0.5850	0.4500	-0.800	1.350000e-08	0.900
mutt1	0.5625	0.0000	-0.800	0.000000e+00	1.000
pat1	0.6026	0.4500	-0.800	1.350000e-08	0.840
nam12	0.5757	0.4500	-0.800	1.350000e-08	0.700
eyr12	0.5500	0.4500	-0.800	1.350000e-08	0.100
win12	0.5707	0.4500	-0.800	1.350000e-08	0.820
mac12	0.5625	0.4500	-0.800	1.350000e-08	0.840
all12	0.5738	0.4500	-0.800	1.350000e-08	0.880
coo12	0.5500	0.4500	-0.800	1.350000e-08	0.500
bull12	0.5900	0.0000	-0.800	0.000000e+00	1.000
cad12	0.5625	0.4500	-0.800	1.350000e-08	0.400
mur12	0.5625	0.4500	-0.800	1.350000e-08	0.960
mck12	0.5500	0.4500	-0.800	1.350000e-08	0.500
namu12	0.5625	0.4500	-0.800	1.350000e-08	0.080
west12	0.5642	0.4500	-0.800	1.350000e-08	0.350
bir12	0.5625	0.4500			0.560
hut12	0.5666	0.4500	-0.800	1.350000e-08	0.150

Lithold Na	ogy Init ame Permeabil (milliDarc	
Limesto Dolomo Evapor: Co Igneo in ey with a. Co but co mi mo nat b: hi poo naj to da: ros ep:	one 1.0131716 ale 1.0131716 one 2.7862216 ite 2.7862216 ite 1.0131716 oal 1.0131716	8-01

```
pat1 7.515815e-01
nam12 5.575314e+00
                                           5.500
               eyr12 7.963102e+03
                                           5.500
               win12 9.655232e-01
                                           5.500
               mac12 7.515815e-01
                                          5.500
               all12 4.554102e-01
                                          5.500
               coo12 5.313115e+01
                                          5.500
              bull12 1.013171e-01
                                          5.500
               cad12 1.859013e+02
                                          5.500
                                          5.500
               mur12 1.672077e-01
               mck12 5.313115e+01
                                           5.500
              namu12 1.022984e+04
                                          5.500
              west12 3.477356e+02
                                          5.500
               bir12 2.506047e+01
                                          5.500
               hut12 4.257118e+03
                                           5.500
Geothermal Gradient Table
  Time Depth 1
  (Ma) (m)
    0 0
Maturity conversion method: Table TTI = 4.191876 + 1.817512 * log10(Ro)
Data fit: Least Squares
Model Units
                        Depth = (m)
                    Distance = (m)
        Thermal Conductivity = (W/m*deg C)
               Heat Capacity = (kJ/m^3*deg\ C)
                   Heat Flow = (mW/m^2)
                  Temperature = (deg C)
             Heat Generation = (muW/m^3)
                    Gradient = (\text{deg C/100 m})
           Activation Energy = (kcal/mole)
            Frequency Factor = (1/my)
                  HC Density = (g/cm^3)
                    Pressure = (MPa)
                   Grain Size = (mm)
            Seismic Velocity = (m/s)
                  Event Time = (msec)
                    Maturity = (%Ro)
               HC Generation = (mg/g TOC)
Calculation Options
                  Compaction = Sclater & Christie
       Porosity Depth Method = Linear
    Permeability Calculation = Modified Kozeny-Carman
      Geothermal Calculation = Gradient
        Maturity Calculation = LLNL
       Expulsion Calculation = None
               Time Interval = 1.00
              Depth Interval = 1000.00
             Integrate Depth = No
Advanced Options
          TTI Reference Temp = 105.00
           TTI Doubling Temp = 10.00
        Rock-Eval Correction = 35.00
                Thermal Gain = 1.000
Critical Fracturing Fraction = 0.850
       Fracture Closure Rate = 0.050
    Conductivity Calculation = Deming/Chapman
```

5.500

Initial S1 = 3.00

Rifting HF Options

Use Rifting Heat Flow = No

Start Rift Time = 0.00 End Rift Time = 0.00

Auto-Calc Beta = No

Rifting Heat Flow Beta = 2.00

Present Day Info

Model Name = JENA-1

Model Description =

Current Surface Temp = 20.00

Current Elevation = 0.00

Current Heat Flow = 63.00

Seismic Parameters

BasinMod Data Report | Licensed to: Natn'l Centre for Petroleum Geology & Geophysics |

Mr. Peter Tingate

Version: 4.20

Model Name: JENA-1 EROSION
File Name: JENA-1 EROSION.mod
Date: Feb 5, 1996
Time: 12:14 pm

Stratigraphy Tab					
Formation	.ī.Ābe		werr rob		
or		Age	<i>(</i>)	Thick	
Event Name		(Ma)	(m)	(m)	(m)
QT/T	F -	3.3	0	18	
EROSION-1	E	4.3 5.3			-22
MISSING SEC-1 NAMBA FM.	ת	5.3	1.0	107	22
			18	103	2.5
EROSION-2 MISSING SEC-2		34			-25
	D		101	4.0	25
EYRE FM. EROSIO N- 3	F E		121	46	150
MISSING SEC-3	ב	90			-150 150
WINTON FM.		97.5	167	434	150
MACKUNDA FM.		100	601	100	
ALLARU/OOD	F	105.5	701	196	
COORIKIANA Sst.	r	100.0	897	11	
COORIKIANA Sst. BULLDOG SHALE CADNA-OWIE FM.	T.	117 5	908	220	
CADMA_OWIE EM	다 다	135.5		61	
MURTA FM.	H.	141 5	1189		
CKINIAY Mbr	ਜ	145	1235	9	
OCKINLAY Mbr. NAMUR Sst. WESTBOURNE FM. BIRKHEAD FM.	<u>-</u> 4	151	1244	62	
WESTBOURNE FM.	<u>-</u> ਬ	165	1306	149	
BIRKHEAD FM.	ਜ	175	1455	18	
HUTTON Sst.	F	188	1473	98	
	_				
Formation	Type		Litho	logy Lith Pat	
or Event Name				Pal	-
					_
QT/T	F		Sands	tone	
EROSION-1	E		_		
MISSING SEC-1	D		Sands		
NAMBA FM.	F		n	am12	L
EROSION-2	E				
MISSING SEC-2	D		Sands		
EYRE FM. EROSION-3	F		e:	yr12	
MISSING SEC-3	E D		Sands	tono	
WINTON FM.	F			in12	
MACKUNDA FM.	F			ac12	
ALLARU/OOD	F			1112	
COORIKIANA Sst.	F			0012	
BULLDOG SHALE	F			1112	
CADNA-OWIE FM.	F			ad12	
_ MURTA FM.	F			ur12	
KINLAY Mbr.	F			ck12	
NAMUR Sst.	F			mu12	
WESTBOURNE FM.	F			st12	
BIRKHEAD FM.	F		b:	ir12	
HUTTON Sst.	F		hı	ut12	

Lithology	Mixes Table Lithology Name	ક		% % e Shale	% Limestone
	Sandstone nam12 eyr12 win12 mac12 all12 coo12 bull12 cad12 mur12 mck12 namu12 vest12 bir12 hut12	100 30 90 18 16 12 50 60 4 50 92 65 44 85	3 1 6 6 4 5 2 3 7 5	0 20 3 21 42 0 80 0 10 2 24 0 6 2 5 10 2 14	2
	Lithology Name	% Kerogen	Total %		
	Sandstone nam12 eyr12 win12 mac12 all12 coo12 bull12 cad12 mur12 mck12 namu12 west12 bir12 hut12	2	100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0		
Lithology	Values Tabl Lithology Name	Initial		on Exponen M) Factor	tial Density (SC) (g/cm^3)
	Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 cool bull1 cad1 mur1 mck1 namu1 bir1 hut1	0.45 0.55 0.66 0.0 0.54 0.54 0.55 0.55 0.55 0.55 0.55	2 1 1 3 2. 2. 2. 2. 1. 2. 2.	.2 .4 .5 .5 0 .5 0 16 83 20 17 21 97 36 99 21 05 81	0.27 2.64 0.41 2.64 0.51 2.6 0.22 2.72 0.22 2.85 0 2.65 0.40 2.631 0.29 2.638 0.41 2.610 0.42 2.631 0.34 2.630 0.34 2.638 0.49 2.635 0.42 2.630 0.34 2.635 0.42 2.638 0.42 2.638 0.40 2.638 0.40 2.64 0.29 2.64

pool1	0.61	2.43	0.46	2.465
napp1	0.53	2.12	0.39	2.632
too1	0.62	2.45	0.46	2.440
dara1	0.59	2.35	0.45	2.523
rosel	0.56	2.25	0.43	2.63
epsi1	0.57	2.27	0.43	2.581
mutt1	0.56	2.25	0.43	2.63
pat1	0.57	2.29	0.43	2.548
nam12	0.53	2.11	0.39	2.628
eyr12	0.46	1.79	0.28	2.64
win12	0.54	2.18	0.41	2.615
mac12	0.54	2.17	0.40	2.631
all12	0.55	2.23	0.43	2.623
coo12	0.5	1.97	0.34	2.64
bull12	0.59	2.36	0.49	2.608
cad12	0.49	1.95	0.33	2.636
mur12	0.55	2.23	0.42	2.630
mck12	0.5	1.97	0.34	2.64
namu12	0.45	1.79	0.28	2.639
west12	0.49	1.92	0.32	2.636
bir12	0.51	2.03	0.36	2.634
hut12	0.46	1.82	0.29	2.638

Lithology Name	Grain Size (mm)	Matrix Conductivity (W/m*deg C)	
mac12 all12 coo12 bull12 cad12 mur12	0.0125 0.0050 0.0883 0.0008 0.0866 0.0074	2.279 2.078 3.2 1.6 3.39	112.5 35 220 -110 195 90

mck12 namu12 west12 bir12 hut12	0.0883 0.3521 0.1029 0.0429 0.2474			3.2 4.198 3.51 2.986 4.015	220 255 200 165 237.5
	Heat Capa (kJ/m^3*de		t Capac Correct		
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 coo1 bull1 cad1 mur1 mck1 namu1 bir1 hut1 poo11 napp1 too1 dara1 rose1 epsi1 mutt1 pat1 nam12 eyr12 win12 mac12 all12 coo12 bull112 cad12 mur12 mck12 namu12 bir12 hut12 hut12	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	2800 2800 261000 26500 26750 25753 257210 25753 257210 25773 257210 25773 257210 25773 257210 25777 25722 2675 2777 2777 2777 2777 27		000000000000000000000000000000000000000	
Lithology Fluid Flow Lithology Name		Initial orosity B	A	(1/Pa)	Fraction A
Sandstone Siltstone Shale Limestone Dolomite Evaporite	0.0000 0.5500 0.6000 0.6000 0.6000	0.0000	-0.800 -0.800 -0.800	1.350000e-08 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 1.350000e-08	1.000 1.000 1.000 1.000

Coal Igneous nam1 eyr1 win1 mac1	0.9000 0.0000 0.5625 0.5625 0.5725 0.5625	0.0000 0.0000 0.4500 0.4500 0.4500	-0.800 -0.800 -0.800 -0.800 -0.800	0.000000e+00 1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08	1.000 0.000 0.820 0.160 0.855 0.840
all1 coo1	0.5625 0.5500	0.4500 0.4500	-0.800 -0.800	1.350000e-08 1.350000e-08	0.920 0.500
bull1	0.5900	0.0000	-0.800	0.000000e+00	1.000
cad1	0.5625	0.4500	-0.800	1.350000e-08	0.480
mur1	0.5625	0.4500	-0.800	1.350000e-08	0.920
mck1	0.5625	0.4500	-0.800	1.350000e-08	0.600
namu1	0.5625	0.4500	-0.800	1.350000e-08	0.120
bir1	0.5756	0.4500	-0.800	1.350000e-08	0.760
hut1	0.5500	0.4500	-0.800	1.350000e-08	0.180
pool1	0.6409	0.4500	-0.800	1.350000e-08	0.860
napp1	0.5625	0.4500	-0.800	1.350000e-08	0.740
too1 dara1	0.6560 0.6117	$0.4500 \\ 0.4500$	-0.800 -0.800	1.350000e-08 1.350000e-08	0.830 0.890
rose1	0.5625	0.0000	-0.800	0.000000e+00	1.000
epsi1	0.5850	0.4500	-0.800	1.350000e-08	0.900
mutt1	0.5625	0.0000	-0.800	0.000000e+00	1.000
pat1	0.6026	0.4500	-0.800	1.350000e-08	0.840
nam12	0.5757	0.4500	-0.800	1.350000e-08	0.700
eyr12	0.5500	0.4500	-0.800	1.350000e-08	0.100
win12	0.5707	0.4500	-0.800	1.350000e-08	0.820
mac12	0.5625	0.4500	-0.800	1.350000e-08	0.840
all12	0.5738	0.4500	-0.800	1.350000e-08	0.880
coo12	0.5500	0.4500	-0.800	1.350000e-08	0.500
bull12	0.5900	0.0000	-0.800	0.000000e+00	1.000
cad12	0.5625	0.4500	-0.800	1.350000e-08	0.400
mur12	0.5625	0.4500	-0.800	1.350000e-08	0.960
mck12	0.5500	0.4500	-0.800	1.350000e-08	0.500
namu12 west12	0.5625 0.5642	0.4500 0.4500	-0.800 -0.800	1.350000e-08 1.350000e-08	0.080 0.350
bir12	0.5625	0.4500	-0.800	1.350000e-08	0.560
hut12	0.5666	0.4500	-0.800	1.350000e-08	0.150
114046	3.3000	3.1300	0.000	=.5500000	0.20

Lithology Name	Initial Permeability (milliDarcys)	Permeability Power
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 cool bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1	1.013171e-01 1.013171e-08 9.655232e-01 3.755972e+03 6.228538e-01 7.515815e-01 2.759494e-01 5.313115e+01 1.013171e-01 6.825522e+01 2.759494e-01 1.518504e+01	5.500 5.500

```
napp1 2.629719e+00
                                                        5.500
                     too1 8.518624e-01
                                                        5.500
                    dara1 4.017996e-01
                                                        5.500
                    rosel 1.013171e-01
                                                        5.500
                    epsil 3.544999e-01
                                                       5.500
                    mutt1 1.013171e-01
                                                       5.500
                     pat1 7.515815e-01
                                                       5.500
                    nam12 5.575314e+00
                                                       5.500
                    eyr12 7.963102e+03
                                                       5.500
                  win12 9.655232e-01
mac12 7.515815e-01
all12 4.554102e-01
cool2 5.313115e+01
bull12 1.013171e-01
cad12 1.859013e+02
mur12 1.672077e-01
mck12 5.313115e+01
namu12 1.022984e+04
west12 3.477356e+02
bir12 2.506047e+01
hut12 4.257118e+03
                    win12 9.655232e-01
                                                        5.500
                                                        5.500
                                                        5.500
                                                       5.500
                                                        5.500
                                                       5.500
                                                       5.500
                                                       5.500
                                                       5.500
                                                       5.500
                                                       5.500
                    hut12 4.257118e+03
                                                       5.500
Geothermal Gradient Table
  Time Depth 1
   (Ma) (m)
Maturity conversion method: Table
TTI = 4.191876 + 1.817512 * log10(Ro)
Data fit: Least Squares
                              Depth = (m)
                          Distance = (m)
          Thermal Conductivity = (W/m*deg C)
                    Heat Capacity = (kJ/m^3*deg\ C)
                         Heat Flow = (mW/m^2)
                       Temperature = (deg C)
                 Heat Generation = (muW/m^3)
Gradient = (deg C/100 m)
              Activation Energy = (kcal/mole)
Frequency Factor = (1/my)
HC Density = (g/cm^3)
Pressure = (MPa)
                        Grain Size = (mm)
                Seismic Velocity = (m/s)
                        Event Time = (msec)
                          Maturity = (%Ro)
                    HC Generation = (mg/g TOC)
Calculation Options
                        Compaction = Sclater & Christie
         Porosity Depth Method = Linear
     Permeability Calculation = Modified Kozeny-Carman
Geothermal Calculation = Gradient
         Maturity Calculation = LLNL Expulsion Calculation = None
                    Time Interval = 1.00
                  Depth Interval = 1000.00
                 Integrate Depth = No
Advanced Options
             TTI Reference Temp = 105.00
```

0

Mo Units

TTI Doubling Temp = 10.00 Rock-Eval Correction = 35.00 Thermal Gain = 1.000Critical Fracturing Fraction = 0.850

Fracture Closure Rate = 0.050

Conductivity Calculation = Deming/Chapman

Initial S1 = 3.00

Rifting HF Options

Use Rifting Heat Flow = No Start Rift Time = 0.00 End Rift Time = 0.00

Auto-Calc Beta = No

Rifting Heat Flow Beta = 2.00

Present Day Info

Model Name = JENA-1 EROSION

Model Description =
Current Surface Temp = 20.00
Current Elevation = 0.00 Current Heat Flow = 63.00

Seismic Parameters

Shot Point = 0

X = 0.00000000Y = 0.00000000

BasinMod Data Report

Licensed to: Natn'l Centre for Petroleum Geology & Geophysics |

Mr. Peter Tingate

Version: 4.20

Model Name: KIRRALEE-1
File Name: KIRRALEE-1.mod
Date: Feb 5, 1996
Time: 12:19 pm

Strat:	igraphy	Table

Formation or	Туре	Begin Age	Well Top	Present Thick	Lithology
Event Name		(Ma)	(m)	(m)	
QT/T	F	3.3	0	44	Sandstone
HIATUS-1		5.3			
NAMBA FM.	F	29.3	44	157	nam11
HIATUS-2	H	38			
EYRE FM.	F	60	201	109	eyr11
HIATUS-3	H	90	24.0		
WINTON FM.	Ŧ	97.5	310	678	win11
MACKUNDA FM.	F	100	988	84	mac11
ALLARU Mdst	F	101	1072	172	all11
TOOLEBUC FM.	된	102.5	1244	12	tool11
OODNADATTA FM.	F	105.5	1256	132	ood11
COORIKIANA Sst.	F	108	1388	18	coo11
BULLDOG SHALE	F	117.5	1406	244	bull11
CADNA-OWIE FM.	F	135.5	1650	68	cad11
MURTA FM. McKINLAY Mbr.	F	141.5 145	1718 1761	43 6	mur11
NAMUR Sst.	된 된	151	1761	72	mck11
WESTBOURNE FM.	F	151	1839	88	namu11
ADORI Sst.	F	165	1927	53	west11 ador11
BIRKHEAD FM.	r F	175	1980	5 <i>3</i> 5 <i>4</i>	bir11
HUTTON Sst.	F	188	2034	172	hut11
POOLOWANNA FM.	F	193	2206	44	pool1
HIATUS-4	H	236.5	2200	44	POOTT
NAPPAMERRI GP.	F	249	2250	145	napp11
TOOLACHEE FM.	F	253.5	2395	54	too11
HIATUS-5	H	256	2373	J=	20011
DARALINGIE FM.	F	258.5	2449	24	dara11
ROSENEATH SHALE	F	261.5	2473	31	rose11
EPSILON FM.	F	263.5	2504	76	epsill
MURTEREE SHAle	F	264.5	2580	37	mutt11
PATCHAWARRA FM.	F	274	2617	370	pat11
TIRRAWARRA Sst.	F	280	2987	49	tir11
MERRIMELIA FM.	F	285.5	3036	106	merr11

or Event Name		Pat
QT/T HIATUS-1	F	
NAMBA FM.	F	1

Formation Type Lith

HIATUS-2 H
EYRE FM. F
HIATUS-3 H
WINTON FM. F
MACKUNDA FM. F
ALLARU Mdst.. F
TOOLEBUC FM. F

F
F
F
F
F
F
F
F
F
F
F
F
H
F
F
H
F
F
F
F
F
F
F

Lit	tho	logy	Mixes	Table

Lithology	Mixes Table		· %	0_	٥.
	Lithology Name		Siltstone	% Shale	7.imestone
	Sandstone	100			
	nam11	20	28	35	17
	eyr11	65	25	10	
	win11	15	25	58	
	mac11	13	57	30	
	all11	10	45	45	
	tool11		30	70	
	ood11	10	70	20	
	coo11	60	40		
	bull11	=-	25	75	
	cad11	72	20	8	
	mur11	8	70	22	
	mck11	50	50	2	
	namu11	90	7	3 7	
	west11 ador11	75 100	18	/	
	bir11	30	45	23	
	hut11	90	5	5	
	pool11	40	30	23	
	napp11	12	58	30	
	t0011	26	15	35	
	dara11	3	25	27	
	rose11		75	25	
	epsi11	12	65	18	
	mutt11		75	25	
	pat11	21	43	21	
	tir11	90	7	3	
	merr11	70	30		
	Lithology	% 7	Total		
	Name	Kerogen	%		
	Sandstone	1	L00.0		
	nam11		100.0		
	eyr11		L00.0		
	win11		100.0		
					

mac11	100.0
all11	100.0
tool11	100.0
ood11	100.0
coo11	100.0
bull11	100.0
cad11	100.0
mur11	100.0
mck11	100.0
namu11	100.0
west11	100.0
ador11	100.0
bir11	2 100.0
hut11	100.0
pool11	7 100.0
napp11	100.0
t0011	24 100.0
dara11	45 100.0
rose11	100.0
epsill	5 100.0
mutt11	100.0
pat11	15 100.0
tir11	100.0
merr11	100.0

Lithology Values Table

nichorogy	Lithology Name	Initial		Exponential Factor (SC)	
	Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 coo1 bul11 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1 nam11 eyr11 win11 mac11 all11	0.45566609044555900.55600.5546461322967675500.555600.5555600.5555600.5555600.5555600.555600.555600.555600.55600.55600.55600.5560000.556000.556000.556000.556000.556000.556000.556000.556000.5560000.556000.556000.556000.556000.556000.556000.556000.556000.5560000.5560000.5560000.5560000.556000.556000.556000.556000.556000.5560000.5560000.5560000.5560000.5560000.5560000.5560000.5560000.556000000.55600000.55600000000	1.75 2.2 2.4 1.5 1.5 0 3.5 0 2.16 1.83 2.20 2.17 2.36 1.97 2.36 1.99 2.21 2.05 1.81 2.16 1.83 2.43 2.12 2.45 2.35 2.25 2.27 2.25 2.27 2.29 2.27	0.27 0.41 0.51 0.22 0.22 0.7 0.40 0.49 0.41 0.42 0.34 0.42 0.34 0.42 0.34 0.42 0.36 0.28 0.40 0.29 0.41 0.42 0.34 0.42 0.34 0.42 0.34 0.42 0.34 0.42 0.34 0.42 0.36 0.28 0.45 0.45 0.43 0.43 0.43 0.43 0.43 0.43 0.43 0.43 0.44 0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.46 0.47 0.48 0.49 0.49 0.40 0.43 0.43 0.43 0.43 0.43 0.43 0.43 0.43 0.43 0.43 0.43 0.43 0.43 0.44 0.45 0	2.64 2.64 2.64 2.72 2.85 2.15 1.8 2.65 2.631 2.638 2.631 2.630 2.631 2.630 2.631 2.630 2.631 2.630 2.631 2.630 2.631 2.635 2.630 2.635 2.635 2.635 2.635 2.636 2.635 2.636 2.636 2.636 2.636 2.636 2.636 2.636 2.636 2.637 2.638 2.638 2.638 2.638 2.639 2.638 2.638 2.638 2.639 2.638
	tool11	0.58	2.34	0.48	2.612

ood11 coo11 bull11 cad11	0.55 0.49 0.58 0.48	2.19 1.93 2.35 1.89	0.41 0.32 0.48 0.31	2.632 2.64 2.61 2.636
mur11 mck11	0.55 0.5	2.20 1.97	0.42 0.34	2.631 2.64
namu11	0.46	1.80	0.28	2.638
west11	0.47	1.87	0.31	2.637
ador11	0.45	1.75	0.27	2.64
bir11	0.53	2.13	0.39	2.614
hut11	0.46	1.80	0.28	2.638
pool11	0.54	2.15	0.39	2.572
napp11	0.55	2.20	0.42	2.628
t0011	0.62	2.46	0.47	2.424
dara11	0.71	2.82	0.56	2.251
rose11	0.56	2.25	0.43	2.63
epsi11	0.56	2.24	0.42	2.590
mutt11	0.56	2.25	0.43	2.63
pat11	0.59	2.34	0.44	2.505
tir11	0.46	1.80	0.28	2.638
merr11	0.48	1.88	0.31	2.64

merr11	0.48	1.88	0.31 2.64
Lithology Name	Grain Size (mm)	Matrix Conductivi (W/m*deg	
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 coo1 bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1 nam11 eyr11 win11 mac11 all11	(mm) 0.5 0.0156 0.0004 0.5 0.0004 0.0001 0.0137 0.2479 0.0109 0.0125 0.088 0.0883 0.0088 0.0609 0.0609 0.0166 0.2678 0.0666 0.2678 0.0166 0.2678 0.0062 0.0062 0.0062 0.0062 0.0062 0.0062 0.0062 0.0062 0.0062 0.0062 0.0062 0.0062 0.0062 0.0062 0.0062 0.0062 0.0062 0.0062 0.0062	(W/m*deg 1 2 4 5 0 2 2.3 3.9 2.2 2.2 2.0 3 1 3.1 2.0 2.8 4.0 2.4 3.9 1.9 1.9 1.8 2.0 1.8 2.0 1.8 2.1 2.4 3.1 2.0 2.1 2.1 2.0	C) Correction
tool11 ood11 coo11 bull11 cad11	0.0012 0.0106 0.1249 0.0009 0.1412	1. 2. 3. 1.6 3.6	65 -75 14 110 44 230 25 -92.5

mur11	0.0091	2.082	101
mck11	0.0883	3.2	220
namu11	0.3167	4.145	249.5
west11	0.1626	3.765	220.5
ador11	0.5	4.4	270
bir11	0.0176	2.571	121.1
hut11	0.2943	4.135	242.5
pool11	0.0208	2.726	135.1
napp11	0.0078	2.138	77
t0011	0.0044	2.041	92.7
dara11	0.0012	1.172	114.5
rose11	0.0062	1.875	82.5
epsi11	0.0101	2.113	123
mutt11	0.0062	1.875	82.5
pat11	0.0086	2.144	129.5
tir11	0.3167	4.145	249.5
merr11	0.1766	3.68	240
	Heat Capacity		

pat11 tir11 merr11	0.0086 0.3167 0.1766	2.14 4.14 3.6
Lithology Name	Heat Capacity (kJ/m^3*deg C)	Heat Capacity Correction
Sandstone	2800	0
Siltstone	2650	0
Shale Limestone	2100 2600	0
Dolomite	2600	0
Evaporite	1750	0
Coal	950	0
Igneous	2500	0
nam1	2564.	0
eyr1	2754	- 0
win1	2513. 2558.	0
mac1	2535.	0
cool	2725	Ö
bulli	2210	0
cad1	2662	0
mur1	2535.	0
mck1	2627.	0
namu1	2765.	0
bir1	2536 2773	0
hut1 pool1	2240.	0
napp1	2587.	0
too1	2202	0
dara1	2341	0
rose1	2512.	0
epsi1	2447.	0
mutt1	2512.	0
pat1 nam11	2402. 2479	0
eyr11	2692.	0
win11	2319.	0
mac11	2504.	0
all11	2417.	0
tool11	2265	0
00d11	2555	0
cool1 bull11	2740 2237.	0
cadll	2714	0
mur11	2541	0
mck11	2725	0
11	2760	0

2768.

2724

0

0

namu11

west11

```
2800
            ador11
                                          0
                          2534.
             bir11
                                          0
                          2757.
             hut11
                                          0
            pool11
                         2464.
                                          0
            napp11
                          2503
                                          0
                          2088.
             too11
                                          0
            dara11
                                          0
                          1741
            rose11
                          2512.
                                          0
            epsill
                          2484
                                          0
            mutt11
                         2512.
                                          0
             pat11
                          2311
                                         0
             tir11
                         .2768.
                                         0
                          2755
                                          0
            merr11
Lithology Fluid Flow Table
         Lithology Initial Initial A
Name Porosity Porosity
                                                 B Fraction
                                             (1/Pa)
                   A B
                  0.0000 0.4500 0.0000 1.350000e-08 0.000
0.5500 0.0000 -0.800 0.000000e+00 1.000
0.6000 0.0000 -0.800 0.000000e+00 1.000
         Sandstone
         Siltstone
             Shale
                  0.6000 0.0000 -0.800 0.000000e+00
0.6000 0.0000 -0.800 0.000000e+00
                                                     1.000
         Limestone
                                                     1.000
          Dolomite
                   0.0000 0.0000 -0.800 1.350000e-08
         Evaporite
                                                     0.000
                   0.9000 0.0000 -0.800 0.000000e+00
              Coal
                                                     1.000
                   0.0000 0.0000 -0.800 1.350000e-08
0.5625 0.4500 -0.800 1.350000e-08
           Igneous
                                                     0.000
             nam1
                                                     0.820
             eyr1 0.5625 0.4500 -0.800 1.350000e-08 win1 0.5725 0.4500 -0.800 1.350000e-08
                                                     0.160
             0.840
              all1 0.5625 0.4500 -0.800 1.350000e-08
                                                     0.920
              cool 0.5500 0.4500 -0.800 1.350000e-08
                                                     0.500
             bull1
                  0.5900 0.0000 -0.800 0.000000e+00
                                                     1.000
                  cad1
             mur1
                                                     0.920
                   mck1
                                                     0.600
             namu1
                   0.5625
                          0.4500 -0.800 1.350000e-08
                                                     0.120
             bir1
                   0.5756
                           0.4500 -0.800 1.350000e-08
                   0.5500 0.4500 -0.800 1.350000e-08
0.6409 0.4500 -0.800 1.350000e-08
             hut1
             pool1
                                                     0.860
                         0.4500 -0.800 1.350000e-08
                   0.5625
             napp1
                                                     0.740
                   0.6560 0.4500 -0.800 1.350000e-08
                                                     0.830
             too1
                          0.4500 -0.800 1.350000e-08
                   0.6117
                                                     0.890
             dara1
                    0.5625 0.0000 -0.800 0.000000e+00
                                                      1.000
             rose1
                    epsi1
                                                     0.900
                   0.5625 0.0000 -0.800 0.000000e+00
                                                     1.000
            mutt1
             pat1
                   0.6026   0.4500   -0.800   1.350000e-08
                                                     0.840
             nam11
                   eyr11
                   win11
                                                     0.850
            mac11
                   0.870
            all11
                   0.5750 0.4500 -0.800 1.350000e-08
                                                     0.900
            tool11
                   0.5850 0.0000 -0.800 0.000000e+00
                                                      1.000
                                                     0.900
            ood11
                   0.5611
                          0.4500 -0.800 1.350000e-08
                   0.5500
                          0.4500 -0.800 1.350000e-08
             coo11
                                                     0.400
                   bull11
                                                     1.000
             cad11
                                                     0.280
            mur11
                                                     0.920
                   mck11
                                                     0.500
                   namu11
                                                     0.100
                   west11
                                                     0.250
                   0.0000 0.4500 0.0000 1.350000e-08
            ador11
                                                     0.000
            bir11
                   0.5764   0.4500   -0.800   1.350000e-08
                                                    0.700
```

```
0.5750   0.4500   -0.800   1.350000e-08
       hut11
                                                                                             0.100
      pool11 0.6100 0.4500 -0.800 1.350000e-08
                                                                                            0.600
      napp11 0.5670 0.4500 -0.800 1.350000e-08
                                                                                            0.880
        tool1 0.6871 0.4500 -0.800 1.350000e-08
                                                                                           0.740
      dara11 0.7262 0.4500 -0.800 1.350000e-08
                                                                                           0.970
      rose11 0.5625 0.0000 -0.800 0.000000e+00
                                                                                           1.000
      epsil1 0.5801 0.4500 -0.800 1.350000e-08
                                                                                           0.880
      mutt11 0.5625 0.0000 -0.800 0.000000e+00
                                                                                           1.000
       pat11 0.6297 0.4500 -0.800 1.350000e-08 0.790 tir11 0.5650 0.4500 -0.800 1.350000e-08 0.100
      merr11 0.5500 0.4500 -0.800 1.350000e-08
                                                                                          0.300
                             Initial Permeability
Lithology
         Name Permeability Power
                   (milliDarcys)
    _
Sandstone 2.786221e+04 5.500
Siltstone 1.013171e-01 5.500
Shale 1.013171e-01 5.500
                                                5.500
5.500
5.500
5.500
5.500
5.500
5.500
5.500
5.500
5.500
5.500
5.500
5.500
Limestone 2.786221e+04
Dolomite 2.786221e+04
Evaporite 1.013171e-08
Coal 1.013171e-01
Igneous 1.013171e-08
nam1 9.655232e-01
eyr1 3.755972e+03
win1 6.228538e-01
mac1 7.515815e-01
all1 2.759494e-01
cool 5.313115e+01
bull1 1.013171e-01
cad1 6.825522e+01
mur1 2.759494e-01
mck1 1.518504e+01
namu1 6.198629e+03
bir1 2.047023e+00
hut1 2.923719e+03
pool1 5.850452e-01
napp1 2.629719e+00
tool 8.518624e-01
Limestone 2.786221e+04
                                                       5.500
                                                       5.500
                                                       5.500
                                                       5.500
                                                       5.500
                                                      5.500
         too1 8.518624e-01
                                                      5.500
                                                      5.500
     dara1 4.017996e-01
rose1 1.013171e-01
epsi1 3.544999e-01
mutt1 1.013171e-01
pat1 7.515815e-01
nam11 1.042884e+01
eyr11 3.477356e+02
win11 6.631057e-01
mac11 5.161740e-01
all11 3.544999e-01
tool11 1.013171e-01
ood11 3.544999e-01
cool1 1.859013e+02
bull11 1.013171e-01
cad11 8.356076e+02
mur11 2.759494e-01
        dara1 4.017996e-01
                                                       5.500
                                                       5.500
                                                       5.500
5.500
5.500
5.500
                                                       5.500
                                                       5.500
                                                       5.500
                                                       5.500
                                                       5.500
                                                       5.500
                                                       5.500
                                                       5.500
        mur11 2.759494e-01
                                                      5.500
5.500
       mck11 5.313115e+01
      namu11 7.963102e+03
                                                      5.500
5.500
5.500
5.500
5.500
      west11 1.216697e+03
ador11 2.786221e+04
      bir11 4.339930e+00
hut11 7.963102e+03
pool11 1.518504e+01
napp11 4.554102e-01
```

5.500

```
too11 2.629719e+00
                                                 5.500
                dara11 1.475240e-01
                                                 5.500
                rosell 1.013171e-01
                                                5.500
                epsil1 4.554102e-01
                                                5.500
                muttl1 1.013171e-01
                                                5.500
                 pat11 1.405862e+00
tir11 7.963102e+03
                                                5.500
                                                5.500
                merr11 6.504527e+02
                                                5.500
Geothermal Gradient Table
  Time Depth 1
        (m)
  (Ma)
_____
     0 0
Maturity conversion method: Table
TTI = 4.191876 + 1.817512 * log10(Ro)
Data fit: Least Squares
Model Units
                           Depth = (m)
                       Distance = (m)
         Thermal Conductivity = (W/m*deg C)
                 Heat Capacity = (kJ/m^3*deg\ C)
                      Heat Flow = (mW/m^2)
                    Temperature = (deg C)
               Heat Generation = (muW/m^3)
                       Gradient = (\text{deg C/100 m})
            Activation Energy = (kcal/mole)
Frequency Factor = (1/my)
HC Density = (g/cm^3)
Pressure = (MPa)
                     Grain Size = (mm)
              Seismic Velocity = (m/s)
                     Event Time = (msec)
                       Maturity = (R0)
                 HC Generation = (mg/g TOC)
Calculation Options
                     Compaction = Sclater & Christie
        Porosity Depth Method = Linear
    Permeability Calculation = Modified Kozeny-Carman
Geothermal Calculation = Gradient
        Maturity Calculation = LLNL Expulsion Calculation = None
                 Time Interval = 1.00
                Depth Interval = 1000.00
               Integrate Depth = No
Advanced Options
            TTI Reference Temp = 105.00
             TTI Doubling Temp = 10.00
         Rock-Eval Correction = 35.00
                  Thermal Gain = 1.000
Critical Fracturing Fraction = 0.850
        Fracture Closure Rate = 0.050
    Conductivity Calculation = Deming/Chapman
                     Initial S1 = 3.00
Rifting HF Options
        Use Rifting Heat Flow = No
Start Rift Time = 0.00
End Rift Time = 0.00
                Auto-Calc Beta = No
```

Rifting Heat Flow Beta = 2.00

Present Day Info

Model Name = KIRRALEE-1

Model Description =
Current Surface Temp = 20.00
Current Elevation = 0.00
Current Heat Flow = 63.00

Seismic Parameters

Shot Point = 0

X = 0.00000000 Y = 0.00000000

BasinMod Data Report

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Version: 4.20
Model Name: KIRRALEE-1 EROSION
File Name: KIRRALEE-1 EROSION.mod
Date: Feb 5, 1996
Time: 12:20 pm

Stratigraphy Tab		Domin	Wall man		161 mmi mm
Formation or	Type	Age	Well Top	Thick	Thick
Event Name		(Ma)	(m)	(m)	(m)
				. – – – – –	
QT/T	F	3.3	0	44	
EROSION-1	E	4.3			-18
MISSING SEC-1	D	5.3			18
NAMBA FM.	F	29.3	44	157	
EROSION-2	E	34			-16
MISSING SEC-2	D	38			16
EYRE FM.	F	60	201	109	210
EROSION-3	E	75			-310
MISSING SEC-3	D	90	210	670	310
WINTON FM. MACKUNDA FM.	F F	97.5 100	310 988	678	
ALLARU Mdst	F	101	1072	84 172	
TOOLEBUC FM.	F	102.5	1244	12	
OODNADATTA FM.	F	105.5	1256	132	
COORIKIANA Sst.	F	108	1388	18	
BULLDOG SHALE	F	117.5	1406	244	
DNA-OWIE FM.	F	135.5	1650	68	
MURTA FM.	F	141.5	1718	43	
McKINLAY Mbr.	F	145	1761	6	
NAMUR Sst.	F	151	1767	72	
WESTBOURNE FM.	F	159	1839	88	
ADORI Sst.	F	165	1927	53	
BIRKHEAD FM.	F	175	1980	54	
HUTTON Sst.	F	188	2034	172	
POOLOWANNA FM.	F	193	2206	44	
EROSION-4	E	213			-66
MISSING SEC-4 NAPPAMERRI GP.	D F	236.5 249	2250	145	66
TOOLACHEE FM.	F	253.5	2395	54	
EROSION-5	Ē	254.5	2333	5-	-157
MISSING SEC-5	D	256			157
DARALINGIE FM.	F	258.5	2449	24	
ROSENEATH SHALE	F	261.5	2473	31	
EPSILON FM.	F	263.5	2504	76	
MURTEREE SHAle	F	264.5	2580	37	
PATCHAWARRA FM.	F	274	2617	370	
TIRRAWARRA Sst.	F		2987	49	
MERRIMELIA FM.	F	285.5	3036	106	
m			T 1 1.3 7		
Formation	Type		Tituol	ogy Lith	
or Event Name				Pat	•
Event Name					
QT/T	F		Sandst	one	
EROSION-1	Ē		2 41140	-	
MISSING SEC-1	D		Sandst	one	
NAMBA FM.	F			.m11 1	
EROSION-2	E				

MISSING SEC-2	D	Sandstone
EYRE FM.	F	eyr11
EROSION-3	E	_
MISSING SEC-3	D	Sandstone
WINTON FM.	F	· win11
MACKUNDA FM.	F	mac11
LLARU Mdst	F	all11
TOOLEBUC FM.	F	tool11
OODNADATTA FM.	F	ood11
COORIKIANA Sst.	F	C0011
BULLDOG SHALE	F	bull11
CADNA-OWIE FM.	F	cad11
MURTA FM.	F	mur11
McKINLAY Mbr.	F	mck11
NAMUR Sst.	F	namu11
WESTBOURNE FM.	F	west11
ADORI Sst.	F	ador11
BIRKHEAD FM.	F	bir11
HUTTON Sst.	F	hut11
POOLOWANNA FM.	F	pool1
EROSION-4	E	_
MISSING SEC-4	D	Sandstone
NAPPAMERRI GP.	F	napp11
TOOLACHEE FM.	F	t0011
EROSION-5	E	
MISSING SEC-5	D	Sandstone
DARALINGIE FM.	F	dara11
ROSENEATH SHALE	F	rose11
EPSILON FM.	F	epsi11
MURTEREE SHAle	F	mutt11
PATCHAWARRA FM.	F	pat11
TIRRAWARRA Sst.	F	tir11
RRIMELIA FM.	F	merr11
ithology Mirror T	ahla	

Lithology Mixes Table

птепотоду	Lithology	양	%	%	%
	Name	Sandstone	Siltstone	Snare	Limestone
	Sandstone	100			
	nam11	20	28	35	17
	eyr11	65	25	10	± /
	win11	15	25	58	
	mac11	13	57	30	
	all11	10	45	45	
	tool11	10			
		10	30	70	
	ood11	10	70	20	
	coo11	60	40		
	bull11	70	25	75	
	cad11	72	20	8	
	mur11	8	70	22	
	mck11	50	50	2	
	namu11	90	7	3 7	
	west11	75	18	7	
	ador11	100	4 =	2.2	
	bir11	30	45	23	
	hut11	90	5	5	
	pool11	40	30	23	
	napp11	12	58	30	
	too11	26	15	35	
	dara11	3	25	27	
	rose11	10	75	25	
	epsi11	12	65	18	
	mutt11		75	25	
	pat11	21	43	21	

	tirll merrll	90 70		7 30	3	
	Lithology Name	% Kerogen	Total			
	Sandstone nam11 eyr11 win11 mac11 al111 tool11 cool11 cool11 bull11 cad11 mur11 mck11 namu11 west11 ador11 bir11 hut11 pool11 napp11 too11 dara11 rose11 epsi11 mutt11 pat11 tir11 merr11	2 7 24 45 5	100.0 100.0		•	
Lithology		Initial			Exponential Factor (SC)	
	Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 coo1 bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1	0.55.66.60.90.465.65.55.50.55.55.50.55.55.50.55.66.65.66.60.90.65.55.55.50.55.66.65.65.65.65.65.65.65.65.65.65.65.		1.75 2.4 1.5 1.5 0 3.5 0 2.16 1.20 2.17 2.21 2.21 2.35 1.83 2.21 2.05 1.83 2.25 1.83 2.25 2.35 2.45 2.35	0.27 0.41 0.51 0.22 0.22 0.7 0.40 0.49 0.41 0.42 0.34 0.49 0.34 0.42 0.36 0.28 0.40 0.29 0.46 0.39 0.45	2.64 2.64 2.6 2.72 2.85 2.15 1.8 2.65 2.631 2.638 2.630 2.631 2.638 2.635 2.630 2.634 2.638 2.635 2.630 2.635 2.630 2.635 2.630 2.635 2.630 2.635 2.630 2.635

Lithology Name		Matrix Conductivity (W/m*deg C)	
	(mm) 0.5 0.0156 0.0004 0.5 0.5 0.0004 0.0004 0.0001 0.0137 0.2479 0.0109 0.0125 0.0088		
epsi1 mutt1 pat1	0.0082 0.0062 0.0095	2.033 1.875 2.121	111.3 82.5 129.2

nam11	0.0156	2.458	98.1
eyr11	0.1029	3.51	200
win11	0.0029	2.036	-16.4
mac11	0.0081	2.162	78
all11	0.0042	2.015	22.5
tool11	0.0012	1.65	- 75
ood11	0.0106	2.14	110
coo11	0.1249	3.44	230
bull11	0.0009	1.625	-92.5
cad11	0.1412	3.688	214
mur11	0.0091	2.082	101
mck11	0.0883	3.2	. 220
namu11	0.3167	4.145	249.5
west11	0.1626	3.765	220.5
ador11	0.5	4.4	270
bir11	0.0176	2.571	121.1
hut11	0.2943	4.135	242.5
pool11	0.0208	2.726	135.1
napp11	0.0078	2.138	77
t0011	0.0044	2.041	92.7
dara11	0.0012	1.172	114.5
rose11	0.0062	1.875	82.5
epsill	0.0101	2.113	123
mutt11	0.0062	1.875	82.5
pat11	0.0086	2.144	129.5
tir11	0.3167	4.145	249.5
merr11	0.1766	3.68	240
ithology	Heat Canacity Heat	Canacity	

Lithology Heat Capacity Heat Capacity Name (kJ/m^3*deg C) Correction

Sandstone	2800	0
Siltstone	2650	0
Shale	2100	0
Limestone	2600	0
Dolomite	2600	0
Evaporite	1750	0
Coal	950	0
Igneous	2500	0
nam1	2564.	0
eyr1	2754	0
win1	2513.	0
mac1	2558.	0
all1	2535.	0
cool	2725	0
bull1	2210	0
cad1	2662	0
mur1	2535.	0
mck1	2627.	0
namu1	2765.	0
bir1	2536	0
hut1	2773	0
pool1	2240.	0
napp1	2587.	0
tool	2202	0
dara1	2341	0
rosel	2512.	0
epsi1	2447.	0
mutt1	2512.	0
pat1	2402.	0
nam11	2479	0
eyr11	2692.	0
win11	2319.	0
mac11	2504.	0

	all11 tool11 ood11 cool11 bull11 cad11 mur11 mck11 namu11 west11 ador11 bir11 hut11 pool11 napp11 tool1 dara11 rose11 epsi11 mutt11 pat11 tir11 merr11		2417. 2265 2555 2740 2237. 2714 2541 2725 2768. 2724 2800 2534. 2757. 2464. 2503 2088. 1741 2512. 2484 2512. 2311 2768. 2755			
Lithology	Fluid Flow Lithology Name			А	B (1/Pa)	Fraction A
	Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 cool bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 tool dara1 rose1 epsi1 mutt1 pat1 nam11 eyr11 win11 mac11 all11 tool11	0.0000 0.5500 0.6000 0.6000 0.6000 0.0000 0.9000 0.5625 0.5625 0.5525 0.5625 0.55625	0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.4500 0.	-0.800 -0.800	1.350000e-08 0.00000e+00 0.00000e+00 0.00000e+00 1.350000e-08 0.00000e+00 1.350000e-08	1.000 1.000 1.000 0.000 1.000 0.000

00 d 11	0.5611	0.4500	-0.800	1.350000e-08	0.900
c0011	0.5500	0.4500	-0.800	1.350000e-08	0.400
bull11	0.5875	0.0000	-0.800	0.000000e+00	1.000
cad11	0.5642	0.4500	-0.800	1.350000e-08	0.280
mur11	0.5619	0.4500	-0.800	1.350000e-08	0.920
mck11	0.5500	0.4500	-0.800	1.350000e-08	0.500
namu11	0.5650	0.4500	-0.800	1.350000e-08	0.100
west11	0.5640	0.4500	-0.800	1.350000e-08	0.250
ador11	0.0000	0.4500	0.0000	1.350000e-08	0.000
bir11	0.5764	0.4500	-0.800	1.350000e-08	0.700
hut11	0.5750	0.4500	-0.800	1.350000e-08	0.100
pool11	0.6100	0.4500	-0.800	1.350000e-08	0.600
napp11	0.5670	0.4500	-0.800	1.350000e-08	0.880
t0011	0.6871	0.4500	-0.800	1.350000e-08	0.740
dara11	0.7262	0.4500	-0.800	1.350000e-08	0.970
rose11	0.5625	0.0000	-0.800	0.000000e+00	1.000
epsi11	0.5801	0.4500	-0.800	1.350000e-08	0.880
mutt11	0.5625	0.0000	-0.800	0.000000e+00	1.000
pat11	0.6297	0.4500	-0.800	1.350000e-08	0.790
tir11	0.5650	0.4500	-0.800	1.350000e-08	0.100
merr11	0.5500	0.4500	-0.800	1.350000e-08	0.300

merr11	0.5500 0.	4500 -0.800 1.
Lithology Name	Initial Permeability (milliDarcys)	
Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 coo1 bull1 cad1 mur1 mck1 namu1 bir1 hut1	2.786221e+04 1.013171e-01 2.786221e+04 2.786221e+04 2.786221e+04 1.013171e-08 1.013171e-08 9.655232e-01 3.755972e+03 6.228538e-01 7.515815e-01 2.759494e-01 1.013171e-01 6.825522e+01 2.759494e-01 1.518504e+01 6.198629e+03 2.047023e+00 2.923719e+00 2.923719e+00 8.518624e-01 4.017996e-01 1.013171e-01 3.544999e-01 1.013171e-01 3.544999e-01 1.013171e-01 7.515815e-01 1.042884e+01	5.500 5.500 5.500 5.5500 5
all11 tool11 ood11	3.544999e-01 1.013171e-01 3.544999e-01 1.859013e+02	5.500 5.500 5.500 5.500

```
cad11 8.356076e+02
                                                     5.500
                   mur11 2.759494e-01
                                                     5.500
                   mck11 5.313115e+01
                                                     5.500
                  namu11 7.963102e+03
                 namu11 7.963102e+03
west11 1.216697e+03
ador11 2.786221e+04
bir11 4.339930e+00
hut11 7.963102e+03
pool11 1.518504e+01
napp11 4.554102e-01
too11 2.629719e+00
dara11 1.475240e-01
rose11 1.013171e-01
epsi11 4.554102e-01
mutt11 1.013171e-01
pat11 1.405862e+00
                                                     5.500
                                                     5.500
                                                     5.500
                                                     5.500
                                                     5.500
                                                     5.500
                                                     5.500
                                                     5.500
                                                     5.500
                                                     5.500
                                                    5.500
                                                    5.500
                   pat11 1.405862e+00
                                                    5.500
                   tir11 7.963102e+03
                                                    5.500
                  merr11 6.504527e+02
                                                  5.500
Geothermal Gradient Table
  Time Depth 1
   (Ma) (m)
_____
Maturity conversion method: Table
TTI = 4.191876 + 1.817512 * log10(Ro)
Data fit: Least Squares
                             Depth = (m)
                         Distance = (m)
          Thermal Conductivity = (W/m*deg C)
Heat Capacity = (kJ/m^3*deg C)
                        Heat Flow = (mV/m^2)
                      Temperature = (deg C)
                Heat Generation = (muW/m^3)
                         Gradient = (\text{deg C/100 m})
              Activation Energy = (kcal/mole)
               Frequency Factor = (1/my)
                       HC Density = (g/cm^3)
                         Pressure = (MPa)
                       Grain Size = (mm)
               Seismic Velocity = (m/s)
                       Event Time = (msec)
                         Maturity = (%Ro)
                   HC Generation = (mq/q TOC)
Calculation Options
                       Compaction = Sclater & Christie
         Porosity Depth Method = Linear
     Permeability Calculation = Modified Kozeny-Carman
       Geothermal Calculation = Gradient
          Maturity Calculation = LLNL
         Expulsion Calculation = None
                   Time Interval = 1.00
                 Depth Interval = 1000.00
                Integrate Depth = No
Advanced Options
             TTI Reference Temp = 105.00
              TTI Doubling Temp = 10.00
          Rock-Eval Correction = 35.00
                    Thermal Gain = 1.000
```

0

Model Units

Critical Fracturing Fraction = 0.850 Fracture Closure Rate = 0.050

Conductivity Calculation = Deming/Chapman

Initial S1 = 3.00

Rifting HF Options

Use Rifting Heat Flow = No Start Rift Time = 0.00 End Rift Time = 0.00 Auto-Calc Beta = No

Rifting Heat Flow Beta = 2.00

Present Day Info

Model Name = KIRRALEE-1 EROSION

Model Description = Current Surface Temp = 20.00 Current Elevation = 0.00 Current Heat Flow = 63.00

Seismic Parameters

Shot Point = 0

X = 0.00000000Y = 0.00000000

BasinMod Data Report
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Mr. Peter Tingate

Version: 4.20 Model Name: KOBARI-1 File Name: KOBARI-1.mod Date: Feb 5, 1996 Time: 12:22 pm

Stratigraphy Tabl Formation or Event Name		Begin Age (Ma)	Well Top (m)	Present Thick (m)	Lithology
QT/T	F	3.3	0	18	Sandstone
HIATUS-1	H	5.3			
NAMBA FM.	F	29.3	18	92	nam10
HIATUS-2	H	38			
EYRE FM.	F	60	110	59	eyr10
HIATUS-3	H	90			_
WINTON FM.	F	97.5	169	401	win10
MACKUNDA FM.	F	100	570	27	mac10
ALLARU/OOD	F	105.5	597	337	all10
COORIKIANA Sst.	F	108	934	7	coo10
BULLDOG SHALE	F	117.5	941	217	bull10
CADNA-OWIE FM.	F	135.5	1158	41	cad10
MURTA FM.	F	141.5	1199	45	mur10
McKINLAY Mbr.	F	145	1244	11	mck10
NAMUR Sst.	F	151	1255	55	namu10
WESTBOURNE FM.	F	165	1310	137	west10
BIRKHEAD FM.	F	175	1447	33	bir10
HUTTON Sst.	F	188	1480	37	hut10
POOLOWANNA FM.	F	193	1517	60	pool10
HIATUS-4	H	263.5			
MURTEREE SHALE	F	264.5	1577	17	mutt10
PATCHAWARRA FM.	F	274	1594	123	pat10
					•

Formation or Event Name	Type	Lith Pat
QT/T	F	
HIATUS-1	H	
NAMBA FM.	F	1
HIATUS-2	H	7
EYRE FM.	F	
HIATUS-3	H	
WINTON FM.	F	
MACKUNDA FM.	F	
ALLARU/OOD	F	
COORIKIANA Sst.	F	
BULLDOG SHALE	F	
CADNA-OWIE FM.	F	
MURTA FM.	F	
McKINLAY Mbr.	F	
_ NAMUR Sst.	F	
STBOURNE FM.	F	
BIRKHEAD FM.	F	
HUTTON Sst.	F	
POOLOWANNA FM.	F	
HIATUS-4	H	
MURTEREE SHALE	F	

Lithology	Mixes	Table
		_

Lithology	Mixes Table Lithology	ş		ે	. %		ે
	Name	Sandstone	e Siltst	tone	Shale	Lime	stone
	Sandstone nam10 eyr10 win10 mac10 all10 coo10 bull10 cad10 mur10 mck10 namu10 vest10 bir10 hut10 pool10 mutt10 pat10	100 18 80 10 12 50 40 27 78 95 80 30 100 38	3 0 0 2 9 0 7 3 3 5 0 0	420 430 551 500 500 500 500 500 500 500 500 50	30 47 30 40 60 10 15 6 22 19 25		10
	Lithology	%	Total	10	2.5		
	Name Sandstone nam10 eyr10 win10 mac10 all10 cool0 bull10 cad10 mur10 mck10 namu10 vest10 bir10 hut10 pool10 mutt10 pat10	2	% 100.0				
Lithology	Values Tabl Lithology Name						
	Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1	0.45 0.55 0.6 0.6 0.9 0.54 0.55 0.55		1.75 2.2 2.4 1.5 1.5 0 3.5 0 2.16 1.83 2.20 2.17 2.21	(0.27 0.41 0.51 0.22 0.22 0.7 0.40 0.29 0.41 0.40 0.42	2.64 2.64 2.72 2.85 2.15 1.8 2.65 2.631 2.638 2.610 2.631 2.630

Lithology Name	Grain Size (mm)	Matrix Conductivity (W/m*deg C)	Matrix Cond. Correction
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 cool bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 tool dara1	(mm) 0.5 0.0156 0.0004 0.5 0.0004 0.0004 0.0001 0.0137 0.2479 0.0109 0.0125 0.088 0.0883 0.0008 0.0609 0.0888 0.0360 0.2954 0.0166 0.2678 0.0069 0.0069 0.0070	(W/m*deg C) 4.4 2 1.5 2.9 4.8 5.4 0.3 2.9 2.329 3.996 2.200 2.279 2.077 3.2 1.6 3.188 2.077 2.885 4.097 2.435 3.968 1.913 2.531 1.942 1.948	Correction 270 170 -180 350 300 470 250 380 116.2 240 113 112.5 97.5 220 -110 180 97.5 157.5 247.5 133.4 252 142.2 131.2 152.9 124.9
rosel epsil	0.0062 0.0082	1.875 2.033	82.5 111.3

mutt1	0.0062	1.875	82.5
pat1	0.0095	2.121	129.2
nam10	0.0137	2.372	101
eyr10	0.2499	3.92	250
win10	0.0039	2.005	15.5
mac10	0.0078	2.138	77
all10	0.0049	2.016	39
coo10	0.0883	3.2	220
bull10	0.0017	1.7	-40
cad10	0.0432	2.91	175
mur10	0.0229	2.573	144.5
mck10	0.2331	3.872	248
namu10	0.4204	4.28	265
west10	0.2006	3.89	229
bir10	0.0197	2.61	123
hut10	0.5	4.4	270
pool10	0.0290	2.817	141.5
mutt10	0.0062	1.875	82.5
pat10	0.0312	2.803	157.1
-			
ithology	Heat Capacity	Heat Capacity	
	$(kJ/m^3*deq C)$		

Lithology Name	Heat Capacity $(kJ/m^3*deg\ C)$	Heat Capacity Correction
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 coo1 bull1 cad1 mur1 mck1 namu1 bir1 hut1	(kJ/m^3*deg C) 2800 2650 2100 2600 2600 1750 950 2500 2564. 2754 2513. 2558. 2535. 2725 2210 2662 2535. 2627. 2765. 2536 2773	Correction 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1 nam10 eyr10 win10 mac10 all10 cool0 bull10 cad10 mur10 mck10 namu10 west10	2240. 2587. 2202 2341 2512. 2447. 2512. 2402. 2507 2770 2406. 2503 2443. 2725 2320 2655 2608 2767 2792. 2737	

```
2574
2800
                                      bir10
                                                                                                                             0
                                      hut10
                                                                                                                             0
                                                                             2602.
                                                                                                                             0
                                     pool10
                                    mutt10
                                                                            2512.
                                       pat10
                                                                             2590.
Limology Fluid Flow Table
                            Lithology Initial Initial A
Name Porosity Porosity
                                                                                                                                                 B Fraction
                                                                                                                                     (1/Pa) A
                                                     A B
    ......
                            Sandstone 0.0000 0.4500 0.0000 1.350000e-08 0.000
                             Siltstone 0.5500 0.0000 -0.800 0.000000e+00
                                                                                                                                                                 1.000
                           Siltstone 0.5500 0.0000 -0.800 0.000000e+00  
Shale 0.6000 0.0000 -0.800 0.000000e+00  
Limestone 0.6000 0.0000 -0.800 0.000000e+00  
Dolomite 0.6000 0.0000 -0.800 0.000000e+00  
Evaporite 0.0000 0.0000 -0.800 1.350000e-08  
Coal 0.9000 0.0000 -0.800 0.00000e+00  
Igneous 0.0000 0.0000 -0.800 1.350000e-08  
nam1 0.5625 0.4500 -0.800 1.350000e-08  
win1 0.5725 0.4500 -0.800 1.350000e-08  
mac1 0.5625 0.4500 -0.800 1.350000e-08  
all1 0.5625 0.4500 -0.800 1.350000e-08  
cool 0.5500 0.4500 -0.800 1.350000e-08
                                                                                                                                                         1.000
1.000
1.000
0.000
0.000
0.820
                                                                                                                                                              0.160
                                                                                                                                                              0.855
                                                                                                                                                              0.840
                                                                                                                                                              0.920
                                         cool 0.5500 0.4500 -0.800 1.350000e-08
                                                                                                                                                              0.500
                                      bull1 0.5900 0.0000 -0.800 0.000000e+00 cad1 0.5625 0.4500 -0.800 1.350000e-08 mur1 0.5625 0.4500 -0.800 1.350000e-08 namu1 0.5625 0.4500 -0.800 1.350000e-08 namu1 0.5625 0.4500 -0.800 1.350000e-08
                                                                                                                                                               1.000
                                                                                                                                                              0.480
                                                                                                                                                              0.920
                                                                                                                                                              0.600
                                                                                                                                                              0.120

        bir1
        0.5756
        0.4500
        -0.800
        1.350000e-08

        hut1
        0.5500
        0.4500
        -0.800
        1.350000e-08

        pool1
        0.6409
        0.4500
        -0.800
        1.350000e-08

        napp1
        0.5625
        0.4500
        -0.800
        1.350000e-08

        tool
        0.6560
        0.4500
        -0.800
        1.350000e-08

        daral
        0.6117
        0.4500
        -0.800
        1.350000e-08

        rosel
        0.5625
        0.0000
        -0.800
        1.350000e-08

        mutt1
        0.5625
        0.0000
        -0.800
        1.350000e-08

        mutt1
        0.5625
        0.0000
        -0.800
        1.350000e-08

        nam10
        0.5625
        0.0000
        -0.800
        1.350000e-08

        nam10
        0.5743
        0.4500
        -0.800
        1.350000e-08

        win10
        0.5761
        0.4500
        -0.800
        1.350000e-08

        mac10
        0.5670
        0.4500
        -0.800
        1.350000e-08

        all10
        0.5719
        0.4500
        -0.800
        1.350000e-08

                                                                                                                                                              0.760
                                         bir1 0.5756 0.4500 -0.800 1.350000e-08
                                                                                                                                                              0.180
                                                                                                                                                              0.860
                                                                                                                                                                0.740
                                                                                                                                                                0.830
                                                                                                                                                                0.890
                                                                                                                                                                 1.000
                                                                                                                                                            0.900
                                                                                                                                                                1.000
                                                                                                                                                              0.840
                                                                                                                                                              0.820
                                                                                                                                                              0.200
                                                                                                                                                              0.900
                                                                                                                                                              0.880
                                       all10 0.5719 0.4500 -0.800 1.350000e-08
                                                                                                                                                              0.910
                                       cool0 0.5500 0.4500 -0.800 1.350000e-08
                                                                                                                                                              0.500
                                    bull10 0.5800 0.0000 -0.800 0.000000e+00
                                       cad10 0.5583 0.4500 -0.800 1.350000e-08
                                                                                                                                                              0.600

    mur10
    0.5602
    0.4500 -0.800 1.350000e-08

    mck10
    0.5500
    0.4500 -0.800 1.350000e-08

                                                                                                                                                              0.730
                                                                                                                                                              0.220
                                    namu10 0.5500 0.4500 -0.800 1.350000e-08
                                                                                                                                                              0.050
                                    west10 0.5650 0.4500 -0.800 1.350000e-08
bir10 0.5657 0.4500 -0.800 1.350000e-08
hut10 0.0000 0.4500 0.0000 1.350000e-08
                                                                                                                                                              0.200
                                                                                                                                                              0.700
                                                                                                                                                              0.000
                                    pool10 0.5653 0.4500 -0.800 1.350000e-08 mutt10 0.5625 0.0000 -0.800 0.000000e+00 pat10 0.5733 0.4500 -0.800 1.350000e-08
                                                                                                                                                                0.620
                                                                                                                                                             1.000
0.620
                             Lithology
                                                                      Initial Permeability
                                        Name Permeability Power (milliDarcys)
                             Sandstone 2.786221e+04 5.500
Siltstone 1.013171e-01 5.500
```

```
Shale 1.013171e-01
Limestone 2.786221e+04
Dolomite 2.786221e+04
Evaporite 1.013171e-08
Coal 1.013171e-01
                                               5.500
                                               5.500
                                             5.500
                                             5.500
                                             5.500
   Igneous 1.013171e-08
                                             5.500
                                              5.500
        nam1 9.655232e-01
                                             5.500
        eyr1 3.755972e+03
        win1 6.228538e-01
                                              5.500
        mac1 7.515815e-01
                                              5.500
                                             5.500
        all1 2.759494e-01
        coo1 5.313115e+01
                                              5.500
      bull1 1.013171e-01
                                              5.500
        cad1 6.825522e+01
                                              5.500
        mur1 2.759494e-01
                                              5.500
       mck1 1.518504e+01
                                              5.500
      namu1 6.198629e+03
                                              5.500
     bir1 2.047023e+00
hut1 2.923719e+03
pool1 5.850452e-01
napp1 2.629719e+00
too1 8.518624e-01
dara1 4.017996e-01
rose1 1.013171e-01
epsi1 3.544999e-01
mutt1 1.013171e-01
pat1 7.515815e-01
nam10 3.378283e+00
eyr10 2.275878e+03
win10 3.544999e-01
mac10 4.554102e-01
all10 3.127683e-01
coo10 5.313115e+01
       bir1 2.047023e+00
                                              5.500
                                              5.500
                                              5.500
                                              5.500
                                              5.500
                                               5.500
                                               5.500
                                              5.500
                                              5.500
                                              5.500
                                              5.500
                                              5.500
                                              5.500
                                              5.500
                                              5.500
      cool0 5.313115e+01
                                              5.500
    bull10 1.013171e-01
                                             5.500
      cad10 1.518504e+01
                                             5.500
      mur10 2.980593e+00
                                             5.500
      mck10 1.771586e+03
                                             5.500
    namu10 1.489529e+04
                                             5.500
5.500
    west10 2.275878e+03
bir10 4.339930e+00
hut10 2.786221e+04
pool10 1.182032e+01
mutt10 1.013171e-01
pat10 1.182032e+01
                                             5.500
                                             5.500
5.500
5.500
5.500
```

```
Geothermal Gradient Table
```

```
Time Depth 1 (Ma) (m)
```

Maturity conversion method: Table
TTI = 4.191876 + 1.817512 * log10(Ro)
Data fit: Least Squares

Model Units

```
Depth = (m)
Distance = (m)
Thermal Conductivity = (W/m*deg C)
Heat Capacity = (kJ/m^3*deg C)
Heat Flow = (mW/m^2)
Temperature = (deg C)
Heat Generation = (muW/m^3)
Gradient = (deg C/100 m)
```

Activation Energy = (kcal/mole) Frequency Factor = (1/my) HC Density = (g/cm^3) Pressure = (MPa) Grain Size = (mm) Seismic Velocity = (m/s)Event Time = (msec) Maturity = (%Ro) HC Generation = (mq/q TOC)Calculation Options Compaction = Sclater & Christie Porosity Depth Method = Linear Permeability Calculation = Modified Kozeny-Carman Geothermal Calculation = Gradient Maturity Calculation = LLNL Expulsion Calculation = None Time Interval = 1.00 Depth Interval = 1000.00 Integrate Depth = No Advanced Options TTI Reference Temp = 105.00 TTI Doubling Temp = 10.00 Rock-Eval Correction = 35.00 Thermal Gain = 1.000Critical Fracturing Fraction = 0.850 Fracture Closure Rate = 0.050 Conductivity Calculation = Deming/Chapman Initial S1 = 3.00Rifting HF Options Use Rifting Heat Flow = No Start Rift Time = 0.00 End Rift Time = 0.00Auto-Calc Beta = No Rifting Heat Flow Beta = 2.00 Present Day Info Model Name = KOBARI-1 Model Description = Current Surface Temp = 20.00 Current Elevation = 0.00 Current Heat Flow = 63.00 Seismic Parameters Shot Point = 0X = 0.00000000Y = 0.00000000

BasinMod Data Report
Licensed to: Natn'l Centre for Petroleum Geology & Geophysics |

Mr. Peter Tingate

Version: 4.20

Model Name: KOBARI-1 EROSION File Name: KOBARI-1 EROSION.mod

Date: Feb 5, 1996 Time: 12:22 pm

Stratigraphy Tab Formation or Event Name	Type	Begin Age (Ma)		Thick	
QT/T	F	3.3	0	18	-32
MISSING SEC-1	D	5.3			32
EROSION-1 MISSING SEC-1 NAMBA FM.	F	29.3	18	92	
EROSION-2	E	34			-36
MISSING SEC-2 EYRE FM.	D F	38 60	110	59	36
		60 75	110	29	-240
EROSION-3 MISSING SEC-3	D	90			240
WINTON FM.	F	97.5		401	
	F	100	570 507	27	
ALLARU/OOD COORIKIANA Sst.	r F	105.5	597 934	337 7	
COORIKIANA Sst. BULLDOG SHALE	F	117.5	941		
CADNA-OWIE FM.	F	135.5	1158	41	44
MURTA FM.			1199		
CKINLAY Mbr. NAMUR Sst.	E. F.	145	1244		
WESTBOURNE FM.	<u>੨</u> 'ਜ	151 165 175	1255 1310		
BIRKHEAD FM.	F	175	1447	33	
HUTTON Sst.	F	188	1480	37	
POOLOWANNA FM.			1517	60	
EROSION-4	E	256			-210
MISSING SEC-4 MURTEREE SHALE	T Ti	263.5	1577	17	210
PATCHAWARRA FM.	F	274	1594		
Formation	Type		Litho	logy L <u>i</u> tl	
or Event Name				Pat	ī.
Event name					_
QT/T EROSION-1	F		Sands	tone	
MISSING SEC-1	D		Sands	tone	
NAMBA FM.	F		n	am10	1
EROSION-2	E				
MISSING SEC-2	D F		Sands		
EYRE FM. EROSION-3	E		e	yr10	
MISSING SEC-3	D		Sands	tone	
WINTON FM.	F			in10	
MACKUNDA FM.	F			ac10	
ALLARU/OOD	F			1110	
COORIKIANA Sst. BULLDOG SHALE	T T			0010 1110	
CADNA-OWIE FM.	r F			ad10	
MURTA FM.	F			ur10	
McKINLAY Mbr.	F			ck10	

NAMUR Sst. HE WESTBOURNE FM. HE BIRKHEAD FM. HE HUTTON SST. HE POOLOWANNA FM. HE EROSION-4 HE WISSING SEC-4 HE PATCHAWARRA FM. HE	₹ ₹ ₹ ₹ 0 ₹	namu west bir hut pool Sandsto mutt pat	10 10 10 10 10 0ne	
Lithology Mixes Table Lithology Name	Sandstone	Siltstone		% Limestone
Sandstone nam10 eyr10 win10 mac10 al110 coo10 bul110 cad10 mur10 mck10 namu10 vest10 bir10 hut10 pool10 mutt10 pat10		1 42 43 43 43 43 43 43 43 43 43 43 43 43 43	47 3 30 40 60 10 3 15 2 6 2 3 22 3 25	
Lithology Name Sandstone nam10 eyr10 win10 mac10 all10 coo10 bull10 cad10 mur10 mck10 namu10 west10 bir10 hut10 pool10 mutt10 pat10 Lithology Values Tabl	Kerogen	Total % 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0		
Lithology Name Sandstone	Initial Porosity 0.45	Factor (FM	1) Factor 75	(SC) (g/cm ³) 0.27 2.64
Siltstone Shale Limestone Dolomite	0.55 0.6 0.6 0.6	2. 2. 1.	. 4 . 5	0.41 2.64 0.51 2.6 0.22 2.72 0.22 2.85

	Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 cool bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1 nam10 eyr10 win10 mac10 all10 cool0 bull10 cad10 mur10 mck10 namu10	0 9 0 4 6 5 5 5 5 5 9 0 5 1 6 4 6 1 3 2 9 6 7 6 7 5 7 5 6 5 6 5 8 1 3 7 5 7 3 5 2 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 5 0 6 8 3 0 7 1 2 7 6 9 1 5 1 6 8 3 2 2 1 2 1 2 1 2 1 2 2 2 1 2 2 2 2 2 2	0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4	2.65 2.631 2.638 2.630 2.631 2.631 2.630 2.634 2.638 2.637 2.638 2.637 2.638 2.637 2.638 2.637 2.632 2.633 2.6
	pat10	0.52	2.08	0.3	37 2.617
	Lithology Name	Grain Size (mm)			Matrix Cond. Correction
•	Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 coo1 bull1 cad1 mur1	0.5 0.0156 0.0004 0.5 0.0004 0.0001 0.0137 0.2479 0.0109 0.0125 0.0088 0.0883 0.0008		4.4 2 1.5 2.9 4.8 5.4 0.3 2.9 2.329 3.996 2.200 2.279 2.077 3.2 1.6 3.188 2.077 2.885	270 170 -180 350 300 470 250 380 116.2 240 113 112.5 97.5 220 -110 180 97.5

0.0360

0.2954

mck1

namu1

157.5

247.5

2.885

4.097

Lithology Heat Capacity Heat Capacity Name ($kJ/m^3*deg\ C$) Correction

Ivanic	(no/m 5 deg e/	COLLCCCION
Sandstone	2800	0
Siltstone	2650	ŏ
Shale	2100	ŏ
Limestone	2600	Ō
Dolomite	2600	Ö
Evaporite	1750	0
Coal	950	0
Igneous	2500	0
nam1	2564.	0
eyr1	2754	
win1	2513.	0
mac1	2558.	0
all1	2535.	0
C001	2725	0
bull1	2210	0
cad1	2662	0
mur1	2535.	0
mck1	2627.	0
namu1	2765.	0
bir1	2536	0
hut1	2773	0
pool1	2240.	0
napp1	2587.	0
tool	2202	0
dara1	2341	0
rose1	2512. 2447.	0
epsi1 mutt1	2512.	0
pat1	2402.	0
nam10	2507	0
eyr10	2770	0
win10	2406.	0
mac10	2503	0
macro	2503	U

```
all10
                               2443.
                coo10
                                2725
                                                  0
               bull10
                                2320
                                                  0
                cad10
                                2655
                                                  0
               mur10
                                2608
                                                  0
                                                  0
               mck10
                                2767
                               2792.
               namu10
                               2737
               west10
               bir10
                                2574
                                                  0
               hut10
                                2800
                                                  0
               pool10
                               2602.
                                                  0
                                                  0
               mutt10
                               2512.
               pat10
                               2590.
Lithology Fluid Flow Table
           Lithology Initial Initial A Name Porosity Porosity
                                                           B Fraction
                                                       (1/Pa)
                         A B

        Sandstone
        0.0000
        0.4500
        0.0000
        1.350000e-08
        0.000

        Siltstone
        0.5500
        0.0000
        -0.800
        0.00000e+00
        1.000

        Shale
        0.6000
        0.0000
        -0.800
        0.00000e+00
        1.000

        Limestone
        0.6000
        0.0000
        -0.800
        0.00000e+00
        1.000

        Dolomite
        0.6000
        0.0000
        -0.800
        0.00000e+00
        1.000

                      0.0000 0.0000 -0.800 1.350000e-08
                                                                0.000
           Evaporite
                      0.9000 0.0000 -0.800 0.000000e+00
                                                                1.000
                 Coal
                      0.0000 0.0000 -0.800 1.350000e-08
                                                               0.000
              Igneous
                      nam1
                                                               0.820
                      eyr1
                                                                0.160
                      winl
                 mac1 0.5625 0.4500 -0.800 1.350000e-08
                                                               0.840
                 all1 0.5625 0.4500 -0.800 1.350000e-08
                                                               0.920
                 cool 0.5500 0.4500 -0.800 1.350000e-08 0.500
               bull1 0.5900 0.0000 -0.800 0.000000e+00 1.000
                 cad1 0.5625 0.4500 -0.800 1.350000e-08
                                                               0.480
                 mur1 0.5625 0.4500 -0.800 1.350000e-08
                                                                0.920
                      0.600
                 mck1
                      0.5625
                namu1
                                0.4500 -0.800 1.350000e-08
                                                                 0.120
                 birl
                       0.5756
                                0.4500 -0.800 1.350000e-08
                                                                 0.760
                 hut1
                       0.5500
                                 0.4500 -0.800 1.350000e-08
                                                                 0.180
                                 0.4500 -0.800 1.350000e-08
                pool1
                       0.6409
                                                                 0.860
                                 0.4500 -0.800 1.350000e-08
               napp1
                       0.5625
                                                                 0.740
                                0.4500 -0.800 1.350000e-08
                 too1
                       0.6560
                                                                 0.830
                                 0.4500 -0.800 1.350000e-08
                                                                 0.890
                dara1
                       0.6117
                                 0.0000 -0.800 0.000000e+00
                       0.5625
                                                                 1.000
                rose1
                                0.4500 -0.800 1.350000e-08
                       0.5850
                                                                0.900
                epsi1
                               0.0000 -0.800 0.000000e+00
                       0.5625
                                                                 1.000
               mutt1
                pat1
                       0.6026   0.4500   -0.800   1.350000e-08
                                                                0.840
                      nam10
                                                                0.820
               eyr10
                      0.5500 0.4500 -0.800 1.350000e-08
                                                                0.200
               win10
                      0.5761 0.4500 -0.800 1.350000e-08
                                                               0.900
               mac10
                      0.880
                all10 0.5719 0.4500 -0.800 1.350000e-08
                                                              0.910
                cool0 0.5500 0.4500 -0.800 1.350000e-08
                                                                0.500
               bull10 0.5800 0.0000 -0.800 0.000000e+00
                                                                1.000
                      0.5583
                                 0.4500 -0.800 1.350000e-08
                                                                 0.600
                cad10
               mur10
                      0.5602
                                 0.4500 -0.800 1.350000e-08
                                                                0.730
                                                                 0.220
                      0.5500
                                 0.4500 -0.800 1.350000e-08
               mck10
                                 0.4500 -0.800 1.350000e-08
                                                                 0.050
               namu10
                       0.5500
                                 0.4500 -0.800 1.350000e-08
                       0.5650
                                                                 0.200
               west10
                                 0.4500 -0.800 1.350000e-08
               bir10
                       0.5657
                       0.0000 0.4500 0.0000 1.350000e-08
0.5653 0.4500 -0.800 1.350000e-08
                                                                0.000
               hut10
                                                              0.620
               pool10
                                                              1.000
                       mutt10
```

```
Lithology Initial Permeability
Name Permeability Power
                                                                                                                                     Name Permeability (milliDarcys)

Sandstone 2.786221e+04 5.500
Shale 1.013171e-01 5.500
Limestone 2.786221e+04 5.500
Dolomite 2.786221e+04 5.500
Coal 1.013171e-08 5.500
Coal 1.013171e-01 5.500
Igneous 1.013171e-08 5.500
eyr1 3.755972e+03 5.500
win1 6.228538e-01 5.500
mac1 7.515815e-01 5.500
cool 5.313115e+01 5.500
bull1 1.013171e-01 5.500
col 6.825522e+01 5.500
mck1 1.518504e+01 5.500
mck1 1.518504e+01 5.500
mck1 1.518504e+01 5.500
hut1 2.047023e+00 5.500
hut1 2.923719e+03 5.500
pool1 5.850452e-01 5.500
hut1 2.923719e+03 5.500
hut1 2.923719e+03 5.500
hut1 2.923719e+03 5.500
pool1 5.850452e-01 5.500
mach 1.013171e-01 5.500
hut1 2.923719e+03 5.500
hut1 2.923719e+00 5.500
hut1 2.923719e+00 5.500
hut1 2.923719e+00 5.500
hut1 3.544999e-01 5.500
mutt1 1.013171e-01 5.500
epsil 3.544999e-01 5.500
macl0 4.554102e-01 5.500
macl0 4.55402e-01 5.500
macl0 4.554102e-01 5.500
macl0 1.71586e+03 5.500
macl0 4.55402e-01 5.500
macl0 4.55402e-01 5.500
macl0 4.55402e-01 5.500
macl0 4.339930e+00 5.500
macl0 4.339930e+00 5.500
macl1 1.82032e+01 5.500
mutt10 1.013171e-01 5.500
mutt10 1.013171e-01 5.500
mutt10 1.013171e-01 5.500
mutt10 1.77586e+03 5.500
mutt10 1.182032e+01 5.500
mutt10 1.182032e+01 5.500
mutt10 1.182032e+01 5.500
(milliDarcys)
```

```
Geothermal Gradient Table
  Time Depth 1
```

(Ma) (m) 0 0

Maturity conversion method: Table TTI = 4.191876 + 1.817512 * log10(Ro)

Data fit: Least Squares

Model Units

```
Depth = (m)
                      Distance = (m)
         Thermal Conductivity = (W/m*deg C)
                 Heat Capacity = (kJ/m^3*deg\ C)
                     Heat Flow = (mW/m^2)
                   Temperature = (deg C)
              Heat Generation = (muW/m^3)
                      Gradient = (\text{deg C}/100 \text{ m})
            Activation Energy = (kcal/mole)
             Frequency Factor = (1/my)
HC Density = (g/cm<sup>3</sup>)
                      Pressure = (MPa)
                    Grain Size = (mm)
             Seismic Velocity = (m/s)
Event Time = (msec)
                 Maturity = (%Ro)
HC Generation = (mg/g TOC)
Calculation Options
                    Compaction = Sclater & Christie
        Porosity Depth Method = Linear
    Permeability Calculation = Modified Kozeny-Carman
      Geothermal Calculation = Gradient
         Maturity Calculation = LLNL
       Expulsion Calculation = None
                 Time Interval = 1.00
               Depth Interval = 1000.00
              Integrate Depth = No
Advanced Options
           TTI Reference Temp = 105.00
            TTI Doubling Temp = 10.00
         Rock-Eval Correction = 35.00
                  Thermal Gain = 1.000
Critical Fracturing Fraction = 0.850
        Fracture Closure Rate = 0.050
    Conductivity Calculation = Deming/Chapman
                    Initial S1 = 3.00
Rifting HF Options
       Use Rifting Heat Flow = No
              Start Rift Time = 0.00
                 End Rift Time = 0.00
                Auto-Calc Beta = No
      Rifting Heat Flow Beta = 2.00
Present Day Info
                    Model Name = KOBARI-1 EROSION
            Model Description =
         Current Surface Temp = 20.00
            Current Elevation = 0.00
Current Heat Flow = 63.00
Seismic Parameters
                    Shot Point = 0
                              X = 0.00000000
                              Y = 0.00000000
```

BasinMod Data Report

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Wr. Peter Tingate
Version: 4.20
Model Name: KUENPINNIE-1
File Name: KUENPINNIE-1.mod
Date: Feb 5, 1996
Time: 12:23 pm

	Stratigraphy Tab	Le			•	
	Formation		Begin	Well Top	Present	Lithology
	or		Āge		Thick	
	Event Name		(Ma)	(m)	(m)	
	QT/T	F	3.3	0	55	Sandstone
	HIATUS-1	H	5.3			_
	NAMBA FM.	F	29.3	55	106	nam9
	HIATUS-2	H	38			
	EYRE FM.	F	60	161	48	eyr9
	HIATUS-3	H	90			
	WINTON FM.	F	97.5	209	661	win9
	MACKUNDA FM.	F	100	870	64	mac9
	ALLARU Mdst.	F	101	934	258	al19
	TOOLEBUC FM.	F	102.5	1192	11	tool9
	WALLUMBILLA FM.	F	117.5	1203	309	wall9
٠.	CADNA-OWIE FM.	F	135.5	1512		cad9
	MURTA FM.	F	141.5	1575	40	mur9
	McKINLAY Mbr.	F	145	1615	2,	mck9
	NAMUR Sst.	F	151	1617	65	namu9
	WESTBOURNE FM.	F	159	1682	146	west9
	ADORI Sst.	F	165	1828	49	ador9
	BIRKHEAD FM.	F	175	1877	98	bir9
	HUTTON Sst.	F	188	1975	164	hut9
	POOLOWANNA FM.	F	193	2139	21	poo19
	HIATUS-4	H	261.5			
	EPSILON FM.	F	263.5	2160	26	epsi9
	MURTEREE SHAle	F	264.5	2186	14	mutt9
	PATCHAWARRA FM.	F	274	2200	269	pat9
	TIRRAWARRA Sst.	F	280	2469	20	tir9
	MERRIMELIA FM.	F	285.5	2489	52	merr9

Formation	Type	Lith
or		Pat
Event Name		
QT/T	F	
HIATUS-1	H	
NAMBA FM.	F	1
HIATUS-2	H	
EYRE FM.	F	
HIATUS-3	H	
WINTON FM.	F	
MACKUNDA FM.	F	
ALLARU Mdst.	F	
TOOLEBUC FM.	F	
WALLUMBILLA FM.	F	
NA-OWIE FM.	F	
MURTA FM.	F	
McKINLAY Mbr.	F	
NAMUR Sst.	F	
WESTBOURNE FM.	F	
ADORI Sst.	F	

BIRKHEAD FM.	F
HUTTON Sst.	F
POOLOWANNA FM.	F
HIATUS-4	H
EPSILON FM.	F
MURTEREE SHAle	F
P <u>AT</u> CHAWARRA FM.	F
TAWARRA Sst.	F
MERRIMELIA FM.	F

Lithology Mixes ?	Table
-------------------	-------

51	Lithology	앙	양	왕	왕
	Name	Sandstone	Siltstone	Shale	Limestone
	Condatana	100			
	Sandstone	100	4.0	2.2	10
	nam9	15	40	33	12
	eyr9	76	20	4	
	win9	17	50	32	
	mac9	11	60	29	
	all9	4	60	36	
	tool9		26.5	73.5	
	wall9		30	70	
	cad9	36	54	10	
	mur9	9	77	14	
•	mck9	50	50		
	namu9	79	21		
	west9	62	27	11	
	ador9	95	5		
	bir9	32	40	28	
	hut9	79	21		
	pool9	16	40	29	
	epsi9	12	49	20	
	mutt9		75	25	
	pat9	17	45.5		
	tir9	80	20		
	merr9	18	61.5	20.5	

Lithology	% Vereger	Total %
Name	Kerogen	6
Sandstone		100.0
nam9		100.0
eyr9		100.0
win9	1	100.0
mac9		100.0
all9		100.0
tool9		100.0
wall9		100.0
cad9		100.0
mur9		100.0
mck9		100.0
namu9		100.0
west9		100.0
ador9		100.0
bir9		100.0
hut9		100.0
pool9	15	100.0
epsi9	19	100.0
mutt9		100.0
pat9	22	100.0
tir9		100.0
merr9		100.0

Lithology Values Table

Lithology Name	Initial Porosity	Compaction Factor (FM)	Exponential Factor (SC)	Density (g/cm^3)
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1	0.55 0.6 0.6 0.9 0.54 0.46	1.75 2.2 2.4 1.5 1.5 0 3.5 0 2.16 1.83 2.20	0.27 0.41 0.51 0.22 0.22 0.7 0.40 0.29 0.41	2.64 2.6 2.72 2.85 2.15 1.8 2.65 2.631 2.638
mac1 all1 coo1 bull1 cad1 mur1 mck1 namu1 bir1	0.54 0.55 0.59 0.50 0.55 0.51 0.46 0.54	2.17 2.21 1.97 2.36 1.99 2.21 2.05 1.81 2.16 1.83	0.40 0.42 0.34 0.49 0.34 0.42 0.36 0.28	2.631 2.630 2.64 2.608 2.635 2.630 2.634 2.638 2.607 2.64
pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1 nam9 eyr9	0.53 0.62 0.59 0.56 0.57 0.56 0.57 0.55	2.43 2.12 2.45 2.35 2.25 2.27 2.25 2.29 2.11	0.46 0.39 0.46 0.43 0.43 0.43 0.39	2.632 2.440 2.523 2.63 2.581 2.63 2.548 2.636 2.638
win9 mac9 all9 tool9 wall9 cad9 mur9 mck9 namu9 west9 ador9	0.55 0.56 0.58 0.58 0.51 0.54 0.5 0.47	2.20 2.25 2.34 2.34 2.05 2.18 1.97 1.84 1.94	0.42 0.44 0.48 0.48 0.36 0.41 0.34 0.29	2.628 2.625 2.610 2.612 2.636 2.634 2.64 2.64 2.635
bir9 hut9 pool9 epsi9 mutt9 pat9 tir9	0.53 0.47 0.60 0.61 0.56 0.61	2.11 1.84 2.38 2.43 2.25 2.44 1.84 2.16	0.39 0.29 0.46 0.46 0.43	2.628 2.64 2.502 2.472 2.63 2.449 2.64
Lithology Name		ze Matrix Co: m) ('		Matrix Cond. Correction
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal	0.01	04 .5 .5 04	4.4 2 1.5 2.9 4.8 5.4 0.3	270 170 -180 350 300 470 250

Igneous nam1 eyr1 win1 mac1 all1 coo1 bull1 cad1 mur1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1 nam9 eyr9 win9 mac9 all9 too19 wall9 cad9 mur9 mck9 namu9 west9 ador9 bir9 hut9 pool9 epsi9 mutt9 pat9 tir9 merr9	0.2414 0.0894 0.4204 0.0169 0.2414 0.0054 0.0056 0.0062 0.0071 0.2499 0.0137		2.9 2.329 3.996 2.279 2.077 3.2 1.6 3.188 2.077 2.885 4.097 2.435 3.968 1.913 2.531 1.942 1.948 1.875 2.121 2.303 3.804 2.2119 1.65 2.814 2.146 3.2 3.896 3.438 2.628 3.438 2.628 3.896 3.438 2.628 3.896 3.438 2.628 3.896 3.996 3.9	380 116.2 240 113 112.5 97.5 220 -110 97.55 247.5 133.4 252 142.2 131.2 124.9 124.9 124.9 124.9 123.8 79.5 129.1 232 75.5 171 130 249 193.5 104.9 105.5 106
Lithology Name	Heat Capacit (kJ/m^3*deg (
Sandstone Siltstone Shale	28: 26: 21:	50	0 0 0	

	Heat Capacity (kJ/m^3*deg C)	
Sandstone	2800	0
Siltstone	2650	0
Shale	2100	0
Limestone	2600	0
Dolomite	2600	0
Evaporite	1750	0
Coal	950	0
Igneous	2500	0
nam1	2564.	0
eyr1	2754	0
win1	2513.	0
mac1	2558.	0
all1	2535.	0
coo1	2725	0
bull1	2210	0
cad1	2662	0
mur1	2535.	0

wall9 2265 0 cad9 2649 0 mur9 2586. 0 mck9 2725 0 namu9 2768. 0 west9 2682. 0 ador9 2792. 0 bir9 2544 0 hut9 2768. 0 pool9 2259. 0 epsi9 2235 0 mutt9 2512. 0 pat9 2216. 0 tir9 2770 0 merr9 2564. 0	mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1 nam9 eyr9 win9 mac9 al19 too19	2627. 2765. 2536 2773 2240. 2587. 2202 2341 2512. 2447. 2512. 2402. 2485 2742 2482. 2507 2458 2245.	000000000000000000000000000000000000000
mutt9 2512. 0 pat9 2216. 0 tir9 2770 0	namu9 west9 ador9 bir9 hut9	2768. 2682. 2792. 2544 2768.	0 0 0 0 0
minia mion mobile	epsi9 mutt9 pat9 tir9 merr9	2512. 2216. 2770	0 0 0

Lithology Fluid	ology Initia Name Porosit		A	B (1/Pa)	Fraction A
Lime Dol Evap	stone 0.000 stone 0.550 Shale 0.600 stone 0.600 omite 0.600 orite 0.000 neous 0.000 nam1 0.562 eyr1 0.562 win1 0.572 mac1 0.562 all1 0.562 coo1 0.550 bull1 0.590 cad1 0.562 mur1 0.562 mur1 0.562 mur1 0.562 namu1 0.562 namu1 0.562 namu1 0.562 namu1 0.562 too1 0.575 hut1 0.575 hut1 0.550 pool1 0.640 napp1 0.562 too1 0.656	0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.4500	-0.800 -0.800 -0.800 -0.800 -0.800	0.000000e+00 0.000000e+00 1.350000e-08 0.000000e+00 1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08	0.000 1.000 1.000 1.000 0.000 0.000 0.820 0.160 0.855 0.840 0.920 0.500 1.000 0.480 0.920 0.600 0.120 0.760 0.180 0.830 0.890
	dara1 0.611	, 0.4300	0.000		0.000

rose1	0.5625	0.0000	-0.800	0.000000e+00	1.000
epsi1	0.5850	0.4500	-0.800	1.350000e-08	0.900
mutt1	0.5625	0.0000	-0.800	0.000000e+00	1.000
pat1	0.6026	0.4500	-0.800	1.350000e-08	0.840
nam9	0.5764	0.4500	-0.800	1.350000e-08	0.850
eyr9	0.5583	0.4500	-0.800	1.350000e-08	0.240
win9	0.5734	0.4500	-0.800	1.350000e-08	0.830
mac9	0.5662	0.4500	-0.800	1.350000e-08	0.890
all9	0.5687	0.4500	-0.800	1.350000e-08	0.960
tool9	0.5867	0.0000	-0.800	0.000000e+00	1.000
wall9	0.5850	0.0000	-0.800	0.000000e+00	1.000
cad9	0.5578	0.4500	-0.800	1.350000e-08	0.640
mur9	0.5576	0.4500	-0.800	1.350000e-08	0.910
mck9	0.5500	0.4500	-0.800	1.350000e-08	0.500
namu9	0.5500	0.4500	-0.800	1.350000e-08	0.210
west9	0.5644	0.4500	-0.800	1.350000e-08	0.380
ador9	0.5500	0.4500	-0.800	1.350000e-08	0.050
bir9	0.5705	0.4500	-0.800	1.350000e-08	0.680
hut9	0.5500	0.4500	-0.800	1.350000e-08	0.210
pool9	0.6297	0.4500	-0.800	1.350000e-08	0.840
epsi9	0.6369	0.4500	-0.800	1.350000e-08	0.880
mutt9	0.5625	0.0000	-0.800	0.000000e+00	1.000
pat9	0.6521	0.4500	-0.800	1.350000e-08	0.830
tir9	0.5500	0.4500	-0.800	1.350000e-08	0.200
merr9	0.5625	0.4500	-0.800	1.350000e-08	0.820

merry	0.3023 0.5	±300 -0.000 ±.
Lithology Name		Permeability Power
Candstone	2.786221e+04	5.500
Siltstone		5.500
	1.013171e-01	5.500
	2.786221e+04	5.500
Dolomite	2.786221e+04	5.500
Evaporite		5.500
Coal	1.013171e-01	5.500
Igneous	1.013171e-08	5.500
nam1	9.655232e-01	5.500
eyr1	3.755972e+03	5.500
win1	6.228538e-01	5.500
mac1		5.500
all1		5.500
cool		5.500
bull1		5.500
cad1		5.500
murl		5.500
mck1	1.518504e+01	5.500
namu1	6.198629e+03	5.500
birl	2.047023e+00	5.500
hut1	2.923719e+03	5.500
pool1	5.850452e-01	5.500
nappl	2.629719e+00	5.500
too1 dara1	8.518624e-01 4.017996e-01	5.500 5.500
rose1	1.013171e-01	5.500
epsi1	3.544999e-01	5.500
mutt1	1.013171e-01	5.500
	7.515815e-01	5.500
nam9	2.980593e+00	5.500
11ams	1.5005556100	5.500

1.379036e+03

8.518624e-01 4.017996e-01

1.672077e-01

5.500

5.500 5.500

5.500

eyr9

win9

mac9 al19

```
tool9 1.013171e-01
wal19 1.013171e-01
cad9 9.201161e+00
mur9 3.127683e-01
mck9 5.313115e+01
namu9 2.007963e+03
west9 2.388192e+02
ador9 1.489529e+04
bir9 5.575314e+00
hut9 2.007963e+03
pool9 7.515815e-01
epsi9 4.554102e-01
mutt9 1.013171e-01
pat9 8.518624e-01
tir9 2.275878e+03
merr9 9.655232e-01
                                                            5.500
                                                            5.500
                                                             5.500
                                                             5.500
                                                          5.500
                                                             5.500
                                                            5.500
                                                            5.500
                                                            5.500
                                                            5.500
                                                            5.500
                                                            5.500
                                                            5.500
                                                            5.500
                                                            5.500
                      merr9 9.655232e-01 5.500
Geothermal Gradient Table
   Time Depth 1
(Ma) (m)
      0 0
Maturity conversion method: Table
TTI = 4.191876 + 1.817512 * log10(Ro)
Data fit: Least Squares
                                Depth = (m)
.stance = (m)
           Distance = (m)

Distance = (m)

Thermal Conductivity = (W/m*deg C)

Heat Capacity = (kJ/m^3*deg C)

Heat Flow = (mW/m^2)
                         Temperature = (deg C)
                   Heat Generation = (muW/m^3)
                             Gradient = (deg C/100 m)
                Activation Energy = (kcal/mole)
Frequency Factor = (1/my)
                           HC Density = (g/cm^3)
                              Pressure = (MPa)
                           Grain Size = (mm)
                  Seismic Velocity = (m/s)
                           Event Time = (msec)
                              Maturity = (%Ro)
                      HC Generation = (mg/g TOC)
Calculation Options
                           Compaction = Sclater & Christie
          Porosity Depth Method = Linear
      Permeability Calculation = Modified Kozeny-Carman
Geothermal Calculation = Gradient
          Maturity Calculation = LLNL
Expulsion Calculation = None
                      Time Interval = 1.00
                     Depth Interval = 1000.00
                   Integrate Depth = No
Advanced Options
               TTI Reference Temp = 105.00
                TTI Doubling Temp = 10.00
            Rock-Eval Correction = 35.00
                        Thermal Gain = 1.000
Critical Fracturing Fraction = 0.850
          Fracture Closure Rate = 0.050
```

Model Units

Conductivity Calculation = Deming/Chapman Initial S1 = 3.00

Rifting HF Options

Use Rifting Heat Flow = No

Start Rift Time = 0.00 End Rift Time = 0.00

Auto-Calc Beta = No

Rifting Heat Flow Beta = 2.00

Present Day Info

Model Name = KUENPINNIE-1

Model Description =
Current Surface Temp = 20.00
Current Elevation = 0.00
Current Heat Flow = 63.00

Seismic Parameters

Shot Point = 0

X = 0.00000000

Y = 0.00000000

BasinMod Data Report

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Mr. Peter Tingate

Version: 4.20

Model Name: KUENPINNIE-1 EROSION File Name: KUENPINNIE-1 EROSION.mod
Date: Feb 5, 1996
Time: 12:24 pm

+					·
Stratigraphy Tab	le	Dogin	Well Top I)xoaont	Missins
rormation	туре	Age	werr rob r	Thick	Thick
Event Name		(Ma)	(m)	(m)	(m)
QT/T	 F	3.3	0	55	
EROSION-1	Ē	4.3	ŭ	55	-15
MISSING SEC-1		5.3			15
NAMBA FM.	F	29.3	55	106	
EROSION-2		34			-12
MISSING SEC-2	D	38			12
EYRE FM.	F	60	161	48	
EROSION-3	B	75			-250
MISSING SEC-3	D	90			250
WINTON FM.		97.5	209	661	
MACKUNDA FM.		100	870	64	
ALLARU Mdst.		101	934	258	
TOOLEBUC FM.	F			11	
WALLUMBILLA FM.	F	117.5		309	
CADNA-OWIE FM.	F		1512	63	
MURTA FM.	F	141.5		40	
MCKINLAY Mbr.				2	
NAMUR Sst.		151 159		65 146	
WESTBOURNE FM. ADORI Sst.	T T			49	
BIRKHEAD FM.	F			98	
HUTTON Sst.	F			164	
POOLOWANNA FM.	F		· ·	21	
EROSION-4		236.5			-100
MISSING SEC-4	D				100
EROSION-5		256			-121
MISSING SEC-5	D	261.5			121
EPSILON FM.	F	263.5	2160	26	
MURTEREE SHAle	F		2186	14	
PATCHAWARRA FM.	F		2200	269	
TIRRAWARRA Sst.		280	2469	20	
MERRIMELIA FM.	F	285.5	2489	52	
Formation	Туре		Litholo	ogy Lith Pat	
or Event Name				rat	•
QT/T	 F		Sandsto		-
EROSION-1			Sanusco)11 C	
MISSING SEC-1	D		Sandsto	me	
NAMBA FM.	F			am9	1
EROSION-2	E		110		_
ISSING SEC-2	D		Sandsto	one	
EYRE FM.	F			/r9	
EROSION-3	Ē		0,	, -	
MISSING SEC-3	D		Sandsto	one	
WINTON FM.	F			in9	
MACKUNDA FM.	F			ac9	
	-				

ALLARU Mdst.	F		all9	
TOOLEBUC FM.	F		tool9	
WALLUMBILLA FM.	F		wall9	
CADNA-OWIE FM.	F		cad9	
MURTA FM.	F		mur9	
McKINLAY Mbr.	F		mck9	
_ NAMUR Sst.	F		namu9	
STBOURNE FM.	F		west9	
ADORI Sst.	F		ador9	
BIRKHEAD FM.	F		bir9	
HUTTON Sst.	F		hut9	
POOLOWANNA FM.	F		pool9	
EROSION-4	E		_	
MISSING SEC-4	D		Sandstone	
EROSION-5	E			
MISSING SEC-5	D		Sandstone	
EPSILON FM.	F		epsi9	
MURTEREE SHAle	F		mutt9	
PATCHAWARRA FM.	F		pat9	
TIRRAWARRA Sst.	F		tir9	
MERRIMELIA FM.	F		merr9	
richology Miyog Tol	, ,			
Lithology Mixes Tal Litholog		%	્ર	
		•	Siltstone	
Sandsto	ne	100		

Lithology	8	8		8
Name	Sandstone	Siltstone	Shale	Limestone
Sandstone	100			
nam9		40	33	12
eyr9	76	20	4	
win9	17	50	32	
mac9	11	60	29	
all9	4	60	. 36	
tool9		26.5	73.5	
wall9		30	70	
cad9	36	54	10	
mur9	9	77	14	
mck9	50	50		
namu9	79	21		
west9	62	27	11	
ador9	95	5		
bir9	32	40	28	
hut9	79	21		
pool9	16	40	29	
epsi9	12	49	20	
mutt9		75	25	
pat9	17	45.5	15.5	
tir9	80	20		
merr9	18	61.5	20.5	
Lithology	% 5	rotal		

	Nome	Vereger	왕
	Name	Kerogen	6
	Sandstone		100.0
	nam9		100.0
	eyr9		100.0
	win9	1	100.0
	mac9		100.0
_	al19		100.0
	tool9		100.0
	wall9		100.0
	cad9		100.0
	mur9		100.0
	mck9		100.0
	namu9		100.0

	100.0
19	100.0 100.0 100.0 100.0 100.0
	15 19 22

	merr9		100.0			
Lithology	Values Tabl Lithology Name	Initial		Exponential Factor (SC)		
	Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 cool bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1 nam9 eyr9 win9 mac9 all9 tool9 wall9 cad9 mur9 mck9 namu9 west9 ador9 bir9 hut9 pool9 epsi9 mutt9 pat9 tir9	0.6 0.6 0.9 0.54 0.46 0.55	1.5 1.5 0 3.5 0 2.16 1.83 2.20 2.17 2.21 1.97 2.36 1.99 2.21 2.05 1.81 2.16 1.83 2.43 2.43	0.41 0.22 0.40 0.42 0.42 0.44 0.42 0.44 0.42 0.44 0.43 0.43 0.43 0.43 0.43 0.43 0.43	2.631 2.630 2.64 2.608	

merr9 0.54 2.16 0.40 2.631

Lithology Name	Grain Size (mm)	Matrix	Conductivity (W/m*deg C)		Cond.
		Matrix		Corre	
pat9 tir9 merr9	0.0071 0.2499 0.0137		1.956 3.92 2.329		150.3 250 116.2
	Heat Capa (kJ/m^3*deg		at Capacity Correction		
Sandstone Siltstone Shale Limestone Dolomite	:	2800 2650 2100 2600 2600	0 0 0 0		

	Evaporite Coal Igneous nam1 eyr1 win1 mac1 al11 cool bul11 cad1 mur1 hut1 pool1 napp1 tool1 dara1 rose1 epsi1 mutt1 pat1 nam9 eyr9 win9 mac9 al19 tool9 wal19 cad9 mur9 mck9 namu9 west9 ador9 hut9 pool9 epsi9 mutt9 pol9 epsi9 mutr9 mr9		1750 2500 2564. 2513. 2558. 2513. 2520 2535. 2662. 2765. 2765. 2770. 2240. 2341. 2447. 2512. 2447. 2482. 2482. 2482. 2482. 2482. 2483. 2485. 2768. 2779. 2768. 2779. 2768. 2779. 2779. 2779. 2779. 2779. 2779. 2779. 2779. 2779. 2779. 2779. 2779.			
Lithology	Fluid Flow Lithology Name	Table Initial Porosity A	Initial Porosity B	A	B (1/Pa)	Fraction A
	Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1	0.0000 0.5500 0.6000 0.6000 0.6000 0.0000 0.9000 0.5625 0.5625 0.5625 0.5625	0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.4500 0.4500 0.4500	-0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800	1.350000e-08 0.000000e+00 0.000000e+00 0.000000e+00 1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08	0.000 1.000 1.000 1.000 0.000 0.000 0.820 0.160 0.855 0.840 0.920

COO1	0.5500 0.5900	0.4500		1.350000e-08 0.000000e+00	0.500 1.000
cad1	0.5625	0.4500	-0.800	1.350000e-08	0.480
mur1	0.5625	0.4500	-0.800	1.350000e-08	0.920
mck1	0.5625	0.4500	-0.800	1.350000e-08	0.600
namu1	0.5625	0.4500	-0.800	1.350000e-08	0.120
bir1	0.5756	0.4500	-0.800	1.350000e-08	0.760
hut1	0.5500	0.4500	-0.800	1.350000e-08	0.180
pool1	0.6409	0.4500	-0.800	1.350000e-08	0.860
napp1	0.5625	0.4500	-0.800	1.350000e-08	0.740
too1	0.6560	0.4500	-0.800	1.350000c 00	0.830
dara1	0.6117	0.4500	-0.800	1.350000e-08	0.890
rosel	0.5625	0.0000	-0.800		1.000
epsi1	0.5850	0.4500	-0.800	1.350000e-08	0.900
mutt1	0.5625	0.0000	-0.800		1.000
pat1	0.6026			1.350000e-08	0.840
nam9	0.5764	0.4500	-0.800	1.350000e-08	0.850
eyr9	0.5583	0.4500		1.350000e-08	0.240
win9	0.5734	0.4500		1.350000e-08	0.830
mac9	0.5662	0.4500	-0.800	1.350000e-08	0.890
all9	0.5687	0.4500		1.350000e-08	0.960
tool9	0.5867	0.0000	-0.800	0.000000e+00	1.000
wall9	0.5850	0.0000	-0.800	0.000000e+00	1.000
cad9	0.5578	0.4500	-0.800	1.350000e-08	0.640
mur9	0.5576	0.4500	-0.800	1.350000e-08	0.910
mck9	0.5500	0.4500	-0.800	1.350000e-08	0.500
namu9	0.5500	0.4500	-0.800	1.350000e-08	0.210
west9	0.5644	0.4500	-0.800	1.350000e-08	0.380
ador9	0.5500	0.4500	-0.800	1.350000e-08	0.050
bir9	0.5705	0.4500	-0.800	1.350000e-08	0.680
hut9	0.5500	0.4500	-0.800	1.350000e-08	0.210
pool9	0.6297	0.4500	-0.800	1.350000e-08	0.840
epsi9	0.6369	0.4500	-0.800	1.350000e-08	0.880
mutt9	0.5625	0.0000		0.000000e+00	1.000
pat9	0.6521	0.4500	-0.800	1.350000e-08	0.830
tir9	0.5500	0.4500	-0.800	1.350000e-08	0.200
merr9	0.5625	0.4500	-0.800	1.350000e-08	0.820

Siltstone1.013171e-015.500Shale1.013171e-015.500Limestone2.786221e+045.500Dolomite2.786221e+045.500Evaporite1.013171e-085.500Coal1.013171e-015.500		Lithology Name	Initial Permeability (milliDarcys)	Permeability Power
nam1 9.655232e-01 5.500 eyr1 3.755972e+03 5.500 win1 6.228538e-01 5.500 mac1 7.515815e-01 5.500 all1 2.759494e-01 5.500 coo1 5.313115e+01 5.500 bull1 1.013171e-01 5.500 cad1 6.825522e+01 5.500 mur1 2.759494e-01 5.500 mur1 2.759494e-01 5.500 namu1 6.198629e+03 5.500 bir1 2.047023e+00 5.500 hut1 2.923719e+03 5.500	:	Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 coo1 bull1 cad1 mur1 mck1 namu1 bir1 hut1	1.013171e-01 1.013171e-01 2.786221e+04 2.786221e+04 1.013171e-08 1.013171e-01 1.013171e-01 3.755972e+03 6.228538e-01 7.515815e-01 2.759494e-01 5.313115e+01 1.013171e-01 6.825522e+01 2.759494e-01 1.518504e+01 6.198629e+03 2.047023e+00 2.923719e+03	5.500 5.500 5.500 5.500 5.500 5.500 5.500 5.500 5.500 5.500 5.500 5.500 5.500 5.500 5.500 5.500 5.500 5.500

```
napp1 2.629719e+00
too1 8.518624e-01
dara1 4.017996e-01
                                                           5,500
                                                           5.500
dara1 4.017996e-01
rose1 1.013171e-01
epsi1 3.544999e-01
mutt1 1.013171e-01
pat1 7.515815e-01
nam9 2.980593e+00
eyr9 1.379036e+03
win9 8.518624e-01
mac9 4.017996e-01
all9 1.672077e-01
tool9 1.013171e-01
wall9 1.013171e-01
cad9 9.201161e+00
                                                          5.500
                                                5.500
5.500
                                                         5.500
                                                        5.500
                                                        5.500
                                                         5.500
                                                         5.500
                                                         5.500
                                                         5.500
                                                         5.500
                                                         5.500
   cad9 9.201161e+00
                                                         5.500
  mur9 3.127683e-01
                                                         5.500
                                                         5.500
  mck9 5.313115e+01
namu9 2.007963e+03
                                                         5.500
west9 2.388192e+02
ador9 1.489529e+04
                                                         5.500
                                                         5.500
  bir9 5.575314e+00
                                                         5.500
bir9 5.575314e+UU 5.500
hut9 2.007963e+03 5.500
pool9 7.515815e-01 5.500
epsi9 4.554102e-01 5.500
mutt9 1.013171e-01 5.500
pat9 8.518624e-01 5.500
tir9 2.275878e+03 5.500
merr9 9.655232e-01 5.500
```

Geothermal Gradient Table

Time Depth 1 (Ma) (m)

Maturity conversion method: Table TTI = 4.191876 + 1.817512 * log10(Ro)Data fit: Least Squares

Model Units

Depth = (m)Distance = (m) Thermal Conductivity = (W/m*deg C)Heat Capacity = $(kJ/m^3*deg C)$ Heat Flow = (mW/m^2) Temperature = (deg C)
Heat Generation = (muW/m^3) Gradient = (deg C/100 m)Activation Energy = (kcal/mole) Frequency Factor = (1/my) HC Density = (g/cm^3) Pressure = (MPa) Grain Size = (mm) Seismic Velocity = (m/s)Event Time = (msec) Maturity = (%Ro)

Ca lation Options

Compaction = Sclater & Christie

Porosity Depth Method = Linear

Permeability Calculation = Modified Kozeny-Carman Geothermal Calculation = Gradient

HC Generation = (mg/g TOC)

Maturity Calculation = LLNL

Expulsion Calculation = None
 Time Interval = 1.00
 Depth Interval = 1000.00
 Integrate Depth = No

Advanced Options

TTI Reference Temp = 105.00

TTI Doubling Temp = 10.00

Rock-Eval Correction = 35.00

Thermal Gain = 1.000

Critical Fracturing Fraction = 0.850

Fracture Closure Rate = 0.050

Conductivity Calculation = Deming/Chapman

Initial S1 = 3.00

Rifting HF Options

Use Rifting Heat Flow = No
Start Rift Time = 0.00
End Rift Time = 0.00
Auto-Calc Beta = No
Rifting Heat Flow Beta = 2.00

Present Day Info

Model Name = KUENPINNIE-1 EROSION

Model Description =

Current Surface Temp = 20.00 Current Elevation = 0.00 Current Heat Flow = 63.00

Seismic Parameters

Shot Point = 0

X = 0.00000000Y = 0.00000000

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Mr. Peter Tingate

Version: 4.20 Model Name: LYCIUM-1
File Name: LYCIUM-1.mod
Date: Feb 5, 1996
Time: 12:26 pm

Ct	CT = 1- 1 -	

Stratigraphy Tabl					
Formation or	Type	Begin Age	Well Top	Present Thick	Lithology
Event Name		(Ma)	(m)	(m)	
QT/T	F	3.3	0	55	Sandstone
HIATUS-1	H	5.3	~		
NAMBA FM.	F	29.3	55	93	nam8
HIATUS-2	H	38			
EYRE FM.	F	60	148	16	eyr8
HIATUS-3	H	90			
WINTON FM.	F	97.5	164	593	win8
MACKUNDA FM.	F	100	757	44	mac8
ALLARU Mdst.	F	101	801	234	all8
TOOLEBUC FM.	F	102.5	1035	6	tool8
OODNADATTA FM.	F	105.5	1041	106	8boo
COORIKIANA Sst.	F	108	1147	10	c008
BULLDOG SHALE	F	117.5	1157	220	bull8
CADNA-OWIE FM.	F	135.5	1377	60	cad8
MURTA FM.	F	141.5	1437	33	mur8
McKINLAY Mbr.	F	145	1470	8	mck8
NAMUR Sst.	F	151	1478	53	namu8
WESTBOURNE FM.	F	159	1531	82	west8
ADORI Sst.	F	165	1613	129	ador8
BIRKHEAD FM.	F	175	1742	43	bir8
HUTTON Sst.	F	188	1785	158	hut8
POOLOWANNA FM.	F	193	1943	52	pool8
HIATUS-4	H	264.5			
PATCHAWARRA FM.	F	274	1995	189	pat8
TIRRAWARRA Sst.	F	280	2184	26	tir8
		,			

Formation or	Type	Lith Pat
Event Name		
QT/T	 F	
HIATUS-1	_	
NAMBA FM.	F	1
HIATUS-2	H	
EYRE FM.	F	
HIATUS-3	H	
WINTON FM.	F	
MACKUNDA FM.	F	
ALLARU Mdst.	F	
TOOLEBUC FM.	F	
OODNADATTA FM.	F	
COORIKIANA Sst.	F	
ULLDOG SHALE	F	
CADNA-OWIE FM.	F	
MURTA FM.	F	
McKINLAY Mbr.	F	
NAMUR Sst.	F	
WESTBOURNE FM.	F	

```
BIRKHEAD FM.
    HUTTON Sst.
 POOLOWANNA FM.
     HIATUS-4
PATCHAWARRA FM.
   RAWARRA Sst.
Lithology Mixes Table
                    Name Sandstone Siltstone Shale Limestone
         Lithology
            _____ ___ _____
         Sandstone 100
                              33
22
46
70
                     30
70
                                       27
                                                10
             nam8
                                       8
             eyr8
                      20
                                       34
             win8
                      9
6
                                       21
             mac8
                               54
             all8
                                       40
                               26
            tool8
                                       74
                       5
                               65
             ood8
                      50
             c008
                               50
                                       70
            bull8
                               30
                      36
                               54
                                       10
             cađ8
                               79
                                       13
                       8
             mur8
                       50
                               50
             mck8
                                     3.5
                       78
                             18.5
            namu8
                              21
            west8
                       72
                      95
                               5
46
            ador8
                                      25
7
             bir8
                       29
                       75
27
20
                             17.5
             hut8
                                    24.5
            8loog
                              45
                              42.5
                                     14.5
             pat8
             tir8
                       90
                               10
                   % Total
         Lithology
           Name Kerogen %
         Sandstone 100.0
                        100.0
             nam8
             eyr8
                         100.0
                         100.0
             win8
                         100.0
             mac8
             all8
                         100.0
            tool8
                         100.0
                         100.0
             ood8
             c008
                         100.0
            bull8
                         100.0
                         100.0
             cad8
             mur8
                         100.0
             mck8
                        100.0
            namu8
                        100.0
            west8
                        100.0
            ador8
                        100.0
             bir8
                         100.0
                      .5 100.0
             hut8
                     3.5 100.0
            pool8
                     23 100.0
             pat8
             tir8
                        100.0
Lithology Values Table
         Lithology Initial Compaction Exponential Density
Name Porosity Factor (FM) Factor (SC) (g/cm^3)
0.27 2.64
         Sandstone 0.45
                              1.75
```

ADORI Sst.

Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 coo1 bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1 nam8 eyr8 win8 mac8 all8 tool8 coo8 bull8 cad8 mur8 mck8 namu8 west8 ador8 bir8 hut8 pool8 pat8 Lithology	0.666090465455905164613296767384456865814578538416 0.6660904654559051646132967673844568658145785384416 0.66609046545559051646132967673884568658145785384416	2.2 2.4 1.5 1.5 1.5 1.5 2.16 1.83 2.27 2.21 1.97 2.36 1.99 2.21 1.83 2.43 2.12 2.45 2.35 2.27 2.25 2.27 2.25 2.29 2.04 1.90 2.17 2.20 2.25 2.34 2.23 1.97 2.34 2.05 2.19 1.88 2.17 2.43 1.79 Matrix Conduct		
Name			deg C) C	
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1	0.0156 0.0004 0.5 0.5 0.0004 0.0004 0.0001 0.0137 0.2479 0.0109		4.4 2 1.5 2.9 4.8 5.4 0.3 2.9 2.329 3.996 2.200 2.279	270 170 -180 350 300 470 250 380 116.2 240 113

all1 coo1 bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1 nam8 eyr8 win8 mac8 all8 tood8 coo8 bull8 cad8 mur8 mck8 namu8 west8 ador8 bir8 hut8 pool8 pat8 tir8	0.0088 0.0883 0.0008 0.0609 0.0088 0.0360 0.2954 0.0166 0.2678 0.0066 0.0195 0.0069 0.0070 0.0062 0.0082 0.0062 0.0095 0.0232 0.1318 0.0089 0.0098 0.0044 0.0010 0.0061 0.0883 0.0012 0.00883 0.0012 0.0883 0.0012 0.0883 0.1465 0.4204 0.0170 0.1596 0.0142 0.0079 0.3534 Heat Capacity (kJ/m^3*deg C)		97.5 220 -110 180 97.5 157.5 247.5 133.4 252 142.2 131.2 152.9 124.9 82.5 111.3 82.5 129.2 123.5 212 71 105.5 -89 70 -75 171 132.5 220 235.7 217.5 265 111.5 220.9 114.0 157.6 260
	0000	_	

Heat Capacity Correction	Heat Capacity (kJ/m^3*deg C)	Lithology Name
	(kJ/m ³ *deg C) 2800 2650 2100 2600 1750 950 2500 2564. 2754 2513. 2558. 2535. 2725 2210 2662	
0 0 0 0 0 0	2535. 2627. 2765. 2536 2773 2240. 2587.	mur1 mck1 namu1 bir1 hut1 pool1 napp1

	tool daral rosel epsil muttl patl nam8 eyr8 win8 mac8 all8 tool8 coo8 bull8 cad8 mur8 mck8 namu8 west8 ador8 bir8 hut8 pool8 pat8 tir8		2202 2341 2512. 2447. 2512. 2402. 2541. 2711 2493 2548 2439 2243 2492. 2725 2649 2590. 2725 2747. 2719. 2792. 2715. 2496. 2715. 2496. 2715.			
Lithology	Fluid Flow Lithology Name		Initial Porosity B	A	B (1/Pa)	Fraction A
	Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 cool bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1 nam8 eyr8 win8	0.0000 0.5500 0.6000 0.6000 0.6000 0.9000 0.9000 0.5625 0.	0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.4500 0.	-0.800 -0.800	1.350000e-08 0.000000e+00 0.000000e+00 0.000000e+00 1.350000e-08 0.000000e-08 1.350000e-08	0.000 1.000 1.000 1.000 0.000 0.000 0.000 0.820 0.160 0.855 0.840 0.920 0.500 1.000 0.480 0.920 0.600 0.120 0.760 0.180 0.860 0.740 0.830 0.940 0.900 0.830 0.900 0.830

mac8	0.5615	0.4500	-0.800	1.350000e-08	0.910
all8	0.5712	0.4500	-0.800	1.350000e-08	0.940
tool8	0.5870	0.0000	-0.800	0.000000e+00	1.000
ood8	0.5657	0.4500	-0.800	1.350000e-08	0.950
c008	0.5500	0.4500	-0.800	1.350000e-08	0.500
bull8	0.5850	0.0000	-0.800	0.000000e+00	1.000
cad8	0.5578	0.4500	-0.800	1.350000e-08	0.640
mur8	0.5570	0.4500	-0.800	1.350000e-08	0.920
mck8	0.5500	0.4500	-0.800	1.350000e-08	0.500
namu8	0.5579	0.4500	-0.800	1.350000e-08	0.220
west8	0.5625	0.4500	-0.800	1.350000e-08	0.280
ador8	0.5500	0.4500	-0.800	1.350000e-08	0.050
bir8	0.5676	0.4500	-0.800	1.350000e-08	0.710
hut8	0.5710	0.4500	-0.800	1.350000e-08	0.250
pool8	0.5835	0.4500	-0.800	1.350000e-08	0.730
pat8	0.6596	0.4500	-0.800	1.350000e-08	0.800
tir8	0.5500	0.4500	-0.800	1.350000e-08	0.100

t	ir8 0	.5500	0.4500	-0.800	1.
Lithol N	Tame Pe	Init: rmeabil: lliDarcy		meabilit Powe	
Limest Dolom Evapor Igne Igne w m m m m m m m m d d d r d d r d d r d d r d d	cone 2. cone 1. cone 1. cone 2. cone 1. cone 1	786221e- 7882215494e- 7882215494e- 7882215494e- 7882215494e- 7882216- 78822	+04 +01 +04 +04 +08 -01 +03 -01 +01 +03 +01 +01 +03 +03 +01 +01 +01 +01 +01 +01 +01 +01	- 555555555555555555555555555555555555	
		313115e- 771586e-		5.50 5.50	

```
west8 8.356076e+02
                                             5.500
                ador8 1.489529e+04
                                             5.500
                 bir8 3.829035e+00
                                             5.500
                 hut8 1.216697e+03
                                             5.500
                pool8 2.980593e+00
                                            5.500
                 pat8 1.240365e+00
                                             5.500
                 tir8
                       7.963102e+03
                                             5.500
Geothermal Gradient Table
  Time Depth 1
  (Ma) (m)
     0
Maturity conversion method: Table TTI = 4.191876 + 1.817512 * log10(Ro)
Data fit: Least Squares
Model Units
                         Depth = (m)
                     Distance = (m)
        Thermal Conductivity = (W/m*deg C)
                Heat Capacity = (kJ/m^3*deg C)
                    Heat Flow = (mW/m^2)
                  Temperature = (deg C)
              Heat Generation = (muW/m^3)
                     Gradient = (deg C/100 m)
            Activation Energy = (kcal/mole)
             Frequency Factor = (1/my)
                   HC Density = (g/cm^3)
                     Pressure = (MPa)
                   Grain Size = (mm)
             Seismic Velocity = (m/s)
                   Event Time = (msec)
                     Maturity = (%Ro)
                HC Generation = (mg/g TOC)
Calculation Options
                   Compaction = Sclater & Christie
       Porosity Depth Method = Linear
    Permeability Calculation = Modified Kozeny-Carman
Geothermal Calculation = Gradient
       Maturity Calculation = LLNL Expulsion Calculation = None
                Time Interval = 1.00
               Depth Interval = 500.00
              Integrate Depth = No
Advanced Options
           TTI Reference Temp = 105.00
            TTI Doubling Temp = 10.00
        Rock-Eval Correction = 35.00
                 Thermal Gain = 1.000
Critical Fracturing Fraction = 0.850
       Fracture Closure Rate = 0.050
    Conductivity Calculation = Deming/Chapman
                    Initial S1 = 3.00
Riffing HF Options
       Use Rifting Heat Flow = No
              Start Rift Time = 0.00
                End Rift Time = 0.00
               Auto-Calc Beta = No
      Rifting Heat Flow Beta = 2.00
```

Present Day Info

Model Name = LYCIUM-1

Model Name = Efficient Model Description = Current Surface Temp = 20.00 Current Elevation = 0.00 Current Heat Flow = 63.00

Seismic Parameters

Shot Point = 0

X = 0.00000000

Y = 0.00000000

BasinMod Data Report | Licensed to: Natn'l Centre for Petroleum Geology & Geophysics |

Wr. Peter Tingate
Version: 4.20
Model Name: LYCIUM-1 EROSION
File Name: LYCIUM-1 EROSION.mod
Date: Feb 5, 1996
Time: 12:26 pm

Stratigraphy Table Formation or Event Name	Туре	Begin Age (Ma)	_	Present Thick (m)	Thick
OT/T	 ਸ	3.3	0	55	
EROSION-1 MISSING SEC-1 NAMBA FM.	E D			93	-17 17
EROSION-2 MISSING SEC-2	E	2/			-20 20
EYRE FM. EROSION-3	F	60	148	16	-320
MISSING SEC-3 WINTON FM.	D	90	164	593	320
MACKUNDA FM. ALLARU Mdst. TOOLEBUC FM.	म म म	102.5	757 801 1035	44 234 6	
COONADATTA FM. COORIKIANA Sst. BULLDOG SHALE DNA-OWIE FM.	된 된 된	108 117.5	1041 1147 1157 1377	106 10 220 60	
MURTA FM.	F F	141.5 145 151	1437 1470 1478	33 8 53	
WESTBOURNE FM. ADORI Sst. BIRKHEAD FM. HUTTON Sst. POOLOWANNA FM.	H H		1531 1613 1742 1785 1943	82 129 43 158 52	
EROSSION-4 MISSING SEC-4 EROSION-5 MISSING SEC-5	E D E	236.5 253.5	T3#3	,	-45 45 -185 185
PATCHAWARRA FM. TIRRAWARRA Sst.	F		1995 2184	189 26	103
Formation or Event Name	Туре		Litho	logy Lith Pat	
QT/T	 F		Sands	tone	-
EROSION-1 MISSING SEC-1 NAMBA FM. EROSION-2	E D F		Sands		L
EROSION-2 HISSING SEC-2 EYRE FM. EROSION-3	E D F E		Sands	tone eyr8	
MISSING SEC-3 WINTON FM. MACKUNDA FM. ALLARU Mdst.	DFFF		1	tone win8 mac8 all8	

TOOLEBUC FM. OODNADATTA FM. COORIKIANA SST. BULLDOG SHALE CADNA-OWIE FM. MURTA FM. CKINLAY Mbr. NAMUR SST. WESTBOURNE FM. ADORI SST. BIRKHEAD FM. HUTTON SST. POOLOWANNA FM. EROSSION-4 MISSING SEC-4 EROSION-5 MISSING SEC-5 PATCHAWARRA FM. ETIRRAWARRA SST.	· · · · · · · · · · · · · · · · · · ·	tool8 ood8 coo8 bull8 cad8 mur8 mck8 namu8 west8 ador8 bir8 hut8 pool8 Sandstone Sandstone pat8 tir8		
Lithology Mixes Table Lithology Name	왕	% Siltstone	% Shale	% Limestone
Sandstone nam8 eyr8 win8 mac8 all8 tool8 cod8 coo8 bul18 cad8 mur8 mck8 namu8 west8 ador8 bir8 hut8 pool8 pat8 tir8	100 30 70 20 9 6 50 36 8 50 78 72 95 29 75 27 20 90	33 22 46 70 54 26 65 50 30 54 79 5.5 21 46 17.5 42.5 10	27 8 34 21 40 74 30 70 10 13 3.5 7 25 7 24.5 14.5	10
Lithology Name Sandstone nam8 eyr8 win8 mac8 all8 tool8 ood8 coo8 bull8 cad8 mur8 mur8 mck8 namu8 west8	Kerogen	Total % 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0		

ador8		100.0
bir8		100.0
hut8	.5	100.0
pool8	3.5	100.0
pat8	23	100.0
īir8		100.0

	tir8	23	100.0		
Licology	Values Tabl Lithology Name	Initial Porosity	Factor (FM)	Exponential Factor (SC)	(g/cm^3)
	Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 cool bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 tool dara1 rose1 epsi1 mutt1 pat1 nam8 eyr8 win8 mac8 all8 tool8 coo8 bull8 cod8 coo8 bull8 cad8 mur8 mck8 namu8 west8 ador8 hit8 pool8 pat8 tir8	0.6 0.6	1.75 2.2 4 1.5 1.5 0 3.5 0 2.16 1.83 2.17 2.36 1.97 2.97 2.97 2.98 1.99 2.12 1.97 2.12 2.13 2.14 2.14 2.12 2.12 2.12 2.13 2.14 2.12 2.12 2.13 2.13 2.14 2.14 2.12 2.13 2.13 2.14 2.14 2.15 2.16 2.16 2.17 2.17 2.18 2.19 2.19 2.19 2.19 2.19 2.19 2.19 2.19	0.27 0.41 0.51 0.22 0.7 0.40 0.40 0.41 0.42 0.42 0.434 0.42 0.34 0.42 0.34 0.45 0.43 0.43 0.43 0.43 0.43 0.43 0.43 0.43 0.44 0.43 0.44 0.43 0.44 0.43 0.44	2.64 2.635 2.630 2.634 2.638 2.607 2.64 2.465 2.632 2.440 2.523 2.523 2.63 2.548 2.637 2.636 2.636 2.636 2.631 2.624

Lithology Grain Size Matrix Conductivity Matrix Cond.

Name (mm) (W/m*deg C) Correction

a			0.70
Sandstone Siltstone	0.5 0.0156	4.4 2	270 170
Shale Limestone	0.0004 0.5	1.5 2.9	-180 350
Dolomite	0.5	4.8	300
Evaporite	0.0004	5.4 0.3	470 250
Coal Igneous	0.0004 0.0001	2.9	380
nam1	0.0137	2.329	116.2
eyr1 win1	0.2479 0.0109	3.996 2.200	240 113
mac1	0.0125	2.279	112.5
all1 cool	0.0088 0.0883	2.077	97.5 220
bull1	0.0008	1.6 3.188	-110 180
cad1 mur1	0.0609 0.0088	2.077	97.5
mck1	0.0360	2.885	157.5
namu1 bir1	0.2954 0.0166	4.097 2.435	247.5 133.4
hut1	0.2678	3.968	252 142.2
pool1 napp1	0.0066 0.0195	1.913 2.531	131.2
too1	0.0069	1.942	152.9
dara1 rose1	0.0070 0.0062	1.948 1.875	124.9 82.5
epsi1 mutt1	0.0082	2.033 1.875	111.3 82.5
pat1	0.0062 0.0095	2.121	129.2
nam8 eyr8	0.0232 0.1318	2.675 3.64	123.5 212
win8	0.0089	2.31	71
mac8 all8	0.0098 0.0044	2.111 1.944	105.5 36
tool8	0.0010	1.63	-89
ood8 coo8	0.0061 0.0883	1.97 3.2	70 220
bull8	0.0012	1.65	-75
cad8 mur8	0.0376 0.0127	2.814 2.127	171 132.5
mck8	0.0883	3.2	220
namu8 west8	0.2051 0.1465	3.854 3.693	235.7 217.5
ador8	0.4204	4.28	265
bir8 hut8	0.0170 0.1596	2.571 3.756	111.5 220.9
pool8	0.0142	2.466 2.016	114.0
pat8 tir8	0.0079 0.3534	4.16	157.6 260
Lithology	Heat Capacity	Heat Capacity	
Name	(kJ/m^3*deg C)		
Sandstone	2800	0	
Siltstone Shale	2650 2100	0	
Limestone	2600	0	
Dolomite Evaporite	2600 1750	0 0	
Coal	950	0	
Igneous nam1	2500 2564.	0	

0

0

2564.

2754 2513.

nam1 eyrl winl

mac1 all1 cool bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 tool dara1 rose1 epsi1 mutt1 pat1 nam8 eyr8 win8 mac8 all8 tool8 coo8 bull8 cad8 mur8 mck8 namu8 west8 ador8 bir8 hut8 pool8 pat8 tir8		2558. 2535. 2725 2210 2662 2535. 2765. 2765. 2765. 2773 2240. 2587.		000000000000000000000000000000000000000	
Lithology Fluid Flow Lithology Name		Initial Porosity B	А	B (1/Pa)	Fraction A
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 coo1 bull1 cad1 mur1 mck1 namu1 bir1	0.0000 0.5500 0.6000 0.6000 0.6000 0.0000 0.9000 0.5625 0.5625 0.5625 0.5625 0.5625 0.5625 0.5625 0.5625 0.5625	0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500	-0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800	1.350000e-08 0.000000e+00 0.000000e+00 0.000000e+00 1.350000e-08	1.000 1.000 1.000 0.000 0.000 0.820 0.160 0.855 0.840 0.920 0.500 1.000 0.480 0.920 0.600

hut1	0.5500	0.4500	-0.800	1.350000e-08	0.180
pool1	0.6409	0.4500	-0.800	1.350000e-08	0.860
napp1	0.5625	0.4500	-0.800	1.350000e-08	0.740
too1	0.6560	0.4500	-0.800	1.350000e-08	0.830
dara1	0.6117	0.4500	-0.800	1.350000e-08	0.890
rose1	0.5625	0.0000	-0.800	0.000000e+00	1.000
epsi1	0.5850	0.4500	-0.800	1.350000e-08	0.900
mutt1	0.5625	0.0000	-0.800	0.000000e+00	1.000
pat1	0.6026	0.4500	-0.800	1.350000e-08	0.840
nam8	0.5764	0.4500	-0.800	1.350000e-08	0.700
eyr8	. 0.5633	0.4500	-0.800	1.350000e-08	0.300
win8	0.5712	0.4500	-0.800	1.350000e-08	0.800
mac8	0.5615	0.4500	-0.800	1.350000e-08	0.910
all8	0.5712	0.4500	-0.800	1.350000e-08	0.940
tool8	0.5870	0.0000	-0.800	0.000000e+00	1.000
ood8	0.5657	0.4500	-0.800	1.350000e-08	0.950
c008	0.5500	0.4500	-0.800	1.350000e-08	0.500
bull8	0.5850	0.0000	-0.800	0.000000e+00	1.000
cad8	0.5578	0.4500	-0.800	1.350000e-08	0.640
mur8	0.5570	0.4500	-0.800	1.350000e-08	0.920
mck8	0.5500	0.4500	-0.800	1.350000e-08	0.500
namu8	0.5579	0.4500	-0.800	1.350000e-08	0.220
west8	0.5625	0.4500	-0.800	1.350000e-08	0.280
ador8	0.5500	0.4500	-0.800	1.350000e-08	0.050
bir8	0.5676	0.4500	-0.800	1.350000e-08	0.710
hut8	0.5710	0.4500	-0.800	1.350000e-08	0.250
pool8	0.5835	0.4500	-0.800	1.350000e-08	0.730
pat8	0.6596	0.4500	-0.800		0.800
tir8	0.5500	0.4500	-0.800	1.350000e-08	0.100

Lithology Name	Initial Permeability (milliDarcys)	Permeability Power	
 Candetone	2.786221e+04	5.500	
	1.013171e-01	5.500	
STICSCORE	1.013171e-01	5.500	
	2.786221e+04	5.500	
	2.786221e+04	5.500	
	1.013171e-08	5.500	
Coal	1.013171e-01	5.500	
	1.013171e-08	5.500	
	9.655232e-01		
eyr1	3.755972e+03	5.500	
win1	6.228538e-01	5.500	
	7.515815e-01	5.500	
	2.759494e-01	5.500	
	5.313115e+01	5.500	
bull1	1.013171e-01	5.500	
	6.825522e+01	5.500	
mur1	2.759494e-01	5.500	
mck1	1.518504e+01	5.500	
namu1	6.198629e+03	5.500	
bir1	2.047023e+00	5.500	
	2.923719e+03	5.500	
pool1	5.850452e-01	5.500	
	2.629719e+00	5.500	
	8.518624e-01	5.500	
	4.017996e-01	5.500	
	1.013171e-01	5.500	
- T	3.544999e-01	5.500	
	1.013171e-01	5.500	
	7.515815e-01	5.500	
nam8	1.518504e+01	5.500	

```
eyr8 6.504527e+02
win8 1.240365e+00
                                           5.500
                                           5.500
                mac8
                                           5.500
                      3.127683e-01
                                          5.500
                all8 2.148042e-01
               tool8 1.013171e-01
                                           5.500
                ood8 1.895176e-01
                                          5.500
                coo8 5.313115e+01
                                          5.500
               bull8 1.013171e-01
                                          5.500
                cad8 9.201161e+00
                                          5.500
                mur8 2.759494e-01
                                           5.500
                mck8 5.313115e+01
                                          5.500
               namu8 1.771586e+03
                                           5.500
               west8 8.356076e+02
                                          5.500
               ador8 1.489529e+04
                                          5.500
                bir8 3.829035e+00
                                          5.500
                                          5.500
                hut8 1.216697e+03
                                          5.500
               pool8 2.980593e+00
                pat8 1.240365e+00
                                          5.500
                                          5.500
                tir8 7.963102e+03
Geothermal Gradient Table
  Time Depth 1
  (Ma) (m)
Maturity conversion method: Table
TTI = 4.191876 + 1.817512 * log10(Ro)
Data fit: Least Squares
                       Depth = (m)
                    Distance = (m)
        Thermal Conductivity = (W/m*deg C)
               Heat Capacity = (kJ/m^3*deg C)
                   Heat Flow = (mW/m^2)
                 Temperature = (deg C)
             Heat Generation = (muW/m^3)
                    Gradient = (\text{deg C/100 m})
           Activation Energy = (kcal/mole)
            Frequency Factor = (1/my)
                  HC Density = (g/cm^3)
                    Pressure = (MPa)
                  Grain Size = (mm)
            Seismic Velocity = (m/s)
                  Event Time = (msec)
                    Maturity = (R0)
               HC Generation = (mg/g TOC)
Calculation Options
                  Compaction = Sclater & Christie
       Porosity Depth Method = Linear
    Permeability Calculation = Modified Kozeny-Carman
      Geothermal Calculation = Gradient
        Maturity Calculation = LLNL
       Expulsion Calculation = None
               Time Interval = 1.00
              Depth Interval = 500.00
             Integrate Depth = Yes
Advanced Options
          TTI Reference Temp = 105.00
           TTI Doubling Temp = 10.00
        Rock-Eval Correction = 35.00
```

0

Model Units

Thermal Gain = 1.000 Critical Fracturing Fraction = 0.850 Fracture Closure Rate = 0.050

Conductivity Calculation = Deming/Chapman

Initial S1 = 3.00

Riaing HF Options

Use Rifting Heat Flow = No
Start Rift Time = 0.00
End Rift Time = 0.00
Auto-Calc Beta = No

Rifting Heat Flow Beta = 2.00

Present Day Info

Model Name = LYCIUM-1 EROSION

Model Description =

Current Surface Temp = 20.00 Current Elevation = 0.00 Current Heat Flow = 63.00

Seismic Parameters

Shot Point = 0

X = 0.00000000Y = 0.00000000

BasinMod Data Report

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Wr. Peter Tingate
Version: 4.20
Model Name: MERRIMELIA-30
File Name: MERRIMELIA-30.mod
Date: Feb 5, 1996
Time: 12:30 pm

Stratigraphy Tabl	e				
Formation		Begin	Well Top	Present	Lithology
or		Ăge	-	Thick	-
Event Name		(Ma)	(m)	(m)	
					Gen Automore
QT/T	F	3.3	0	41	Sandstone
HIATUS-1	H	5.3			_
NAMBA FM.	F	29.3	41	89	nam7
HIATUS-2	H	38			_
EYRE FM.	F	60	130	66	eyr7
HIATUS-3	H	90			
WINTON FM.	F	97.5	196	677	win7
MACKUNDA FM.	F	100	873	50	mac7
ALLARU Mdst	F	101	923	, 194	all7
TOOLEBUC FM.	F	102.5	1117	10	tool7
WALLUMBILLA FM.	F	105.5	1127	103	wall7
COORIKIANA Sst.	F	108	1230	21	coo7
BULLDOG SHALE	F	117.5	1251	265	bull7
CADNA-OWIE FM.	F	135.5	1516	56	cad7
MURTA FM.	F	141.5	1572	39	mur7
McKINLAY Mbr.	F	145	1611	7	mck7
NAMUR Sst.	F	151	1618	62	namu7
STBOURNE FM.	F	159	1680	107	west7
ADORI Sst.	F	165	1787	28	ador7
BIRKHEAD FM.	F	175	1815	67	bir7
HUTTON Sst.	F	188	1882	191	hut7
POOLOWANNA FM.	F	193	2073	38	poo17
HIATUS-4	H	236.5	-		<u> </u>
NAPPAMERRI GP.	F	249	2111	85	napp7
HIATUS-5	H	280		30	
MERRIMELIA FM.	F	285.5	2196	53	merr7
	-			3.0	

Formation or	Туре	Lith Pat
Event Name		
QT/T	F	
HIATUS-1	H	
NAMBA FM.	F	1
HIATUS-2	H	
EYRE FM.	F	
HIATUS-3	H	
WINTON FM.	F	
MACKUNDA FM.	F	
ALLARU Mdst	F	
TOOLEBUC FM.	F	
WALLUMBILLA FM.	F	
CORIKIANA Sst.	F	
BULLDOG SHALE	F	
CADNA-OWIE FM.	F	
	_	
MURTA FM.	F	
McKINLAY Mbr.	F	
NAMUR Sst.	F	

ADORI SST. BIRKHEAD FM. HUTTON SST. POOLOWANNA FM. HIATUS-4 PPPAMERRI GP. HIATUS-5 MERRIMELIA FM.	당 당 당 당 당 당 당 당 당 당 당 당 당 당 당 당 당 당 당			
	e Lithology Pattern		% Siltstone	% Shale
Sandstone nam7 eyr7 win7 mac7 all7 tool7 val17 coo7 bul17 cad7 mur7 mck7 namu7 vest7 ador7 bir7 hut7 pool7 napp7 merr7 Igneous3	8	100 16 72 30 36 20 45 60 4 50 86 24 95 12 92 72 12 38	63 18 49.5 48 60 25 20 55 20 30 66 50 9 57 63.5 8 21 66 46.5	21 10 16.5 16 20 75 80 80 10 30 5 19 21.5 7 22 15.5
Lithology Name	% Kerogen	% To Igneous		
Sandstone nam7 eyr7 win7 mac7 all7 tool7 wall7 coo7	4	10 10 10 10 10 10 10	00.0 00.0 00.0 00.0 00.0 00.0	
bull7 cad7 mur7 mck7 namu7 west7 ador7 bir7 hut7 pool7 napp7 merr7 Igneous3	3	10 10 10 10 10 10 10 10 10	00.0 00.0 00.0 00.0 00.0 00.0 00.0 00.	

Lithology Values Table

I	Lithology Name	Initial Porosity	Compaction Factor (FM)	Exponential Factor (SC)	Density (g/cm^3)
	Sandstone Siltstone Siltstone Shale Limestone Dolomite Coal Igneous nam1 eyr1 win1 mac1 all1 cool bull1 cad1 mur1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1 nam7 eyr7 win7 mac7 all7 coo7 bul17 cod7 mur7 mac7 all7 too17 val17 coo7 bul17 cod7 mur7 mac7 all7 too17 rapp7 merr7 Igneous3	0.5465455905164613296767488909996563555 0.5555.55454613296767488909996563555 0.555555555555555555555555555555555	1.75 2.24 1.55 2.45 1.50 3.06 1.820 2.17 2.97 2.97 2.97 2.99 2.05 12.18 2.12 2.25 2.27 2.25 2.27 2.29 2.19 2.19 2.19 2.19 2.19 2.19 2.19	0.27 0.41 0.51 0.22 0.70 0.40 0.42 0.40 0.42 0.34 0.42 0.34 0.42 0.34 0.42 0.34 0.42 0.34 0.43 0.49 0.34	2.64 2.64 2.72 2.85 2.18 2.63
]	Lithology Name	Grain Size		nductivity Ma N/m*deg C)	
	Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal	0.9 0.015 0.000 0.9 0.9 0.000	6 4 5 5 4	4.4 2 1.5 2.9 4.8 5.4 0.3	270 170 -180 350 300 470 250

Igneous nam1 eyr1 win1 mac1 all1 coo1 bul11 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1 nam7 eyr7 win7 mac7 all7 too17 val17 coo7 bul17 cad7 mur7 mck7 namu7 west7 namu7 yest7 namu7 rose1 epsi1 mur7 mck7 namu7 seyr7 vin7 mac7 all7 too17 too17 val17 coo7 bul17 coo7	0.0001 0.0137 0.2479 0.0109 0.0125 0.0088 0.0088 0.0008 0.0609 0.0088 0.0360 0.2954 0.0166 0.2678 0.0066 0.0195 0.0069 0.0070 0.0062 0.0082 0.0062 0.0082 0.0095 0.01312 0.0208 0.0302 0.0149 0.0009 0.0008 0.0742 0.0008 0.0742 0.0008 0.0742 0.0008 0.0742 0.0008 0.0742 0.0008 0.0742 0.0008 0.0742 0.0008 0.0742 0.0008 0.0742 0.0008 0.0742 0.0008 0.0742 0.0008 0.0742 0.0009 0.0008 0.0742 0.0009 0.0009 0.0008 0.0742 0.0009 0.0009 0.0008 0.0742 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009 0.0009	2.9 2.329 3.996 2.200 2.279 2.077 3.2 1.6 3.188 2.077 2.885 4.097 2.435 3.968 1.913 2.531 1.942 1.942 1.948 1.875 2.077 3.678 2.5669 2.784 2.129 3.693 2.481 4.28 2.129 4.208 3.693 2.178 2.9	380 116.2 240 113 112.5 97.5 220 -110 180 97.5 157.5 247.5 133.4 252 142.2 131.2 152.9 124.9 82.5 111.3 82.5 129.2 112.5 207 145.4 150 120 -92.5 -110 215 -110 195 220 238.5 127.5 109.1 262 217.5 380
Lithology Name	Heat Capacity (kJ/m^3*deg C)		
Sandstone Siltstone Shale	2800 2650 2100	0 0 0	
Limestone Dolomite Evaporite	2600 2600 1750	0 0 0	
Coal Igneous	950 2500	0 0	
nam1	2564.	0	

2754

2513.

2558. 2535. 2725

2210

2662 2535. 000000

0

eyr1 win1

mac1 all1

cool bull1

cad1 mur1

mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1 nam7 eyr7 win7 mac7 all7 too17 vall7 coo7 bull7 cad7 mur7 mck7 namu7 west7 ador7 bir7 hut7 pool7 napp7 merr7 Igneous3		2627. 2765. 2536 2773 2240. 2587. 2202 2341 2512. 2447. 2512. 24402. 2558. 2703 2536. 2616 2570 2237. 2210 2685 2491 2725 2751. 2581. 2792. 2498. 2798. 2719. 2547 2621. 2500			
Lithology Fluid Flow Lithology Name		Initial Porosity B	A	B (1/Pa)	Fraction A
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 coo1 bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1	0.6000 0.6000 0.6000 0.9000 0.9000 0.5625 0.5625 0.5625 0.5625 0.5625 0.5625 0.5625 0.5625 0.5625 0.5625 0.5625 0.5625 0.5625	0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500	-0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800	1.350000e-08 0.000000e+00 0.000000e+00 0.000000e+00 1.350000e-08	0.000 1.000 1.000 1.000 0.000 0.000 0.820 0.160 0.855 0.840 0.920 0.500 1.000 0.480 0.920 0.600 0.120 0.760 0.180 0.830 0.830 0.830

rose1	0.5625	0.0000	-0.800	0.000000e+00	1.000
epsi1	0.5850	0.4500	-0.800	1.350000e-08	0.900
mutt1	0.5625	0.0000	-0.800	0.000000e+00	1.000
pat1	0.6026	0.4500	-0.800	1.350000e-08	0.840
nam7	0.5625	0.4500	-0.800	1.350000e-08	0.840
eyr7	0.5678	0.4500	-0.800	1.350000e-08	0.280
win7	0.5817	0.4500	-0.800	1.350000e-08	0.700
mac7	0.5625	0.4500	-0.800	1.350000e-08	0.640
all7	0.5625	0.4500	-0.800	1.350000e-08	0.800
tool7	0.5875	0.0000	-0.800	0.000000e+00	1.000
wall7	0.5900	0.0000	-0.800	0.000000e+00	1.000
c007	0.5500	0.4500	-0.800	1.350000e-08	0.550
bull7	0.5900	0.0000	-0.800	0.000000e+00	1.000
cad7	0.5625	0.4500	-0.800	1.350000e-08	0.400
mur7	0.5656	0.4500	-0.800	1.350000e-08	0.960
mck7	0.5500	0.4500	-0.800	1.350000e-08	0.500
namu7	0.5678	0.4500	-0.800	1.350000e-08	0.140
west7	0.5625	0.4500	-0.800	1.350000e-08	0.760
ador7	0.5500	0.4500	-0.800	1.350000e-08	0.050
bir7	0.5741	0.4500	-0.800	1.350000e-08	0.880
hut7	0.5500	0.4500	-0.800	1.350000e-08	0.080
pool7	0.5625	0.4500	-0.800	1.350000e-08	0.280
napp7	0.5625	0.4500	-0.800	1.350000e-08	0.880
merr7	0.5625	0.4500	-0.800	1.350000e-08	0.620
Igneous3	0.0000	0.0000	-0.800	1.350000e-08	0.000

291100000	0.0000 0.0	
 Lithology Name	Initial Permeability (milliDarcys)	Permeability Power
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 cool bul11 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 tool dara1 rose1 epsi1 mutt1 pat1 nam7 eyr7 win7 mac7 all7	2.786221e+04 1.013171e-01 2.786221e+04 2.786221e+04 1.013171e-08 1.013171e-08 1.013171e-01 1.013171e-03 9.655232e-01 3.755972e+03 6.228538e-01 7.515815e-01 2.759494e-01 5.313115e+01 1.013171e-01 6.825522e+01 2.759494e-01 1.518504e+01 6.198629e+03 2.047023e+00 2.923719e+03 5.850452e-01 2.629719e+00 8.518624e-01 4.017996e-01 1.013171e-01 7.515815e-01 7.515815e-01 7.515815e-01 7.515815e-01 7.515815e-01 7.515815e-01 7.515815e-01 7.515815e-01 7.515815e-01 7.515815e-01 7.515815e-01 7.515815e-01 7.515815e-01	5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.

```
tool7 1.013171e-01
wal17 1.013171e-01
coo7 2.840420e+01
bul17 1.013171e-01
cad7 1.859013e+02
mur7 1.672077e-01
mck7 5.313115e+01
namu7 4.825129e+03
west7 2.047023e+00
ador7 1.489529e+04
bir7 4.554102e-01
hut7 1.022984e+04
pool7 8.356076e+02
napp7 4.554102e-01
merr7 1.182032e+01
neous3 1.013171e-08
                      tool7 1.013171e-01
                                                             5.500
                                                             5.500
                                                             5.500
                                                             5.500
                                                             5.500
                                                             5.500
                                                             5.500
                                                            5.500
                                                             5.500
                                                            5.500
                                                            5.500
                                                            5.500
                                                         5.500
5.500
                                                           5.500
                                                        5.500
                  Igneous3 1.013171e-08
Geothermal Gradient Table
  Time Depth 1
(Ma) (m)
     0 0
Maturity conversion method: Table
TTI = 4.191876 + 1.817512 * log10(Ro)
Data fit: Least Squares
Model Units
           Depth = (m)
Distance = (m)

Thermal Conductivity = (W/m*deg C)
Heat Capacity = (kJ/m^3*deg C)
Heat Flow = (mW/m^2)
                         Temperature = (deg C)
                   Heat Generation = (muW/m^3)
Gradient = (deg C/100 m)
                Activation Energy = (kcal/mole)
Frequency Factor = (1/my)
                          HC Density = (g/cm^3)
                             Pressure = (MPa)
                          Grain Size = (mm)
                  Seismic Velocity = (m/s)
                          Event Time = (msec)
                             Maturity = (%Ro)
                      HC Generation = (mg/g TOC)
Calculation Options
                          Compaction = Sclater & Christie
          Porosity Depth Method = Linear
     Permeability Calculation = Modified Kozeny-Carman
Geothermal Calculation = Gradient
          Maturity Calculation = LLNL Expulsion Calculation = None
                      Time Interval = 1.00
                    Depth Interval = 500.00
                   Integrate Depth = No
Advanced Options
              TTI Reference Temp = 105.00
                TTI Doubling Temp = 10.00
           Rock-Eval Correction = 35.00
                       Thermal Gain = 1.000
Critical Fracturing Fraction = 0.850
          Fracture Closure Rate = 0.050
```


Rifting HF Options

Use Rifting Heat Flow = No
Start Rift Time = 0.00
End Rift Time = 0.00

Auto-Calc Beta = No

Rifting Heat Flow Beta = 2.00

Present Day Info

Model Name = MERRIMELIA-30

Model Description =

Current Surface Temp = 20.00 Current Elevation = 0.00

Current Heat Flow = 63.00

Seismic Parameters

Shot Point = 0

X = 0.00000000

Y = 0.00000000

BasinMod Data Report
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Mr. Peter Tingate
Version: 4.20
Model Name: MERRIMELIA-30 ERO.
File Name: MERRIMELIA-30 EROSION.mod
Date: Feb 5, 1996
Time: 12:30 pm

Stratigraphy Tab:	le				
			Well Top		Missing
or		Age	(m)	Thick	
or Event Name		(Ma)	(m)	(m)	(m)
QT/T	F	3.3	0	41	2.5
EROSION-1 MISSING SEC-1 NAMBA FM. EROSION-2	뇬	4.3			-35
MISSING SEC-1	D	5.3			35
NAMBA FM.	F	29.3	41	89	
EROSION-2	E	34			-20
MISSING SEC-2					20
EYRE FM.	F	60	130	66	
EROSION-3	E	75			-200
EROSION-3 MISSING SEC-3 WINTON FM.	D	90			200
WINTON FM.	F	97.5	196		
MACKIMDA RM	H,	7 () ()	8.7.3	50	
ALLARU Mdst	F	101	923	194	
ALLARU Mdst TOOLEBUC FM.	F	102.5	1117	10	
WALLUMBILLA FM.	F	105.5	1127	103	
WALLUMBILLA FM. COORIKIANA Sst. BULLDOG SHALE	F	108	1230	21	
BULLDOG SHALE	F	117.5	1251	265	
DNA-OWIE FM.	F	135.5	1516	56	
MURTA FM.	F	141.5	1572		
McKINLAY Mbr.	F	145	1611	7	
McKINLAY Mbr. NAMUR Sst. WESTBOURNE FM.	F	151	1618	62	
WESTBOURNE FM.	F	159	1680	107	
ADORI Sst.	F	165	1787	28	
BIRKHEAD FM.	F	175	1815	67	
HUTTON Sst.	F	188	1882	191	
POOLOWANNA FM.	F	193	2073	38	
EROSION-4	$\mathbf E$	213			-165
HUTTON Sst. POOLOWANNA FM. EROSION-4 MISSING SEC-4	D	236.5			165
NAPPAMERRI GP.	F.	249	2111	85	
EROSION-5	E	256			-97
MISSING SEC-5	D	280			97
MERRIMELIA FM.	F	285.5	2196	53	
	FTT ··		7 1 6 h		
Formation	Type		Litno.	logy Lith	
or				Pat	-
Event Name					
QT/T	F		Sands	tone	-
EROSION-1	E		bands	-0110	
MISSING SEC-1	D		Sands	tone	
NAMBA FM.	F			nam7 1	
EROSION-2	E		•	iidiii/	-
MISSING SEC-2	D		Sands	tone	
EYRE FM.	F			eyr7	
EROSION-3	E		•	-y - /	
MISSING SEC-3	D		Sands	tone	
WINTON FM.	F			win7	
MACKUNDA FM.	F			mac7	
	э Ч				
ALLARU Mdst	F.			all7	

TOOLEBUC FM. WALLUMBILLA FM. COORIKIANA SST. BULLDOG SHALE CADNA-OWIE FM. MURTA FM. MCKINLAY Mbr. NAMUR SST. WESTBOURNE FM. ADORI SST. BIRKHEAD FM. HUTTON SST. POOLOWANNA FM. EROSION-4 MISSING SEC-4 NAPPAMERRI GP. EROSION-5 MISSING SEC-5 MERRIMELIA FM.	· · · · · · · · · · · · · · · · · · ·	tool wall coo bull cad mur mck namu west ador bir hut pool Sandstor napp	.7 .7 .7 .7 .7 .7 .7 .7 .7 .7	
Lithology Mixes Table Lithology Name	Lithology	% Sandstone	% Siltstone	% Shale
Sandstone nam7 eyr7 win7 mac7 al17 too17 too17 wal17 coo7 bul17 cad7 mur7 mck7 namu7 west7 ador7 bir7 hut7 poo17 napp7 merr7 Igneous3	8	100 16 72 30 36 20 45 60 4 50 86 24 95 12 92 72 12 38	63 18 49.5 48 60 25 20 55 20 30 66 50 9 57 5 63.5 8 21 66 46.5	21 10 16.5 16 20 75 80 80 10 30 5 19 21.5 7 22 15.5
Lithology Name	* Kerogen	% To Igneous	tal %	
Sandstone nam7 eyr7 win7 mac7 all7 tool7 wal17 coo7 bul17 cad7 mur7 mck7 namu7	4	10 10 10 10 10 10 10 10 10	00.0	

west7		100.0
ador7		100.0
bir7	3	100.0
hut7		100.0
pool7		100.0
napp7		100.0
merr7		100.0
Igneous3		100.0 100.0

Igneous3		100.0 100	0.0		
Tithology Walvog Tab	10				
Lithology Values Tab	Tnitial	Compaction	Exponential	Density	
			Factor (SC)		
Sandstone		1.75	0.27	2.64	
Siltstone		2.2		2.64	
Shale		2.4		2.6	
Limestone		1.5		2.72	
Dolomite		1.5	0.22	2.85	
Evaporite	0 0.9	3.5	0.7	2.15 1.8	
Coal Igneous		0	0.7	2.65	
nam1	0.54	2.16	0.40	2.631	
eyr1		1.83	0.29	2.638	
win1	0.55	2.20	0.41	2.610	
mac1		2.17		2.631	
all1		2.21		2.630	
coo1	0.5	1.97		2.64	
bull1	0.59	2.36	0.49	2.608	
cad1		1.99	0.34	2.635	
mur1		2.21	0.42	2.630	
mck1		2.05	0.36	2.634	
namu1 bir1	0.46 0.54	1.81 2.16	0.28 0.40	2.638 2.607	
hut1		1.83		2.64	
pool1		2.43		2.465	
napp1		2.12	. 0.39	2.632	
too1		2.45		2.440	
dara1		2.35	0.45	2.523	
rose1		2.25	0.43	2.63	
epsi1		2.27	0.43	2.581	
mutt1		2.25	0.43	2.63	
pat1		2.29	0.43	2.548	
nam7		2.17		2.631	
eyr7		1.89 2.15	0.31 0.39	2.636 2.599	
win7 mac7		2.07		2.633	
all7	0.54			2.632	
too17		2.35	0.48	2.61	
wall7	0.59	2.36	0.49	2.608	1
coo7	0.50	1.99	0.34	2.64	
bull7	0.59	2.36	0.49	2.608	
cad7	0.49	1.95	0.33	2.636	
mur7	0.56	2.24	0.43	2.628	
mck7	0.5	1.97	0.34	2.64 2.638	
namu7 west7	0.46 0.53	1.82 2.13	0.29 0.39	2.632	
ador7	0.33	1.77	0.39	2.64	
bir7	0.55	2.22	0.42	2.606	
hut7	0.45	1.78	0.28	2.64	
pool7	0.48	1.89	0.31	2.637	
napp7	0.54	2.19	0.41	2.631	
merr7	0.51	2.06	0.37	2.633	
Igneous3	0	0	0	2.65	

Lithology Name	Grain	Size (mm)	Matri	x Conduc. (W/m²	ctivity deg C)	Matrix Corre	Cond.	
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 cool bul11 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1 nam7 eyr7 win7 mac7 all7 coo7 bul17 cad7 mur7 mck7 namu7 vest7 ador7 bir7 hut7 pool7 napp7 merr7 Igneous3		-564556455645564556455645564556455645564			4.42 1.98 4.39 4.39 2.39909 2.39909 2.277 3.1887 2.39909 2.207 3.1887 2.8995 3.20897 2.8995 3.1948 2.9948 2.9948 2.19		$\begin{array}{c} -270 \\ 170 \\ 170 \\ 180 \\ 0 \\ 0 \\ 180 \\ 0 \\ 0 \\ 0 \\ 1 \\ 180 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\$	
 Lithology Name				leat Capa Correc				
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal			2800 2650 2100 2600 2600 1750 950		0 0 0 0 0			

Igneous nam1 eyr1 win1 mac1 all1 cool bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 tool dara1 rose1 epsi1 mutt1 pat1 nam7 eyr7 win7 mac7 all7 tool7 wall7 coo7 bull7 cad7 mur7 mck7 namu7 west7 ador7 bir7 hut7 pool7 napp7 merr7 Igneous3		2500 2564. 2754 2513. 2558. 27210 2662 2535. 27210 2662 2773 2240. 2587. 2587. 2587. 2512. 2447. 2512. 2512. 24512. 2513. 2513. 2514. 2514. 2514. 2515. 2516.			
Lithology Fluid Flow Lithology Name		Initial Porosity B	A	B (1/Pa)	Fraction A
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 coo1 bull1	0.0000 0.5500 0.6000 0.6000 0.0000 0.9000 0.5625 0.5625 0.5625 0.5625 0.5625 0.5625	0.0000 0.0000 0.0000 0.4500 0.4500 0.4500	-0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800	1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08	0.000 1.000 1.000 1.000 0.000 0.000 0.820 0.160 0.855 0.840 0.920 0.500 1.000

cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1 nam7 eyr7 win7 mac7 al17 too17 wal17 coo7 bul17 cad7 mur7 mck7 namu7 west7 ador7 bir7 hut7 pool7	0.5625 0.56625 0.56625 0.556625 0.556625 0.5554025 0.5554025 0.5565625 0.65586225 0.5566675 0.5566627 0.5556620 0.5555555 0.5555555 0.5555555 0.5555555 0.5555555 0.55555555 0.555555555 0.5555555555	0.4500 0.	-0.800 -0.800	1.350000e-08	0.480 0.920 0.600 0.120 0.760 0.180 0.860 0.740 0.830 0.900 1.000 0.840 0.280 0.700 0.640 0.840 0.550 1.000 0.550 1.000 0.960 0.960 0.140 0.760 0.880 0.760 0.960
hut7 pool7 napp7 merr7	0.5500 0.5625 0.5625 0.5625	0.4500 0.4500 0.4500 0.4500	-0.800 -0.800 -0.800 -0.800	1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08	0.080 0.280 0.880 0.620
Igneous3	0.0000	0.0000	-0.800	1.350000e-08	0.000

Litholo Na		Permeability Power
Igneo na	ne 1.013171e-01 le 1.013171e-01 le 2.786221e+04 te 2.786221e+04 te 1.013171e-08 al 1.013171e-08 m1 9.655232e-01 r1 3.755972e+03 m1 6.228538e-01 r2.759494e-01 1.013171e-01 d1 2.759494e-01 1.013171e-01 d1 6.825522e+01 r1 2.759494e-01 d1 6.825522e+01 r1 2.759494e-01 d1 6.825522e+01 r1 2.759494e-01 d1 6.825522e+01 r1 2.759494e-01 d1 5.38504e+01 d1 5.850452e-01 d1 5.850452e-01 d1 5.850452e-01 d1 5.850452e-01	5.00 5.00 <t< td=""></t<>

```
dara1 4.017996e-01
                                                  5.500
                  rose1 1.013171e-01
                                                  5.500
                  epsi1 3.544999e-01
                                                  5.500
                  mutt1 1.013171e-01
                                                  5.500
                   pat1 7.515815e-01
                                                 5.500
                   nam7 7.515815e-01
                                                 5.500
                   eyr7 8.356076e+02
                                                  5.500
                   win7 4.339930e+00
                                                  5.500
                   mac7 9.201161e+00
                                                  5.500
                   all7 1.240365e+00
                                                  5.500
                 all7 1.240365e+00
tool7 1.013171e-01
wall7 1.013171e-01
coo7 2.840420e+01
bull7 1.013171e-01
cad7 1.859013e+02
mur7 1.672077e-01
mck7 5.313115e+01
namu7 4.825129e+03
west7 2.047023e+00
                                                  5.500
                                                  5.500
                                                  5.500
                                                  5.500
                                                  5.500
                                                  5.500
                                                  5.500
                                                 5.500
                                                 5.500
                  ador7 1.489529e+04
                                                 5.500
                   bir7 4.554102e-01
                                                  5.500
                   hut7 1.022984e+04
                                                 5.500
                  pool7 8.356076e+02
                                                 5.500
                  napp7 4.554102e-01
                                                 5.500
                  merr7 1.182032e+01
                                                 5.500
              Igneous3 1.013171e-08
                                                 5.500
Geothermal Gradient Table
  Time Depth 1
  (Ma) (m)
_____
    0 0
    drity conversion method: Table
TTI = 4.191876 + 1.817512 * log10(Ro)
Data fit: Least Squares
                            Depth = (m)
                        Distance = (m)
          Thermal Conductivity = (W/m*deg C)
                  Heat Capacity = (kJ/m^3*deg C)
                       Heat Flow = (mW/m^2)
               Temperature = (\text{deg C})
Heat Generation = (\text{muW/m}^3)
                        Gradient = (deg C/100 m)
             Activation Energy = (kcal/mole)
              Frequency Factor = (1/my)

HC Density = (g/cm^3)

Pressure = (MPa)
                      Grain Size = (mm)
              Seismic Velocity = (m/s)
                      Event Time = (msec)
                        Maturity = (%Ro)
                  HC Generation = (mg/g TOC)
Calculation Options
                      Compaction = Sclater & Christie
        Porosity Depth Method = Linear
     Permeability Calculation = Modified Kozeny-Carman
Geothermal Calculation = Gradient
        Maturity Calculation = LLNL
Expulsion Calculation = None
```

Time Interval = 1.00

Model Units

Depth Interval = 500.00 Integrate Depth = No

Advanced Options

TTI Reference Temp = 105.00 TTI Doubling Temp = 10.00 Rock-Eval Correction = 35.00 Thermal Gain = 1.000

Critical Fracturing Fraction = 0.850 Fracture Closure Rate = 0.050

Conductivity Calculation = Deming/Chapman

Initial S1 = 3.00

Rifting HF Options

Use Rifting Heat Flow = No Start Rift Time = 0.00 End Rift Time = 0.00 Auto-Calc Beta = No Rifting Heat Flow Beta = 2.00

Present Day Info

Model Name = MERRIMELIA-30 ERO.

Model Description =
Current Surface Temp = 20.00
Current Elevation = 0.00 Current Heat Flow = 63.00

Seismic Parameters

Shot Point = 0

X = 0.00000000Y = 0.00000000 _____+

BasinMod Data Report

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Mr. Peter Tingate

Version: 4.20

Model Name: MOOMBA-57
File Name: MOOMBA-57.mod
Date: Feb 5, 1996
Time: 12:31 pm

Stratigraphy Table Formation or		Begin Age	Well Top	Present Thick	Lithology
Event Name		(Ma)	(m)	(m)	
QT/T	F	3.3	0	38	Sandstone
HIATUS-1	H	5.3			
NAMBA FM.	F	29.3	38	161	nam6
HIATUS-2	H	38			
EYRE FM.	F	60	199	118	eyr6
HIATUS-3	H	90			_
WINTON FM.	F	97.5	317	647	win6
MACKUNDA FM.	F	100	964	91	mac6
ALLARU/OOD	F	105.5	1055	299	all6
COORIKIANA Sst.	F	108	1354	7	c006
BULLDOG SHALE	F	117.5	1361	303	bull6
CADNA-OWIE FM.	F	135.5	1664	73	cad6
MURTA FM.	F	141.5	1737	45	mur6
McKINLAY Mbr.	F	145	1782	7	mck6
NAMUR Sst.	F	151	1789	51	namu6
WESTBOURNE FM.	F	159	1840	.69	west6
ADORI Sst.	F	165	1909	76	ador6
BIRKHEAD FM.	F	175	1985	48	bir6
HUTTON Sst.	F	188	2033	80	hut6
POOLOWANNA FM.	F	193	2113	72	pool6
HIATUS-4	H	236.5			
NAPPAMERRI GP.	F	249	2185	169	паррб
TOOLACHEE FM.	F	253.5	2354	117	t006
HIATUS-5	H	256			
DARALINGIE FM.	F	258.5	2471	80	dara6
ROSENEATH SHALE	F	261.5	2551	79	rose6
EPSILON FM.	F	263.5	2630	96	epsi6
MURTEREE SHAle	\mathbf{F}	264.5	2726	71	mutt6
PATCHAWARRA FM.	F	274	2797	264	pat6

Formation or Event Name	Туре	Lith Pat
QT/T	F	
HIATUS-1	H	
NAMBA FM.	F	1
HIATUS-2	H	
EYRE FM.	F	
HIATUS-3	H	
WINTON FM.	F	
MACKUNDA FM.	F	
ALLARU/OOD	F	
COORIKIANA Sst.	F	
BULLDOG SHALE	F	
CADNA-OWIE FM.	F	
MURTA FM.	F	
McKINLAY Mbr.	F	

TOOLACHEE FM. II HIATUS-5 DARALINGIE FM. II ROSENEATH SHALE EPSILON FM. II	2 P P P P P P P P P P P P P P P P P P P			
Lithology Mixes Table Lithology Name	응	% Siltstone	% Shale	% Limestone
Sandstone nam6 eyr6 win6 mac6 all6 coo6 bul16 cad6 mur6 mck6 namu6 vest6 ador6 bir6 hut6 pool6 napp6 too6 dara6 rose6 epsi6 mutt6 pat6	100 29 65 25 42 9 100 78 10 50 80 60 80 10 80 50 64 11 18	30 23 54 43.5 68 20 16.5 67.5 50 15 30 20 64 20 32 70.5 36 52.5 75 63 75 52.5	22 12 18 14.5 23 80 5.5 22.5 5 10 20 16 23.5 12 17.5 25 21 25 17.5	19
Lithology Name Sandstone nam6 eyr6 win6 mac6 all6 coo6 bull6 cad6 mur6 mur6 namu6 west6 ador6 bir6 hut6	Kerogen 3	Total % 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0		

pool6	2	100.0
napp6		100.0
t006	11	100.0
dara6	12	100.0
rose6		100.0
epsi6	8.5	100.0
mutt6		100.0
pat6	11	100.0

	pat6	11	100.0		
Lithology V	Lithology	Initial	Compaction Factor (FM)	Exponential Factor (SC)	Density (g/cm^3)
	Lithology	Initial	Compaction Factor (FM)	Factor (SC)	(g/cm ³) 2.64 2.64 2.64 2.65 2.72 2.85 2.631 2.638 2.631 2.638 2.630 2.64 2.638 2.635 2.630 2.64 2.638 2.635 2.630 2.64 2.638 2.635 2.630 2.64 2.638 2.635 2.630 2.64 2.635 2.630 2.64 2.635 2.630 2.64 2.635 2.630 2.64 2.635 2.630 2.64 2.635 2.630 2.64 2.635 2.630
	too6 dara6 rose6 epsi6 mutt6	0.55 0.58 0.56 0.58 0.56	2.18 2.31 2.25 2.31 2.25	0.39 0.43 0.43 0.44 0.43	2.542 2.532 2.63 2.560 2.63

pat6 0.57 2.29 0.43 2.540

	ology Grain Name	Size N (mm)	Matrix	Conductivit (W/m*deg (Cond. ection
Limes Dolc Evapo	stone 0 Shale 0 stone mite orite 0 Coal 0 neous 0	0.5 .0156 .0004 0.5 0.5 .0004 .0004 .0001		1 2 4 5	.4 2 .5 .9 .8 .4 .3	270 170 -180 350 300 470 250 380 116.2
	eyr1 0 win1 0 mac1 0 all1 0 coo1 0 cad1 0 mur1 0 mck1 0 amu1 0	.2479 .0109 .0125 .0088 .0883 .0008 .0609 .0088 .0360 .2954		3.99 2.20 2.2 2.0	96 79 77 .2 .6 88 77 85	240 113 112.5 97.5 220 -110 180 97.5 157.5 247.5 133.4
; ; ;	hut1 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	.2678 .0066 .0195 .0069 .0070 .0062 .0082 .0062 .0095 .0368		3.99 1.92 2.53 1.99 1.83 2.03 1.84 2.13 2.75	68 13 31 42 48 75 33 75 21	252 142.2 131.2 152.9 124.9 82.5 111.3 82.5 129.2 156.2
r V	win6 0 mac6 0 all6 0 coo6 0 cull6 0 cad6 0 mur6 0 namu6 0 vest6 0	.0957 .0171 .0393 .0091 0.5 .0008 .1906 .0883 .2080 .0866 .2499		2.4 2.9 2.1 4 1 3.8 2.1	35 01 .4 .6 44 27 .2 95 39	193 134.4 161.2 98.5 270 -110 228.7 101.2 220 232.5 195 250
	bir6 0 hut6 0 hool6 0 happ6 0 too6 0 dara6 0 cose6 0 pat6 0	.0085 .2499 .0456 .0081 .0278 .0098 .0062 .0068 .0062		2.0. 3.0 2.0. 2.7. 2.1. 1.8 1.9. 1.8 2.1	38 92 86 26 37 40 75 30 75	114.8 250 165.6 93.75 177.8 136.3 82.5 110.8 82.5 136.5
Sands Silts	Name (kJ/m stone	1^3*deg 28 20		at Capacity Correction 0 0		

Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 cool bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 tool dara1 rose1 epsi1 mutt1 pat1 nam6 eyr6 win6 mac6 all6 coo6 bull6 cad6 mur6 mur6 mck6 namu6 west6 ador6 bir6 hut6 pool6 napp6 too6 dara6 rose6 epsi6 mutt6 pat6		2600 2600 1750 950 2564. 2513. 25535. 22535. 2210 2662 2535. 2627. 2536. 2765. 2240. 2512. 2447. 2512. 2447. 2512. 2447. 2512. 2447. 2512. 2447. 2512. 2447. 2512. 25337. 2633. 2736. 2737. 2740. 2740. 2740. 2751. 2760. 2760. 2760. 2760. 2776. 2776. 2776. 2776. 2776. 2776. 2776. 2776. 2776. 2777. 2776. 27776. 2776. 2776. 2776. 2776. 2776. 2776. 2776. 2776. 27776. 2776. 2776. 2776. 2776. 2776. 2776. 2776. 2776. 27776. 2776. 2776. 2776. 2776. 2776. 2776. 2776. 2776. 27776. 2776. 2776. 2776. 2776. 2776. 2776. 2776. 2776. 27776. 2776. 2776. 2776. 2776. 2776. 2776. 2776. 2776. 27776. 2776. 2776. 2776. 2776. 2776. 2776. 2776. 2776. 27776. 2776. 2776. 2776. 2776. 2776. 2776. 2776. 2776. 27776. 2776. 2776. 2776. 2776. 27776. 27776. 27776. 27776. 27776. 27776. 27776. 27776. 27776. 27776. 27776. 27776.		000000000000000000000000000000000000000	
Lithology Fluid Flow Lithology Name	Table Initial Porosity A	Initial Porosity B	А	B (1/Pa)	Fraction A
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1	0.0000 0.5500 0.6000 0.6000 0.6000 0.0000 0.9000 0.0000	0.4500 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.4500	-0.800 -0.800 -0.800 -0.800 -0.800 -0.800	1.350000e-08 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 1.350000e-08 0.000000e+00 1.350000e-08	0.000 1.000 1.000 1.000 1.000 0.000 1.000 0.000 0.820

eyr1	0.5625	0.4500	-0.800	1.350000e-08	0.160	
winl	0.5725	0.4500		1.350000e-08	0.855	
mac1	0.5625	0.4500		1.350000e-08	0.840	
all1	0.5625	0.4500	-0.800		0.920	
c001	0.5500	0.4500		1.350000e-08	0.500	
bull1	0.5900	0.0000	-0.800		1.000	
cad1	0.5625	0.4500	-0.800	1.350000e-08	0.480	
mur1	0.5625	0.4500	-0.800		0.920	
mck1	0.5625	0.4500	-0.800		0.600	
namu1	0.5625	0.4500	-0.800		0.120	
bir1	0.5756	0.4500	-0.800	1.350000e-08	0.760	
hut1	0.5500	0.4500	-0.800		0.180	
pool1	0.6409	0.4500	-0.800		0.860	
napp1	0.5625	0.4500	-0.800		0.740	
too1	0.6560	0.4500	-0.800		0.830	
dara1	0.6117	0.4500	-0.800		0.890	
rose1	0.5625	0.0000		0.000000e+00	1.000	
epsi1	0.5850	0.4500	-0.800	1.350000e-08	0.900	
mutt1	0.5625	0.0000	-0.800		1.000	
pat1	0.6026	0.4500	-0.800		0.840	
nam6	0.5788	0.4500	-0.800		0.710	
eyr6	0.5671	0.4500	-0.800		0.350	
win6	0.5760	0.4500	-0.800		0.750	
mac6	0.5625	0.4500	-0.800		0.580	
all6	0.5626	0.4500	-0.800		0.910	
c006	0.0000	0.4500	0.0000		0.000	
bull6	0.5900	0.0000	-0.800		1.000	
cad6	0.5625	0.4500	-0.800		0.220	
mur6	0.5625	0.4500	-0.800		0.900	
mck6	0.5500	0.4500	-0.800		0.500	
namu6	0.5625	0.4500	-0.800	1.350000e-08	0.200	
west6	0.5625	0.4500	-0.800	1.350000e-08	0.400	
ador6	0.5500	0.4500	-0.800	1.350000e-08	0.200	
bir6	0.5844	0.4500	-0.800	1.350000e-08	0.900	
hut6	0.5500	0.4500	-0.800	1.350000e-08	0.200	
pool6	0.5800	0.4500	-0.800	1.350000e-08	0.500	
napp6	0.5625	0.4500	-0.800	1.350000e-08	0.940	
t006	0.6254	0.4500	-0.800	1.350000e-08	0.590	
dara6	0.6118	0.4500	-0.800	1.350000e-08	0.820	
rose6	0.5625	0.0000		0.000000e+00	1.000	
epsi6	0.5935	0.4500	-0.800		0.925	
mutt6	0.5625	0.0000	-0.800	0.000000e+00	1.000	
pat6	0.6083	0.4500	-0.800	1.350000e-08	0.810	

Lithology Name		Permeability Power
Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 coo1 bull1	1.013171e-01 1.013171e-01 2.786221e+04 2.786221e+04 1.013171e-08 1.013171e-01 1.013171e-08 9.655232e-01 3.755972e+03 6.228538e-01 7.515815e-01	5.500 5.500 5.500 5.500 5.500 5.500

```
mur1 2.759494e-01
                                  5.500
mck1 1.518504e+01
namu1 6.198629e+03
                                  5.500
                                 5.500
 bir1 2.047023e+00
                                 5.500
 hut1 2.923719e+03
                                 5.500
pool1 5.850452e-01
napp1 2.629719e+00
                                 5.500
                                 5.500
 too1 8.518624e-01
                                 5.500
dara1 4.017996e-01
                                 5.500
rosel 1.013171e-01
                                 5.500
epsil 3.544999e-01
                                 5.500
mutt1 1.013171e-01
                                 5.500
 pat1 7.515815e-01
                                 5.500
 nam6 4.135829e+01
                                 5.500
 eyr6 3.477356e+02
                                5.500
                                5.500
 win6 2.320150e+00
 mac6 1.950754e+01
                                 5.500
                                 5.500
 all6 3.127683e-01
                                 5.500
 coo6 2.786221e+04
bull6 1.013171e-01
                                 5.500
 cad6 1.771586e+03
                                 5.500
cad6 1.771586e+03
mur6 3.544999e-01
mck6 5.313115e+01
namu6 2.275878e+03
west6 1.859013e+02
ador6 2.275878e+03
bir6 3.544999e-01
hut6 2.275878e+03
pool6 5.313115e+01
napp6 2.148042e-01
too6 1.721112e+01
dara6 9.655232e-01
                                 5.500
                                 5.500
                                 5.500
                                 5.500
                                 5.500
                                 5.500
                                 5.500
                                 5.500
                                 5.500
                                5.500
dara6 9.655232e-01
                                5.500
rose6 1.013171e-01
                                5.500
epsi6 2.591987e-01
                                5.500
mutt6 1.013171e-01
                                5.500
 pat6 1.094350e+00
                                 5.500
```

Geothermal Gradient Table

Time Depth 1 (Ma) (m) ---- 0 0

Maturity conversion method: Table TTI = 4.191876 + 1.817512 * log10(Ro)

Data fit: Least Squares

Model Units

Depth = (m)
Distance = (m)

Thermal Conductivity = (W/m*deg C)
Heat Capacity = (kJ/m^3*deg C)
Heat Flow = (mW/m^2)
Temperature = (deg C)
Heat Generation = (muW/m^3)
Gradient = (deg C/100 m)
Activation Energy = (kcal/mole)
Frequency Factor = (1/my)
HC Density = (g/cm^3)
Pressure = (MPa)

Grain Size = (mm)
Seismic Velocity = (m/s)
Event Time = (msec)
Maturity = (%Ro)

HC Generation = (mg/g TOC)

Calculation Options

Compaction = Sclater & Christie

Porosity Depth Method = Linear

Permeability Calculation = Modified Kozeny-Carman Geothermal Calculation = Gradient

Maturity Calculation = LLNL Expulsion Calculation = None

Time Interval = 1.00

Depth Interval = 1000.00

Integrate Depth = No

Advanced Options

TTI Reference Temp = 105.00

TTI Doubling Temp = 10.00

Rock-Eval Correction = 35.00

Thermal Gain = 1.000

Critical Fracturing Fraction = 0.850

Fracture Closure Rate = 0.050

Conductivity Calculation = Deming/Chapman Initial S1 = 3.00

Rifting HF Options

Use Rifting Heat Flow = No Start Rift Time = 0.00

End Rift Time = 0.00

Auto-Calc Beta = No

Rifting Heat Flow Beta = 2.00

Present Day Info

Model Name = MOOMBA-57

Model Description =

Current Surface Temp = 20.00

Current Elevation = 0.00

Current Heat Flow = 63.00

Seismic Parameters

Shot Point = 0

X = 0.00000000 Y = 0.00000000

BasinMod Data Report
Licensed to: Natn'l Centre for Petroleum Geology & Geophysics |

Mr. Peter Tingate

Version: 4.20 Model Name: MOOMBA-57 EROSION

File Name: MOOMBA-57 EROSION.mod

Date: Feb 5, 1996 Time: 12:31 pm

+					+
Stratigraphy Tabl	Le				
Formation or	Туре	Begin Age	Well Top	Present Thick	
Event Name		(Ma)	(m)	(m)	(m)
QT/T	F	3.3	0	38	
EROSION-1		4.3			-25
MISSING SEC-1	D	5.3			25
NAMBA FM.	\mathbf{F}	29.3	38	161	
EROSION-2	E	34			-32
MISSING SEC-2	D	38			32
EYRE FM.	F		199	118	000
EROSION-3	E	75			-200
MISSING SEC-3	D	90 97.5	217	647	200
WINTON FM. MACKUNDA FM.	F F	100	317 964	647 91	
ALLARU/OOD	F	105.5	1055	299	
COORIKIANA Sst.	F	108	1354	7	
BULLDOG SHALE	F		1361	303	
CADNA-OWIE FM.	F	135.5	1664	73	
MURTA FM.	F	141.5	1737	45	
KINLAY Mbr.	F	145	1782	7	
NAMUR Sst.		151	1789	51	
WESTBOURNE FM.	F	159	1840	69	•
ADORI Sst.	F	165 175	1909	76	
BIRKHEAD FM.	F	175	1985	48	
HUTTON Sst.		188	2033	80	
POOLOWANNA FM.		193	2113	72	
EROSION-4	E	213			-64 64
MISSING SEC-4	D F	236.5 249	2105	169	64
NAPPAMERRI GP. TOOLACHEE FM.	F	253.5	2185 2354	117	
EROSION-5	E	254.5	2334	11/	-110
MISSING SEC-5	D	256			110
DARALINGIE FM.	F		2471	80	
ROSENEATH SHALE	F	261.5	2551	79	
EPSILON FM.	F			96	
MURTEREE SHAle		264.5	2726	71	
PATCHAWARRA FM.	F	274	2797	264	
Formation or	Туре		Lithol	ogy Lith Pat	
Event Name					
					-
QT/T EROSION-1	F		Sandst	cone	
MISSING SEC-1	E D		Sandst	one	
NAMBA FM.	F				1
EROSION-2	E		1		-
MISSING SEC-2	D		Sandst	one	
EYRE FM.	F			eyr6	
EROSION-3	E			-	
MISSING SEC-3	D		Sandst	cone	

WINTON FM.	F	win6
MACKUNDA FM.	F	mac6
ALLARU/OOD	F	all6
COORIKIANA Sst.	F	c006
BULLDOG SHALE	F	bull6
CADNA-OWIE FM.	F	cad6
MURTA FM.	F	mur6
CKINLAY Mbr.	F	mck6
NAMUR Sst.	F	namu6
WESTBOURNE FM.	F	west6
ADORI Sst.	F	ador6
BIRKHEAD FM.	F	bir6
HUTTON Sst.	F	hut6
POOLOWANNA FM.	F	pool6
EROSION-4	E	pooro
MISSING SEC-4	D	Sandstone
NAPPAMERRI GP.	F	napp6
	F	too6
TOOLACHEE FM.		5000
EROSION-5	E	Sandstone
MISSING SEC-5	D	
DARALINGIE FM.	F	dara6
ROSENEATH SHALE	F	rose6
EPSILON FM.	F	epsi6
MURTEREE SHAle	F	mutt6
PATCHAWARRA FM.	F	pat6
Lithology Mixes Ta	ble	
ercitorogy marco id.	~-~	

Lithology	Mixes	Table
		-

HIGHOTOGY	Lithology	?	8	ું	90
	Name	Sandstone	Siltstone	Shale	Limestone
	Sandstone	100			
*	nam6		30	22	19
		65	23	12	10
	eyr6 win6	25	54		
	mac6	42	43.5		
	all6	9	±3.3 68	23	
	c006		00		
	bull6	2.00	20	80	
	cad6	78	16.5		
	mur6	10	67.5		
	mck6	50	50		
	namu6	80	15	5	
	west6	60	30	10	
	ador6	80	20		
	bir6	10	64	20	
	hut6	80	20		
	pool6	50	32	16	
	napp6	. 6	70.5	23.5	
	t006	41	36	12	
	dara6	18	52.5		
	rose6		75	25	
	epsi6	7.5	63	21	
	mutt6		75	25	
	pat6	19	52.5	17.5	
	Tithalom	ا رہ	Total		

Name	Kerogen	10tai
Sandstone nam6 eyr6 win6 mac6 all6	3	100.0 100.0 100.0 100.0 100.0

C006		100.0
bull6		100.0
cad6		100.0
mur6		100.0
mck6		100.0
namu6		100.0
west6		100.0
ador6		100.0
bir6	6	100.0
hut6		100.0
pool6	2	100.0
napp6		100.0
t006	11	100.0
dara6	12	100.0
rose6		100.0
epsi6	8.5	100.0
mutt6		100.0
pat6	11	100.0

Lithology	Values Tab	le				
	Lithology	Initial	Compaction	Exponential	Density	
	Name	Porosity	Factor (FM)	Factor (SC)	(g/cm^3)	
		0.45	1.75	0.27	2.64	
	Sandstone Siltstone	0.45 0.55	2.2	0.41	2.64	
	Shale	0.6	2.4	0.51	2.6	
	Limestone		1.5	0.22	2.72	
	Dolomite	0.6	1.5	0.22	2.85	
	Evaporite	0	0	0	2.15	
	Coal	0.9	3.5	0.7	1.8	
	Igneous	0	0	0	2.65	
	nam1	0.54	2.16	0.40	2.631	
	eyr1	0.46	1.83	0.29	2.638	
	win1	0.55	2.20	0.41	2.610	
	mac1	0.54	2.17	0.40	2.631	
	all1	0.55	2.21	0.42	2.630	
	coo1	0.5	1.97	0.34	2.64	
	bull1	0.59	2.36	0.49	2.608	
	cad1	0.50	1.99	0.34	2.635	
	mur1	0.55	2.21	0.42	2.630	
	mck1	0.51	2.05	0.36	2.634	
	namu1	0.46	1.81	0.28	2.638	
	bir1	0.54	2.16	0.40	2.607	
	hut1	0.46	1.83	0.29	2.64	
	pool1	0.61	2.43	0.46	2.465	
	napp1	0.53	2.12	0.39	2.632	
	tool	0.62	2.45	0.46	2.440	
	dara1	0.59	2.35	0.45	2.523	
	rose1	0.56	2.25	0.43	2.63 2.581	
	epsi1	0.57	2.27	0.43 0.43	2.63	
	mutt1	0.56	2.25 2.29	0.43	2.548	
~	pat1	0.57 0.54	1.98	0.35	2.646	
	nam6 eyr6	0.49	1.93	0.33	2.635	
	win6	0.54	2.16	0.40	2.607	
	mac6	0.51	2.04	0.36	2.634	
	all6	0.55	2.20	0.42	2.630	
	c006		1.75	0.27	2.64	
	bull6	0.59	2.36	0.49	2.608	
	cad6	0.47	1.86	0.30	2.637	
	mur6	0.55	2.2	0.41	2.631	
	mck6		1.97	0.34	2.64	
	namu6		1.85	0.30	2.638	
	west6		1.95	0.33	2.636	

ador6 bir6 hut6 pool6 napp6 too6 dara6 rose6 epsi6 mutt6 pat6	0.47 0.57 0.47 0.51 0.55 0.55 0.56 0.58 0.56	1.84 0.2 2.27 0.4 1.84 0.2 2.03 0.3 2.22 0.4 2.18 0.3 2.31 0.4 2.25 0.4 2.31 0.4 2.25 0.4 2.25 0.4 2.29 0.4	3 2.581 9 2.64 6 2.616 2 2.630 9 2.542 3 2.532 3 2.63 4 2.560 3 2.63	
Lithology Name	Grain Size (mm)	Matrix Conductivity (W/m*deg C)	Matrix Cond. Correction	
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 cool bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1 nam6 eyr6 win6 mac6 all6 coo6 bull6 cad6 mur6 mur6 mac6 namu6 west6 ador6 bir6 hut6 pool6 napp6 too6	(mm) 0.5 0.0156 0.0004	(W/m*deg C) 4.4 2 1.5 2.9 4.8 5.4 0.3 2.9 2.329 3.996 2.200 2.279 2.077 3.2 1.6 3.188 2.077 2.885 4.097 2.435 3.968 1.913 2.531 1.942 1.948 1.875 2.033 1.875 2.121 2.757 3.5 2.459 2.935 2.101 4.4 1.6 3.844 2.127 3.2 3.895 3.39 3.92 2.038 3.92 3.086 2.026 2.737 2.140	Correction	
dara6 rose6		1.875	82.5	

epsi6	0.0068	1.930	110.8
mutt6	0.0062	1.875	82.5
pat6	0.0106	2.181	136.5

Lithology Name	Heat Capacity (kJ/m^3*deg C)	Heat Capacity Correction
Sandstone Siltstone Shale	2800 2650 2100	0 0
Limestone	2600	0
Dolomite	2600	Ö
Evaporite	1750	0
Coal	950	0
Igneous	2500	. 0
nam1	2564.	0
eyrl	2754	0
win1 mac1	2513. 2558.	0
all1	2535. 2535.	0
cool	2725	Ö
bull1	2210	0
cad1	2662	0
murl	2535.	0
mck1	2627.	0
namul	2765.	0
birl hut1	2536 2773	0
pool1	2240.	0
napp1	2587.	Ö
tool	2202	0
dara1	2341	0
rose1	2512.	0
epsil	2447.	0
mutt1	2512.	0
pat1 nam6	2402. 2563	0
eyr6	2681.	0
win6	2537.	0
mac6	2633.	0
all6	2537	0
_ coo6	2800	0
bull6	2210	0
cad6 mur6	2736. 2541.	0
mck6	2725	0
namu6	2742.	Ō
west6	2685	0
ador6	2770	0.
bir6	2453	0
hut6	2770	0
pool6	2603 2529.	0
napp6 too6	2529. 2458.	0
dara6	2376.	0
rose6	2512.	0
epsi6	2401.	0
mutt6	2512.	0
pat6	2395.	0

Lithology Fluid Flow Table
Lithology Initial Initial A B Fraction
Name Porosity Porosity
A B

 Name	Permeability (milliDarcys)	Power
Sandstone Siltstone Shale Limestone Dolomite Evaporite	2.786221e+04 1.013171e-01 1.013171e-01 2.786221e+04 2.786221e+04 1.013171e-08	5.500 5.500 5.500 5.500 5.500

```
5.500
                    Coal 1.013171e-01
                Igneous 1.013171e-08
                                                     5.500
                    nam1 9.655232e-01
                                                     5.500
                    eyr1 3.755972e+03
                                                    5.500
                                                    5.500
                    win1 6.228538e-01
                    mac1 7.515815e-01
                                                    5.500
                    all1 2.759494e-01
                                                    5.500
                                                    5.500
                    coo1 5.313115e+01
                                                    5.500
                   bull1 1.013171e-01
                                                    5.500
                    cad1 6.825522e+01
                                                    5.500
                    mur1 2.759494e-01
                                                    5.500
                    mck1 1.518504e+01
                                                    5.500
                   namu1 6.198629e+03
                                                    5.500
                    bir1 2.047023e+00
                   hut1 2.923719e+03
pool1 5.850452e-01
napp1 2.629719e+00
too1 8.518624e-01
                                                    5.500
                                                    5.500
                                                    5.500
                                                     5.500
                   dara1 4.017996e-01
rose1 1.013171e-01
epsi1 3.544999e-01
mutt1 1.013171e-01
pat1 7.515815e-01
nam6 4.135829e+01
eyr6 3.477356e+02
                                                     5.500
                                                     5.500
                                                    5.500
                                                    5.500
                                                    5.500
                                                    5.500
                                                    5.500
                    win6 2.320150e+00
                                                    5.500
                    mac6 1.950754e+01
all6 3.127683e-01
                                                    5.500
                                                    5.500
                    coo6 2.786221e+04
                                                    5.500
                   bull6 1.013171e-01
                                                    5.500
                    cad6 1.771586e+03
                                                 - 5.500
                    mur6 3.544999e-01
                                                   5.500
                    mck6 5.313115e+01
                                                    5.500
                   namu6 2.275878e+03
                                                    5.500
                                                    5.500
                   west6 1.859013e+02
                   ador6 2.275878e+03
                                                    5.500
                   ador6 2.275878e+03
bir6 3.544999e-01
hut6 2.275878e+03
pool6 5.313115e+01
napp6 2.148042e-01
too6 1.721112e+01
dara6 9.655232e-01
rose6 1.013171e-01
epsi6 2.591987è-01
mutt6 1.013171e-01
                                                     5.500
                                                     5.500
                                                     5.500
                                                     5.500
                                                     5.500
                                                    5.500
                                                    5.500
                                                    5.500
                   mutt6
                                                    5.500
                    pat6 1.094350e+00
                                                    5.500
Geothermal Gradient Table
  Time Depth 1
  (Ma) (m)
              0
```

Maturity conversion method: Table TTI = 4.191876 + 1.817512 * log10(Ro)Data fit: Least Squares

Model Units

0

Distance = (m) Thermal Conductivity = (W/m*deg C)Heat Capacity = $(kJ/m^3*deg C)$ Heat Flow = (mW/m^2) Temperature = (deg C)

Depth = (m)

```
Heat Generation = (muW/m^3)
                       Gradient = (deg C/100 m)
            Activation Energy = (kcal/mole)
Frequency Factor = (1/my)
                    HC Density = (g/cm<sup>3</sup>)
Pressure = (MPa)
                     Grain Size = (mm)
              Seismic Velocity = (m/s)
                     Event Time = (msec)
                 Maturity = (%Ro)
HC Generation = (mg/g TOC)
Calculation Options
                     Compaction = Sclater & Christie
        Porosity Depth Method = Linear
    Permeability Calculation = Modified Kozeny-Carman
Geothermal Calculation = Gradient
         Maturity Calculation = LLNL
        Expulsion Calculation = None
                 Time Interval = 1.00
                Depth Interval = 1000.00
               Integrate Depth = No
Advanced Options
           TTI Reference Temp = 105.00
            TTI Doubling Temp = 10.00
         Rock-Eval Correction = 35.00
                  Thermal Gain = 1.000
Critical Fracturing Fraction = 0.850
        Fracture Closure Rate = 0.050
    Conductivity Calculation = Deming/Chapman
                     Initial S1 = 3.00
   ing HF Options
        Use Rifting Heat Flow = No
               Start Rift Time = 0.00
                 End Rift Time = 0.00
                Auto-Calc Beta = No
       Rifting Heat Flow Beta = 2.00
Present Day Info
                    Model Name = MOOMBA-57 EROSION
            Model Description =
         Current Surface Temp = 20.00
            Current Elevation = 0.00
Current Heat Flow = 63.00
Seismic Parameters
                     Shot Point = 0
                               X = 0.00000000
                               Y = 0.00000000
```

BasinMod Data Report

Licensed to: Natn'l Centre for Petroleum Geology & Geophysics |

Mr. Peter Tingate

Version: 4.20
Model Name: MULGA-2
File Name: MULGA-2.mod
Date: Feb 5, 1996

Time: 12:32 pm

Stratigraphy Tab	le				
Formation		Begin	Well Top	Present	Lithology
or		Age		Thick	
Event Name		(Ma)	(m)	(m)	
QT/T	F	3.3	0	31	Sandstone
HIATUS-1	H	5.3	· ·	-	54114555114
NAMBA FM.	F	29.3	31	40	nam5
HIATUS-2	H	38	31	20	IIdilio
EYRE FM.	F	60	71	112	eyr5
HIATUS-3	H	90	7	±±2	6,13
WINTON FM.	F	97.5	183	463	win5
MACKUNDA FM.	F	100	646	91	mac5
ALLARU/OOD	F	105.5	737	238	al15
COORIKIANA Sst.	F	108	975	8	coo5
BULLDOG SHALE	F	117.5	983	206	bull5
CADNA-OWIE FM.	F	135.5	1189	64	cad5
MURTA FM.	F	141.5	1253	45	mur5
McKINLAY Mbr.	F	145	1298	10	mck5
NAMUR Sst.	F	165	1308	229	namu5
BIRKHEAD FM.	F	175	1537	18	bir5
HUTTON Sst.	F	188	1555	31	hut5
DOLOWANNA FM.	F	193	1586	29	poo15
HIATUS-4	H	249			- .
TOOLACHEE FM.	F	253.5	1615	53	too5
HIATUS-5	H	256			
DARALINGIE FM.	F	258.5	1668	12	dara5
ROSENEATH SHALE	F	261.5	1680	18	rose5
EPSILON FM.	F	263.5	1698	65	epsi5
MURTEREE SHAle	F	264.5	1763	46	mutt5
PATCHAWARRA FM.	F	274	1809	41	pat5

Pat	or Event Name
1	 QT/T HIATUS-1 NAMBA FM. HIATUS-2 EYRE FM. HIATUS-3 WINTON FM. MACKUNDA FM. ALLARU/OOD COORIKIANA SST. BULLDOG SHALE DNA-OWIE FM. MURTA FM. MCKINLAY Mbr. NAMUR SST. BIRKHEAD FM. HUTTON SST.

Formation Type Lith

POOLOWANNA FM.	F
HIATUS-4	H
TOOLACHEE FM.	F
HIATUS-5	H
DARALINGIE FM.	F
ROSENEATH SHALE	F
EPSILON FM.	F
RTEREE SHAle	F
PATCHAWARRA FM.	F

Lithology	Mixes	Table
-----------	-------	-------

Li	thology	%	왕	왕	왕	Total
	Name	Sandstone	Siltstone	Shale	Kerogen	ે
Sa	ndstone	100				100.0
Du	nam5	19	60	21		100.0
	eyr5	64	24	12		100.0
	win5	20	60	20		100.0
	mac5	19	62	19		100.0
	al15	17	62	21		100.0
	c005	50	50			100.0
	bull5		25	75		100.0
	cad5	45	44	11		100.0
	mur5	14	64.5	21.5		100.0
	mck5	50	_50			100.0
	namu5	90	7.5	2.5		100.0
	bir5	42	43.5	14.5		100.0
	hut5	90	10	40 5	_	100.0
	pool5	48	37.5	12.5		100.0
	too5	32	33	11	24	100.0
	dara5	37.5	47	15.5		100.0
	rose5	10	75 55.5	25 18.5	10	100.0
	epsi5 mutt5	13	55.5 75	25	7.3	100.0
_	pat5	21	55.5	18.5	5	100.0
	Pacs	2, 1	22.2	10.5	J	T00+0

Lithology Values Table

Lithol N		Compaction Factor (FM)		Density (g/cm^3)
Sandst Siltst Siltst Dolon Evapor (Igne v	Name Porosity Cone	Factor (FM) 1.75 2.2 2.4 1.5 1.5 0 3.5 0 2.16 1.83 2.20 2.17 2.21 1.97 2.36 0 1.99 2.21 2.05 1.81 2.16	Factor (SC)	(g/cm ³) 2.64 2.64 2.64 2.72 2.85 2.15 1.8 2.65 2.631 2.638 2.610 2.631 2.630 2.64 2.638 2.630 2.64 2.638 2.630 2.634 2.638 2.637 2.64
\overline{n}	Doll 0.61 appl 0.53 tool 0.62	2.12	0.46 0.39 0.46	2.465 2.632 2.440

dara1	0.59	2.35	0.45	2.523
rose1	0.56	2.25	0.43	2.63
epsi1	0.57	2.27	0.43	2.581
mutt1	0.56	2.25	0.43	2.63
pat1	0.57	2.29	0.43	2.548
nam5	0.54	2.15	0.40	2.631
eyr5	0.49	1.93	0.33	2.635
win5	0.54	2.15	0.40	2.632
mac5	0.54	2.15	0.40	2.632
all5	0.54	2.16	0.40	2.631
c005	0.5	1.97	0.34	2.64
bull5	0.58	2.35	0.48	2.61
cad5	0.51	2.01	0.35	2.635
mu5	0.54	2.18	0.41	2.631
mck5	0.5	1.97	0.34	2.64
namu5	0.46	1.8	0.28	2.639
bir5	0.51	2.04	0.36	2.634
hut5	0.46	1.79	0.28	2.64
t005	0.60	2.39	0.44	2.434
dara5	0.52	2.06	0.37	2.633
rose5	0.56	2.25	0.43	2.63
epsi5	0.59	2.34	0.44	2.523
mutt5	0.56	2.25	0.43	2.63
pat5	0.55	2.20	0.41	2.590
mur5	0.54	2.18	0.41	2.631
pool5	0.51	2.03	0.36	2.618

	ogy Grain ame	Size (mm)	Matrix	Conductivity (W/m*deg C)	Matrix Cond. Correction
Sandsto Siltsto Sha Limesto Dolom: Evapor: Co Igneo na ey	one one one ite ite oal ous ous oum inn oun ous ous oun	(mm) 0.5 .0156 .0004 0.5 .0004 .0004 .0001 .0137 .2479 .0109		4.4 2 1.5 2.9 4.8 5.4 0.3 2.9 2.329 3.996 2.200 2.279	Correction 270 170 -180 350 300 470 250 380 116.2 240 113 112.5 97.5
co bui ca mi man nan bi hi pool nan to da: ro; ep: mut pa	001 0 0 111 0 0 111 0 0 0 111 0 0 0 1 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 1 0 0 0 0 1 1 0 0 0 0 1 1 0	.0088 .0883 .0008 .00609 .0088 .0360 .2954 .0166 .00695 .00695 .0062 .0062 .00924 .0130 .0130		2.077 3.2 1.6 3.188 2.077 2.885 4.097 2.435 3.968 1.913 2.531 1.942 1.948 1.875 2.033 1.875 2.121 2.351 2.361 2.361 2.303	220 -110 180 97.5 157.5 247.5 133.4 252 142.2 131.2 152.9 124.9 82.5 111.3 82.5 129.2 115.5 120 122.5 113.5

coosbulls cads mus mcks namus birs huts toos daras roses epsis mutts pats murs pools	0.0883 0.0009 0.0496 0.0115 0.0883 0.3225 0.0393 0.3534 0.0131 0.0324 0.0062 0.0077 0.0062 0.0136 0.0115 0.0484	3.2 1.625 3.025 2.228 3.2 4.147 2.935 4.16 2.305 2.822 1.875 1.998 1.875 2.326 2.228 3.055	220 -92.5 176.5 108.7 220 251.2 161.2 260 182.7 153.2 82.5 128.6 82.5 130.2 108.7 175.8
Lithology Name	Heat Capacity (kJ/m^3*deg C)	Heat Capacity Correction	
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 cool bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 tool dara1 rose1	2800 2650 2100 2600 2600 1750 950 2500 2564. 2754 2513. 2558. 2535. 2725 2210 2662 2535. 2627. 2765. 2773 2240. 2587. 2202 2341 2512.		

2447.

2512.

2402.

2563

2680

2570

2574 2560

2725

2237.

2657 2552.

2725

2771.

2633.

2229.

2785

2621

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

epsi1

mutt1

pat1

nam5

eyr5

win5

mac5

all5 coo5

bull5

cad5

mu5

mck5

bir5 hut5

t005

dara5

namu5

```
25±±
2346.
                                                                                                0
                              rose5
                              epsi5
                              mutt5
                                                           2512.
                                                            2494.
                                pat5
                                mur5
                                                            2552.
                              pool5
                                                            2619.
Lichology Fluid Flow Table
                      Lithology Initial Initial A
Name Porosity Porosity
                                                                                                        B Fraction
                                                                                                       (1/Pa) A
                                                  A B
  __________
                     Sandstone 0.0000 0.4500 0.0000 1.350000e-08 0.000
Siltstone 0.5500 0.0000 -0.800 0.000000e+00 1.000
Shale 0.6000 0.0000 -0.800 0.000000e+00 1.000
Limestone 0.6000 0.0000 -0.800 0.000000e+00 1.000
Dolomite 0.6000 0.0000 -0.800 0.000000e+00 1.000
Evaporite 0.0000 0.0000 -0.800 1.350000e-08 0.000
Coal 0.9000 0.0000 -0.800 1.350000e-08 0.000
Igneous 0.0000 0.0000 -0.800 1.350000e-08 0.000
nam1 0.5625 0.4500 -0.800 1.350000e-08 0.820
evr1 0.5625 0.4500 -0.800 1.350000e-08 0.160
                                eyr1 0.5625 0.4500 -0.800 1.350000e-08
                                                                                                                          0.160

      win1
      0.5725
      0.4500 -0.800 1.350000e-08
      0.855

      mac1
      0.5625
      0.4500 -0.800 1.350000e-08
      0.840

                                all1 0.5625 0.4500 -0.800 1.350000e-08 0.920
                                cool 0.5500 0.4500 -0.800 1.350000e-08 0.500
                              bull1 0.5900 0.0000 -0.800 0.000000e+00 1.000 cad1 0.5625 0.4500 -0.800 1.350000e-08 0.480

      cad1
      0.5625
      0.4500
      -0.800
      1.350000e-08
      0.480

      mur1
      0.5625
      0.4500
      -0.800
      1.350000e-08
      0.920

      mck1
      0.5625
      0.4500
      -0.800
      1.350000e-08
      0.600

      namu1
      0.5625
      0.4500
      -0.800
      1.350000e-08
      0.120

      bir1
      0.5756
      0.4500
      -0.800
      1.350000e-08
      0.760

      hut1
      0.5500
      0.4500
      -0.800
      1.350000e-08
      0.180

      pool1
      0.6409
      0.4500
      -0.800
      1.350000e-08
      0.860

      napp1
      0.5625
      0.4500
      -0.800
      1.350000e-08
      0.740

      too1
      0.6560
      0.4500
      -0.800
      1.350000e-08
      0.830

      dara1
      0.6117
      0.4500
      -0.800
      1.350000e-08
      0.890

      rose1
      0.5625
      0.0000
      -0.800
      1.350000e-08
      0.890

      epsi1
      0.5850
      0.4500
      -0.800
      1.350000e-08
      0.900

                              epsil 0.5850 0.4500 -0.800 1.350000e-08 0.900
                                mutt1 0.5625 0.0000 -0.800 0.000000e+00 1.000 pat1 0.6026 0.4500 -0.800 1.350000e-08 0.840
                              mutt1
                                nam5 0.5629 0.4500 -0.800 1.350000e-08 0.810
                                eyr5 0.5666 0.4500 -0.800 1.350000e-08 0.360
                                win5 0.5625 0.4500 -0.800 1.350000e-08
                                                                                                                           0.800
                                           0.5617 0.4500 -0.800 1.350000e-08
                                                                                                                           0.810
                                mac5
                                           0.5626   0.4500   -0.800   1.350000e-08
                                al15
                                                                                                                             0.830
                                           0.5500 0.4500 -0.800 1.350000e-08

0.5875 0.0000 -0.800 0.000000e+00

0.5600 0.4500 -0.800 1.350000e-08

0.5625 0.4500 -0.800 1.350000e-08

0.5500 0.4500 -0.800 1.350000e-08
                                coo5
                                                                                                                             0.500
                                                                                                                            1.000
                              bull5
                                                                                                                          0.550
                                cad5
                                                                                                                           0.860
                                  mu5
                                                                                                                           0.500
                                mck5
                                            0.100
                              namu5
                                            bir5
                                            0.100
                                hut5
                                             0.6816   0.4500   -0.800   1.350000e-08
                                                                                                                           0.680
                                too5
                                                                                                                           0.625
                              dara5
                                            0.5624   0.4500   -0.800   1.350000e-08
                                                                                                                           1.000
                                            rose5
                                            0.870
                              epsi5
                                                                                                                         1.000
0.790
0.860
0.520
                                            mutt5
                              pat5 0.5838 0.4500 -0.800 1.350000e-08
mur5 0.5625 0.4500 -0.800 1.350000e-08
pool5 0.5754 0.4500 -0.800 1.350000e-08
```

Lithology Initial Permeability

Name	Permeability (milliDarcys)	Power
Sandstone Siltstone	2.786221e+04 1.013171e-01	5.500 5.500
Shale	1.013171e-01	5.500
Limestone	2.786221e+04	5.500
Dolomite	2.786221e+04	5.500
Evaporite	1.013171e-08	5.500
Coal	1.013171e-01	5.500
Igneous nam1	1.013171e-08 9.655232e-01	5.500 5.500
eyr1	3.755972e+03	5.500
win1	6.228538e-01	5.500
mac1	7.515815e-01	5.500
all1	2.759494e-01	5.500
coo1	5.313115e+01	5.500
bull1	1.013171e-01	5.500
cad1	6.825522e+01	5.500
mur1	2.759494e-01	5.500
mck1	1.518504e+01	5.500
namul	6.198629e+03	5.500
birl	2.047023e+00	5.500
hut1 pool1	2.923719e+03	5.500
poorr napp1	5.850452e-01 2.629719e+00	5.500 5.500
tool	8.518624e-01	5.500
dara1	4.017996e-01	5.500
rose1	1.013171e-01	5.500
epsi1	3.544999e-01	5.500
mutt1	1.013171e-01	5.500
pat1	7.515815e-01	5.500
nam5	1.094350e+00	5.500
eyr5	3.068003e+02	5.500
win5	1.240365e+00	5.500
mac5	1.094350e+00	5.500
al15	8.518624e-01 5.313115e+01	5.500
coo5 bull5	1.013171e-01	5.500 5.500
cad5	2.840420e+01	5.500
mu5	5.850452e-01	5.500
mck5	5.313115e+01	5.500
namu5	7.963102e+03	5.500
bir5	1.950754e+01	5.500
hut5	7.963102e+03	5.500
too5	5.575314e+00	5.500
dara5	1.110280e+01	5.500
rose5	1.013171e-01	5.500
epsi5	5.161740e-01	5.500
mutt5	1.013171e-01	5.500
pat5	1.405862e+00	5.500
mur5 pool5	5.850452e-01 4.135829e+01	5.500 5.500
50012	4.133623ETUI	5.500

Geothermal Gradient Table
Time Depth 1
(Ma) (m)
0 0

Maturity conversion method: Table
TTI = 4.191876 + 1.817512 * log10(Ro)
Data fit: Least Squares

Compaction = Sclater & Christie

Porosity Depth Method = Linear

Permeability Calculation = Modified Kozeny-Carman Geothermal Calculation = Gradient

Maturity Calculation = LLNL Expulsion Calculation = None Time Interval = 1.00 Depth Interval = 1000.00 Integrate Depth = No

Advanced Options

TTI Reference Temp = 105.00 TTI Doubling Temp = 10.00 Rock-Eval Correction = 35.00 Thermal Gain = 1.000

Critical Fracturing Fraction = 0.850 Fracture Closure Rate = 0.050

Conductivity Calculation = Deming/Chapman

Initial S1 = 3.00

Rifting HF Options

Use Rifting Heat Flow = No Start Rift Time = 0.00 End Rift Time = 0.00 Auto-Calc Beta = No Rifting Heat Flow Beta = 2.00

Present Day Info

Model Name = MULGA-2 Model Description = Current Surface Temp = 20.00 Current Elevation = 0.00 Current Heat Flow = 63.00

Seismic Parameters

Shot Point = 0X = 0.00000000

Y = 0.00000000

4-----

BasinMod Data Report

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Mr. Peter Tingate
Version: 4.20
Model Name: MULGA-2 EROSION
File Name: MULGA-2 EROSION.mod
Date: Feb 5, 1996
Time: 12:33 pm

+					+
Stratigraphy Tabl	Le				
Formation	Type				Missing
or Event Name		Age		Thịck	Thịck
Event Name		(Ma)	(m)	(m)	(m)
		2 2	0	31	
QT/T EROSION-1 MISSING SEC-1	F T	3.3 4.2	U	2.1	-30
MICCING CEC 1	D	4.3			30
NAMBA FM.	ם	20 3	31	40	30
EROSION-2	- E	22.3	21	-20	-13
MISSING SEC-2	ת	38			13
FVPF FM	ਜ	60	71	112	2.0
EYRE FM. EROSION-3 MISSING SEC-3	E	75	,		-270
MISSING SEC-3	D	90			270
MET MOTIVATION	₩,	9.7	183	463	
MACKUNDA FM.	F	100	646	91	
ALLARU/OOD	F	105.5	737	238	
COORIKIANA Sst.	F	108	975	8	
MACKUNDA FM. ALLARU/OOD COORIKIANA Sst. BULLDOG SHALE CADNA-OWIE FM.	F	117.5	983	206	
CADNA-OWIE FM.	F	135.5	1189	64	
MURTA FM.	F	141.5	1253	45	
CKINLAY Mbr.	F	145	1298	10	
NAMUR Sst.	F	165	1308	229	
BIRKHEAD FM.	F	175	1537	18	
MURTA FM. CKINLAY Mbr. NAMUR Sst. BIRKHEAD FM. HUTTON Sst. POOLOWANNA FM. EROSION-4 MISSING SEC-4 TOOLACHEE FM. EROSION-5	F	188	1555	31	
POOLOWANNA FM.	F	193	1586	29	
EROSION-4	E	236.5			-47
MISSING SEC-4	D	249			47
TOOLACHEE FM.	F	253.5	1615	53	
EROSION-5	E	254.5			-218
MIRORING PRC-2	1	200			218
DARALINGIE FM.	F	258.5	1668	12	
ROSENEATH SHALE	F	261.5	1680	18	
EPSILON FM.	F.	263.5	1698	65	
EPSILON FM. MURTEREE SHAle PATCHAWARRA FM.	F.	264.5	1698 1763	46	
PATCHAWARRA FM.	E.	2/4	1809	41	
· Formation	Тъто		T.i+hc	ology Lit	1
or ·	TAbe		1111 1111	Pa: Pa:	
Event Name				Fa	_
Event Maille					-
QT/T	F		Sands	stone	
EROSION-1	E				
MISSING SEC-1	D		Sands	stone	
NAMBA FM.	F			nam5	1
EROSION-2	E				
MISSING SEC-2	D		Sands	stone	
EYRE FM.	F			eyr5	
EROSION-3	E			-	
MISSING SEC-3	D		Sands	stone	
WINTON FM.	F			win5	
MACKUNDA FM.	F			mac5	
ALLARU/OOD	F			al15	

BULLDOG SHALE CADNA-OWIE FM. MURTA FM. MCKINLAY Mbr. NAMUR SST. BIRKHEAD FM. HUTTON SST. POOLOWANNA FM. EROSION-4 MISSING SEC-4 TOOLACHEE FM. EROSION-5 MISSING SEC-5 DARALINGIE FM. ROSENEATH SHALE EPSILON FM.	표 O F 판 판 단	Cool bull cad! mur! mck! namu! bir! hut! pool! Sandstone too! Sandstone dara! rose! epsi! mutt! pat!		
	양	% Siltstone	% Shale Ke	% Total rogen %
Sandstone nam5 eyr5 win5 mac5 all5 coo5 bul15 cad5 mur5 mck5 namu5 bir5 hut5 pool5 too5 dara5 rose5 epsi5 mutt5 pat5	100 19 64 20 19 17 50 45 14 50	60 24 60 62 62 50 25 44 64.5 50 7.5 43.5 10 37.5 33 47 75 55.5	21 12 20 19 21 75 11 21.5 2.5 14.5	100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 2 100.0 2 100.0 24 100.0 100.0 100.0 100.0 5 100.0
Lithology Values Tabl Lithology Name	Initial	Compaction Factor (FM)	Exponential Factor (SC)	Density (g/cm^3)
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1	0.55 0.6 0.6 0.9 0.54	1.75 2.2 2.4 1.5 1.5 0 3.5 0 2.16 1.83 2.20 2.17 2.21 1.97	0.51 0.22 0.22 0 0.7 0 0.40 0.29	2.6 2.72 2.85 2.15 1.8 2.65 2.631

bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 tool dara1 rose1 epsi1 mutt1 pat1 nam5 eyr5 win5 mac5 al15 coo5 bul15 cad5 mu5 mck5 namu5 bir5 hut5 too5 dara5 rose5 epsi5 mutt5 pat5	90551646132967674944458145602696541 000000000000000000000000000000000000	2.36 1.99 2.21 2.05 1.81 2.16 1.83 2.43 2.12 2.45 2.35 2.25 2.27 2.25 2.29 2.15 1.93 2.15 2.16 1.97 2.35 2.01 2.18 1.97 1.8 2.04 1.79 2.39 2.06 2.25 2.34 2.25 2.20 2.18 2.03 Matrix Conduct	0.49 0.42 0.32 0.40 0.40 0.40 0.43 0.43 0.43 0.40 0.43 0.40 0.40 0.43 0.40 0.43 0.43 0.40 0.43 0.44 0.43 0.44 0.43 0.43 0.44 0.43 0.44	2.634 2.64 2.434 2.633 2.63 2.523 2.63 2.590 2.631 2.618
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 coo1 bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1	(mm) 0.5 0.0156 0.0004 0.5 0.0004 0.0001 0.0137 0.2479 0.0109 0.0125 0.088 0.0883 0.0088 0.0609 0.0888 0.0360 0.2954 0.0166 0.2678 0.0166 0.0195 0.0069	(W/m*c	deg C)	270 170 -180 350 300 470 250 380 116.2 240 113 112.5 97.5 220 -110 180 97.5 157.5 247.5 133.4 252 142.2 131.2

daral rosel epsil muttl patl nam5 eyr5 win5 mac5 all5 col5 cad5 muk5 namu5 hut5 too5 dara5 rose5 epsi5 mutt5	0.0070 0.0062 0.0082 0.0062 0.0095 0.0139 0.0924 0.0149 0.0150 0.0130 0.0883 0.0009 0.0496 0.0115 0.0883 0.3225 0.0393 0.3534 0.0131 0.0324 0.0062 0.0062	1.948 1.875 2.033 1.875 2.121 2.351 3.476 2.38 2.361 2.303 3.2 1.625 3.025 2.228 3.2 4.147 2.935 4.16 2.305 2.822 1.875 1.998 1.875	124.9 82.5 111.3 82.5 129.2 115.5 120 122.5 113.5 220 -92.5 176.5 108.7 221.2 161.2 260 182.7 153.2 82.5 128.5 129.5
epsi5	0.0077	1.998	128.6
-			

Lithology Name	Heat Capacity (kJ/m^3*deg C)	Heat Capacity Correction
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 coo1 bul11 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1	(kJ/m^3*deg C)	Correction 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
pat1 nam5 eyr5 win5 mac5 all5	2402. 2563 2680 2570 2574 2560	0 0 0 0 0

coo5 bul15 cad5 mu5 mck5 namu5 bir5 hut5 too5 dara5 rose5 epsi5 mutt5 pat5 mur5 pool5	2725 2237. 2657 2552. 2725 2771. 2633. 2785 2229. 2621 2512. 2346. 2512. 2494. 2552. 2619.			
Lithology Fluid Flow Lithology Name	Initial Porosity B	А	B (1/Pa)	Fraction A
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 cool bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1 nam5 eyr5 win5 mac5 all5 coo5 bull5 cad5 mu5 mck5 namu5 bir5 hut5	0.0000 0.0000 0.0000 0.0000 0.0000 0.45500 0.45500 0.	-0.8000 -0.	1.350000e-08 0.000000e+00 0.000000e+00 0.000000e+00 1.350000e-08	0.000 1.000 1.000 1.000 0.000 0.000 0.820 0.855 0.840 0.920 0.500 0.480 0.920 0.120 0.120 0.120 0.180 0.860 0.860 0.840 0.860 0.860 0.840 0.860 0.840 0.860

```
      0.6816
      0.4500 -0.800 1.350000e-08
      0.680

      0.5624
      0.4500 -0.800 1.350000e-08
      0.625

      0.5625
      0.0000 -0.800 0.000000e+00
      1.000

                                                                t005
                                                             dara5
                                                             rose5
                                                                                              epsi5
                                                                                              mutt5
                                                            pat5 0.5838 0.4500 -0.800 1.350000e-08 0.790 mur5 0.5625 0.4500 -0.800 1.350000e-08 0.860 pool5 0.5754 0.4500 -0.800 1.350000e-08 0.520
                                         Lithology
                                                                                                                Initial Permeability
                                                                 Name Permeability Power
                                                                      (milliDarcys)
                                     Sandstone 2.786221e+04 5.500
Shale 1.013171e-01 5.500
Limestone 2.786221e+04 5.500
Dolomite 2.786221e+04 5.500
Dolomite 2.786221e+04 5.500
Evaporite 1.013171e-08 5.500
Coal 1.013171e-01 5.500
Igneous 1.013171e-08 5.500
nam1 9.655232e-01 5.500
eyr1 3.755972e+03 5.500
win1 6.228538e-01 5.500
mac1 7.515815e-01 5.500
cool 5.313115e+01 5.500
cool 6.825522e+01 5.500
mur1 2.759494e-01 5.500
mur1 2.759494e-01 5.500
mur1 2.759494e-01 5.500
mur1 2.759494e-01 5.500
hull 1.013171e-01 5.500
mur1 2.759494e-01 5.500
mur1 1.518504e+01 5.500
mok1 1.518504e+01 5.500
hull 2.923719e+03 5.500
poll 5.850452e-01 5.500
nappl 2.629719e+00 5.500
tool 8.518624e-01 5.500
moxel 1.013171e-01 5.500
rosel 1.013171e-01 5.500
mutt1 1.013171e-01 5.500
mac5 1.094350e+00 5.500
mac5 1.094350e+00 5.500
mac5 1.094350e+00 5.500
mac5 2.840420e+01 5.500
mac5 5.313115e+01 5.500
mut5 5.850452e-01 5.500
_____
                                          Sandstone 2.786221e+04 5.500
                                                                                                                                                                                  5.500
5.500
5.500
5.500
5.500
                                                            namu5 7.963102e+03
bir5 1.950754e+01
hut5 7.963102e+03
too5 5.575314e+00
dara5 1.110280e+01
rose5 1.013171e-01
epsi5 5.161740e-01
mutt5 1.013171e-01
                                                      314e+00
1.110280e+01
2e5 1.013171e-01
epsi5 5.161740e-01
mutt5 1.013171e-01
pat5 1.405862e+00
mur5 5.850452e-01
pool5 4.135829e+01
                                                                                                                                                                                       5.500
                                                                                                                                                                                       5.500
                                                                                                                                                                                       5.500
                                                                                                                                                                                       5.500
                                                                                                                                                                                        5.500
                                                                                                                                                                                        5.500
```

5.500

0.870

1.000

```
Geothermal Gradient Table
  Time Depth 1
   (Ma)
        (m)
----
     0
Maturity conversion method: Table
T1 = 4.191876 + 1.817512 * log10(Ro)
Data fit: Least Squares
Model Units
                           Depth = (m)
                       Distance = (m)
         Thermal Conductivity = (W/m*deg C)
Heat Capacity = (kJ/m^3*deg C)
                      Heat Flow = (mV/m^2)
                    Temperature = (deg C)
               Heat Generation = (muW/m^3)
                       Gradient = (deg C/100 m)
             Activation Energy = (kcal/mole)
              Frequency Factor = (1/my)
                     HC Density = (g/cm^3)
                       Pressure = (MPa)
                     Grain Size = (mm)
              Seismic Velocity = (m/s)
                     Event Time = (msec)
                       Maturity = (%Ro)
                  HC Generation = (mg/g TOC)
Calculation Options
                     Compaction = Sclater & Christie
        Porosity Depth Method = Linear
     Permeability Calculation = Modified Kozeny-Carman
Geothermal Calculation = Gradient
        Maturity Calculation = LLNL Expulsion Calculation = None
                 Time Interval = 1.00
                Depth Interval = 1000.00
               Integrate Depth = No
Advanced Options
            TTI Reference Temp = 105.00
             TTI Doubling Temp = 10.00
         Rock-Eval Correction = 35.00
                  Thermal Gain = 1.000
Critical Fracturing Fraction = 0.850
        Fracture Closure Rate = 0.050
     Conductivity Calculation = Deming/Chapman
                     Initial S1 = 3.00
Rifting HF Options
        Use Rifting Heat Flow = No
               Start Rift Time = 0.00
End Rift Time = 0.00
Auto-Calc Beta = No
       Rifting Heat Flow Beta = 2.00
Present Day Info
                     Model Name = MULGA-2 EROSION
             Model Description =
         Current Surface Temp = 20.00
             Current Elevation = 1.00
             Current Heat Flow = 63.00
```

Seismic Parameters

BasinMod Data Report

Licensed to: Natn'l Centre for Petroleum Geology & Geophysics |

Mr. Peter Tingate

Version: 4.20
Model Name: PINNA-1
File Name: PINNa-1.mod
Date: Feb 5, 1996
Time: 12:36 pm

Stratigraphy	Table
--------------	-------

Formation or Event Name	Type	Begin Age (Ma)	_	Present Thick (m)	Lithology
QT/T	F	3.3	0	15	Sandstone
HIATUS-1	Н	5.3	_		3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
NAMBA FM.	F	29.3	15	98	nam4
HIATUS-2		38			2231112
EYRE FM.		60	113	88	eyr4
HIATUS-3	H	90			-2
WINTON FM.	F	97.5	201	531	win4
MACKUNDA FM.	F	100	732	93	mac4
ALLARU/OOD	F	105.5	825	258	all4
COORIKIANA Sst.		108	1083	7	C004
BULLDOG SHALE		117.5	1090	240	bull4
CADNA-OWIE FM.			1330	58	cad4
MURTA FM.		141.5	1388	48	mur4
McKINLAY Mbr.	F	145	1436	13	mck4
NAMUR Sst.		151	1449	47	namu4
WESTBOURNE FM.	F	159	1496	82	west4
ADORI Sst.		165	1578	85	ador4
BIRKHEAD FM.	F	175	1663	32	bir4
HUTTON Sst.	F	188	1695	59	hut4
POOLOWANNA FM.		193	1754	21	pool4
HIATUS-4		236.5			_
NAPPAMERRI GP.	F	249	1775	39	napp4
TOOLACHEE FM.	F	253.5	1814	36	too4
HIATUS-5		261.5			
EPSILON FM.		263.5	1850	26	epsi4
MURTEREE SHAle		264.5	1876	44	mutt4
PATCHAWARRA FM.	F	274	1920	221	pat4
TIRRAWARRA Sst.		280	2141	334	tir4
MERRIMELIA FM.	F	285.5	2475	77	merr4

Formation	Type	Lith
or		Pat

or		Pat
Event Name		
QT/T	F	
HIATUS-1	H	
NAMBA FM.	F	1
HIATUS-2	H	
EYRE FM.	F	
HIATUS-3	H	
WINTON FM.	F	
_MACKUNDA FM.	F	
ALLARU/OOD	F	
COORIKIANA Sst.	F	
BULLDOG SHALE	F	
CADNA-OWIE FM.	F	
MURTA FM.	F	
McKINLAY Mbr.	F	

WESTBOURNE FM. ADORI Sst. BIRKHEAD FM. HUTTON Sst. POOLOWANNA FM. HIATUS-4 PPAMERRI GP. TOOLACHEE FM. HIATUS-5 EPSILON FM. MURTEREE SHAle PATCHAWARRA FM. TIRRAWARRA Sst.				
Name	% Sandstone		% Shale Ke	
Sandstone nam4 eyr4 win4 mac4 all4 coo4 bull4 cad4 mur4 mck4 namu4 west4 ador4 bir4 hut4 pool4 napp4 too4 epsi4 mutt4 pat4 tir4 merr4	14 65 10 14 10 50 48 14 50 90 83 59 52 67 24 13 32 84	64.5 25 60 60 60 50 39 64.5 10 30 17 34 52.6 52 37.5 53.5 73.5 15	10 26.5 26 30 75 13 21.5	100.0 100.0
Lithology Values Tab Lithology Name	Initial	Compaction Factor (FM)	Exponential Factor (SC)	Density (g/cm^3)
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 cool bull1	0.55 0.6 0.6 0.9 0.54 0.554 0.555 0.5	1.75 2.2 2.4 1.5 1.5 0 3.5 0 2.16 1.83 2.20 2.17 2.21 1.97 2.36	0.41 0.51 0.22 0.22 0 0.7 0 0.40 0.29 0.41 0.40 0.42	2.6 2.72 2.85 2.15 1.8 2.65 2.631 2.638 2.610 2.631 2.630 2.64

Lithology Name	Grain Size (mm)	Matrix Conductivity (W/m*deg C)	Matrix Cond. Correction
Sandstone	0.5	4.4	270
Siltstone	0.0156	2	170
Shale	0.0004	1.5	-180
Limestone	0.5	2.9	350
Dolomite	0.5	4.8	300
Evaporite	0.0004	5.4	470
Coal	0.0004	0.3	250
Igneous	0.0001	2.9	380
naml	0.0137	2.329	116.2
eyr1	0.2479	3.996	240
winl	0.0109	2.200	113
mac1	0.0125	2.279	112.5
all1	0.0088	2.077	97.5
cool	0.0883	3.2	220
bull1	0.0008	1.6	-110
cad1	0.0609	3.188	180
mur1	0.0088	2.077	97.5
mck1	0.0360	2.885	157.5
namu1	0.2954	4.097	247.5
birl	0.0166	2.435	133.4
hut1	0.2678	3.968	252
pool1	0.0066	1.913	142.2
napp1	0.0195	2.531	131.2
•			

Lithology Name	Heat Capacity (kJ/m^3*deg C)	Heat Capacity Correction
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 cool bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 tool dara1 rose1 epsi1 mutt1 pat1 nam4 eyr4	2800 2650 2100 2600 2600 1750 950 254. 2754 2513. 2558. 2535. 2725 2210 2662 2535. 2765. 2765. 2536 2773 2240. 2587. 2202 2341 2512. 2447. 2512. 2402. 2552. 2692.	00000000000000000000000000000000000000
<u> -</u>		

win4 mac4 all4 coo4 bull4 cad4 mur4 mck4 namu4 west4 ador4 bir4 hut4 pool4 napp4 too4 epsi4 mut4 pat4 tir4		2459. 2528 2500 2725 2237. 2650. 2552. 2725 2785 2685 2774. 2752. 2792. 2524. 2560 2175. 2301. 2481. 2479. 2759 2547			
Lithology Fluid Flow Lithology Name		Initial Porosity B	A	B (1/Pa)	Fraction A
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 coo1 bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1 nam4 eyr4 win4 mac4 all4 coo4 bull4 cad4	0.5500 0.6000 0.6000 0.6000 0.0000	0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.4500 0.	-0.800 -0.800	1.350000e-08 0.000000e+00 0.000000e+00 0.000000e+00 1.350000e-08	0.000 1.000 1.000 1.000 0.000 0.000 0.820 0.160 0.855 0.840 0.920 0.500 1.000 0.480 0.920 0.120 0.760 0.180 0.740 0.860 0.740 0.860 0.900 1.000 0.860 0.900 0.860 0.900 0.860 0.900 0.860 0.900 0.860 0.900 0.900 0.860 0.900 0.860 0.900 0.900 0.860 0.900 0.900 0.860 0.900

```
0.860
                                          mur4
                                                                                                                                                                             0.500
                                          mck4
                                                          0.100
                                        namu4
                                                           0.400
                                        west4
                                                           ador4
                                                                                                                                                                             0.170
                                         bir4 0.5831 0.4500 -0.800 1.350000e-08
                                                                                                                                                                             0.490
                                         hut4 0.5500 0.4500 -0.800 1.350000e-08
                                                                                                                                                                            0.050
                                        pool4 0.5807 0.4500 -0.800 1.350000e-08
                                                                                                                                                                            0.740
                                        napp4 0.5626 0.4500 -0.800 1.350000e-08
                                                                                                                                                                            0.830
                                         too4 0.6779 0.4500 -0.800 1.350000e-08
                                                                                                                                                                            0.760
                                        epsi4 0.6244 0.4500 -0.800 1.350000e-08
                                        mutt4 0.5692 0.0000 -0.800 0.000000e+00
                                                                                                                                                                            1.000
                                          pat4 0.6022 0.4500 -0.800 1.350000e-08
                                                                                                                                                                            0.680
                                          tir4 0.5718 0.4500 -0.800 1.350000e-08
                                                                                                                                                                            0.160
                                        merr4 0.5625 0.4500 -0.800 1.350000e-08
                                                                                                                                                                            0.880
                                                                       Initial Permeability
                            Lithology
                                          Name Permeability Power
                          Sandstone 2.786221e+04 5.500
Siltstone 1.013171e-01 5.500
Limestone 2.786221e+04 5.500
Dolomite 2.786221e+04 5.500
Coal 1.013171e-08 5.500

Coal 1.013171e-01 5.500
Igneous 1.013171e-01 5.500

anm1 9.655232e-01 5.500
eyr1 3.755972e+03 5.500
mac1 7.515815e-01 5.500
cool 5.313115e+01 5.500
col 6.825522e+01 5.500
mur1 2.759494e-01 5.500
col 6.825522e+01 5.500
mur1 2.759494e-01 5.500
col 5.313115e+01 5.500
col 6.825522e+01 5.500
mur1 2.759494e-01 5.500
col 6.825520e+01 5.500
mur1 2.759494e-01 5.500
mur1 2.759494e-01 5.500
col 6.825520e+01 5.500
mur1 1.518504e+01 5.500
col 1.518504e+01 5.500
col 1.013171e-01 5.500
col 8.518624e-01 5.500
c
                                            (milliDarcys)
______
                             Sandstone 2.786221e+04 5.500
```

5.500 5.500 5.500 5.500 5.500

5.500 5.500

namu4 7.963102e+03 west4 1.859013e+02 ador4 3.313821e+03 bir4 1.785292e+01 hut4 1.489529e+04

```
pool4 2.629719e+00
napp4 8.518624e-01
too4 2.047023e+00
                                                     5.500
                                                    5.500
                   epsi4 5.161740e-01
                                                   5.500
                   mutt4 1.013171e-01
pat4 5.575314e+00
                                                  5.500
5.500
                    tir4 3.755972e+03
                                                    5.500
                   merr4 4.554102e-01
                                                 5.500
Geothermal Gradient Table
  Time Depth 1
(Ma) (m)
    0
Maturity conversion method: Table
TTI = 4.191876 + 1.817512 * log10 (Ro)
Data fit: Least Squares
Model Units
                             Depth = (m)
                        Distance = (m)
          Thermal Conductivity = (W/m*deg C)
                  Heat Capacity = (kJ/m^3*deg C)
Heat Flow = (mW/m^2)
                     Temperature = (deg C)
                Heat Generation = (muW/m^3)
Gradient = (deg C/100 m)
             Activation Energy = (kcal/mole)
Frequency Factor = (1/my)
HC Density = (g/cm^3)
Pressure = (MPa)
                       Grain Size = (mm)
               Seismic Velocity = (m/s)
                       Event Time = (msec)
                         Maturity = (%Ro)
                   HC Generation = (mg/g TOC)
Calculation Options
                      Compaction = Sclater & Christie
        Porosity Depth Method = Linear
    Permeability Calculation = Modified Kozeny-Carman
Geothermal Calculation = Gradient
        Maturity Calculation = LLNL
Expulsion Calculation = None
                 Time Interval = 1.00
Depth Interval = 1000.00
                Integrate Depth = No
Advanced Options
            TTI Reference Temp = 105.00
TTI Doubling Temp = 10.00
         Rock-Eval Correction = 35.00
Thermal Gain = 1.000
Critical Fracturing Fraction = 0.850
        Fracture Closure Rate = 0.050
     Conductivity Calculation = Deming/Chapman
                      Initial S1 = 3.00
Rifting HF Options
        Use Rifting Heat Flow = No
                Start Rift Time = 0.00
                  End Rift Time = 0.00
                 Auto-Calc Beta = No
```

5.500

Rifting Heat Flow Beta = 2.00

Present Day Info

Model Name = PINNA-1

Model Description =
Current Surface Temp = 20.00
Current Elevation = 0.00 Current Heat Flow = 63.00

Seismic Parameters

4-----BasinMod Data Report

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Mr. Peter Tingate

Version: 4.20

Model Name: PINNA-1 EROSION

File Name: PINNA-1 EROSION.mod

Date: Feb 5, 1996

Time: 12:36 pm

Stratigraphy Tabl Formation or Event Name	Type	Age (Ma)	(m)		Thick
OT/T	F	3.3	0	15	
EROSION-1	E	4.3			-37
MICCING CEC_1	ח	5 3			37
NAMBA FM.	F	29.3	15	98	
EROSION-2	E	34			-18
MISSING SEC-2	D	38			18
NAMBA FM. EROSION-2 MISSING SEC-2 EYRE FM.	F	60	113	88	
EROSION-3	E	/5			-225
MISSING SEC-3 WINTON FM.	D	90			225
WINTON FM.	F	97.5	201	531	
MACKUNDA FM. ALLARU/OOD COORIKIANA Sst.	F	100	732	93	
ALLARU/OOD	F	105.5	825	258	
COORIKIANA Sst.	F	108	1083	7	
BULLDOG SHALE	F	117.5	1090	240	
CADNA-OWIE FM.	F	135.5	1330	58	
MURTA FM. MCKINLAY Mbr.	F	141.5	1388	48	
MCKINLAY Mbr.	F	145	1436	13	
NAMUR Sst.					
WESTBOURNE FM.	F	159	1496	82	
ADORI Sst.	F	165	1578	85	
ADORI Sst. BIRKHEAD FM. HUTTON Sst. POOLOWANNA FM.	F	175	1663	32	
HUTTON Sst.	F	188	1695	59	
POOLOWANNA FM.	F'	193	1754	21	71
EROSION-4					-71 71
MISSING SEC-4		236.5		20	
NAPPAMERRI GP.		249 253.5			
TOOLACHEE FM. EROSION-5	T.	453.5	1814	20	-148
MISSING SEC-5	E	261.5			148
				26	
EPSILON FM.	r U	264 5	1876		
MURTEREE SHAle	ت ت	204.3	1920		
PATCHAWARRA FM. TIRRAWARRA Sst.	<u> </u>	274	2141	334	
MERRIMELIA FM.	r r	285 5	2475	77	
MERKIMELIA FM.	r	∠05.5	24/3	, ,	
Formation	Time		T.i+ho	logy Lit	h
rormatton	TADE		11110.	Pa:	
Event Name				14	_
Event name					_
QT/T	F		Sands	tone	
EROSION-1	Ē		~		
_MISSING SEC-1	D		Sands	tone	
NAMBA FM.	F				1
EROSION-2	Ē				
MISSING SEC-2	D		Sands	tone	
EYRE FM.	F			eyr4	
EROSION-3	Ē			-	
MISSING SEC-3	D		Sands	tone	
111001110 010 0			2445		

WINTON FM.	F ·	win4			
	F	mac4			
	F	all4			
COORIKIANA Sst.	F ·	coo4			
BULLDOG SHALE	F	bull4			
	F	cad4			
	F	mur4			
CKINLAY Mbr.	F	mck4			
	F	namu4			
	F	west4			
	F	ador4			
	F	bir4			
	F	hut4			
	F	pool4			
	E D	Sandstone			
	F	napp4			
	F	too4			
	E	5004			
	D D	Sandstone			
	F	epsi4			
	- F	mutt4			
	F	pat4			
TIRRAWARRA Sst.	F	tir4			
MERRIMELIA FM.	F	merr4			
Lithology Mixes Tabl		a			m - 1 - 7
Lithology		% Siltstone	_		Total
Name	Sandstone	STICSCOME	Shale	Kerogen	5
Sandstone	100				100.0
nam4		64.5	21.5		100.0
eyr4			10		100.0
win4		60	26.5	3.5	100.0
mac4	14	60	26		100.0
all4	10	60	30		100.0
coo4	50	50			100.0
bull4		25	75		100.0
cad4	48	39	13		100.0
mur4	14	64.5	21.5		100.0
mck4	50	50			100.0
namu4	90	10	1.0		100.0
west4 ador4	60	30	10		100.0
ador4 bir4	83 56	17 34	10		100.0
hut4	95	5	10		100.0
pool4	26	52.5	17.5	4	100.0
napp4	17	62	21		100.0
too4	24	37.5	12.5	26	100.0
epsi4	13	53.5	17.5		100.0
* · · · · ·		72 5	24 5		100.0

2 100.0

8 100.0

1 100.0

100.0

Lithology	Values Tabl	Le			
	Lithology	Initial	Compaction	Exponential	Density
				Factor (SC)	
	Sandstone	0.45	1.75	0.27	2.64
	Siltstone	0.55	2.2	0.41	2.64
	Shale	0.6	2.4	0.51	2.6
	Limestone	0.6	1.5	0.22	2.72
	Dolomite	0.6	1.5	0.22	2.85

32

84

12

73.5

45

15

66

24.5

15

22

mutt4

pat4

tir4

merr4

	0.56 0.55 0.46 0.54 Grain Size	0 3.5 0 2.16 1.83 2.20 2.17 2.37 2.39 2.19 2.05 1.99 2.05 1.83 2.12 2.35 2.25 2.27 2.25 2.29 2.18 2.19 2.10 2.16 1.97 2.36 1.97 2.16 2.45 2.27 2.18 2.19 1.97 2.16 2.45 2.37 2.19 1.82 2.19 1.97 2.16 2.45 2.37 2.19 3.20 Matrix Conduction		
Name Sandstone	(mm) 	(W/m	n*deg C) Co 	270
Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1	0.0156		2 1.5 2.9 4.8 5.4 0.3 2.9 2.329 3.996 2.200 2.279 2.077	170 -180 350 300 470 250 380 116.2 240 113 112.5 97.5

cool bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 tool dara1 rose1 epsi1 mutt1 pat1 nam4 eyr4 win4 mac4 all4 coo4 bull4 cad4 mur4 mck4 namu4 west4 ador4 bir4 hut4 pool4 napp4 too4 epsi4 mutt4 pool4 mutt4 pool4 mutt4 pool4 napp4 too4 epsi4 mutt4 pat4 merr4	0.0883 0.0008 0.0609 0.0088 0.0360 0.2954 0.0166 0.2678 0.0066 0.0195 0.0069 0.0070 0.0062 0.0082 0.0062 0.0095 0.0115 0.1029 0.0073 0.0097 0.0097 0.00883 0.0009 0.0115 0.0883 0.0009 0.0511 0.0115 0.0883 0.0866 0.2773 0.0519 0.4204 0.0174 0.0130 0.0087 0.0059 0.0071 0.0059 0.0071 0.0059 0.0071 0.0059 0.0071 0.0059 0.0071	3.2 1.6 3.188 2.077 2.885 4.097 2.435 3.968 1.913 2.531 1.942 1.948 1.875 2.121 2.228 3.51 2.048 2.206 2.09 3.2 1.625 3.087 2.228 3.39 4.16 3.39 3.992 3.335 4.16 3.39 3.992 3.335 4.28 2.303 2.468 2.303 2.571 2.557 3.959 2.178	220 -110 180 97.5 157.5 157.5 247.5 133.4 252 142.2 152.9 124.9 811.3 82.5 129.7 90.9 90.9 90.9 122.5 172.5 108.7 90.9 22.5 172.5 108.7 90.9 125.6 109.5 113.6 129.7 125.6 137.6 134.8 155.9 113.8 155.9 113.8 155.9 113.8 155.9 113.8 155.9 113.8 155.9 113.8 155.9 113.8 155.9 113.8 156.9 113.8 115.9 115.9 115.9 116
Lithology Name	Heat Capacity (kJ/m^3*deg C)	Heat Capacity Correction	
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1	2800 2650 2100 2600 2600 1750 950 2500 2564. 2754 2513. 2558. 2535.	0 0 0 0 0 0 0 0 0	

2725

2210

2662

2535.

2627.

2765.

2536

2773

0

0

0

0

0

0

0

0

cool

cad1

mur1

mck1

namu1

bir1

hut1

bull1

pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1 nam4 eyr4 win4 mac4 all4 coo4 bull4 cad4 mur4 mck4 namu4 west4 ador4 bir4 hut4 pool4 napp4 too4 epsi4 mutt4 pat4 tir4 merr4		2240. 2587. 2202 2341 2512. 2447. 2512. 2447. 2552. 2459. 2552. 2459. 2528 2500 2725 2237. 2650. 2725 2785 2785 2785 2782. 2792. 2792. 2524. 2752. 2792. 2524. 2752. 2792. 2547			
Licology Fluid Flow Lithology Name	Table Initial Porosity A		A	B (1/Pa)	Fraction A
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 cool bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1	0.0000 0.5500 0.6000 0.6000 0.6000 0.0000 0.9000 0.5625 0.5625 0.5625 0.5625 0.5625 0.5625 0.5625 0.5625 0.5625 0.5625 0.5625 0.5625 0.5625 0.5625 0.5625 0.5625	0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500	-0.800 -0.800	1.350000e-08 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 1.350000e-08	0.000 1.000 1.000 1.000 0.000 0.000 0.820 0.160 0.855 0.840 0.920 0.500 1.000 0.480 0.920 0.600 0.120 0.760 0.180 0.740 0.830 0.890 1.000 0.900

mutt1	0.5625	0.0000	-0.800	0.000000e+00	1.000
pat1	0.6026	0.4500	-0.800	1.350000e-08	0.840
nam4	0.5625	0.4500	-0.800	1.350000e-08	0.860
eyr4	0.5642	0.4500	-0.800	1.350000e-08	0.350
win4	0.5783	0.4500	-0.800	1.350000e-08	0.900
mac4	0.5651	0.4500	-0.800	1.350000e-08	0.860
all4	0.5666	0.4500	-0.800	1.350000e-08	0.900
c004	0.5500	0.4500	-0.800	1.350000e-08	0.500
bull4	0.5875	0.0000	-0.800	0.000000e+00	1.000
cad4	0.5625	0.4500	-0.800	1.350000e-08	0.520
mur4	0.5625	0.4500	-0.800	1.350000e-08	0.860
mck4	0.5500	0.4500	-0.800	1.350000e-08	0.500
namu4	0.5500	0.4500	-0.800	1.350000e-08	0.100
west4	0.5625	0.4500	-0.800	1.350000e-08	0.400
ador4	0.5500	0.4500	-0.800	1.350000e-08	0.170
bir4	0.5831	0.4500	-0.800	1.350000e-08	0.490
hut4	0.5500	0.4500	-0.800	1.350000e-08	0.050
pool4	0.5807	0.4500	-0.800	1.350000e-08	0.740
napp4	0.5626	0.4500	-0.800	1.350000e-08	0.830
t004	0.6779	0.4500	-0.800	1.350000e-08	0.760
epsi4	0.6244	0.4500	-0.800	1.350000e-08	0.870
mutt4	0.5692	0.0000	-0.800	0.000000e+00	1.000
pat4	0.6022	0.4500	-0.800	1.350000e-08	0.680
tir4	0 5710	0.4500	-0.800	1.350000e-08	0.160
	0.5718	0.4500	0.000	1.350000e-08	0.880

Lithology Name	Initial Permeability (milliDarcys)	Permeability Power
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 cool bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 tool dara1 rose1 epsi1 mutt1 pat1 nam4 eyr4 win4 mac4	2.786221e+04 1.013171e-01 2.786221e+04 2.786221e+04 1.013171e-08 1.013171e-01 1.013171e-01 1.013171e-01 3.755972e+03 6.228538e-01 7.515815e-01 2.759494e-01 5.313115e+01 1.013171e-01 6.825522e+01 2.759494e-01 1.518504e+01 6.198629e+03 2.047023e+00 2.923719e+03 5.850452e-01 2.629719e+00 8.518624e-01 4.017996e-01 1.013171e-01 3.544999e-01 1.013171e-01 7.515815e-01 5.850452e-01 3.477356e+02 3.544999e-01 5.850452e-01 5.850452e-01	5.500 5.
all4	3.544999e-01	5.500

```
COO4 5.313115e+01
bull4 1.013171e-01
cad4 4.135829e+01
mur4 5.850452e-01
mck4 5.313115e+01
namu4 7.963102e+03
west4 1.859013e+02
ador4 3.313821e+03
bir4 1.785292e+01
but4 1.489529e+04
                                                    5.500
                                                    5.500
                                                   5.500
                                                   5.500
                                                   5.500
                                                   5.500
                                                   5.500
                                                   5.500
                                                   5.500
                   hut4 1.489529e+04
                                                   5.500
                  pool4 2.629719e+00
                                                   5.500
                  napp4 8.518624e-01
                                                   5.500
                                                   5.500
                   too4 2.047023e+00
                                                   5.500
                  epsi4 5.161740e-01
                                                 5.500
                  mutt4 1.013171e-01
                    pat4 5.575314e+00
                                                   5.500
                    tir4 3.755972e+03
                  merr4 4.554102e-01
                                                   5.500
Geothermal Gradient Table
  Time Depth 1
(Ma) (m)
Maturity conversion method: Table
TTI = 4.191876 + 1.817512 * log10(Ro)
Data fit: Least Squares
                            Depth = (m)
                         Distance = (m)
          Thermal Conductivity = (W/m*deg C)
                  Heat Capacity = (kJ/m^3*deg C)
                       Heat Flow = (mW/m^2)
                Temperature = (\text{deg C})
Heat Generation = (\text{muW/m}^3)
                         Gradient = (deg C/100 m)
             Activation Energy = (kcal/mole)
Frequency Factor = (1/my)
                      HC Density = (g/cm<sup>3</sup>)
Pressure = (MPa)
                      Grain Size = (mm)
               Seismic Velocity = (m/s)
                      Event Time = (msec)
                         Maturity = (%Ro)
                   HC Generation = (mg/g TOC)
Calculation Options
                      Compaction = Sclater & Christie
        Porosity Depth Method = Linear
     Permeability Calculation = Modified Kozeny-Carman
Geothermal Calculation = Gradient
        Maturity Calculation = LLNL Expulsion Calculation = None
                  Time Interval = 1.00
                 Depth Interval = 1000.00
                Integrate Depth = No
Advanced Options
            TTI Reference Temp = 105.00
              TTI Doubling Temp = 10.00
          Rock-Eval Correction = 35.00
                    Thermal Gain = 1.000
```

Ω

Model Units

Critical Fracturing Fraction = 0.850

Fracture Closure Rate = 0.050

Conductivity Calculation = Deming/Chapman

Initial S1 = 3.00

Rifting HF Options

Use Rifting Heat Flow = No
Start Rift Time = 0.00
End Rift Time = 0.00
Auto-Calc Beta = No
Rifting Heat Flow Beta = 2.00

Present Day Info

Model Name = PINNA-1 EROSION

Model Description =

Current Surface Temp = 20.00

Current Elevation = 0.00

Current Heat Flow = 63.00

Seismic Parameters

Shot Point = 0

X = 0.00000000

Y = 0.00000000

+----+

BasinMod Data Report

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Wr. Peter Tingate
Version: 4.20
Model Name: STRZELECKI-5
File Name: Strzelecki-5.mod
Date: Feb 5, 1996
Time: 12:37 pm

Stratigraphy Tabl Formation or		Āge	Well Top	Present Thick (m)	Lithology
Event Name		(Ma)	(m)	(111)	
QT/T	F	3.3	0	9	Sandstone
HIATUS-1	H	5.3	O	,	
NAMBA FM.	F	29.3	9	61	nam3
HIATUS-2	H	38	,	0-	
EYRE FM.	F	60	70	46	eyr3
HIATUS-3	H	90	, 0		-1
WINTON FM.	F	97.5	116	533	win3
MACKUNDA FM.	F	100	649	138	mac3
OODNADATTA FM.	F	105.5	787	215	ood3
COORIKIANA Sst.	F	108	1002	13	coo3
BULLDOG SHALE	F	117.5	1015	275	bull3
CADNA-OWIE FM.	F	135.5	1290	72	cad3
MURTA FM.	F	141.5	1362	53	mur3
McKINLAY Mbr.	F	145	1415	8	mck3
NAMUR Sst.	· F	151	1423	61	namu3
WESTBOURNE FM.	F	159	1484	77	west3
ADORI Sst.	F	165	1561	60	ador3
BIRKHEAD FM.	F	175	1621	66	bir3
HUTTON Sst.	F	188	1687	91	hut3
HIATUS-4	H	236.5			
NAPPAMERRI GP.	F	249	1778	47	napp3
TOOLACHEE FM.	F	253.5	1825	66	too3

Formation Type or Event Name

_____ ___ QT/T F IIATUS-1 H MBA FM. F HIATUS-1 NAMBA FM. HIATUS-2 EYRE FM. HIATUS-3 WINTON FM. MACKUNDA FM. F OODNADATTA FM. F COORIKIANA Sst. BULLDOG SHALE F CADNA-OWIE FM. F MURTA FM. McKINLAY Mbr. F NAMUR Sst. F STBOURNE FM. ADORI Sst. BIRKHEAD FM. HUTTON Sst. HIATUS-4 NAPPAMERRI GP.

Lithology	Mixes Table Lithology Name	왕	% Siltstone		% Total erogen %
•	Sandstone nam3 eyr3	100 30 75	52.5		100.0
	win3 mac3 ood3 coo3	10 14 8 50	64.5	22 28 23	3.5 100.0 100.0 1 100.0 100.0
	bull3 cad3 mur3 mck3 namu3	48 21 50 82	25 39	75 13 20	100.0 100.0 100.0 100.0
	west3 ador3 bir3 hut3	70 90 34 90	22.5 10 48 10	7.5 16	100.0 100.0 2 100.0 100.0
	napp3 too3	6 22		23.5 15	100.0 18 100.0
Lithology	Values Tabl Lithology Name	Initial	Compaction Factor (FM)	Exponentia	l Density (g/cm^3)
	Sandstone Siltstone Shale	0.45 0.55 0.6	1.75 2.2 2.4	0.5	1 2.64 1 2.6
	Limestone Dolomite Evaporite	0.6 0.6 0	1.5	0.2	2 2.85 0 2.15
	Coal Igneous nam3 eyr3 win3 mac3	0.9 0.52 0.48 0.56 0.55	3.5 0 2.1 1.88 2.24 2.19	0.3 0.3 0.4	0 2.65 8 2.633 1 2.635 2 2.601
	ood3 coo3 bull3 cad3 mur3	0.55 0.5 0.58 0.50 0.53	2.22 1.97 2.35 2.01 2.14	0.4 0.3 0.4 0.3	2 2.622 4 2.64 8 2.61 5 2.634
	mck3 namu3 west3 ador3 bir3	0.5 0.46 0.48 0.46 0.53	1.97 1.83 1.9 1.79 2.10	0.3 0.2 0.3 0.2 0.3	4 2.64 9 2.64 1 2.637 8 2.64 8 2.616
	hut3 napp3 too3	0.46 0.55 0.59	1.79 2.22 2.36	0.4	2.630
	Lithology Name	Grain Siz			Matrix Cond. Correction
	Sandstone Siltstone Shale Limestone Dolomite Evaporite	0. 0.015 0.000 0. 0.	6 4 5 5	4.4 2 1.5 2.9 4.8 5.4	270 170 -180 350 300 470
	-				

	Coal Igneous nam3 eyr3 win3 mac3 ood3 coo3 bul13 cad3 mur3 mck3 namu3 west3 ador3 bir3 hut3 napp3 too3	0.000 0.000 0.023 0.140 0.008 0.008 0.005 0.051 0.015 0.088 0.267 0.134 0.353 0.026	1 2 4 6 6 6 9 9 1 5 5 3 9 9 1 5 5 3 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		0.3 2.9 2.632 3.745 2.070 2.196 2.06 3.2 1.625 3.087 2.404 3.2 3.968 3.642 4.16 2.702 4.16 2.026 2.147	250 380 138.7 206.5 105.8 86 98.3 220 -92.5 172.5 121 220 252 213.7 260 149.6 260 93.75 153.9
	Lithology Name	Heat Cap (kJ/m^3*c		at Capac Correct		
	Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam3 eyr3 win3 mac3 ood3 coo3 bul13 cad3 mur3 mck3 namu3 west3 ador3 bir3 hut3 napp3 too3		2800 2650 2100 2600 2600 1750 950 2598. 2702 2484. 2517 2518. 2725 2337. 2650. 2571. 2725 2773 2713. 2785 2579 2785 2529. 2294.			
Lithology	Fluid Flow Lithology Name		Initial Porosity B	А	B (1/Pa)	Fraction A
•	Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam3 eyr3	0.0000 0.5500 0.6000 0.6000 0.6000 0.0000 0.9000 0.0000 0.5625 0.5720	0.4500 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.4500	-0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800	1.350000e-08 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00 1.350000e-08 1.350000e-08	1.000 1.000 1.000 0.000 1.000 0.000 0.700

```
win3 0.5758 0.4500 -0.800 1.350000e-08
mac3 0.5662 0.4500 -0.800 1.350000e-08
ood3 0.5663 0.4500 -0.800 1.350000e-08
coo3 0.5500 0.4500 -0.800 1.350000e-08
bull3 0.5875 0.0000 -0.800 0.000000e+00
cad3 0.5625 0.4500 -0.800 1.350000e-08
mur3 0.5626 0.4500 -0.800 1.350000e-08
                                                                            0.860
                                                                            0.920
                    mck3 0.5500 0.4500 -0.800 1.350000e-08
                                                                            0.500
                   namu3 0.5500 0.4500 -0.800 1.350000e-08
                                                                            0.180
                   west3 0.5625 0.4500 -0.800 1.350000e-08
                                                                            0.300
                   ador3 0.5500 0.4500 -0.800 1.350000e-08
                                                                            0.100
                    bir3 0.5727 0.4500 -0.800 1.350000e-08
                    hut3 0.5500 0.4500 -0.800 1.350000e-08
                   napp3 0.5625 0.4500 -0.800 1.350000e-08
                            too3
                                                                            0.780
             Lithology Initial Permeability
Name Permeability Power
                           (milliDarcys)
                -----
             Sandstone 2.786221e+04 5.500
Siltstone 1.013171e-01 5.500
Shale 1.013171e-01 5.500
Limestone 2.786221e+04 5.500
                                                 5.500
5.500
                                                  5.500
                                                5.500
5.500
5.500
5.500
5.500
5.500
5.500
              Dolomite 2.786221e+04
             Evaporite 1.013171e-08
                    Coal 1.013171e-01
                Igneous 1.013171e-08
                    nam3 4.339930e+00
                    eyr3 1.216697e+03
                    win3 3.544999e-01
                    mac3 5.850452e-01
                    ood3 2.759494e-01
coo3 5.313115e+01
                                                   5.500
                  bull3 1.013171e-01
cad3 4.135829e+01
mur3 1.405862e+00
mck3 5.313115e+01
namu3 2.923719e+03
                                                  5.500
                                                   5.500
5.500
                                                   5.500
                                                   5.500
                   west3 6.504527e+02
                                                   5.500
                   ador3 7.963102e+03
                                                   5.500
                    bir3 7.162357e+00
                                                   5.500
                    hut3 7.963102e+03
                                                   5.500
                   napp3 2.148042e-01
                                                   5.500
                    too3 1.593441e+00
                                                   5.500
Geothermal Gradient Table
  Time Depth 1
  (Ma) (m)
_____
Maturity conversion method: Table
TTI = 4.191876 + 1.817512 * log10 (Ro)
Data fit: Least Squares
Model Units
                           Depth = (m)
                        Distance = (m)
          Thermal Conductivity = (W/m*deg C)
                  Heat Capacity = (kJ/m^3*deg\ C)
                       Heat Flow = (mW/m^2)
                     Temperature = (deg C)
```

Heat Generation = (muW/m^3)

0.900

0.500

0.520 0.790

```
Gradient = (deg C/100 m)
             Activation Energy = (kcal/mole)
Frequency Factor = (1/my)
HC Density = (g/cm<sup>3</sup>)
Pressure = (MPa)
                     Grain Size = (mm)
              Seismic Velocity = (m/s)
                     Event Time = (msec)
                 Maturity = (%Ro)
HC Generation = (mg/g TOC)
Calculation Options
                     Compaction = Sclater & Christie
        Porosity Depth Method = Linear
    Permeability Calculation = Modified Kozeny-Carman
Geothermal Calculation = Gradient
         Maturity Calculation = LLNL
        Expulsion Calculation = None
                 Time Interval = 1.00
                Depth Interval = 1000.00
               Integrate Depth = No
Advanced Options
            TTI Reference Temp = 105.00
TTI Doubling Temp = 10.00
         Rock-Eval Correction = 35.00
                   Thermal Gain = 1.000
Critical Fracturing Fraction = 0.850
        Fracture Closure Rate = 0.050
    Conductivity Calculation = Deming/Chapman
                     Initial S1 = 3.00
    ing HF Options
        Use Rifting Heat Flow = No
               Start Rift Time = 0.00
                 End Rift Time = 0.00
                Auto-Calc Beta = No
       Rifting Heat Flow Beta = 2.00
Present Day Info
                     Model Name = STRZELECKI-5
             Model Description =
         Current Surface Temp = 20.00
             Current Elevation = 0.00
             Current Heat Flow = 63.00
Seismic Parameters
                     Shot Point = 0
                                X = 0.00000000
                                Y = 0.00000000
```

BasinMod Data Report

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Mr. Peter Tingate

Version: 4.20

McKINLAY Mbr. F

Model Name: STRZELECKI-5 EROSION
File Name: STRZELECKI-5 EROSION.mod

Date: Feb 5, 1996 Time: 12:37 pm

					r
Stratigraphy Tab: Formation		Pogin	Woll Ton	Drogont	Migging
or		Age	werr rob	Thick	Thick
Event Name		(Ma)	(m)	(m)	(m)
QT/T EROSION-1		3.3 4.3	0	9	-40
MISSING SEC-1		5.3			40
NAMBA FM.	ਧ	29.3	9	61	40
EROSION-2	Ē	34	_	01	-24
MISSING SEC-2	D				24
EYRE FM.	F	60	70	46	
EROSION-3	E				-250
MISSING SEC-3		90			250
WINTON FM.		97.5	116	533	
MACKUNDA FM.	F		649	138	
OODNADATTA FM.	F	105.5 108	787	215	
COORIKIANA Sst. BULLDOG SHALE	F		1002 1015	13 275	
CADNA-OWIE FM.	F		1290	72	
MURTA FM.	F		1362	53	
ckinlay Mbr.	F	145	1415	8	
NAMUR Sst.	F	145 151	1423	61	
WESTBOURNE FM.	F	159	1484	77	
ADORI Sst.		165	1561	60	
BIRKHEAD FM.		175	1621	66	
HUTTON Sst.	F	188 211.5 236.5	1687	91	4.50
EROSION-4 MISSING SEC-4	D E	211.5			-172 172
NAPPAMERRI GP.	F	249	1778	47	112
TOOLACHEE FM.	F		1825	66	
Formation	Type		Litho	logy	
or Event Name					
Event Name					
QT/T	F		Sands	tone	
EROSION-1	E				
MISSING SEC-1	D		Sands		
NAMBA FM.	F		;	nam3	
EROSION-2 MISSING SEC-2	E		Conda	-	
EYRE FM.	D F		Sands	eyr3	
EROSION-3	E		'	e A T 2	
MISSING SEC-3	D		Sands	tone	
WINTON FM.	F			win3	
MACKUNDA FM.				mac3	
CONADATTA FM.	F		,	ood3	
COORIKIANA Sst.	F			coo3	
BULLDOG SHALE	F			ull3	
CADNA-OWIE FM.				cad3	
MURTA FM.	F		1	mur3	

mck3

WESTBOURNE FM. ADORI Sst. BIRKHEAD FM. HUTTON Sst. EROSION-4 ISSING SEC-4 NAPPAMERRI GP.	F F F F F F F F F F F F F F F F F F F	namu west ador bir hut Sandston nappi too	3 3 3 3 3 8	
Lithology Mixes Tabl Lithology Name	응	% Siltstone	% Shale Ke	% Total rogen %
Sandstone nam3 eyr3 win3 mac3 ood3 coo3 bull3 cad3 mur3 mck3 namu3 west3 ador3 bir3 hut3 napp3 too3 Lithology Values Tab	30 75 10 14 8 50 48 21 50 82 70 90 34 90 6 22	14 64.5 58 68 50 25 39 59 50 18 22.5 10 48 10 70.5 45	17.5 11 22 28 23 75 13 20 7.5	100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0
Sandstone Siltstone Shale	0.45 0.55 0.6 0.6 0.6 0.6	1.75 2.2 2.4	0.27 0.41 0.51	2.64 2.64 2.6

Lithology Grain Size Matrix Conductivity Matrix Cond.

Name	(mm)	(W/m*c	deg C) Corr	rection
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nama eyra wina maca ooda cood bulla cada mura mcka namua westa adora huta nappa tood	0.0156 0.0004 0.5 0.5 0.0004 0.0001 0.0232 0.1404 0.0086 0.0090 0.0883 0.0099 0.0155 0.0883 0.0099 0.0511 0.0155 0.0883 0.2678 0.1342 0.3534 0.0262 0.3534 0.0081		4.4 2 1.5 2.9 4.8 5.4 0.3 2.9 2.632 3.745 2.070 2.196 2.06 3.2 1.625 3.087 2.404 3.2 3.968 3.642 4.16 2.702 4.16 2.026 2.147	270 170 -180 350 300 470 250 380 138.7 206.5 105.8 86 98.3 220 -92.5 172.5 121 220 252 213.7 260 149.6 260 93.75 153.9
Lithology Name		ity Heat Capac C) Correct		
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam3 eyr3 win3 mac3 ood3 coo3 bull3 cad3 mur3 mck3 namu3 west3 ador3 hut3 napp3 too3	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	800 650 100 600 600 750 950 500 98. 702 84. 517 18. 725 37. 50. 71. 725 773 13. 785 579 785 29.		
	Table Initial I Porosity Po		(1/Pa)	B Fraction A
Sandstone Siltstone		0.4500 0.0000 0.0000 -0.800		

```
0.0000 -0.800 0.000000e+00
  Shale
       0.6000
                                 1.000
       0.6000
             0.0000 -0.800 0.000000e+00
Limestone
                                1.000
Dolomite
      0.6000
            0.0000 -0.800 0.000000e+00
                                1.000
Evaporite 0.0000 0.0000 -0.800 1.350000e-08
                                0.000
       0.9000 0.0000 -0.800 0.000000e+00
                                1.000
   Coal
       0.0000 0.0000 -0.800 1.350000e-08
 Igneous
                                0.000
       nam3
                                0.700
       eyr3
                                0.250
   win3
       0.900
       0.5662   0.4500   -0.800   1.350000e-08
   mac3
                                0.860
   ood3
       0.920
       coo3
                                0.500
  bull3
       1.000
       0.520
   cad3
   mur3
                                0.790
       mck3
                                0.500
            0.4500 -0.800 1.350000e-08
       0.5500
  namu3
                                0.180
       0.300
  west3
  ador3
                                0.100
                                0.660
0.100
0.940
  bir3
  hut3
  napp3
                                0.780
            0.4500 -0.800 1.350000e-08
   too3
       0.6403
```

Lit	hology Name	Initial Permeability (milliDarcys)	Permeability Power
Lin Do Eva	dstone tstone Shale destone clomite porite Coal gneous nam3 eyr3 win3 mac3 coo3 bul13 cad3 mur3 mck3 namu3 west3 ador3 hut3 napp3 too3	1.013171e-01 1.013171e-01 2.786221e+04 2.786221e+04 1.013171e-08 1.013171e-01 1.013171e-01 4.339930e+00 1.216697e+03 3.544999e-01 5.850452e-01 2.759494e-01 5.313115e+01 1.013171e-01 4.135829e+01 1.405862e+00 5.313115e+01 2.923719e+03 6.504527e+02 7.963102e+03 7.162357e+00 7.963102e+03	5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.

Geothermal Gradient Table Time Depth 1

(Ma) (m)

Maturity conversion method: Table TTI = 4.191876 + 1.817512 * log10(Ro)

Data fit: Least Squares

```
Model Units
                          Depth = (m)
                       Distance = (m)
         Thermal Conductivity = (W/m*deg C)
                 Heat Capacity = (kJ/m^3*deg C)
Heat Flow = (mW/m^2)
                   Temperature = (deg C)
               Heat Generation = (muW/m^3)
Gradient = (deg C/100 m)
            Activation Energy = (kcal/mole)
Frequency Factor = (1/my)
                    HC Density = (g/cm^3)
                       Pressure = (MPa)
                    Grain Size = (mm)
              Seismic Velocity = (m/s)
                    Event Time = (msec)
                       Maturity = (Ro)
                 HC Generation = (mg/g TOC)
Calculation Options
                    Compaction = Sclater & Christie
        Porosity Depth Method = Linear
    Permeability Calculation = Modified Kozeny-Carman
Geothermal Calculation = Gradient
        Maturity Calculation = LLNL Expulsion Calculation = None
                 Time Interval = 1.00
                Depth Interval = 1000.00
               Integrate Depth = No
Advanced Options
           TTI Reference Temp = 105.00
            TTI Doubling Temp = 10.00
         Rock-Eval Correction = 35.00
                  Thermal Gain = 1.000
Critical Fracturing Fraction = 0.850
        Fracture Closure Rate = 0.050
    Conductivity Calculation = Deming/Chapman
                    Initial S1 = 3.00
Rifting HF Options
        Use Rifting Heat Flow = No
               Start Rift Time = 0.00
                End Rift Time = 0.00
                Auto-Calc Beta = No
      Rifting Heat Flow Beta = 2.00
Present Day Info
                    Model Name = STRZELECKI-5 EROSION
            Model Description =
         Current Surface Temp = 20.00
            Current Elevation = 0.00
            Current Heat Flow = 63.00
Seismic Parameters
                    Shot Point = 0
```

X = 0.00000000Y = 0.00000000

BasinMod Data Report

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Mr. Peter Tingate

Version: 4.20

Model Name: TINGA-TINGANA-1

File Name: TINGA-TINGANA-1.mod
Date: Feb 5, 1996

Time: 12:40 pm

Stratigraphy Tab Formation or Event Name	Type	Begin Age (Ma)	_	Present Thick (m)	Lithology
QT/T	F	3.3	0	26	Sandstone
HIATUS-1 NAMBA FM.	H F	5.3 29.3	26	135	nam2
HIATUS-2	H	38			
EYRE FM. HIATUS-3 WINTON FM.	F H	60 90	161	57	eyr2
WINTON FM.	F	97.5	218	609	win2
MACKUNDA FM.		100	827		mac2
MARREE SBGP.	F	117.5	892	172	marr2
CADNA-OWIE FM. MURTA FM. MCKINLAY Mbr. NAMUR Sst.	F	135.5	1064	56	cad2
MURTA FM.	F	141.5	1120	54	mur2
McKINLAY Mbr.	F	145	1174	18	mck2
NAMUR Sst.	F	165	1192	178	namu2
BIRKHEAD FM.	F	175	1370	19	bir2
HUTTON SSt.	H,	188	1389	9	Sandstone
HUTTON Sst. HIATUS-4 F CHAWARRA FM.	H m	264.5	1200	205	
TIRRAWARRA Sst.	r r	274	1602	285 70	pat2 tir2
MERRIMELIA FM.					merr2
MERRIMEDIA PM.	£	200.5	1/55	509	merrz
Formation	Type	Lith			
or		Pat			
Event Name					
QT/T					
HIATUS-1		,			
NAMBA FM.	F	1			
HIATUS-2	H F				
EYRE FM. HIATUS-3	r H				
WINTON FM.	F				
MACKUNDA FM.	F				
MARREE SBGP.	F				
CADNA-OWIE FM.	F				
MURTA FM.	F				
McKINLAY Mbr.	F				
NAMUR Sst.	F				
BIRKHEAD FM.	F				
HUTTON Sst.	F				
HIATUS-4	H				
PATCHAWARRA FM.	F				
TARAWARRA Sst.	F				
RRIMELIA FM.	F				
Lithology Mixes 1	logy	andstor	% ne Siltsto	% one Sha	% % Total le Kerogen %

Sandstone nam2 eyr2 win2 mac2 marr2 cad2 mur2 mck2 namu2 bir2 pat2 tir2 merr2	100 38 77.5 18 22 4 54 18 50 87 31 25 83 42	46.5 22.5 61.5 58.5 30 34.5 61.5 50 13 51.5 48 17	15.5 20.5 19.5 66 11.5 20.5	100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0
Lithology Values Tabl Lithology Name	Initial (Exponential Factor (SC)	
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam2 eyr2 win2 mac2 marr2 cad2 mur2 mck2 namu2 bir2 pat2 tir2 merr2	0.45 0.55 0.6 0.6 0.9 0.51 0.54 0.53 0.57 0.54 0.55 0.46 0.57 0.46 0.57 0.51	1.75 2.2 2.4 1.5 1.5 0 3.5 0 2.06 1.85 2.14 2.31 1.98 2.16 1.97 1.80 2.09 2.26 1.82 2.04	0.27 0.41 0.51 0.22 0.22 0.7 0.37 0.30 0.40 0.39 0.47 0.34 0.40 0.34 0.28 0.38 0.42 0.29 0.36	2.64 2.64 2.72 2.85 2.15 1.8 2.65 2.633 2.64 2.631 2.635 2.635 2.635 2.64 2.64 2.64 2.64 2.64 2.64 2.64 2.64
Lithology Name Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam2 eyr2 win2 mac2 marr2 cad2 mur2 mck2 namu2 bir2 pat2 tir2	Grain Size (mm) 0.5 0.0156 0.0004 0.5 0.5 0.0004 0.0001 0.0330 0.2291 0.0137 0.0163 0.0015 0.0665 0.0137 0.0883 0.3185 0.0240 0.0138 0.2773	Matrix Cor (W	Aductivity Markey C)	trix Cond. Correction 270 170 -180 350 300 470 250 380 153.7 247.5 116.2 123.7 -57 183.7 116.2 220 257 139.7 147.8

merr2 0.0393 2.935 161.2

meliz	0.0323	2.955	101.2
	Heat Capacity Heat (kJ/m^3*deg C)		
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam2 eyr2 win2 mac2 marr2 cad2 mur2 cad2 mur2 mck2 namu2 bir2 pat2 tir2 merr2	2800 2650 2100 2600 1750 950 2500 2621. 2766. 2564. 2575. 2293 2667. 2564. 2725 2780. 2600. 2412. 2774. 2633.		
	Table Initial Initial Porosity Porosity A B	A (1/Pa	B Fraction
Siltstone Shale Limestone	0.5500 0.0000 0.6000 0.0000 0.6000 0.0000 0.6000 0.0000 0.0000 0.0000 0.9000 0.0000 0.5625 0.4500 0.5625 0.4500 0.5625 0.4500 0.5625 0.4500 0.5625 0.4500 0.5625 0.4500 0.5625 0.4500 0.5625 0.4500 0.5500 0.4500 0.5500 0.4500 0.5500 0.4500 0.5500 0.4500 0.5500 0.4500 0.5500 0.4500	0.0000 1.350000e-0 -0.800 0.0000000e+0 -0.800 0.0000000e+0 -0.800 0.0000000e+0 -0.800 1.350000e-0	0 1.000 0 1.000 0 1.000 0 1.000 8 0.000 8 0.000 8 0.620 8 0.225 8 0.820 8 0.780 8 0.960 8 0.460 8 0.820 8 0.500 8 0.130 8 0.690 8 0.750 8 0.750
Name	Permeability (milliDarcys)	Power	
Siltstone Shale Limestone Dolomite	2.786221e+04 1.013171e-01 1.013171e-01 2.786221e+04 2.786221e+04 1.013171e-08	5.500 5.500 5.500 5.500 5.500	

```
Coal 1.013171e-01
              Igneous 1.013171e-08
nam2 1.182032e+01
                                             5.500
                                             5.500
                 eyr2
                       1.664047e+03
                                             5.500
                 win2 9.655232e-01
                                             5.500
                 mac2 1.593441e+00
                                             5.500
                marr2 1.672077e-01
                                             5.500
                 cad2 8.768444e+01
                                             5.500
                 mur2 9.655232e-01
                                             5.500
                 mck2 5.313115e+01
                                            5.500
                namu2 5.468929e+03
                                             5.500
                 bir2 4.918991e+00
                                            5.500
                 pat2 2.320150e+00
                                            5.500
                 tir2 3.313821e+03
                                            5.500
                                            5.500
                merr2 1.950754e+01
Geothermal Gradient Table
  Time Depth 1
  (Ma) (m)
     0
Maturity conversion method: Table TTI = 4.191876 + 1.817512 * log10(Ro)
Data fit: Least Squares
Model Units
                        Depth = (m)
                     Distance = (m)
        Thermal Conductivity = (W/m*deg C)
                Heat Capacity = (kJ/m^3*deg\ C)
                    Heat Flow = (mW/m^2)
                  Temperature = (deg C)
              Heat Generation = (muW/m^3)
                     Gradient = (deg C/100 m)
           Activation Energy = (kcal/mole)
             Frequency Factor = (1/my)
                   HC Density = (g/cm^3)
                     Pressure = (MPa)
                   Grain Size = (mm)
             Seismic Velocity = (m/s)
                   Event Time = (msec)
                     Maturity = (%Ro)
                HC Generation = (mg/g TOC)
Calculation Options
                   Compaction = Sclater & Christie
       Porosity Depth Method = Linear
    Permeability Calculation = Modified Kozeny-Carman
Geothermal Calculation = Gradient
        Maturity Calculation = LLNL
       Expulsion Calculation = None
                Time Interval = 1.00
               Depth Interval = 1000.00
              Integrate Depth = No
Advanced Options
           TTI Reference Temp = 105.00
            TTI Doubling Temp = 10.00
        Rock-Eval Correction = 35.00
                 Thermal Gain = 1.000
Critical Fracturing Fraction = 0.850
       Fracture Closure Rate = 0.050
    Conductivity Calculation = Deming/Chapman
```

5.500

Initial S1 = 3.00

Rifting HF Options

Use Rifting Heat Flow = No
Start Rift Time = 0.00
End Rift Time = 0.00

Auto-Calc Beta = No

Rifting Heat Flow Beta = 2.00

Present Day Info

Model Name = TINGA-TINGANA-1

Model Description =

Current Surface Temp = 20.00 Current Elevation = 0.00 Current Heat Flow = 63.00

Seismic Parameters

Shot Point = 0

X = 0.00000000 Y = 0.00000000

BasinMod Data Report

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Mr. Peter Tingate

Version: 4.20

Model Name: TINGA-TINGANA-1

File Name: TINGA-TINGANA-1 EROSION.mod

Date: Feb 5, 1996

Time: 12:40 pm

+					+	
Stratigraphy Tab		Pog: 5	Mall m	on Dec	09025	Missins
Formation	Type	Degin	METT I	ob br	Thick	Thick
Event Name		(Ma)	(r	n)	(m)	Thick (m)
QT/T				0	26	
EROSION-1	E	4.3				-26 26
MISSING SEC-T	ב ע	20.3		26	135	26
EROSTON-2	H	34	4	20	200	-29
MISSING SEC-1 NAMBA FM. EROSION-2 MISSING SEC-2	D	38				29
EYRE FM.	F	60	16	51	57	
EROSION-3 MISSING SEC-3 WINTON FM. MACKUNDA FM.	E	75				-320
MISSING SEC-3	D	90				320
WINTON FM.	F.	97.5	21	L8 27	609 65	
MARREE SBGP.	ਪ ਸ	117 5	20	92	172	
CADNA-OWIE FM.					56	
MURTA FM.	F	141.5	112	20	54	
McKINLAY Mbr. NAMUR Sst. BIRKHEAD FM.	F	145	117	74	54 18	
NAMUR Sst.	F	165	119	92	178	
BIRKHEAD FM.	F	175	13.	70	19	
HUTTON Sst.	E.	188 214 5	138	39	9	-286
MISSING SEC-4	D	264.5				286
EROSION-4 MISSING SEC-4 PATCHAWARRA FM.	F	274	139	98	285	
TIRRAWARRA Sst.	F	280	168	33	70	
MERRIMELIA FM.	F	285.5	175	53	509	
Formation	Type		Lit	holog		
or					Pat	,
Event Name						_
QT/T			Sar	ndston	е	
EROSION-1 MISSING SEC-1	E		a		_	
MISSING SEC-1 NAMBA FM.	D F		Sar	ndston nam		
EROSION-2	E			11aill	ہے۔	-
MISSING SEC-2	D		Sar	ndston	е	
EYRE FM.	F			eyr		
EROSION-3	E		_	_		
MISSING SEC-3	D		Sar	ndston		
WINTON FM.	ਸ ਸ			win mac		
MACKUNDA FM. MARREE SBGP.	F			marr		
CADNA-OWIE FM.	F			cad		
MURTA FM.	F			mur		
MCKINLAY Mbr.	F			mck		
NAMUR Sst.	F			namu		
BIRKHEAD FM.	F		0	bir		
HUTTON Sst. EROSION-4	F		Sar	ndston	е	
EROSION-4 MISSING SEC-4	E D		Sat	ndston	e	
MIDDING DEC-4	ט		Sai		_	

PATCHAWARRA FM.	ਸ	pat2
TIRRAWARRA Sst.	ਸ	tir2
MERRIMELIA FM.	ਜ	merr2

MEKKIMEL	JIA PN. I	?	merr.	4	
Lithology	Mixes Table Lithology Name	왕		% Shale Ke	
	Sandstone nam2 eyr2 win2 mac2 marr2 cad2 mur2 mck2 namu2 bir2 pat2 tir2 merr2	18 22 4 54 18 50 87	61.5 58.5 30 34.5 61.5 50 13 51.5 48	15.5 20.5 19.5 66 11.5 20.5 17.5 16	100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0
Lithology	Values Tabl Lithology Name	Initial	Compaction Factor (FM)	Exponential Factor (SC)	Density (g/cm^3)
	Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam2 eyr2 win2 mac2 marr2 cad2 mur2 cad2 mur2 mck2 namu2 bir2 pat2 tir2 merr2	0.55 0.6 0.6 0.9 0.51 0.47 0.53 0.57 0.50 0.54 0.55 0.46 0.57 0.46	1.75 2.2 2.4 1.5 1.5 0 3.5 0 2.06 1.85 2.14 2.31 1.98 2.16 1.97 1.80 2.09 2.26 1.82 2.04	0.41 0.51 0.22 0.22 0.7 0.37 0.30 0.40 0.39 0.47 0.34 0.40 0.34	2.72 2.85 2.15 1.8 2.65 2.633 2.64 2.631 2.632 2.613 2.635 2.631 2.64 2.64 2.633 2.541 2.64
	Lithology Name	Grain Size		nductivity M V/m*deg C)	
	Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam2 eyr2 win2 mac2	0.0156 0.0004 0.5 0.0004 0.0004 0.0005 0.0336 0.2295	5 1 5 5 1 1 1 1 1 1 7	4.4 2 1.5 2.9 4.8 5.4 0.3 2.9 2.834 3.86 2.329 2.430	270 170 -180 350 300 470 250 380 153.7 247.5 116.2 123.7

marr2 cad2 mur2 mck2 namu2 bir2 pat2 tir2 merr2	0.001 0.066 0.013 0.088 0.318 0.024 0.013 0.277	55 37 33 35 40 38 73		1.766 3.238 2.329 3.2 4.088 2.656 2.333 3.992 2.935	-57 183.7 116.2 220 257 139.7 147.8 253 161.2
Lithology Name Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam2 eyr2 win2 mac2 marr2 cad2 mur2 cad2 mur2 mck2 namu2 bir2 pat2 tir2 merr2	(kJ/m^3*c		at Capac		
Lithology Fluid Flow Lithology Name			A	B (1/Pa)	Fraction A
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal	0.0000 0.5500 0.6000 0.6000 0.6000	0.0000 0.0000 0.0000 0.0000	-0.800 -0.800 -0.800	1.350000e-08 0.000000e+00 0.000000e+00 0.000000e+00 0.000000e+00	0.000 1.000 1.000 1.000
Igneous nam2 eyr2 win2 mac2 marr2 cad2 mur2 mck2 namu2 bir2 pat2 tir2 merr2	0.9000 0.0000 0.5625 0.5500 0.5625 0.5625 0.5625 0.5500 0.5500 0.5500 0.5500 0.5500	0.0000 0.0000 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500 0.4500	-0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800 -0.800	1.350000e-08 0.000000e+00 1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08 1.350000e-08	0.000 1.000 0.000 0.620 0.225 0.820 0.780 0.960 0.460 0.820 0.500 0.130 0.690 0.750 0.170 0.580

```
(milliDarcys)
              Sandstone 2.786221e+04
                                              5.500
5.500
              Siltstone 1.013171e-01
                   Shale 1.013171e-01
                                                  5.500
              Limestone 2.786221e+04
                                                   5.500
               Dolomite 2.786221e+04
                                                   5.500
              Evaporite 1.013171e-08
                                                   5.500
                    Coal 1.013171e-01
                                                   5.500
                 Igneous 1.013171e-08
                                                   5.500
                    nam2 1.182032e+01
                                                   5.500
                    eyr2 1.664047e+03
                                                   5.500
                    win2 9.655232e-01
                                                   5.500
                    mac2 1.593441e+00
                                                   5.500
                   marr2 1.672077e-01
                                                   5.500
                    cad2 8.768444e+01
                                                   5.500
                  mur2 9.655232e-01

mck2 5.313115e+01

namu2 5.468929e+03

bir2 4.918991e+00

pat2 2.320150e+00

tir2 3.313821e+03

merr2 1.950754e+01
                                                   5.500
                                                   5.500
                                                   5.500
                                                   5.500
                                                   5.500
                                                   5.500
                                                   5.500
Geothermal Gradient Table
  Time Depth 1
   (Ma) (m)
     0
Maturity conversion method: Table
TTI = 4.191876 + 1.817512 * log10(Ro)
     fit: Least Squares
Model Units
                            Depth = (m)
                        Distance = (m)
          Thermal Conductivity = (W/m*deg C)
                  Heat Capacity = (kJ/m^3*deg C)
Heat Flow = (mW/m^2)
                     Temperature = (deg C)
                Heat Generation = (muW/m^3)
                        Gradient = (\text{deg C/100 m})
             Activation Energy = (kcal/mole)
Frequency Factor = (1/my)
HC Density = (g/cm^3)
Pressure = (MPa)
                      Grain Size = (mm)
               Seismic Velocity = (m/s)
                      Event Time = (msec)
                        Maturity = (%Ro)
                  HC Generation = (mg/g TOC)
Calculation Options
                      Compaction = Sclater & Christie
        Porosity Depth Method = Linear
    Permeability Calculation = Modified Kozeny-Carman
Geothermal Calculation = Gradient
        Maturity Calculation = LLNL Expulsion Calculation = None
                  Time Interval = 1.00
                 Depth Interval = 1000.00
                Integrate Depth = No
```

Advanced Options

TTI Reference Temp = 105.00 TTI Doubling Temp = 10.00 Rock-Eval Correction = 35.00

Thermal Gain = 1.000

Critical Fracturing Fraction = 0.850

Fracture Closure Rate = 0.050

Conductivity Calculation = Deming/Chapman

Initial S1 = 3.00

Rifting HF Options

Use Rifting Heat Flow = No

Start Rift Time = 0.00

End Rift Time = 0.00

Auto-Calc Beta = No

Rifting Heat Flow Beta = 2.00

Present Day Info

Model Name = TINGA-TINGANA-1

Model Description =

Current Surface Temp = 20.00 Current Elevation = 0.00 Current Heat Flow = 63.00

Seismic Parameters

Shot Point = 0

X = 0.00000000

Y = 0.00000000

BasinMod Data Report
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Wr. Peter Tingate
Version: 4.20
Model Name: TOOLACHEE-36
File Name: TOOLACHEE-36.mod
Date: Feb 5, 1996
Time: 12:41 pm

Stratigraphy Table Formation		Begin	Well Top	Present	Lithology
or		Ăge	-	Thick	31
Event Name		(Ma)	(m)	(m)	
QT/T		3.3	0	10	Sandstone
HIATUS-1	H	5.3			
NAMBA FM.	F	29.3	10	42	naml
HIATUS-2	H	38			
EYRE FM.	F	60	52	77	eyr1
HIATUS-3	H	90			_
WINTON FM.	F	97.5	129	552	win1
MACKUNDA FM.	F	100	681	100	mac1
ALLARU/OOD	F	105.5	781	271	all1
COORIKIANA Sst.	F	108	1052	10	coo1
BULLDOG SHALE	F	117.5	1062	230	bull1
CADNA-OWIE FM.	F	135.5	1292	72	cad1
MURTA FM.	F	141.5	1364	52	mur1
McKINLAY Mbr.	F	145	1416	8	mck1
NAMUR Sst.	F	165	1424	225	namu1
_BIRKHEAD FM.	F	175	1649	33	bir1
HUTTON Sst.	F	188	1682	69	hut1
POOLOWANNA FM.	F	193	1751	11	pool1
HIATUS-4	H	236.5			-
NAPPAMERRI GP.	F	249	1762	35	napp1
TOOLACHEE FM.	F	253.5	1797	118	too1
HIATUS-5	H	256			
DARALINGIE FM.	F	258.5	1915	35	dara1
ROSENEATH SHALE	F	261.5	1950	33	rose1
EPSILON FM.	F	263.5	1983	65	epsi1
MURTEREE SHAle	F	264.5	2048	52	mutt1
PATCHAWARRA FM.	F	274	2100	43	pat1

Formation or	Type	Lith Pat
Event Name		
QT/T	F	
HIATUS-1	H	
NAMBA FM.	F	1
HIATUS-2	Н	
EYRE FM.	F	
HIATUS-3	H	
WINTON FM.	F	
MACKUNDA FM.	F	
ALLARU/OOD	F	
CORIKIANA Sst.	F	
JLLDOG SHALE	F	
CADNA-OWIE FM.	F	
MURTA FM.	F	
McKINLAY Mbr.	F	
NAMUR Sst.	F	
BIRKHEAD FM.	F	

HUTTON Sst.	F
POOLOWANNA FM.	F
HIATUS-4	H
NAPPAMERRI GP.	F
TOOLACHEE FM.	F
HIATUS-5	H
RALINGIE FM.	F
ROSENEATH SHALE	F
EPSILON FM.	F
MURTEREE SHAle	F
PATCHAWARRA FM.	F

Lithology Mixes Table Lithology Name	%	% Siltstone	% Shale	% Kerogen	Total %
Sandstone	100				100.0
nam1	18	61.5	20.5		100.0
eyr1	84	12	4		100.0
win1	14.5	62	21	2.5	100.0
mac1	16	63	21		100.0
all1	8	69	23		100.0
cool	50	50			100.0
bull1		20	80		100.0
cad1	52	36	12		100.0
mur1	8	69	23		100.0
mck1	40	45	15		100.0
namu1	88	9	3		100.0
bir1	24	55	18	3	100.0
hut1	82	18			100.0
pool1	14	49.5	16.5	20	100.0
napp1	26	55.5	18.5		100.0
too1	17	45	15		100.0
daral	11	57	19	13	100.0
rosel		75	25	_	100.0
epsi1	10	63	21	6	100.0
mutt1		75	25		100.0
pat1	16	55.5	18.5	10	100.0

	Initial	Compaction Factor (FM)	Exponential Factor (SC)	Density (g/cm^3)
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 coo1 bull1 cad1 mur1 mck1 namu1	0.45 0.55 0.66 0.60 0.90 0.46 0.55 0.55 0.55 0.55 0.55 0.55 0.55 0.55	1.75 2.2 2.4 1.5 1.5 0 3.5 0 2.16 1.83 2.20 2.17 2.21 1.97 2.36 1.99 2.21 2.05	0.27 0.41 0.51 0.22 0.22 0.7 0.40 0.29 0.41 0.40 0.42 0.34 0.49 0.34 0.42 0.36 0.28	2.64 2.64 2.64 2.72 2.85 2.15 1.8 2.65 2.631 2.638 2.610 2.631 2.630 2.64 2.635 2.630 2.635 2.630 2.634 2.638
bir1 hut1	0.54 0.46	2.16 1.83	0.40 0.29	2.607 2.64

pool1 napp1 tool dara1 rose1 epsi1 mutt1 pat1	0.61 0.53 0.62 0.59 0.56 0.57 0.56 0.57	2.43 0.46 2.12 0.33 2.45 0.46 2.35 0.43 2.25 0.43 2.27 0.43 2.25 0.43 2.29 0.43	2.632 2.440 2.523 2.63 2.581 2.63 2.548
Name	(mm)	rix Conductivity N (W/m*deg C)	
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 coo1 bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1		4.4 2 1.5 2.9 4.8 5.4 0.3 2.9 2.329 3.996 2.200 2.279 2.077 3.2 1.6 3.188 2.077 2.885 4.097 2.435 3.968 1.913 2.531 1.942 1.948 1.875 2.033 1.875 2.121	270 170 -180 350 300 470 250 380 116.2 240 113 112.5 97.5 220 -110 180 97.5 157.5 247.5 133.4 252 142.2 131.2 152.9 124.9 82.5 111.3 82.5 129.2
Lithology Name	Heat Capacity (kJ/m^3*deg C)	Heat Capacity Correction	
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 coo1 bull1 cad1 mur1 mck1 namu1	2800 2650 2100 2600 2600 1750 950 2500 2564. 2754 2513. 2558. 2535. 2725 2210 2662 2535. 2627. 2765.		

```
2536
2773
                               bir1
                                                                                             0
                               hutl
                                                                                             0
                                                         2240.
                             pool1
                             napp1
                                                         2587.
                              too1
                                                          2202
                                                          2341
                             dara1
                                                          2512.
                             rose1
                             epsi1
                                                          2447.
                                                                                            Ω
                                                          2512.
                                                                                            0
                             mutt1
                                                          2402.
                               pat1
Lithology Fluid Flow Table
                     Lithology Initial Initial A
Name Porosity Porosity
                                                                                                            B Fraction
                                                                                                   (1/Pa) A
                                               A B
                    Sandstone 0.0000 0.4500 0.0000 1.350000e-08 0.000
Siltstone 0.5500 0.0000 -0.800 0.000000e+00 1.000
Shale 0.6000 0.0000 -0.800 0.000000e+00 1.000
Limestone 0.6000 0.0000 -0.800 0.00000e+00 1.000
Dolomite 0.6000 0.0000 -0.800 0.00000e+00 1.000
Evaporite 0.0000 0.0000 -0.800 1.350000e-08 0.000
Coal 0.9000 0.0000 -0.800 1.350000e-08 0.000
Igneous 0.0000 0.0000 -0.800 1.350000e-08 0.000
nam1 0.5625 0.4500 -0.800 1.350000e-08 0.820
eyr1 0.5625 0.4500 -0.800 1.350000e-08 0.160
win1 0.5725 0.4500 -0.800 1.350000e-08 0.855
mac1 0.5625 0.4500 -0.800 1.350000e-08 0.840
all1 0.5625 0.4500 -0.800 1.350000e-08 0.840
                               all1 0.5625 0.4500 -0.800 1.350000e-08
                                                                                                                      0.920
                               cool 0.5500 0.4500 -0.800 1.350000e-08
                                                                                                                      0.500

      cool
      0.5500
      0.4500
      -0.800
      1.350000e-08

      bull1
      0.5900
      0.0000
      -0.800
      0.000000e+00

      cad1
      0.5625
      0.4500
      -0.800
      1.350000e-08

      mur1
      0.5625
      0.4500
      -0.800
      1.350000e-08

      namu1
      0.5625
      0.4500
      -0.800
      1.350000e-08

      bir1
      0.5756
      0.4500
      -0.800
      1.350000e-08

      hut1
      0.5500
      0.4500
      -0.800
      1.350000e-08

      pool1
      0.6409
      0.4500
      -0.800
      1.350000e-08

                                                                                                                       1.000
                                                                                                                       0.480
                                                                                                                        0.920
                                                                                                                        0.120
                                                                                                                       0.760
                                                                                                                       0.180
                                                                                                                       0.860
                                         0.740
                             napp1
                                                                                                                       0.830
                              too1
                                          0.890
                             dara1
                                            rose1
                             epsil 0.5850 0.4500 -0.800 1.350000e-08 muttl 0.5625 0.0000 -0.800 0.000000e+00
                                                                                                                      1.000
                                         0.6026   0.4500   -0.800   1.350000e-08
                                                                                                                       0.840
                               pat1
                     Lithology
                                             Initial Permeability
                               Name Permeability Power
                                (milliDarcys)
      Sandstone 2.786221e+04 5.500
Siltstone 1.013171e-01 5.500
Shale 1.013171e-01 5.500
                     Limestone 2.786221e+04
Dolomite 2.786221e+04
                                                                               5.500
                                                                               5.500
                     Evaporite 1.013171e-08
                                                                               5.500
                               Coal 1.013171e-01
                                                                               5.500
                          Igneous 1.013171e-08
                                                                               5.500
                               nam1 9.655232e-01
                                                                               5.500
                                                                          5.500
5.500
5.500
5.500
5.500
                               eyr1 3.755972e+03
                               win1 6.228538e-01
                               mac1 7.515815e-01
                               all1 2.759494e-01 coo1 5.313115e+01
                                                                                 5.500
```

```
bull1 1.013171e-01 cad1 6.825522e+01
                                               5.500
                                               5.500
                  mur1 2.759494e-01
                                               5.500
                  mck1 1.518504e+01
                                               5.500
                 namu1 6.198629e+03
                                               5.500
                  bir1 2.047023e+00
                                               5.500
                  hut1 2.923719e+03
                                               5.500
                                              5.500
                 pool1 5.850452e-01
                 nappl 2.629719e+00
                                              5.500
                  too1 8.518624e-01
                                              5.500
                 dara1 4.017996e-01
                                              5.500
                 rosel 1.013171e-01
                                              5.500
                 epsil 3.544999e-01
                                              5.500
                 mutt1 1.013171e-01
                                              5.500
                  pat1 7.515815e-01
                                               5.500
Geothermal Gradient Table
  Time Depth 1
  (Ma) (m)
    0 0
Maturity conversion method: Table TTI = 4.191876 + 1.817512 * log10(Ro)
Data fit: Least Squares
Model Units
                          Depth = (m)
                      Distance = (m)
         Thermal Conductivity = (W/m*deg C)
                 Heat Capacity = (kJ/m^3*deg C)
                     Heat Flow = (mW/m^2)
                   Temperature = (deg C)
               Heat Generation = (muW/m^3)
                      Gradient = (\text{deg C/100 m})
            Activation Energy = (kcal/mole)
Frequency Factor = (1/my)
HC Density = (g/cm^3)
Pressure = (MPa)
                    Grain Size = (mm)
              Seismic Velocity = (m/s)
                    Event Time = (msec)
                      Maturity = (%Ro)
                 HC Generation = (mg/g TOC)
Calculation Options
                    Compaction = Sclater & Christie
        Porosity Depth Method = Linear
    Permeability Calculation = Modified Kozeny-Carman
Geothermal Calculation = Gradient
       Maturity Calculation = LLNL Expulsion Calculation = None
                 Time Interval = 1.00
                Depth Interval = 1000.00
               Integrate Depth = No
Advanced Options
           TTI Reference Temp = 105.00
            TTI Doubling Temp = 10.00
         Rock-Eval Correction = 35.00
                  Thermal Gain = 1.000
Critical Fracturing Fraction = 0.850
        Fracture Closure Rate = 0.050
    Conductivity Calculation = Deming/Chapman
```

Initial S1 = 3.00

Rifting HF Options

Use Rifting Heat Flow = No
Start Rift Time = 0.00
End Rift Time = 0.00

Auto-Calc Beta = No

Rifting Heat Flow Beta = 2.00

Present Day Info

Model Name = TOOLACHEE-36

Model Description =
Current Surface Temp = 20.00
Current Elevation = 0.00
Current Heat Flow = 63.00

Seismic Parameters

BasinMod Data Report
Licensed to: Natn'l Centre for Petroleum Geology & Geophysics |
Mr. Peter Tingate

Mr. Peter Tingate
Version: 4.20
Model Name: TOOLACHEE-36 ERO.
File Name: TOOLACHEE-36 EROSION.mod
Date: Feb 5, 1996
Time: 12:42 pm

Stratigraphy Tab		D	Wall Man	D		Minaina
Formation or	Type	Āge	Well Top		nick	Missing Thick
Event Name		(Ma)	(m)		(m)	(m)
QT/T	F	3.3	0		10	
EROSION-1	Ē	4.3	J		-0	-15
MISSING SEC-1	D	5.3				15
NAMBA FM.	F	29.3	10		42	
EROSION-2	E	34				-25
MISSING SEC-2	D	38				25
EYRE FM.	F	60	52		77	
EROSION-3	E	75				-260
MISSING SEC-3	D	90				260
WINTON FM.	F	97.5	129		552	
MACKUNDA FM.	F	100	681		100	
ALLARU/OOD	F	105.5	781		271	
COORIKIANA Sst.	F	108	1052		10	
BULLDOG SHALE	F	117.5	1062 1292		230 72	
CADNA-OWIE FM. MURTA FM.	F F	135.5 141.5	1364		52	
EKINLAY Mbr.	F	141.5	1416		8	
NAMUR Sst.	F	165	1424		225	
BIRKHEAD FM.	F	175	1649		33	
HUTTON Sst.	F	188	1682		69	
POOLOWANNA FM.	F	193	1751		11	
EROSION-4	E	213				-107
MISSING SEC-4	D	236.5				107
NAPPAMERRI GP.	F	249	1762		35	
TOOLACHEE FM.	F	253.5	1797		118	
EROSION-5	E	254.5				-147
MISSING SEC-5	D	256	4045		a =	147
DARALINGIE FM.	F F	258.5 261.5	1915		35	
ROSENEATH SHALE EPSILON FM.	e F	263.5	1950 1983		33 65	
MURTEREE SHAle	r F	264.5	2048		52	
PATCHAWARRA FM.	F	274	2100		43	
PAICHMANIA PM.	T.	2/=	2100		40	
Formation	Type		Lith	ology	Lith	ı
or					Pat	5
Event Name						
						-
QT/T	F		Sand	stone		
EROSION-1 MISSING SEC-1	E D		Cand	stone		
NAMBA FM.	F		Sand	nam1	-	L
EROSION-2	E			паш	-	L
SSING SEC-2	D		Sand	stone		
EYRE FM.	F			eyrl		
EROSION-3	E			_		
MISSING SEC-3	D		Sand	stone		
WINTON FM.	F			win1		
MACKUNDA FM.	F			mac1		

COORIKIANA SST. BULLDOG SHALE CADNA-OWIE FM. MURTA FM. MCKINLAY Mbr. NAMUR SST. BIRKHEAD FM. HUTTON SST. POOLOWANNA FM. EROSION-4 MISSING SEC-4 NAPPAMERRI GP. TOOLACHEE FM. EROSION-5 MISSING SEC-5 DARALINGIE FM. ROSENEATH SHALE EPSILON FM. MURTEREE SHALE	당 당 조 O 당 당 당	alli coor bulli cad muri mcki namu biri huti pool Sandstone napp too Sandstone dara rose epsi mutti pati	1 1 1 1 1 1 1 1 1 1 1 1			
Lithology Mixes Table Lithology		%	06	90	Total	
	Sandstone	Siltstone				
Sandstone nam1 eyr1 win1 mac1 all1 coo1 bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1	84 14.5 16 8 50 52 840 88 24 82 14 26 17 11	61.5 12 62 63 69 50 20 36 45 9 51 8 49.5 57 75 63 75	20.5 4 21 21 23 80 12 23 15 3 18 16.5 18.5 19 25 21 25 18.5	2.5 3 20 23 13	100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0	
Lithology Values Tab Lithology Name	Initial Porosity B	Compaction Factor (FM)	Factor (SC) (g/c	m^3)	
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1	0.45 0.55 0.6 0.6 0.9 0.9	1.75 2.2 2.4 1.5 1.5 0 3.5 0 2.16 1.83 2.20	0 0 0 0 0	.27 .41 .51 .22 .22 0 0.7 0 .40 2 .29 2	2.64 2.64 2.6 2.72 2.85 2.15 1.8 2.65 .631 .638	

	mac1 all1 cool bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 tool dara1 rose1 epsi1 mutt1 pat1	0.54 0.55 0.59 0.59 0.55 0.55 0.546 0.61 0.62 0.56 0.57 0.57	2.17 2.21 1.97 2.36 1.99 2.21 2.05 1.81 2.16 1.83 2.43 2.12 2.45 2.35 2.25 2.27 2.25 2.29	0.40 0.42 0.34 0.49 0.36 0.28 0.40 0.29 0.46 0.39 0.45 0.43	2.631 2.630 2.64 2.608 2.635 2.630 2.634 2.638 2.607 2.64 2.465 2.632 2.440 2.523 2.63 2.581 2.63 2.548
Lit		ain Size Ma (mm)	(W/m*	deg C) (crix Cond. Correction
Sil Lim Do Eva	dstone tstone Shale estone lomite porite Coal gneous nam1 eyr1 win1 mac1 all1 coo1 bull1 cad1 mur1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1	0.5 0.0156 0.0004 0.5 0.0004 0.0001 0.0137 0.2479 0.0109 0.0125 0.0883 0.0088 0.0883 0.0069 0.0360 0.2954 0.0166 0.2678 0.0195 0.0062 0.0062 0.0095		4.4 2.1.5 2.9 4.8 5.4 0.3 2.9 2.329 3.926 2.200 2.279 2.077 3.2 1.6 3.188 2.077 2.885 4.097 2.435 3.968 1.913 2.531 1.942 1.948 1.875 2.033 1.875 2.121	270 170 -180 350 300 470 250 380 116.2 240 113 112.5 97.5 220 -110 180 97.5 157.5 247.5 133.4 252 142.2 131.2 152.9 124.9 82.5 111.3 82.5 129.2
Lit		eat Capacit			
Sil Lim Do Eva	dstone tstone Shale estone lomite porite Coal gneous nam1	280 265 210 260 260 175 95 250 2564	0 0 0 0 0 0 0	0 0 0 0 0 0	

eyr1 win1 mac1 all1 cool bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1		2754 2513. 2558. 2725 2210 2662 2535. 2627. 2765. 2536 2773 2240. 2587. 2202 2341 2512. 2447. 2512. 2402.			
Lithology Fluid Flow Lithology Name		Initial Porosity B	A	B (1/Pa)	Fraction A
Sandstone Siltstone Shale Limestone Dolomite Evaporite Coal Igneous nam1 eyr1 win1 mac1 all1 coo1 bull1 cad1 mur1 mck1 namu1 bir1 hut1 pool1 napp1 too1 dara1 rose1 epsi1 mutt1 pat1	0.5500 0.6000 0.6000 0.6000 0.9000 0.9000 0.5625 0.5625 0.5525 0.5625 0.5625 0.5625 0.5625 0.5625 0.5625 0.5625 0.5625 0.5625	0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.4500 0.	-0.800 -0.800	1.350000e-08 0.000000e+00 0.000000e+00 0.000000e+00 1.350000e-08 0.00000e+00 1.350000e-08	0.000 1.000 1.000 1.000 0.000 0.000 0.820 0.160 0.855 0.840 0.920 0.500 1.000 0.480 0.920 0.120 0.120 0.120 0.1860 0.120 0.120 0.1860 0.120 0.1860 0.120 0.1860 0.1860
Lithology Name	Ini Permeabi (milliDar		neabilit Powe	_	
Sandstone Siltstone Shale Limestone	1.013171 1.013171	le-01 le-01	5.50 5.50 5.50 5.50	00 00	

```
Dolomite 2.786221e+04

Evaporite 1.013171e-08

Coal 1.013171e-01

Igneous 1.013171e-08

nam1 9.655232e-01

eyr1 3.755972e+03

win1 6.228538e-01
                                                   5.500
                                                   5.500
                                                   5.500
                                                   5.500
                                                   5.500
                                                   5.500
                    mac1 7.515815e-01
                                                   5.500
                    all1 2.759494e-01
                                                   5.500
                    cool 5.313115e+01
                                                   5.500
                  bull1 1.013171e-01
                                                  5.500
                                                   5.500
                    cad1 6.825522e+01
                    mur1 2.759494e-01
                                                   5.500
                    mck1 1.518504e+01
                                                   5.500
                  namu1 6.198629e+03
                                                   5.500
                   bir1 2.047023e+00
                                                  5.500
                   hut1 2.923719e+03
                                                  5.500
                  pool1 5.850452e-01
napp1 2.629719e+00
                                                   5.500
                                                   5.500
                    too1 8.518624e-01
                                                   5.500
                  dara1 4.017996e-01
                                                   5.500
                                                  5.500
5.500
                  rosel 1.013171e-01
epsil 3.544999e-01
muttl 1.013171e-01
patl 7.515815e-01
                                                   5.500
                                                   5.500
Geothermal Gradient Table
  Time Depth 1
  (Ma) (m)
     0 - 0
Ma rity conversion method: Table
TT1 = 4.191876 + 1.817512 * log10(Ro)
Data fit: Least Squares
Model Units
                            Depth = (m)
                        Distance = (m)
          Thermal Conductivity = (W/m*deg C)
Heat Capacity = (kJ/m^3*deg C)
Heat Flow = (mW/m^2)
                     Temperature = (deg C)
                Heat Generation = (muW/m^3)
                        Gradient = (deg C/100 m)
             Activation Energy = (kcal/mole)
               Frequency Factor = (1/my)
                      HC Density = (g/cm^3)
                         Pressure = (MPa)
                      Grain Size = (mm)
               Seismic Velocity = (m/s)
                      Event Time = (msec)
                         Maturity = (%Ro)
                  HC Generation = (mg/g TOC)
Calculation Options
                      Compaction = Sclater & Christie
         Porosity Depth Method = Linear
  Permeability Calculation = Modified Kozeny-Carman Geothermal Calculation = Gradient
          Maturity Calculation = LLNL
         Expulsion Calculation = None
                  Time Interval = 1.00
                 Depth Interval = 1000.00
```

Integrate Depth = No

Advanced Options

TTI Reference Temp = 105.00

TTI Doubling Temp = 10.00

Rock-Eval Correction = 35.00

Thermal Gain = 1.000

tical Fracturing Fraction = 0.850

Fracture Closure Rate = 0.050 Conductivity Calculation = Deming/Chapman

Initial S1 = 3.00

Rifting HF Options

Use Rifting Heat Flow = No

Start Rift Time = 0.00

End Rift Time = 0.00

Auto-Calc Beta = No

Rifting Heat Flow Beta = 2.00

Present Day Info

Model Name = TOOLACHEE-36 ERo.

Model Description =

Current Surface Temp = 20.00 Current Elevation = 0.00

Current Heat Flow = 63.00

Seismic Parameters

Shot Point = 0

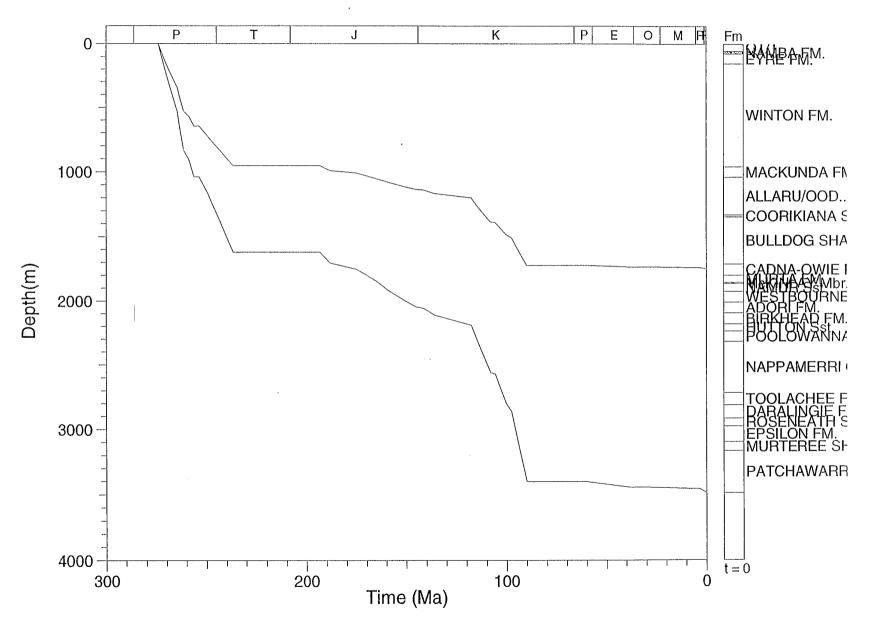
X = 0.00000000

Y = 0.00000000

APPENDIX II

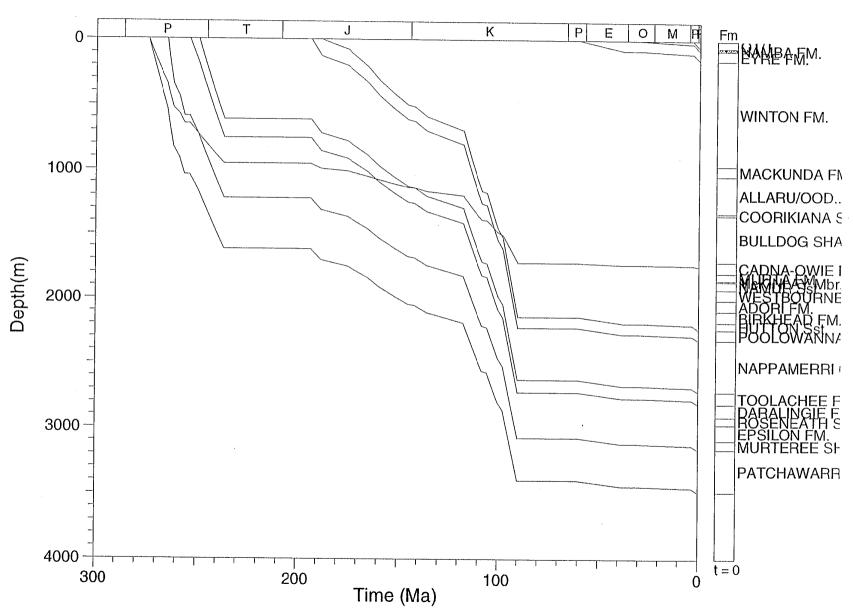
BURIAL HISTORY AND INTERPRETIVE BURIAL HISTORY DIAGRAMS





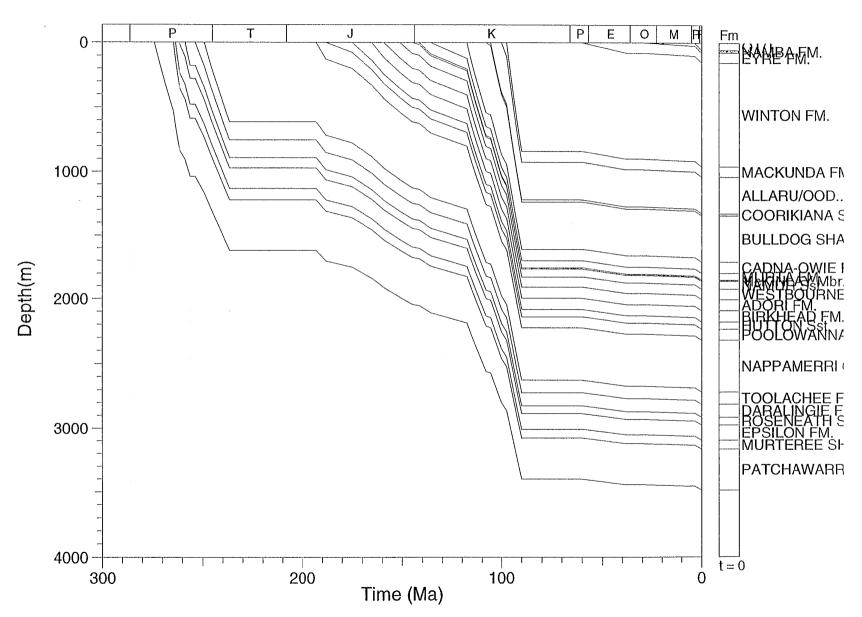


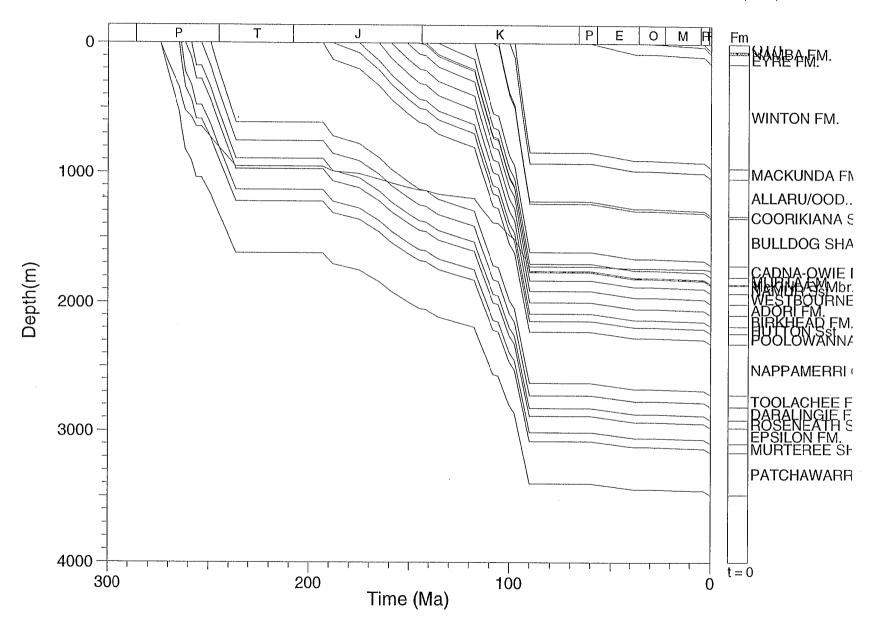




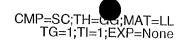
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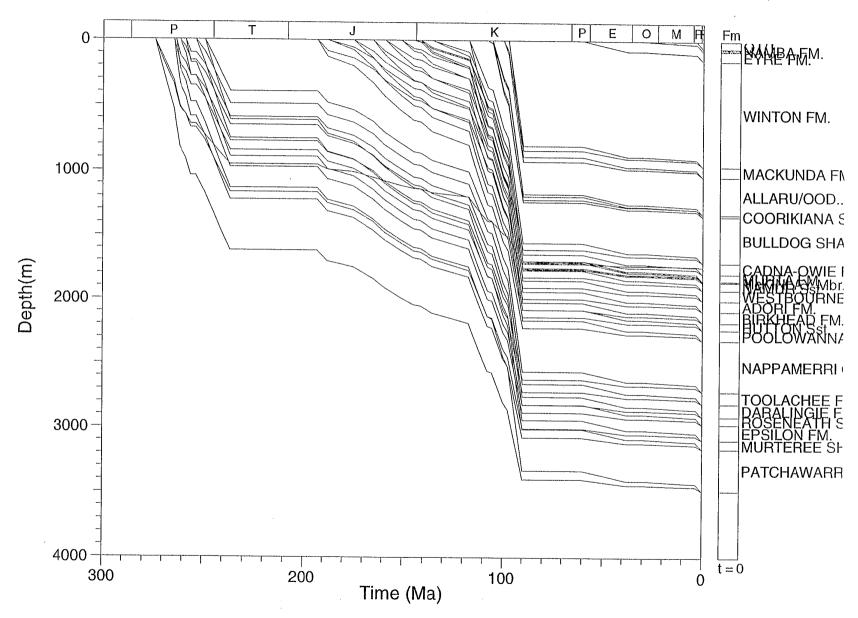




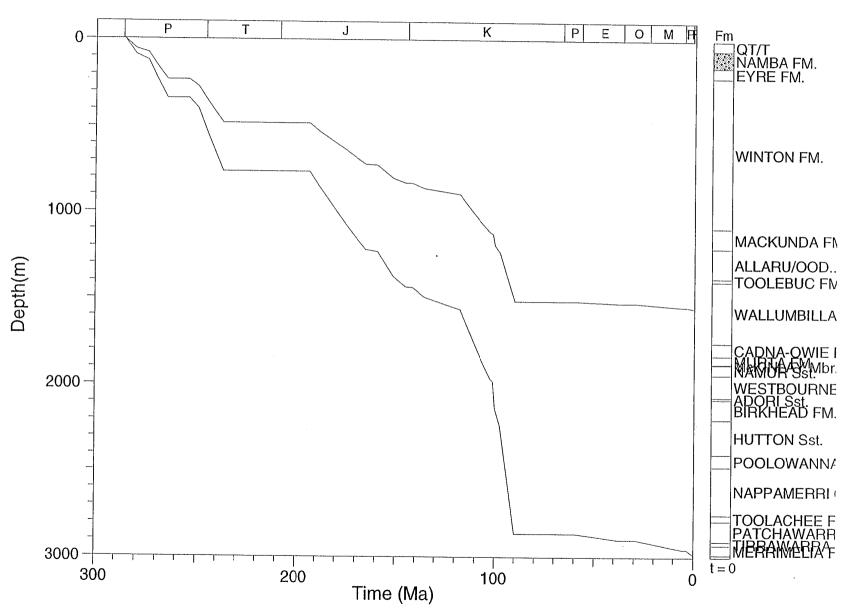




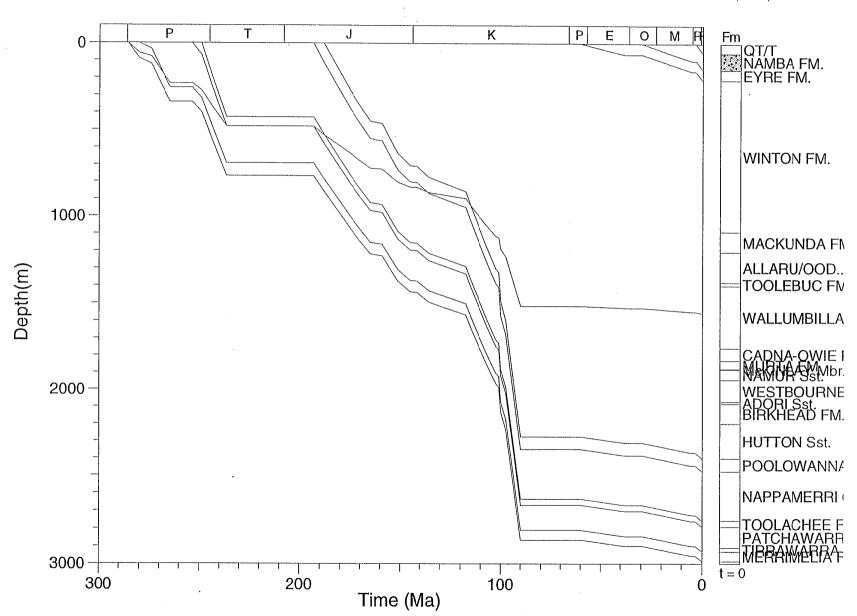




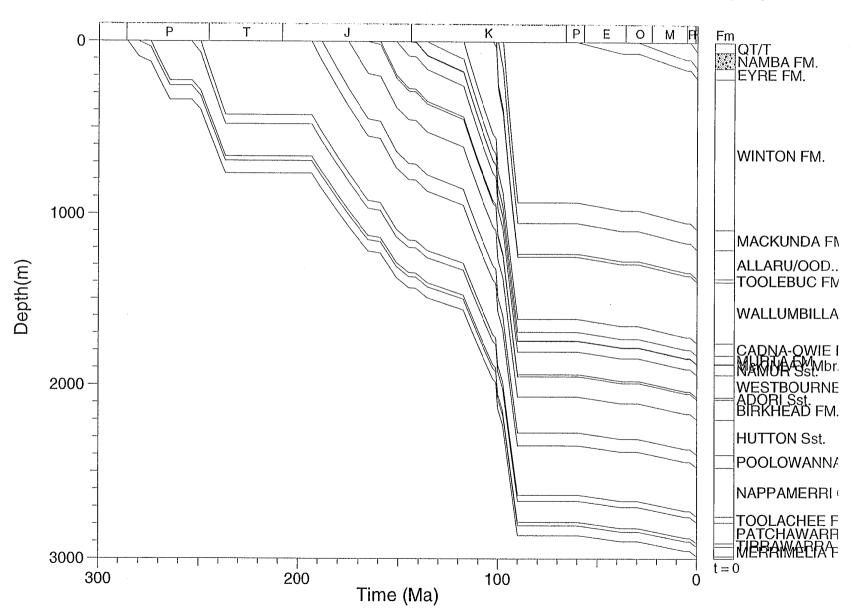






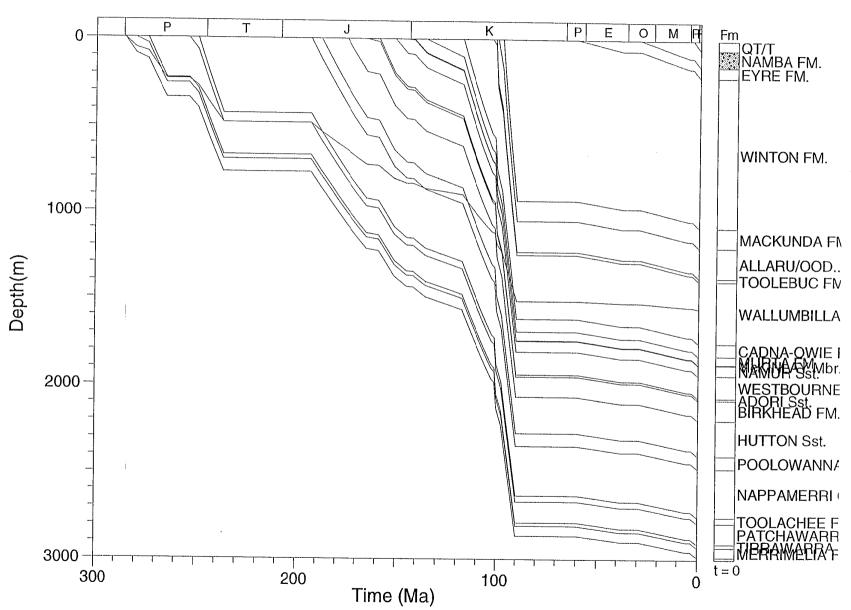


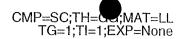


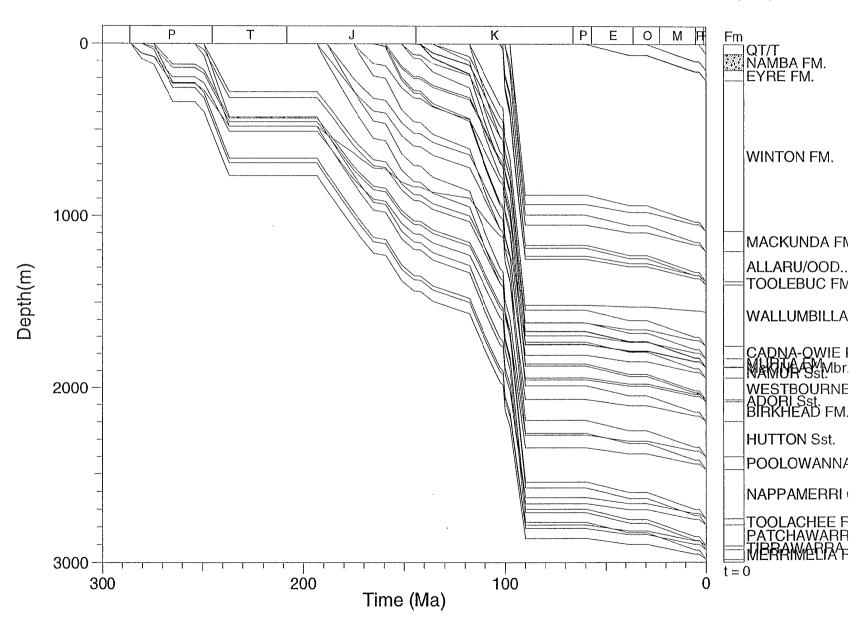






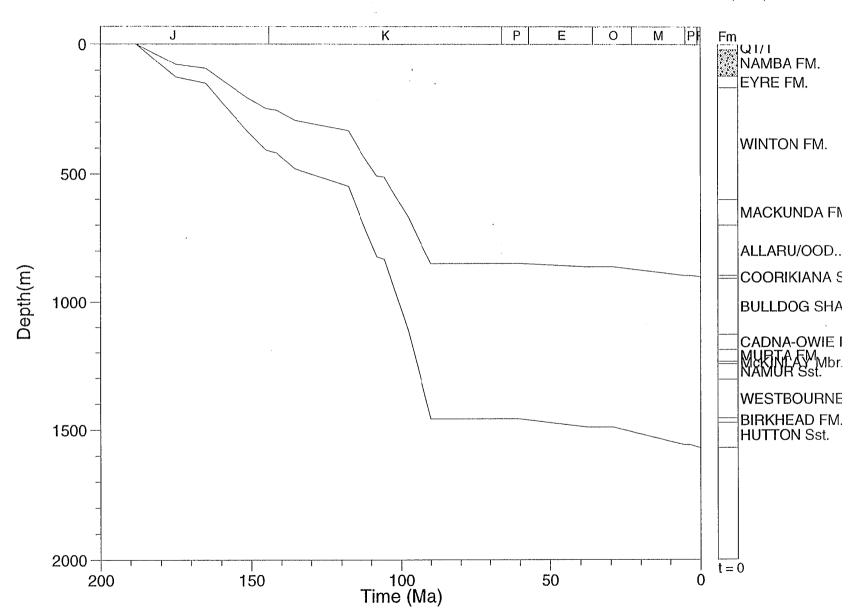






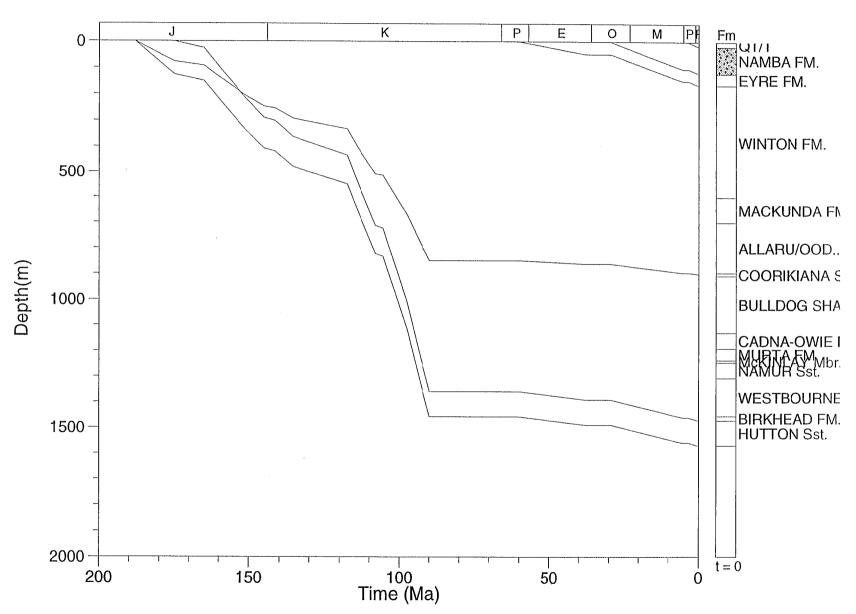


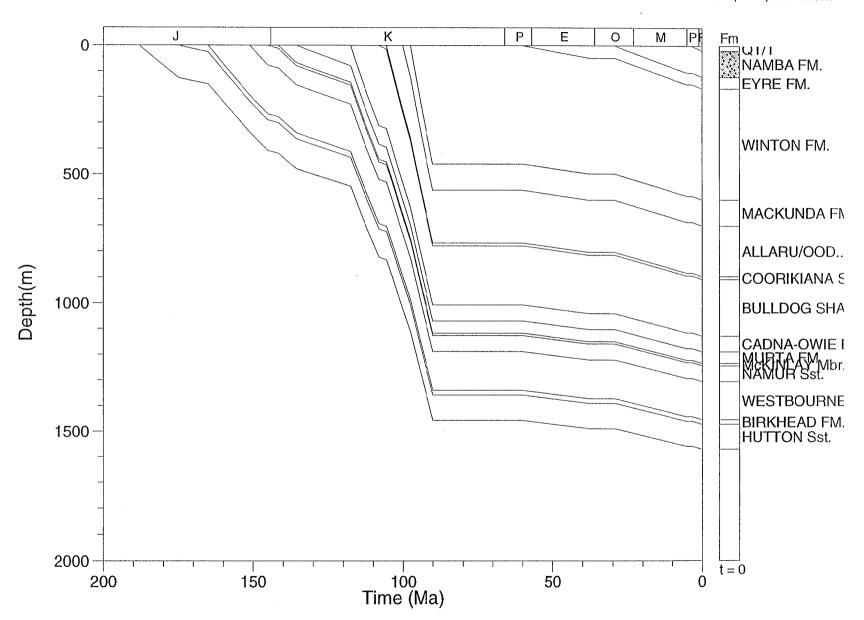






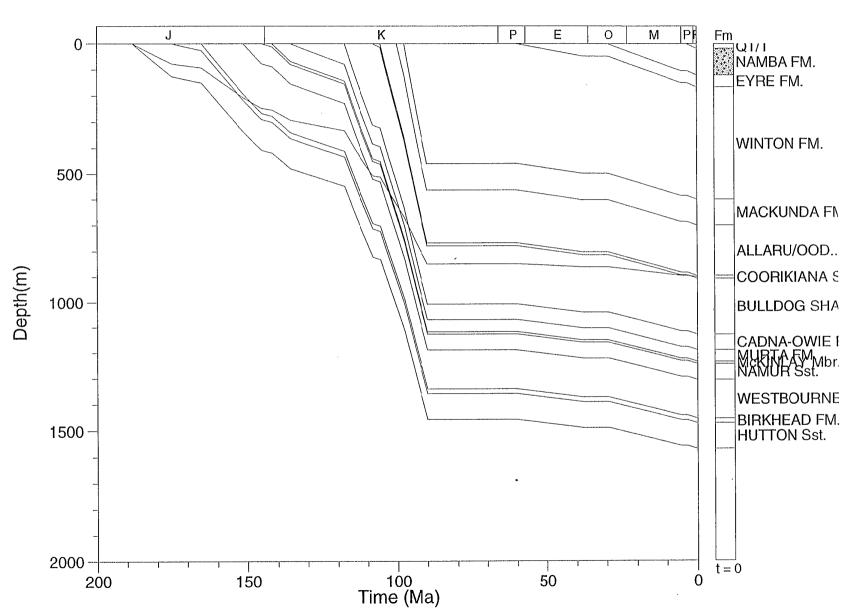






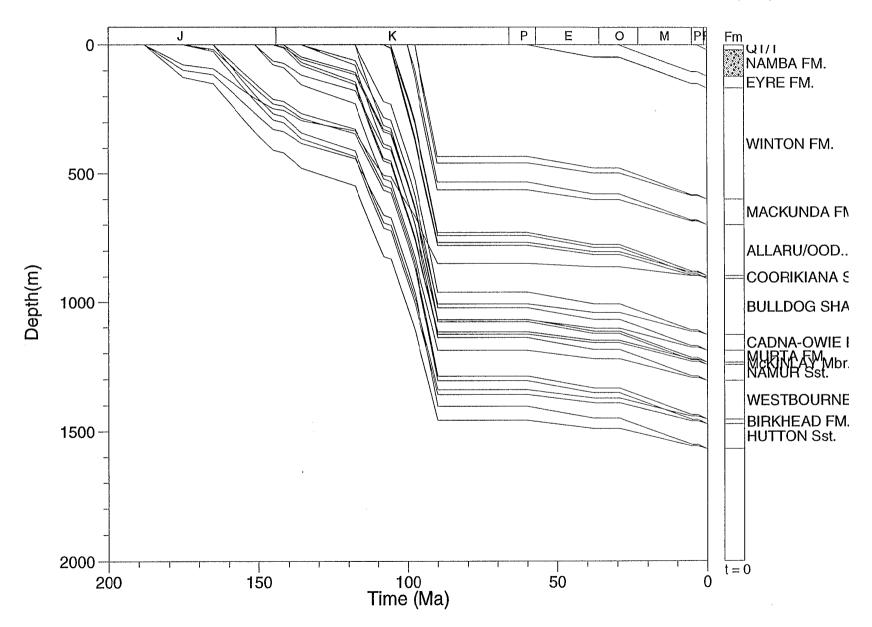


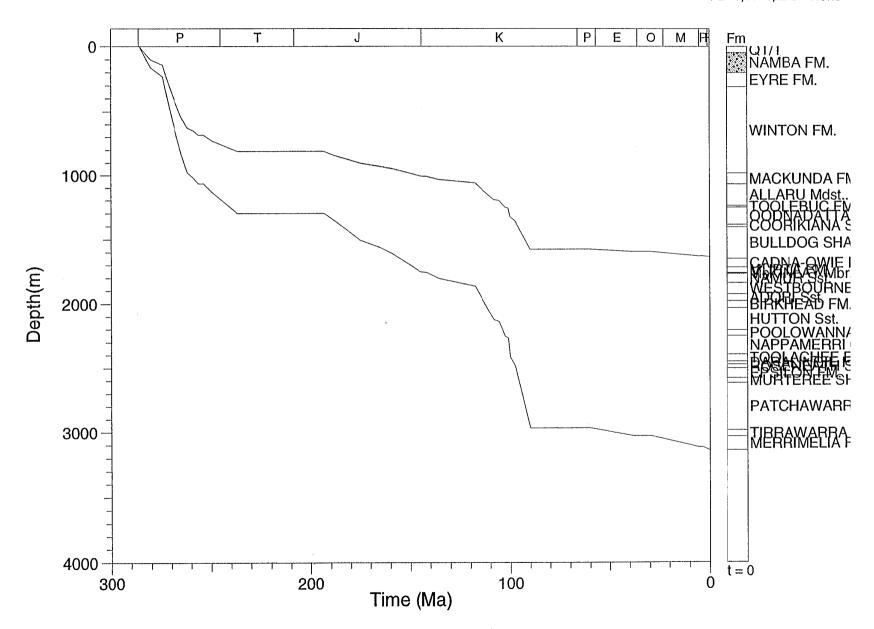






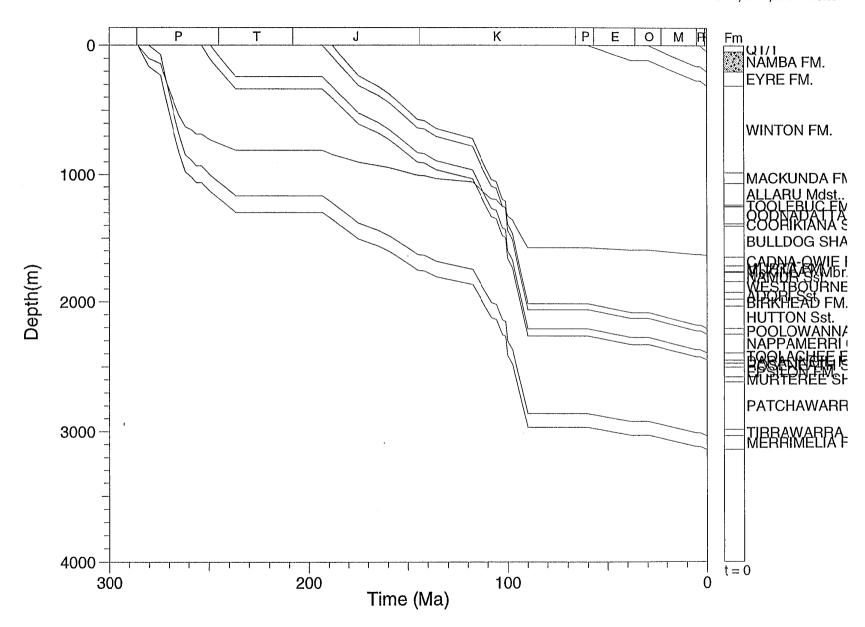






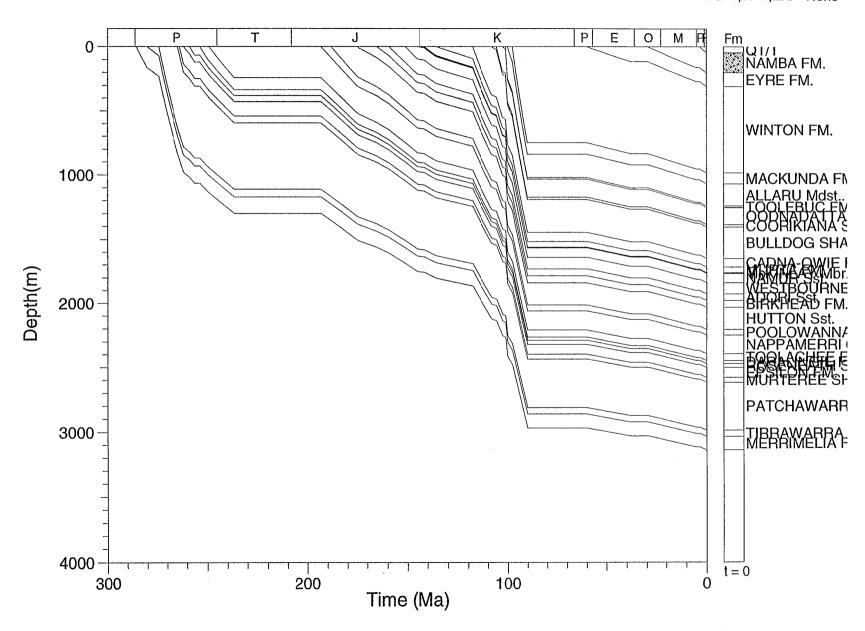
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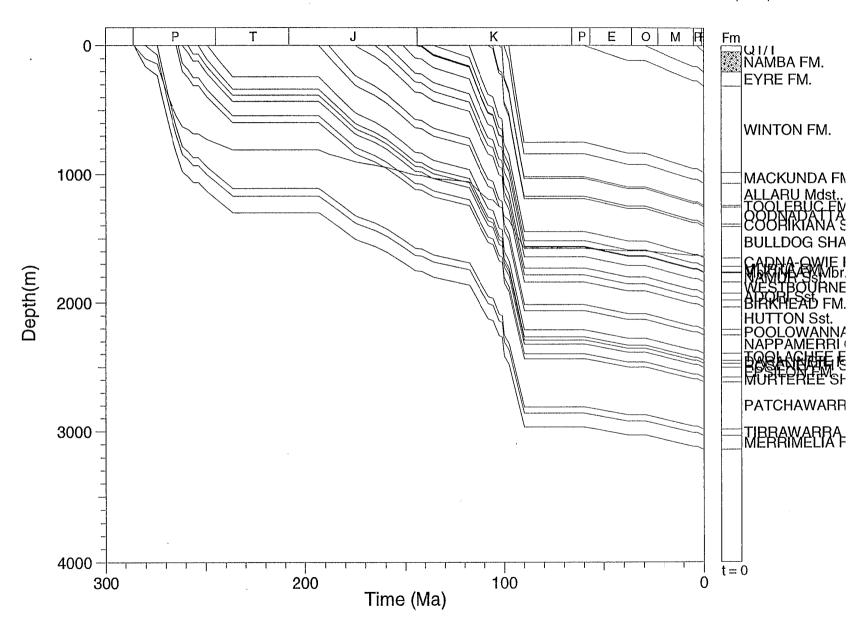






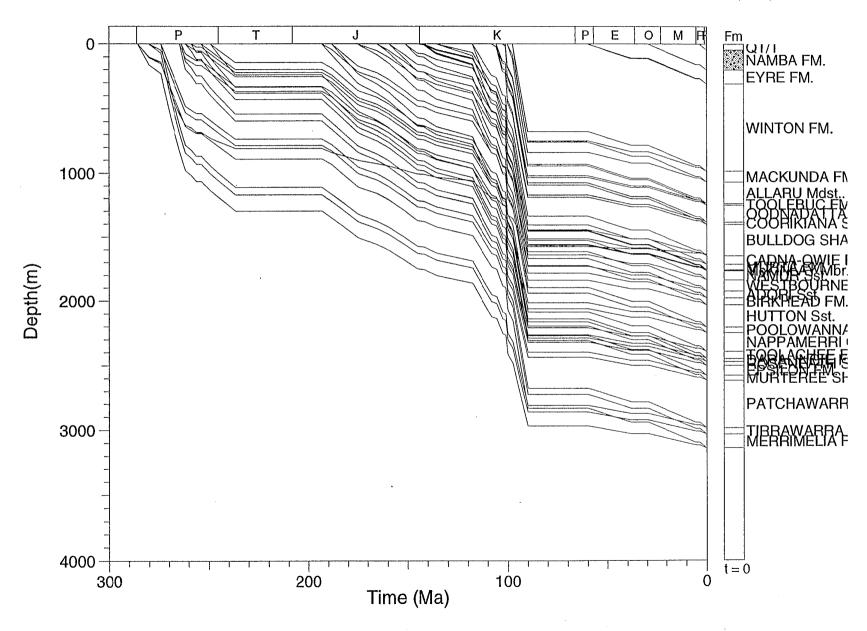






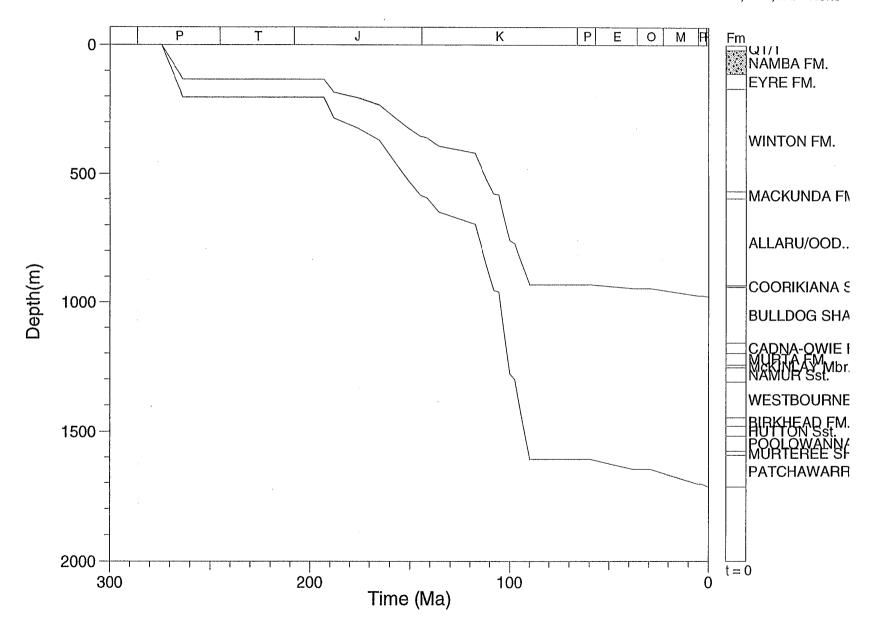






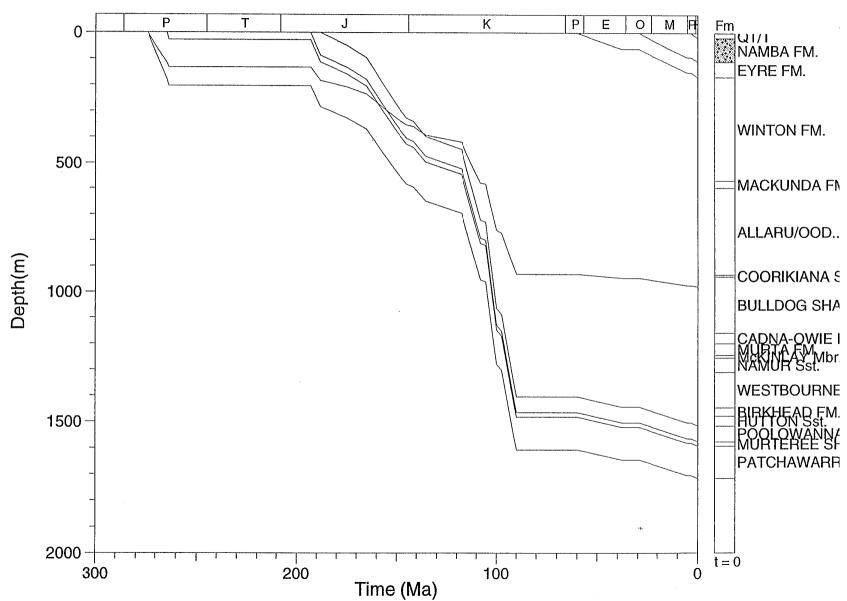


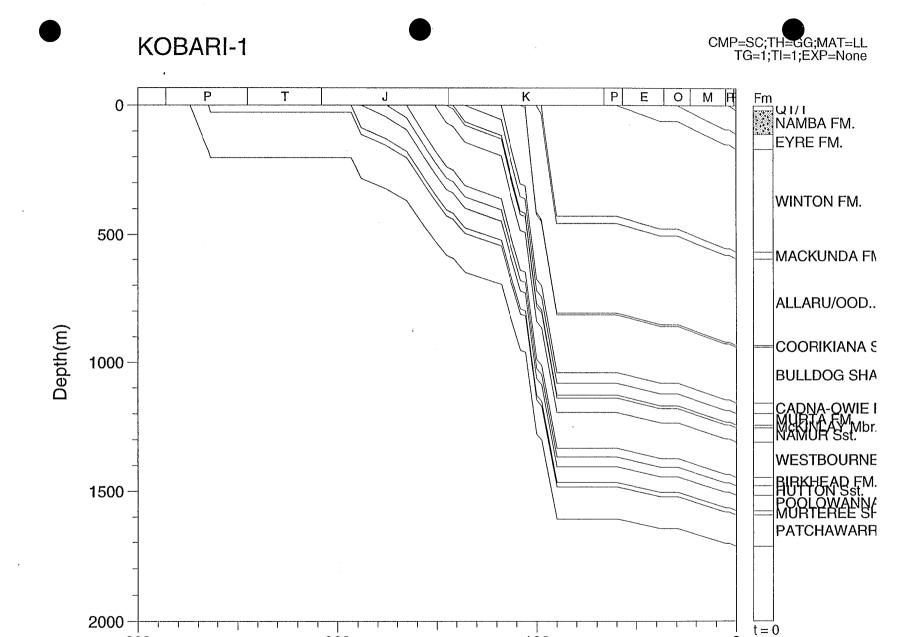




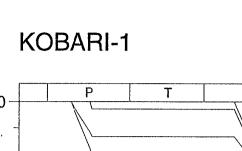




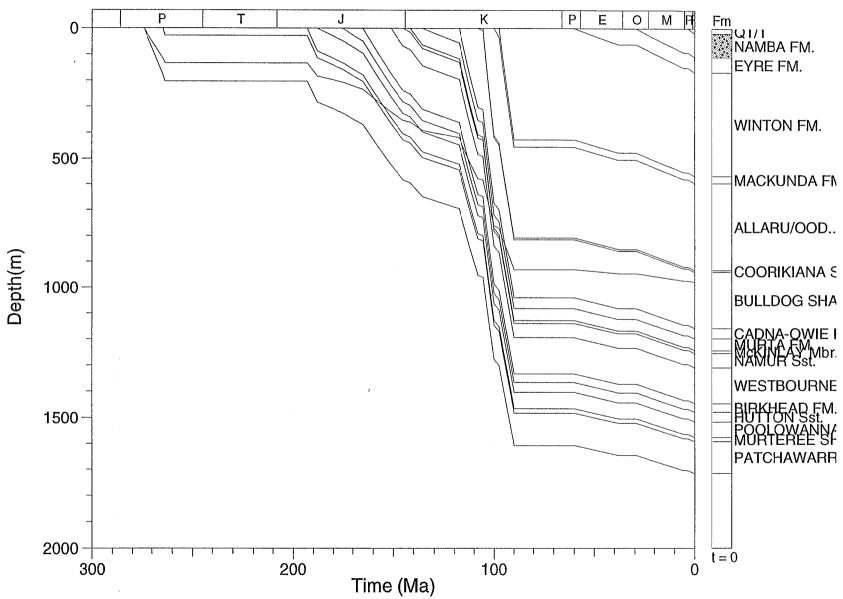


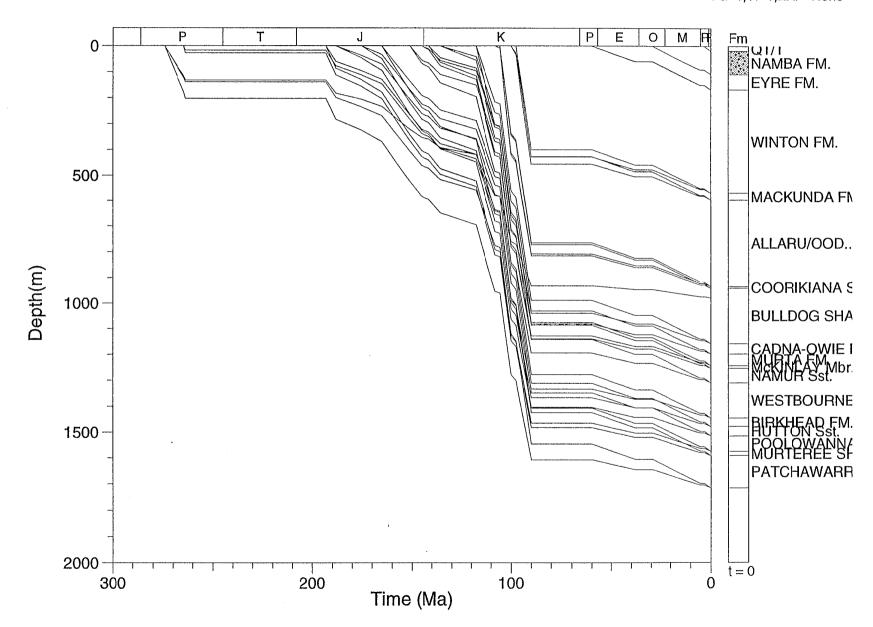


Time (Ma)



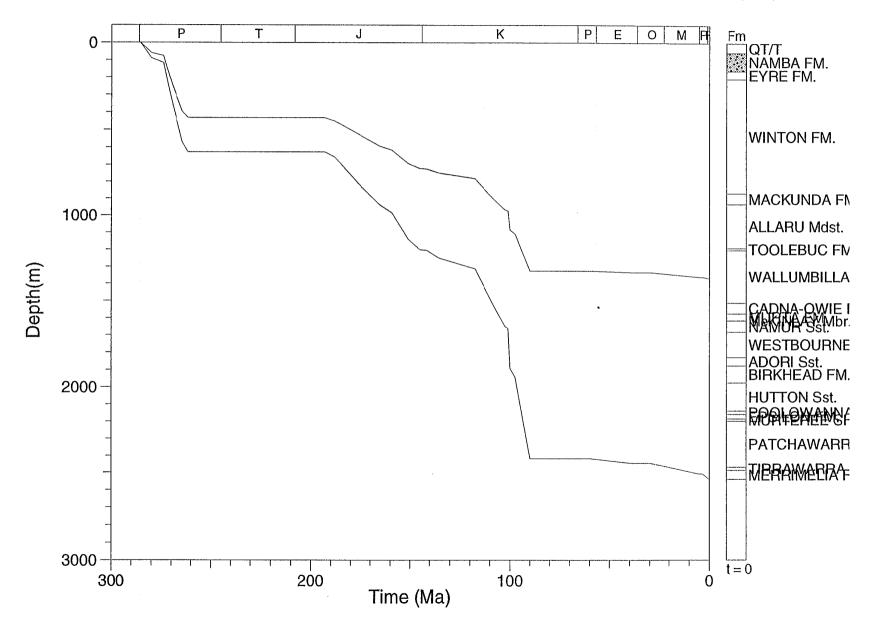






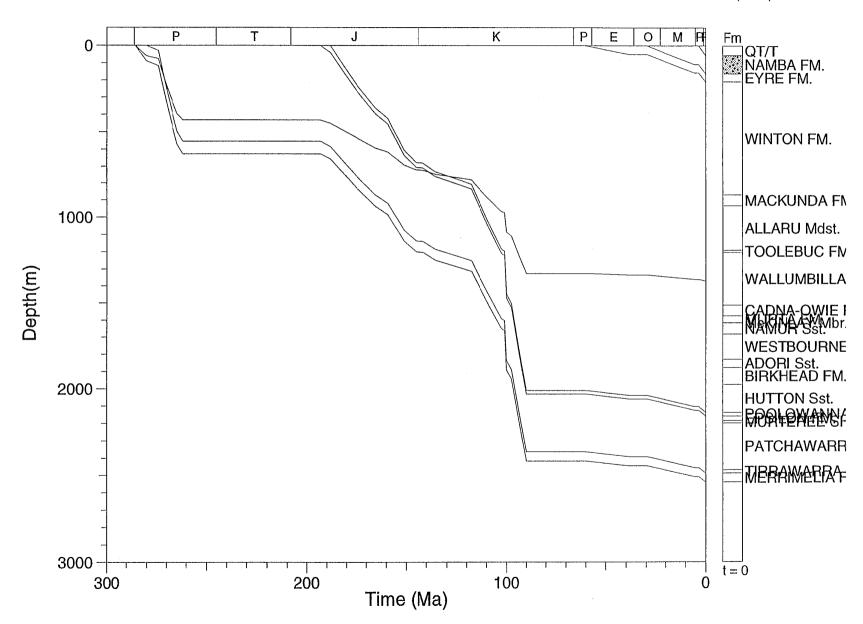






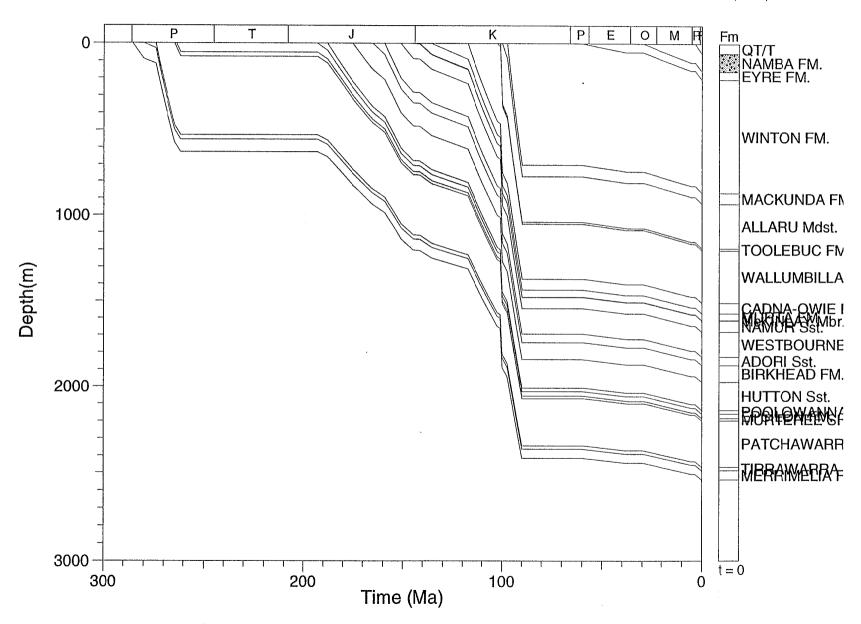
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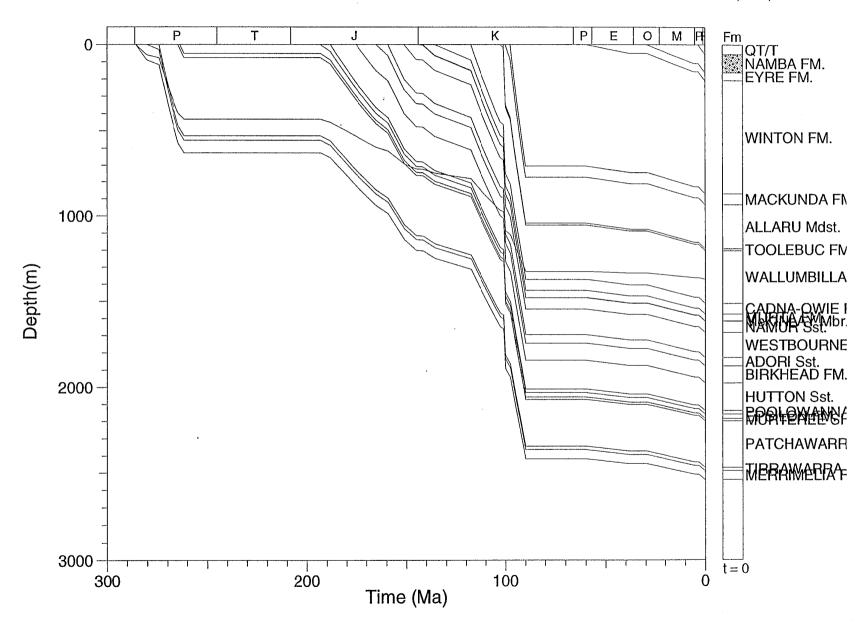






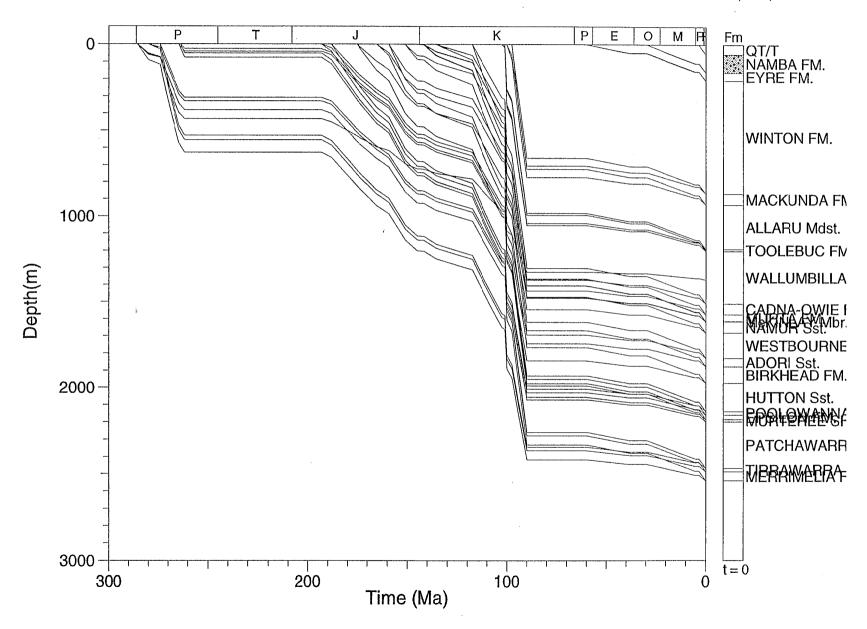
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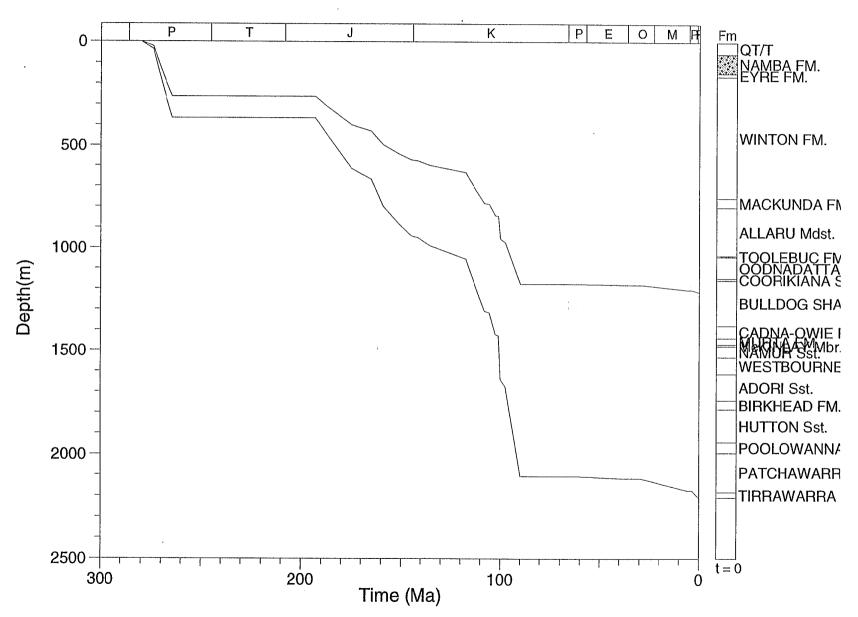






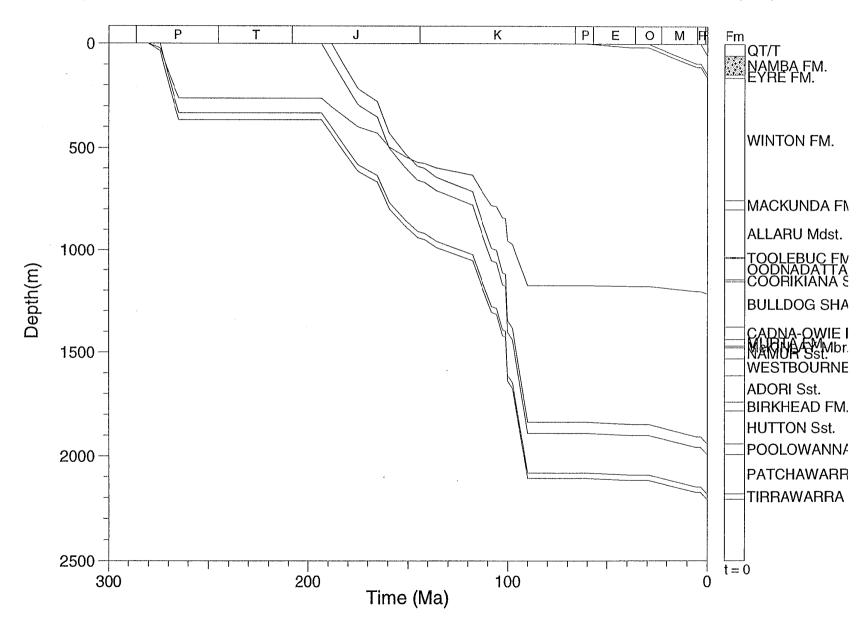






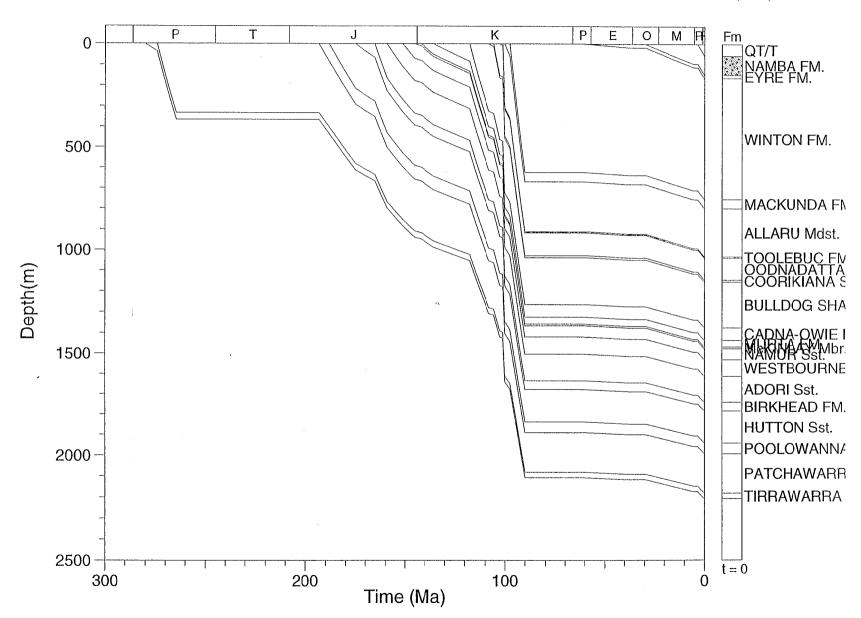






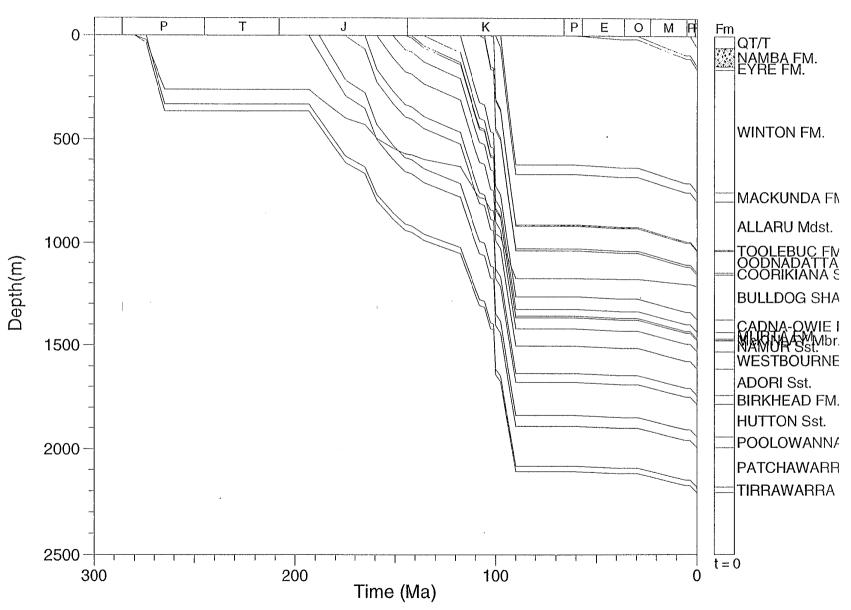


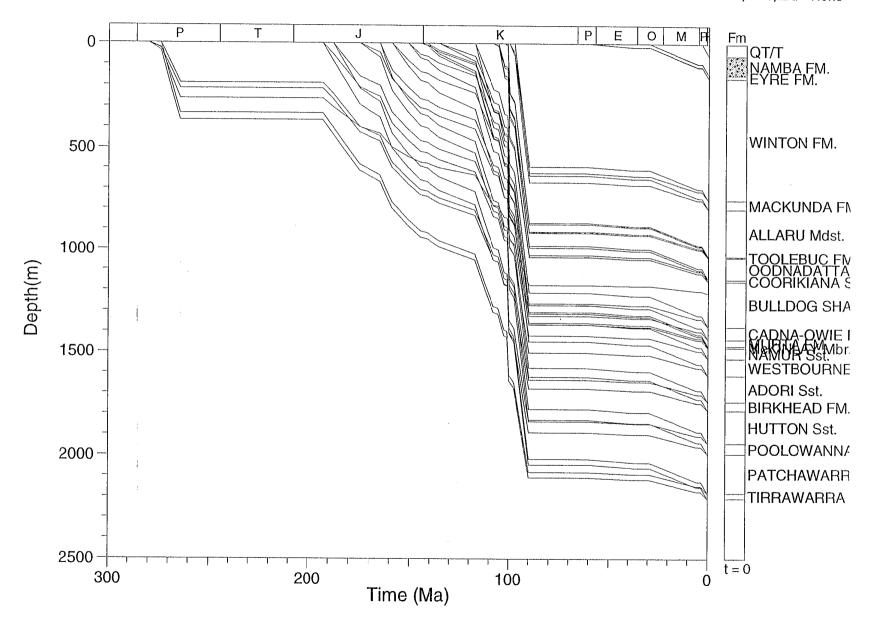


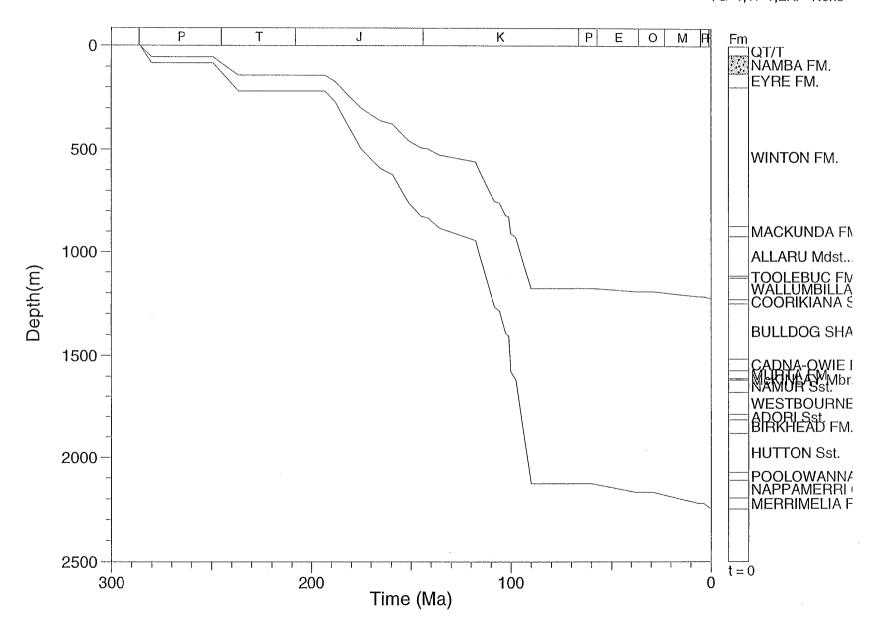






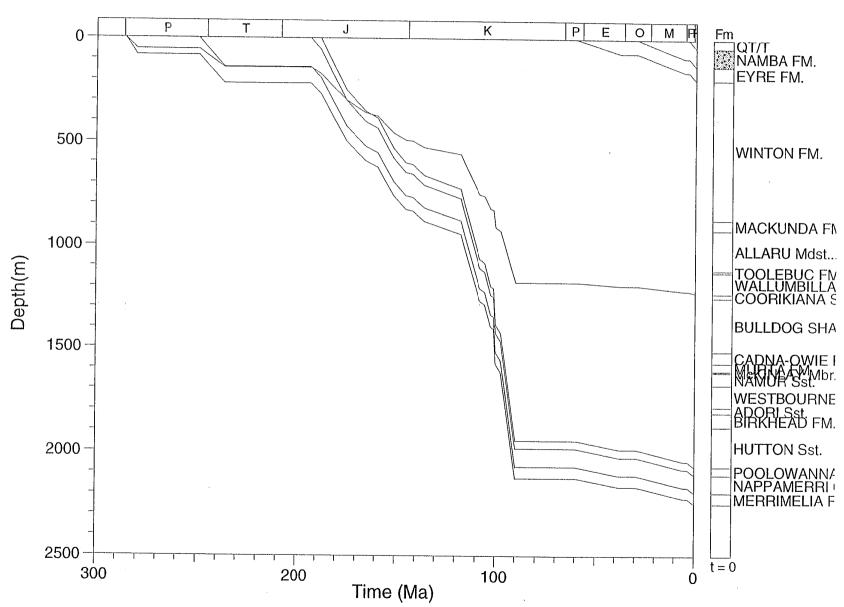






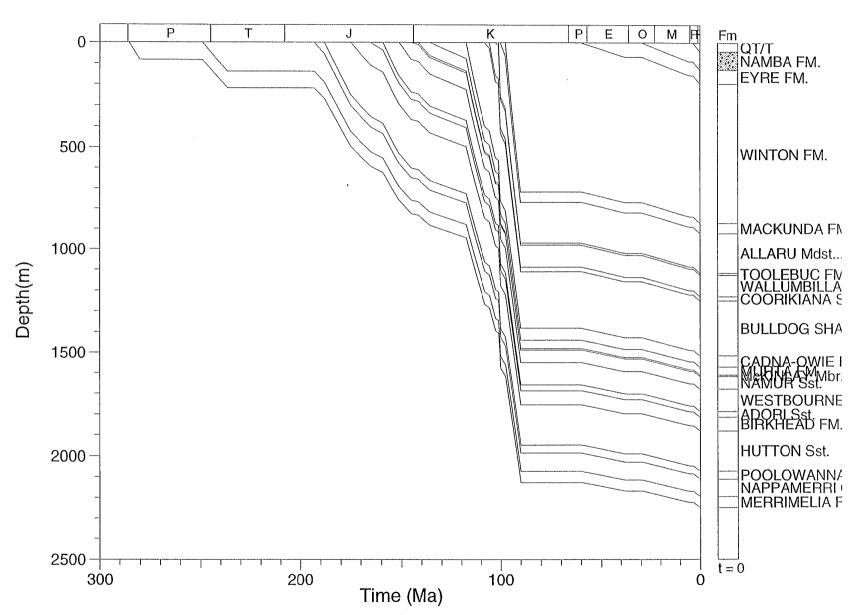






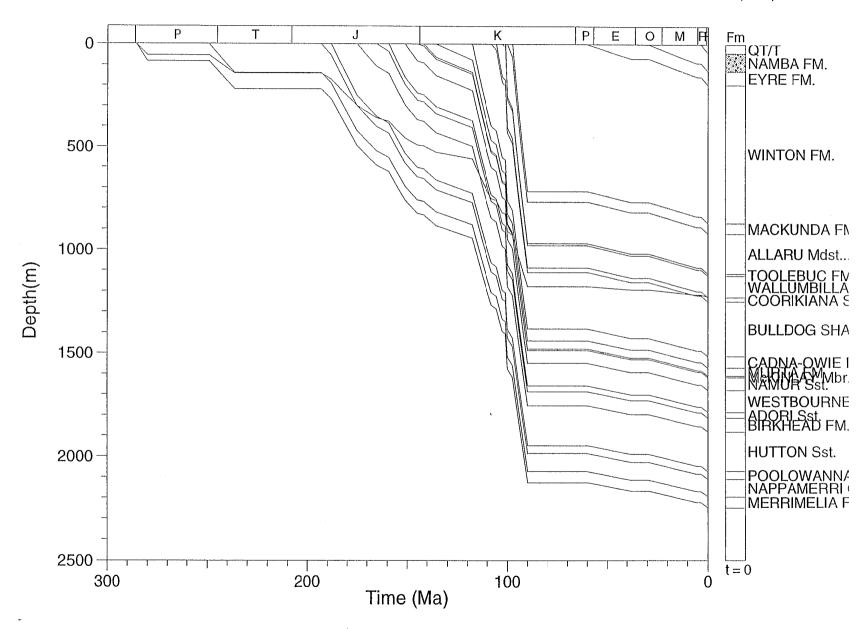
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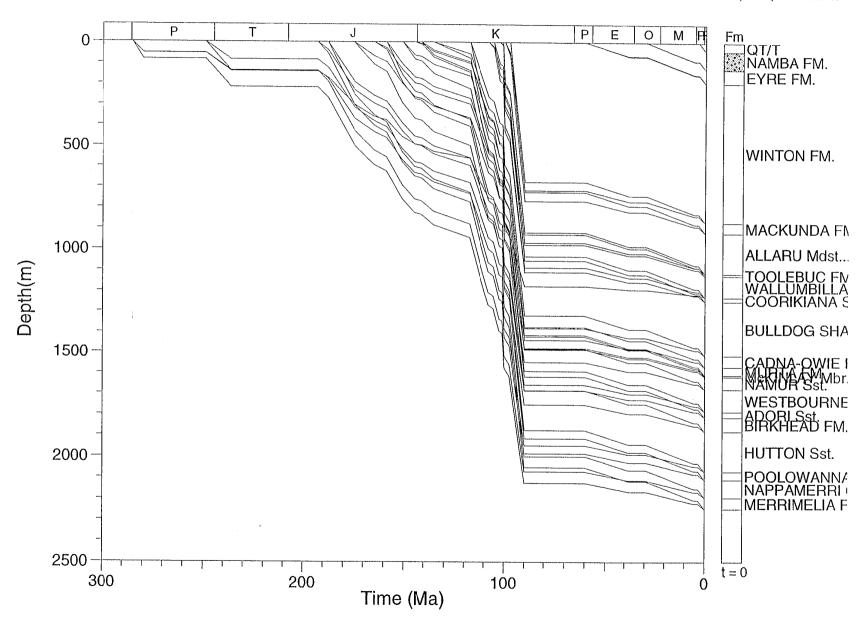


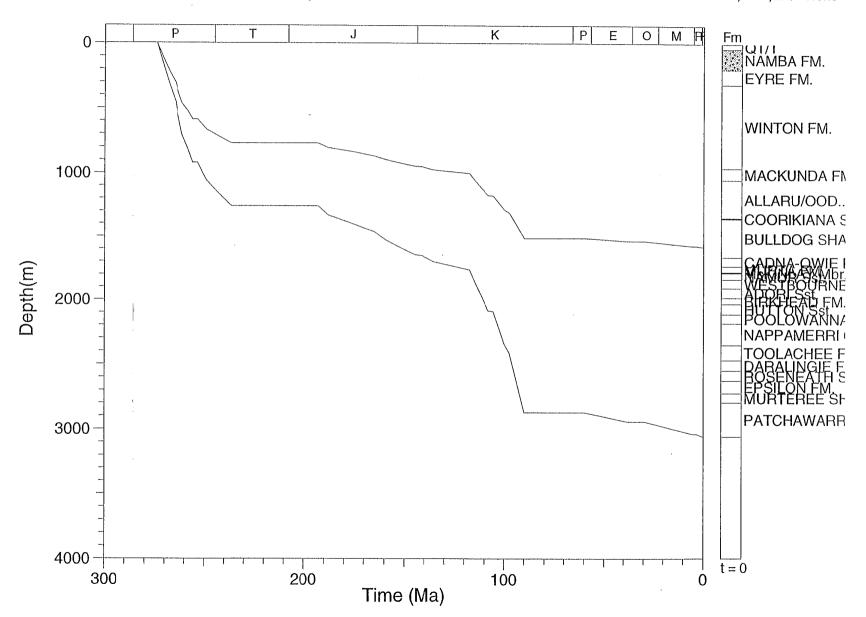


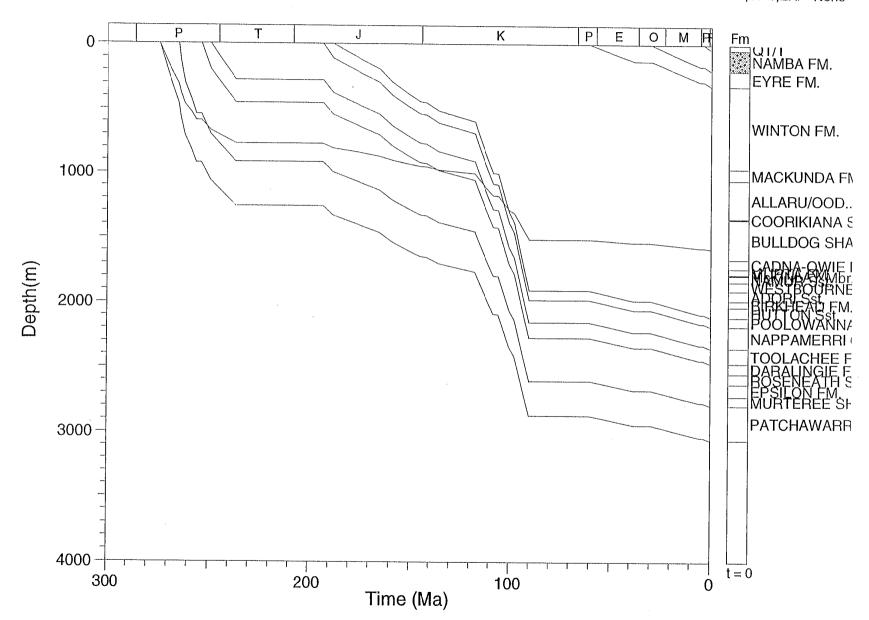




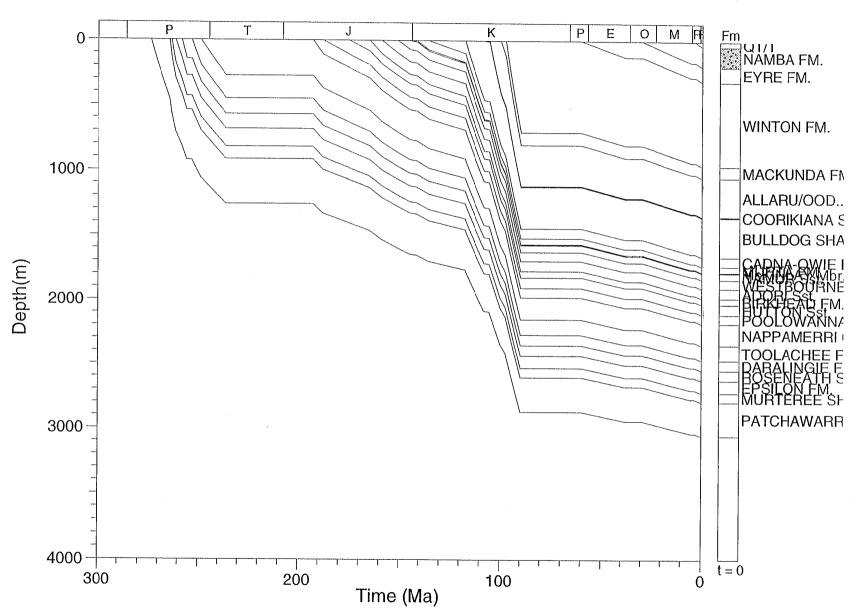






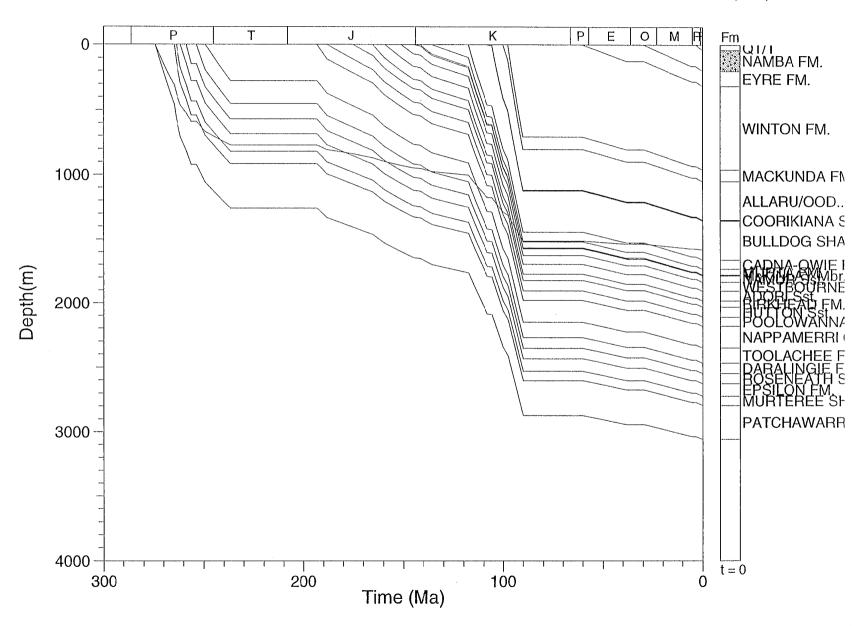


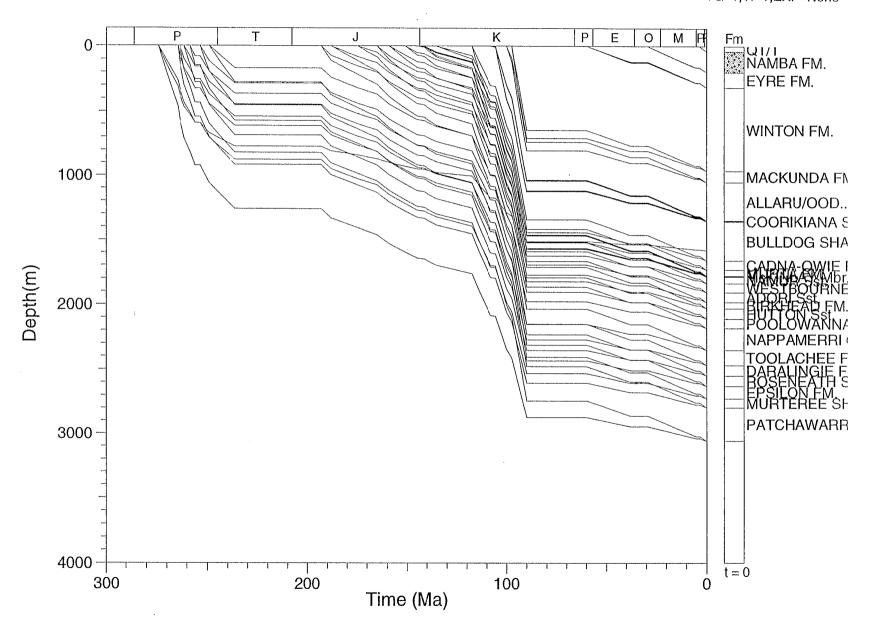






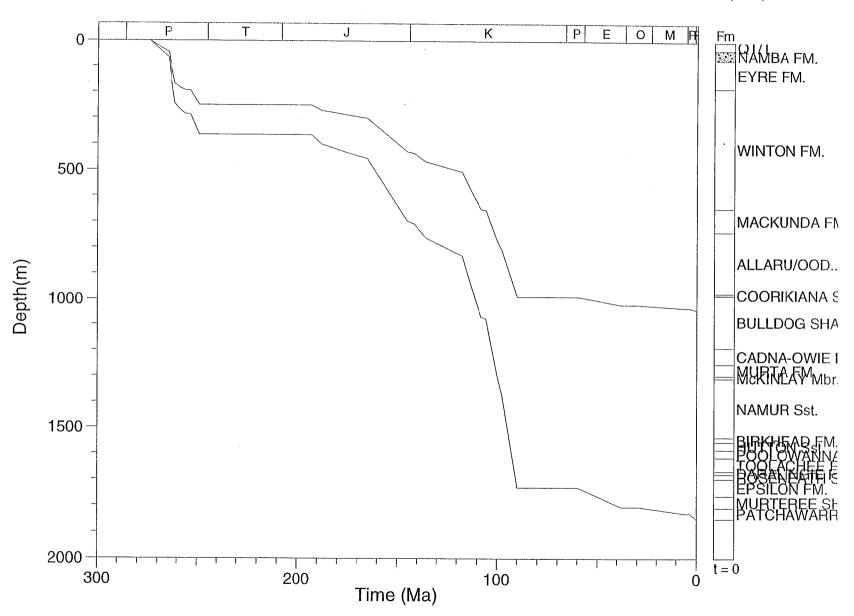


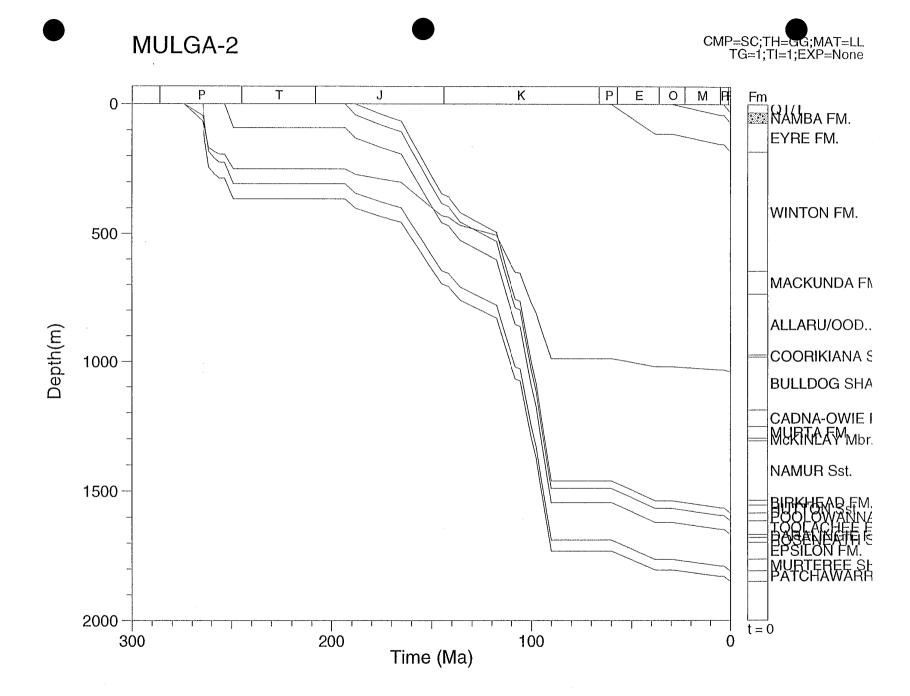






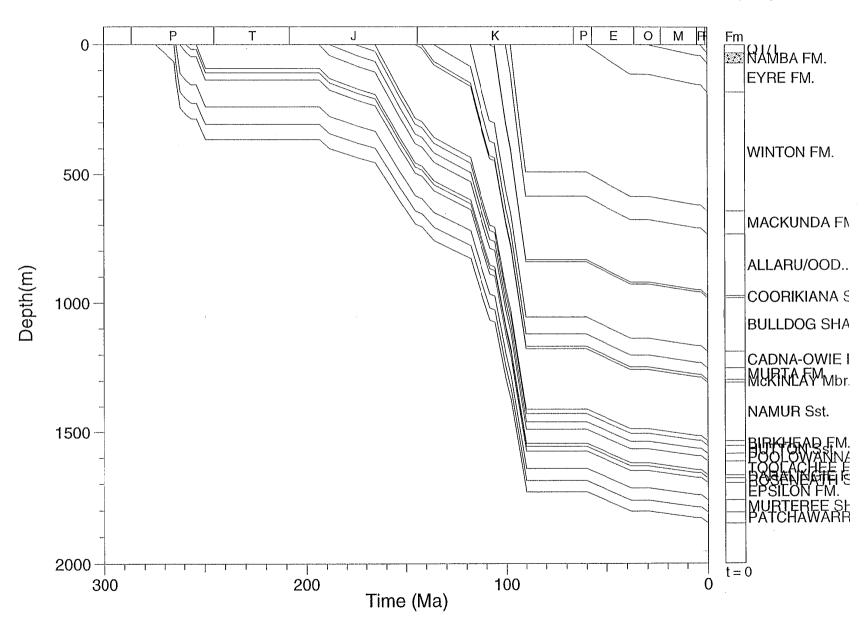


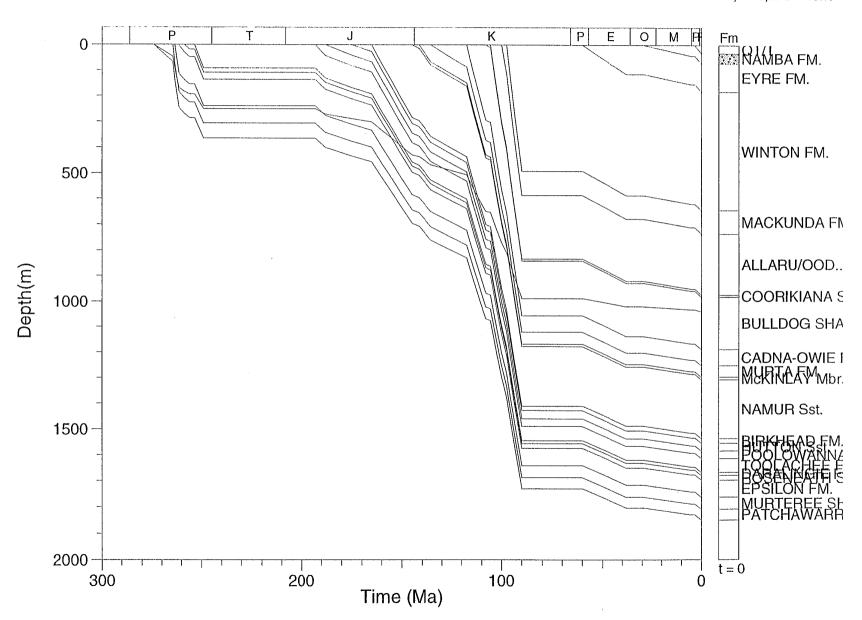






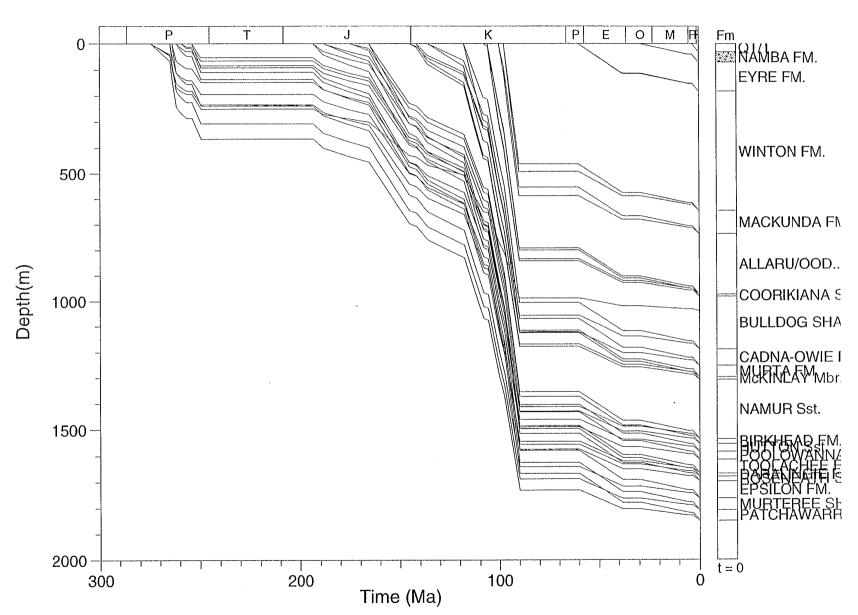






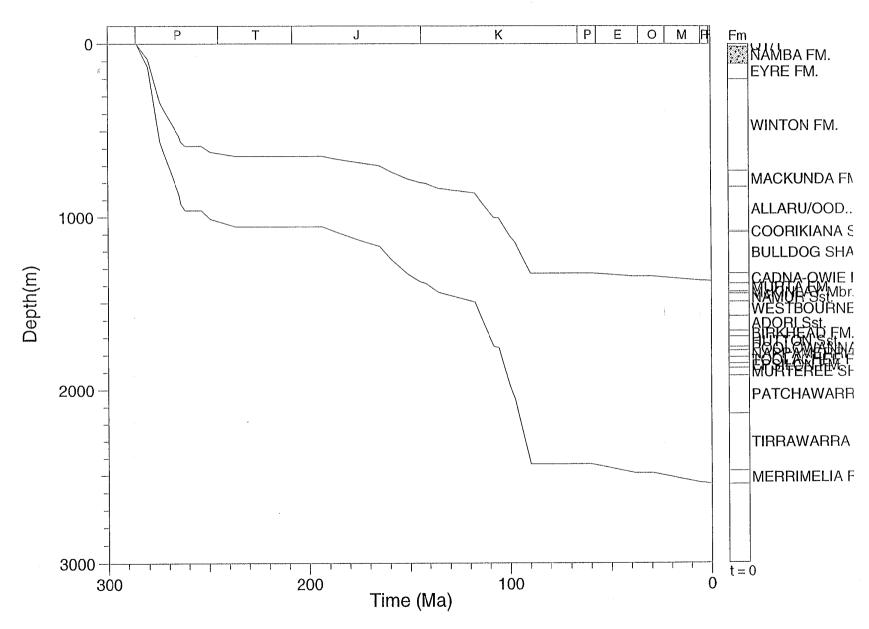


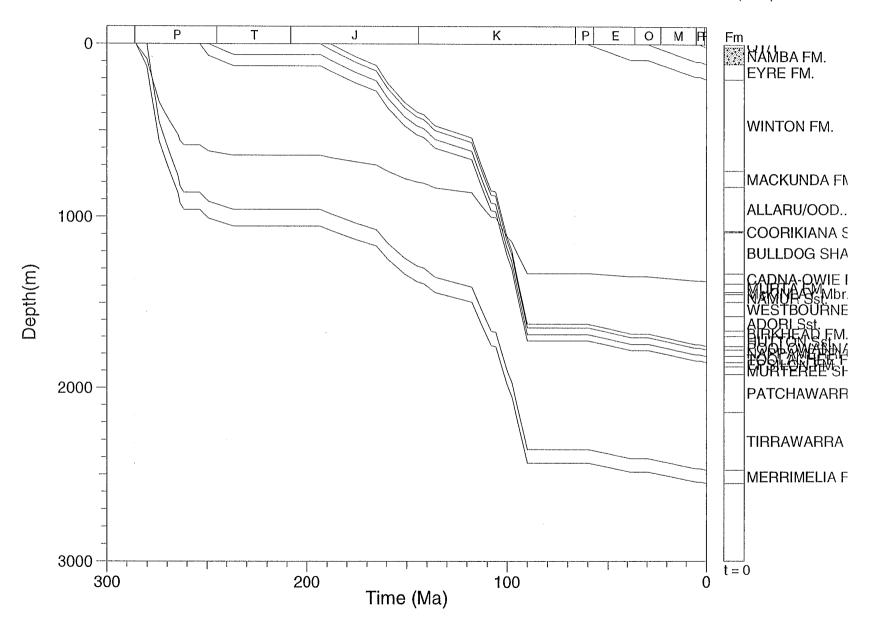






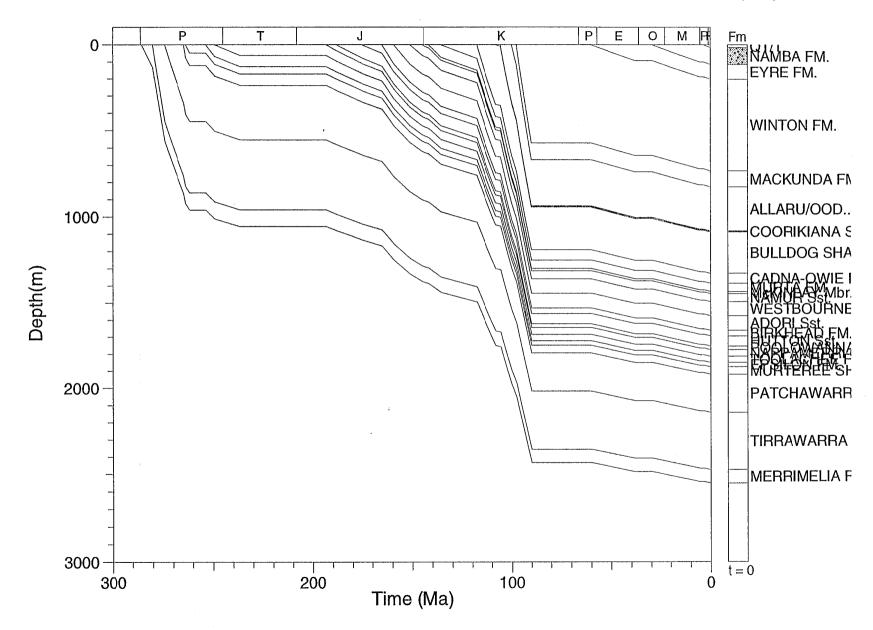






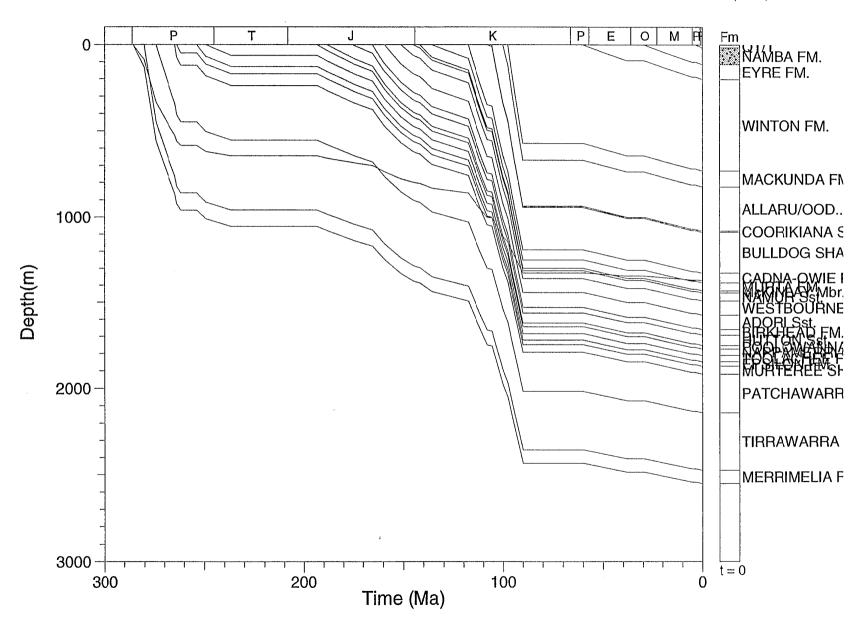


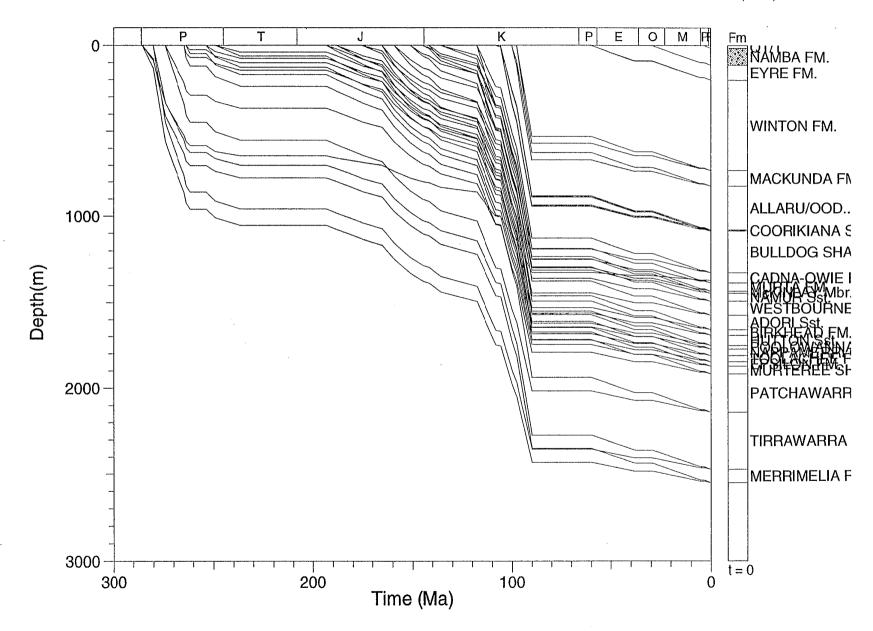






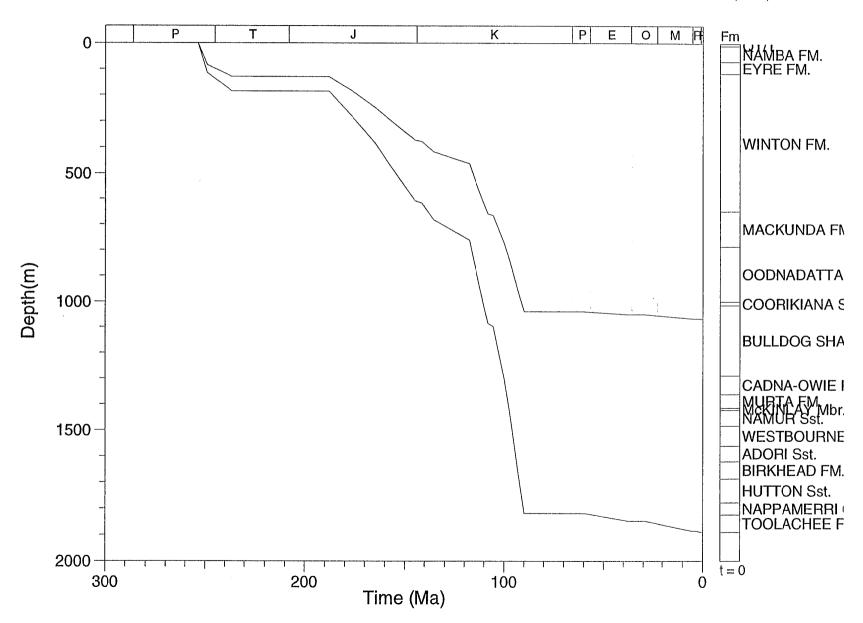






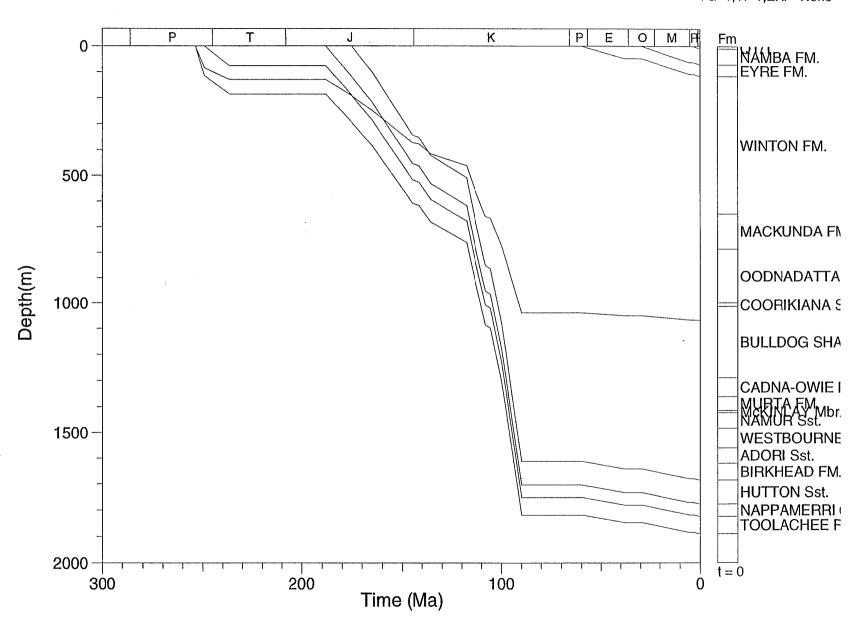
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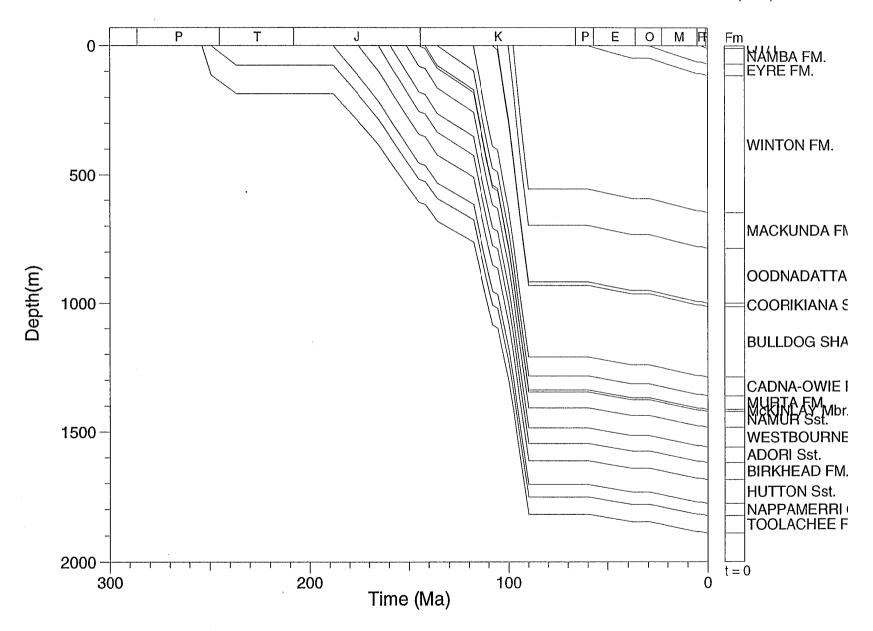






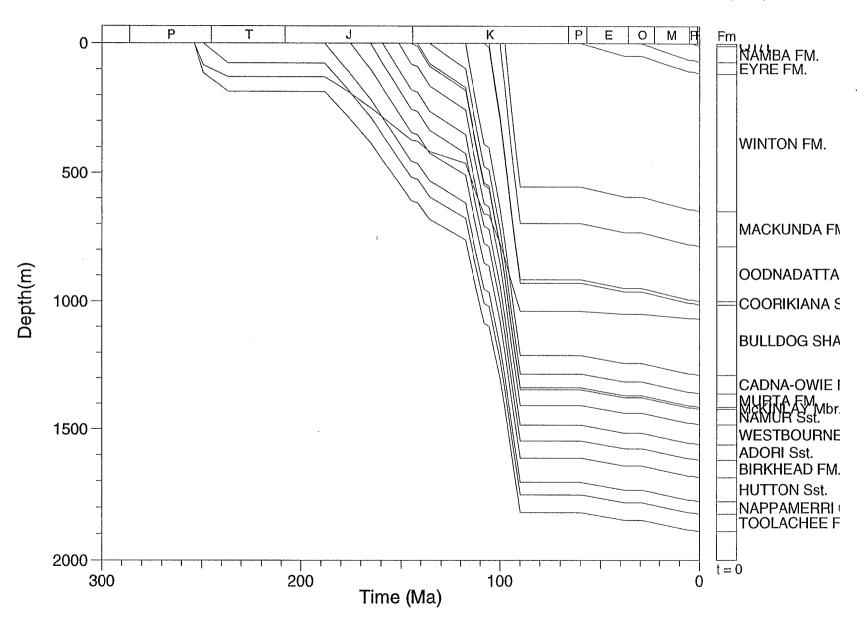
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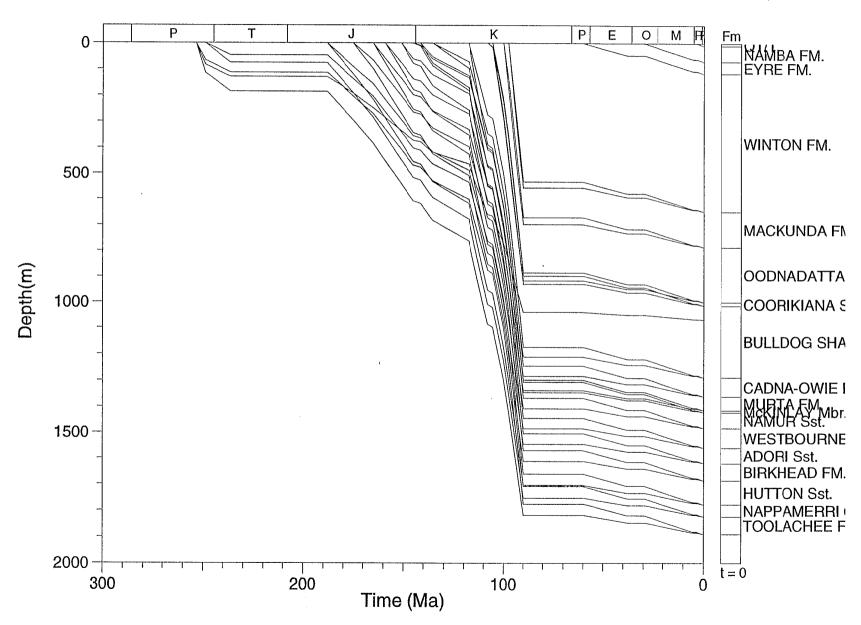




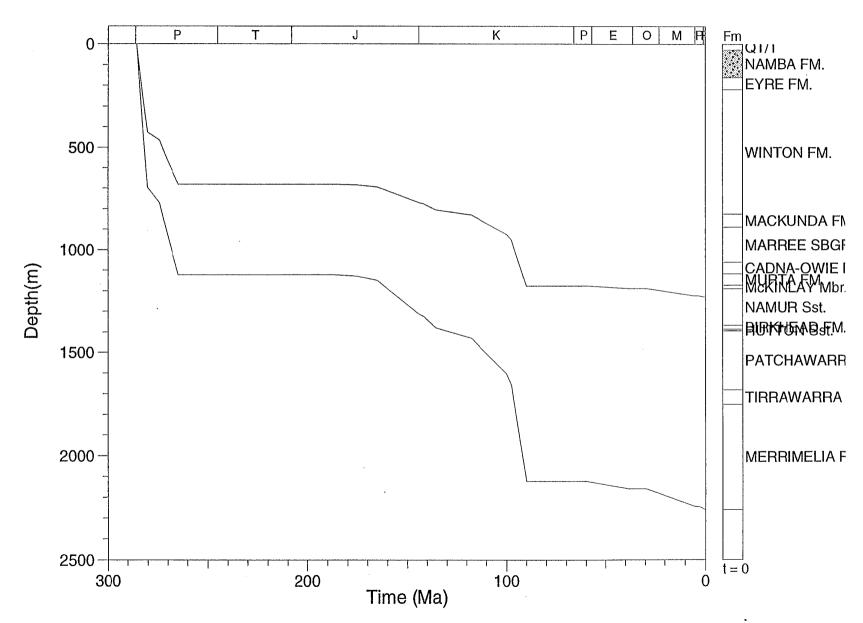




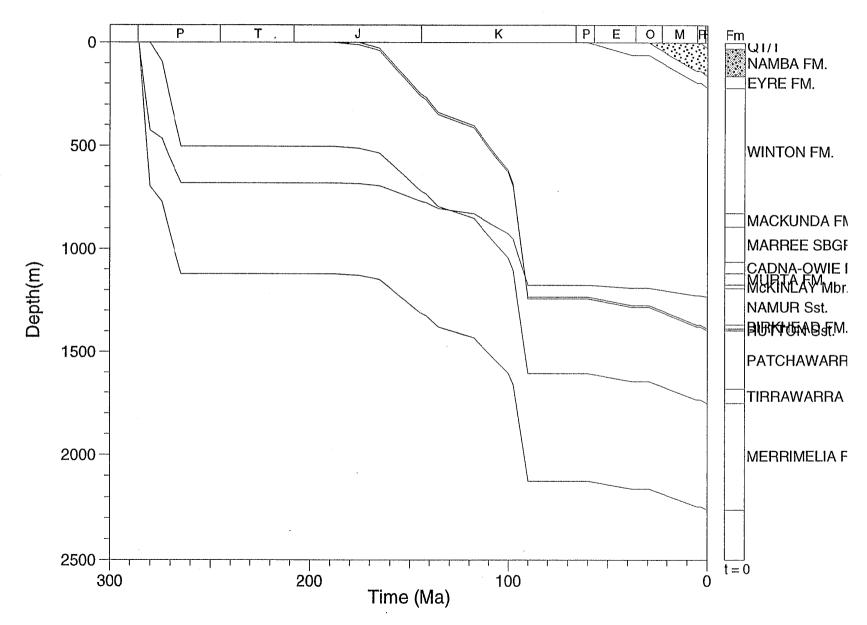




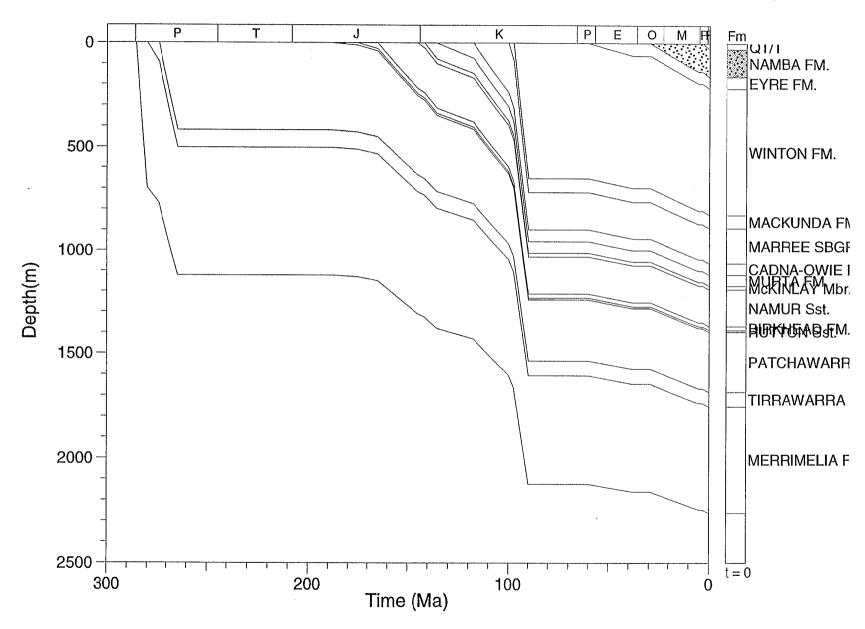




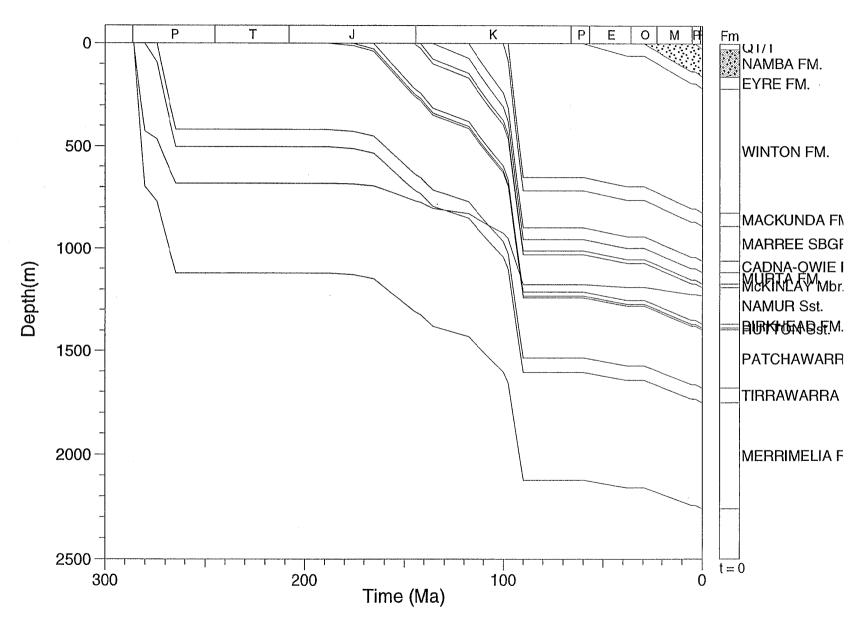


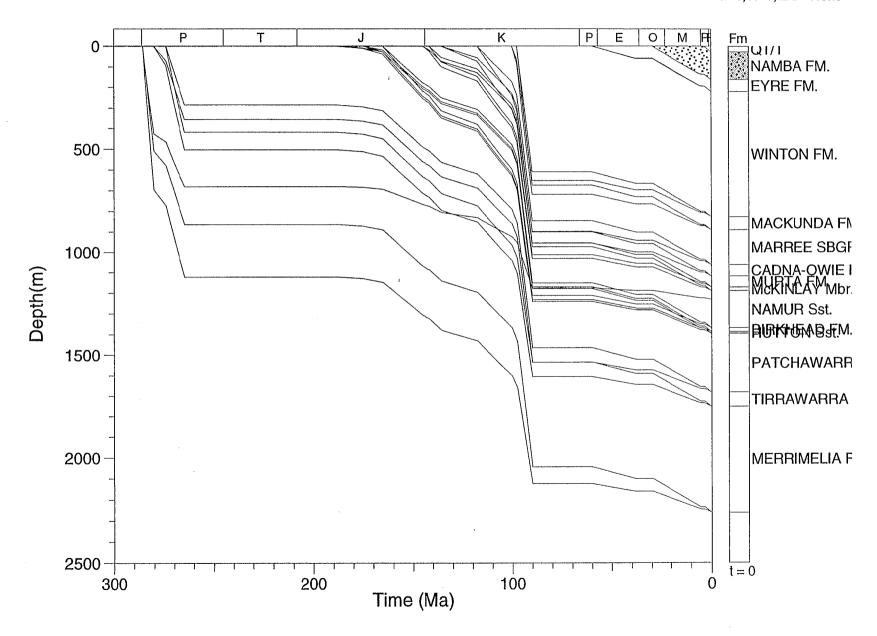






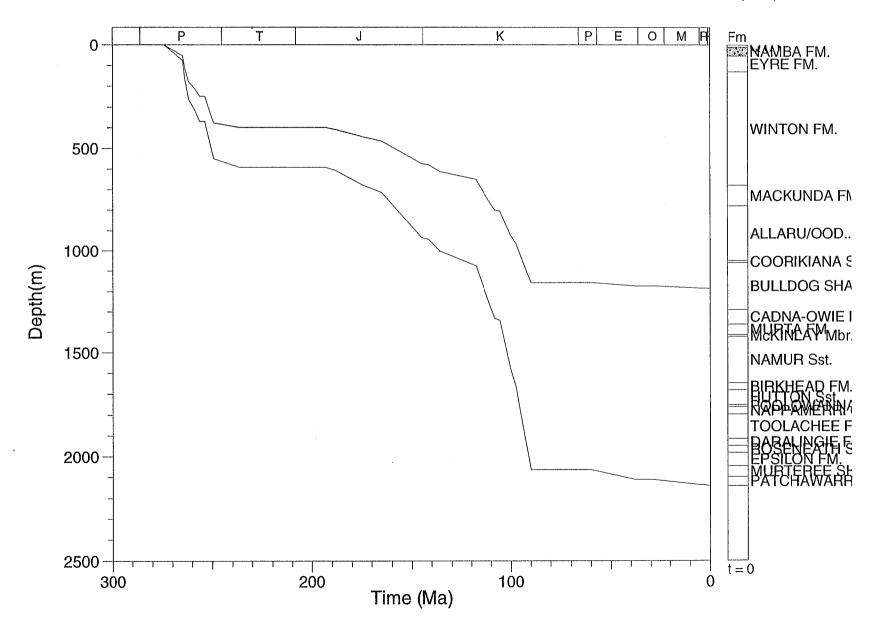






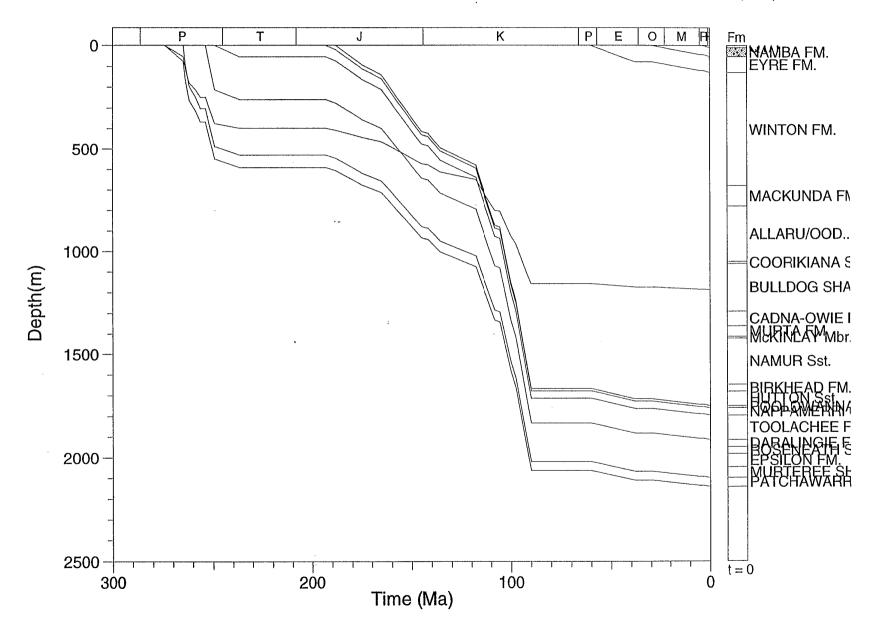






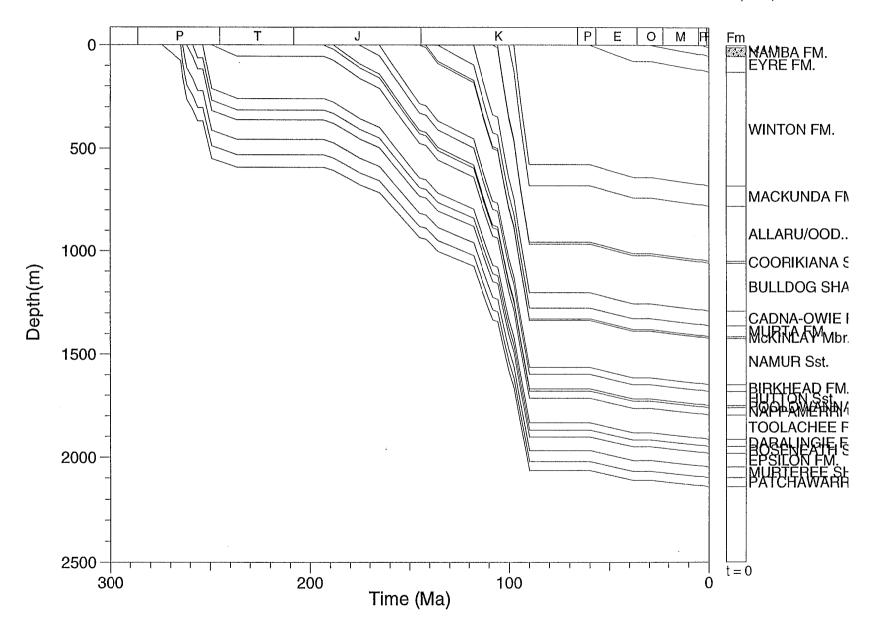
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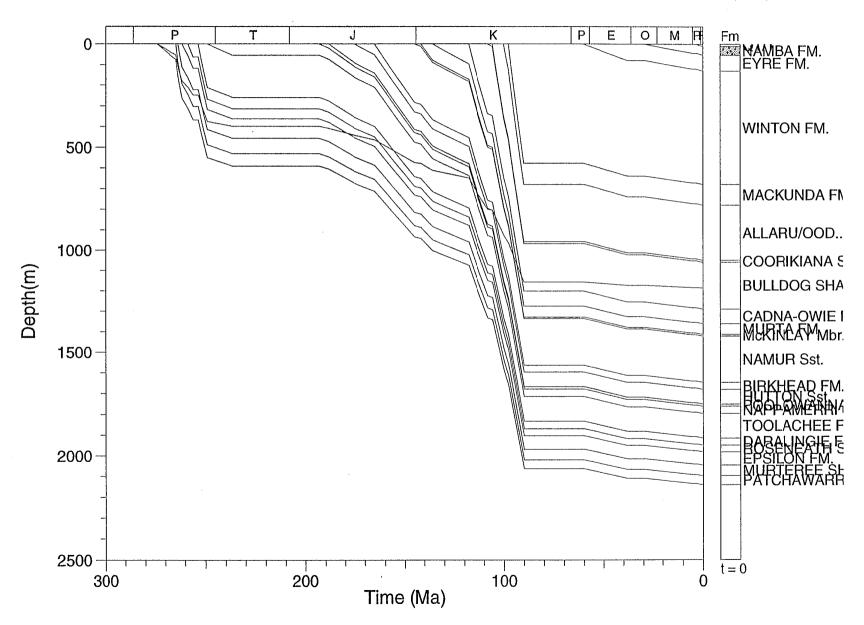






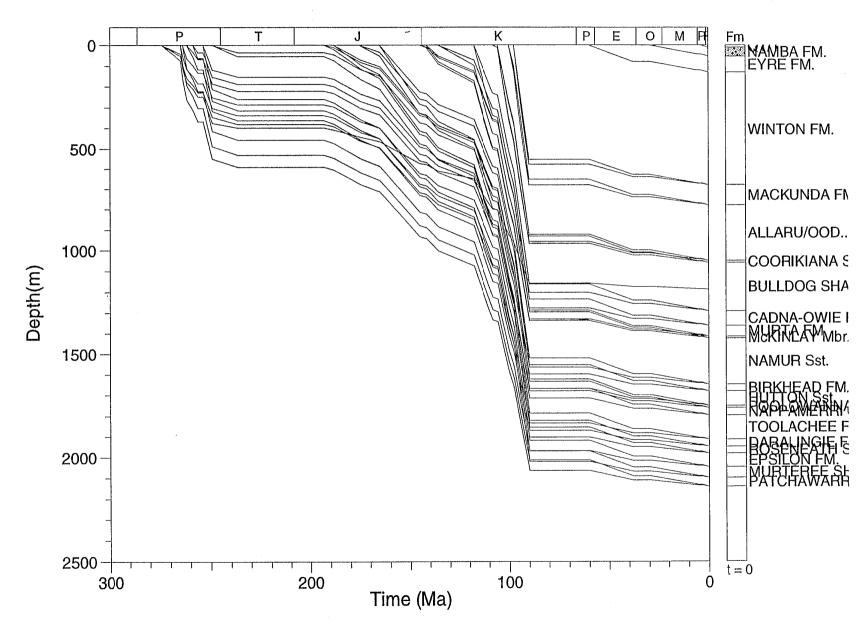




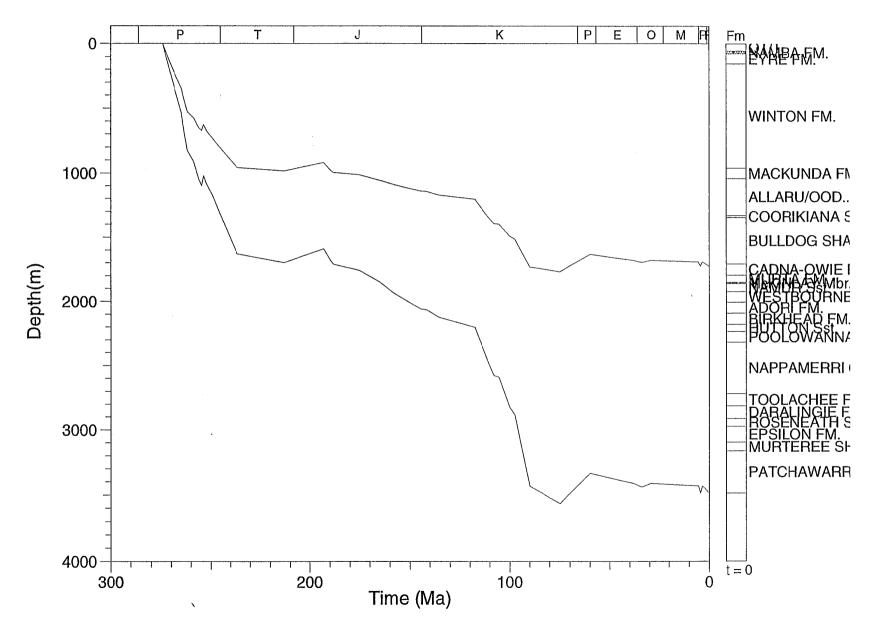




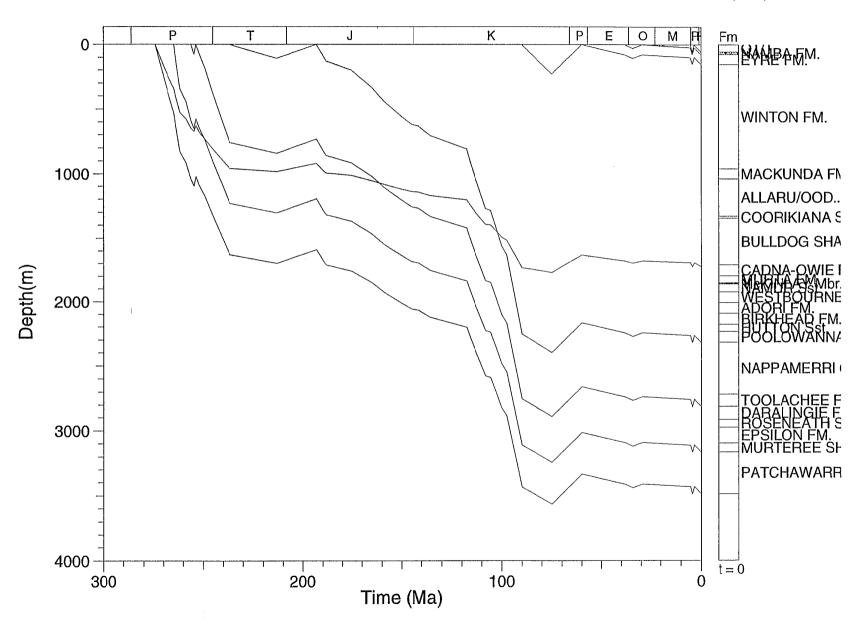




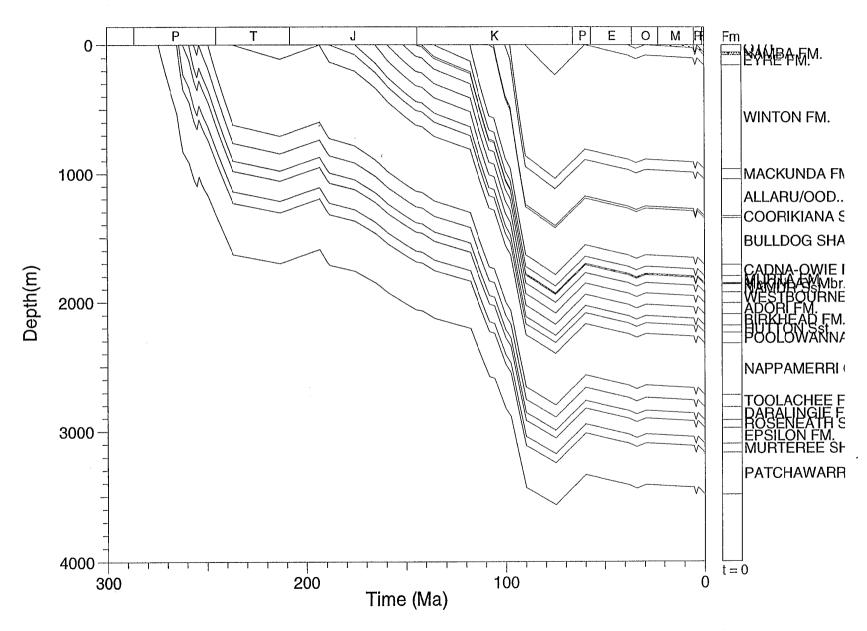




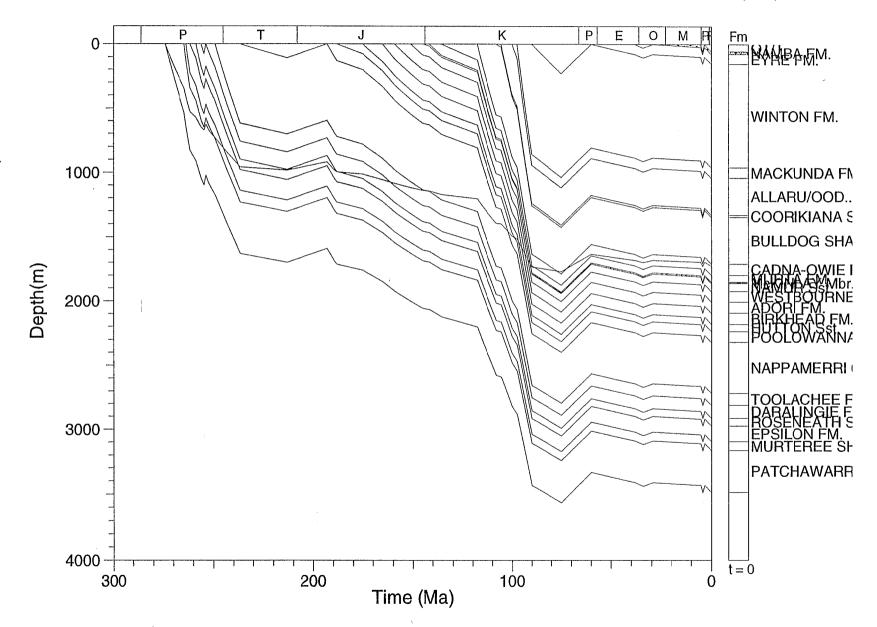




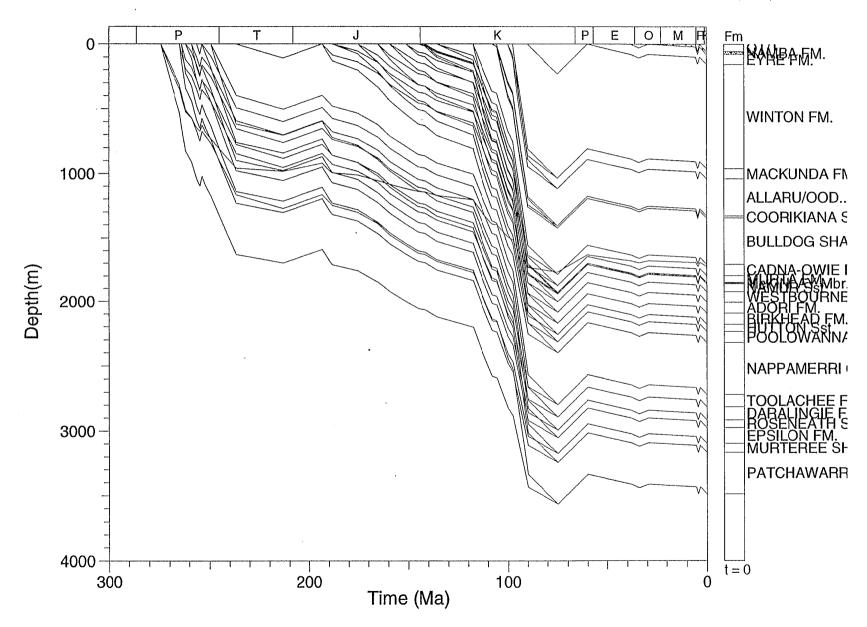




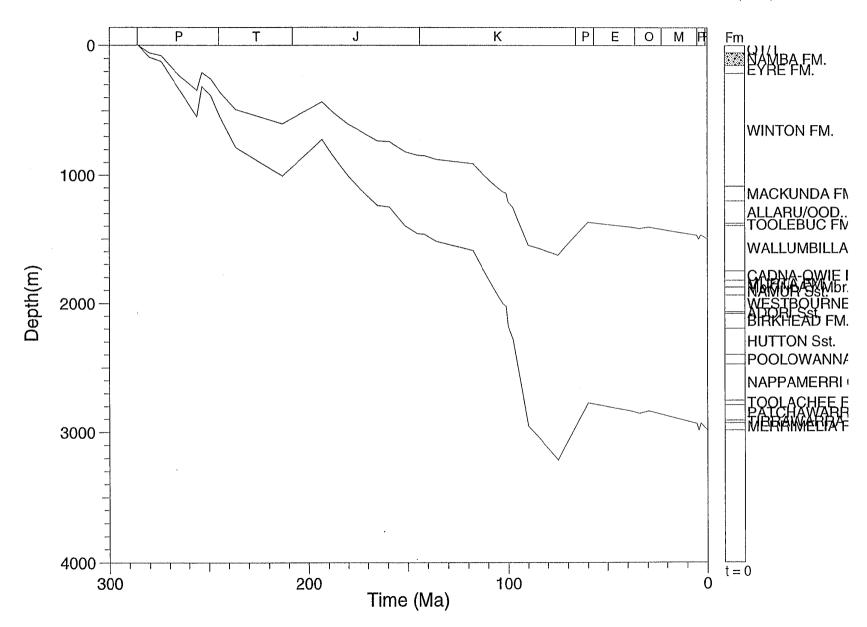




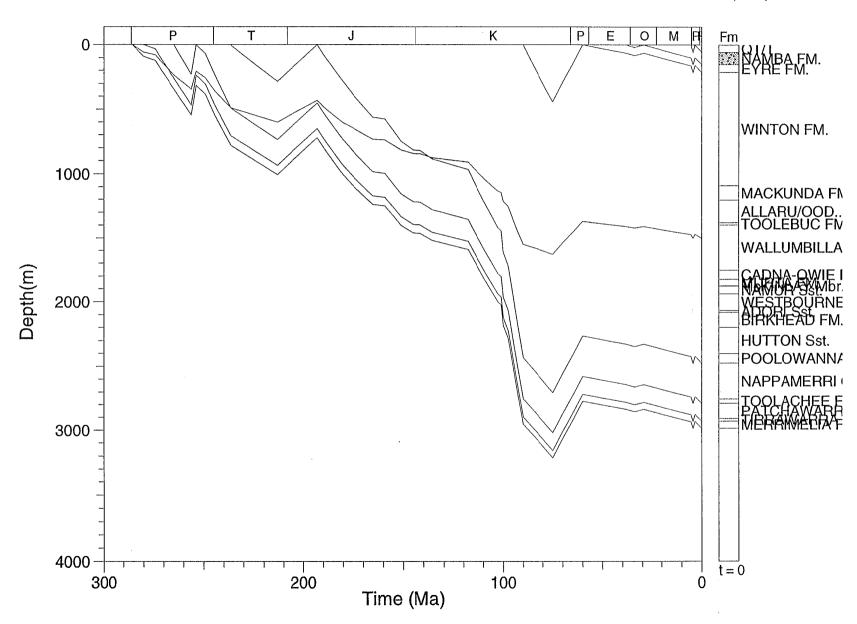




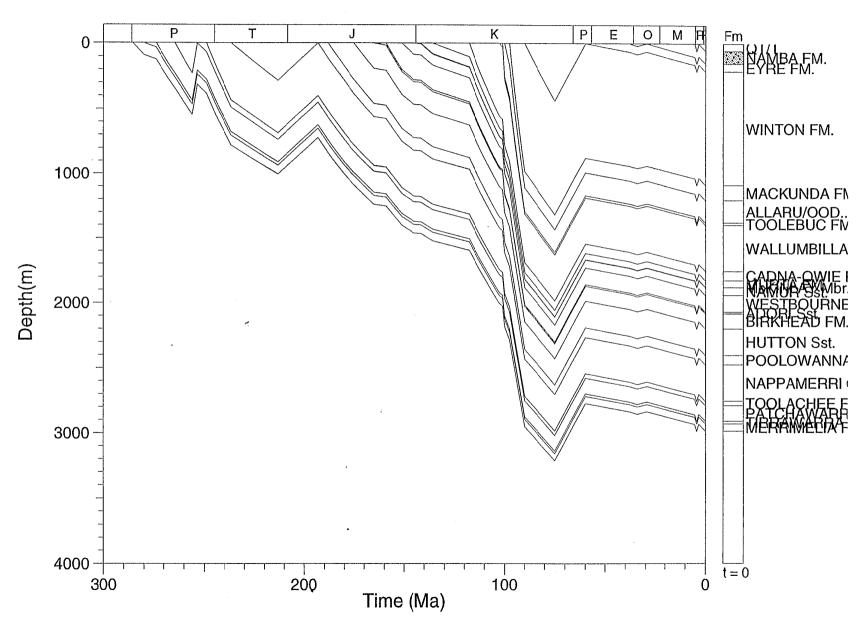




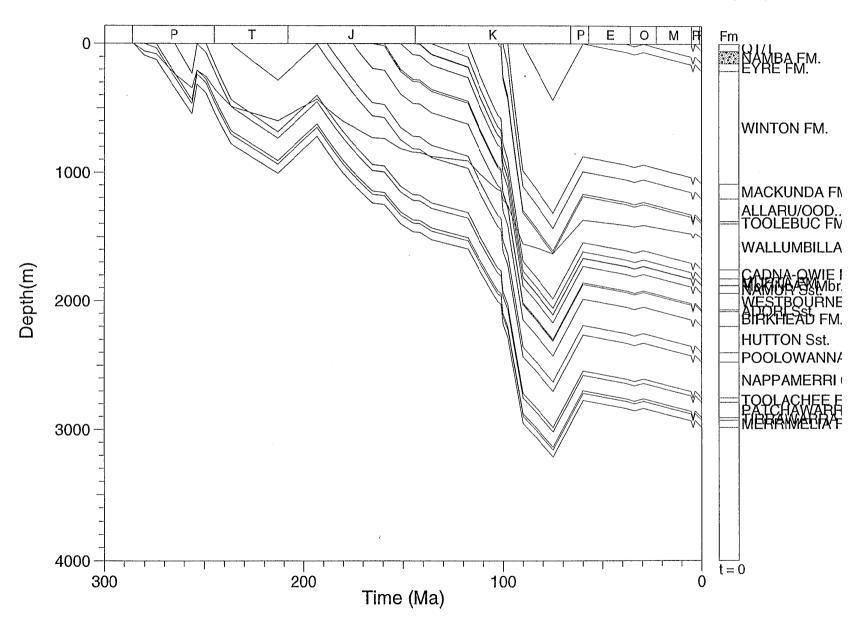




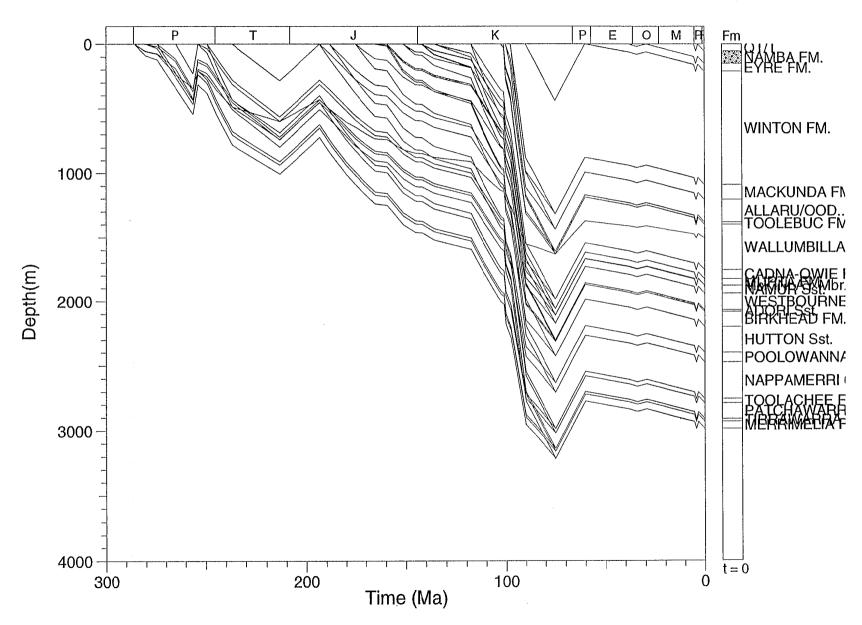






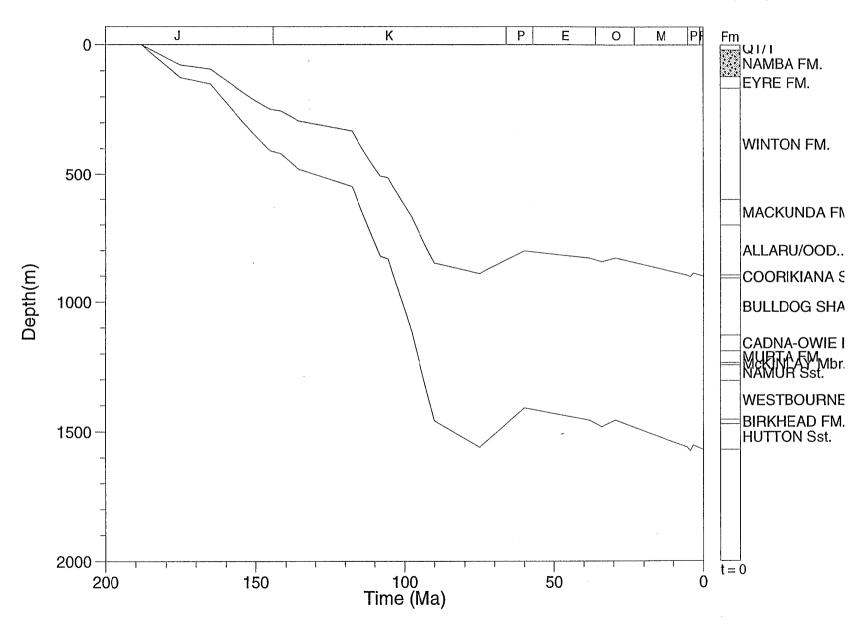






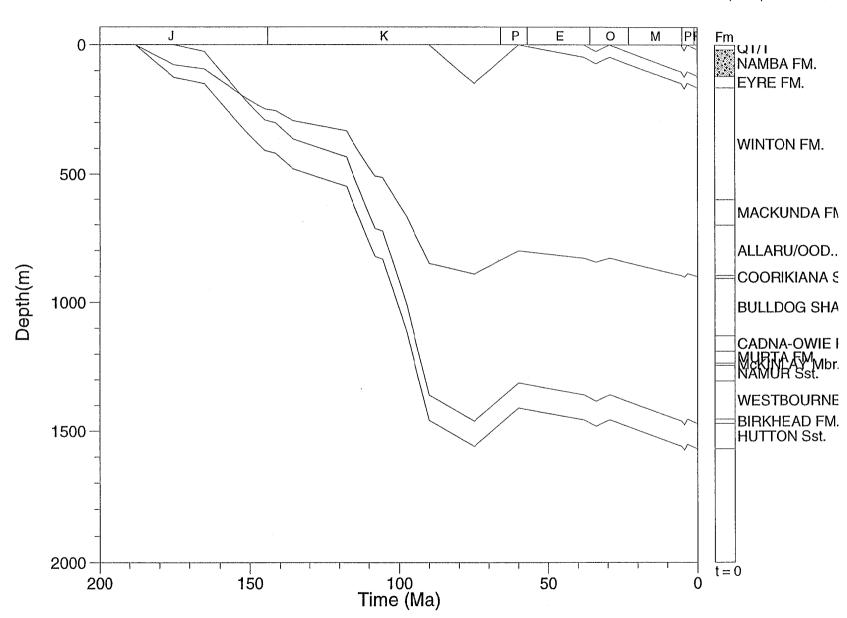




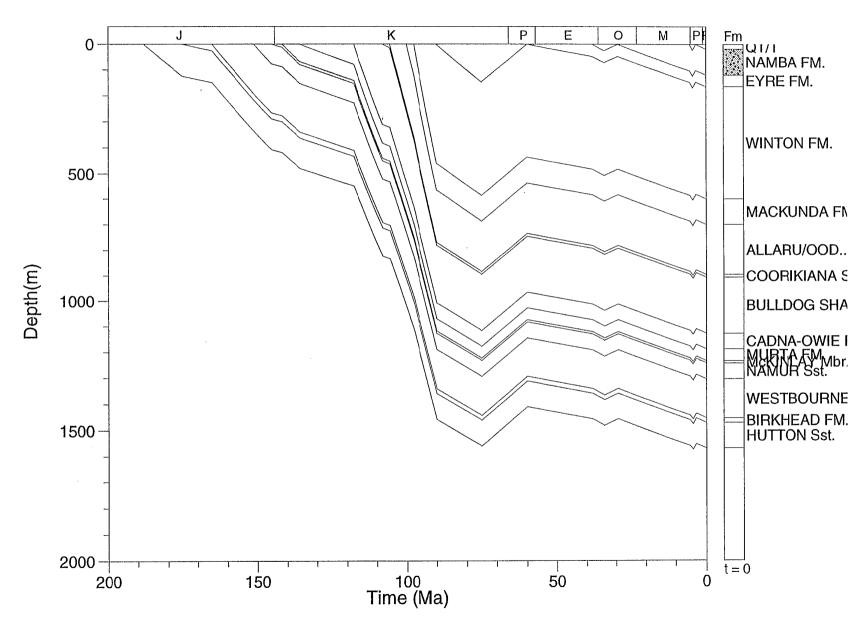






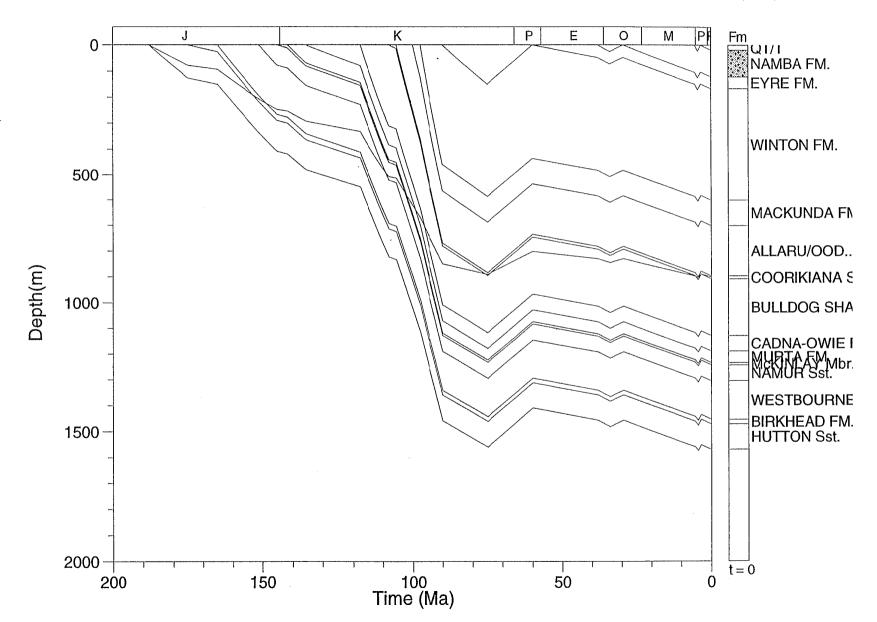


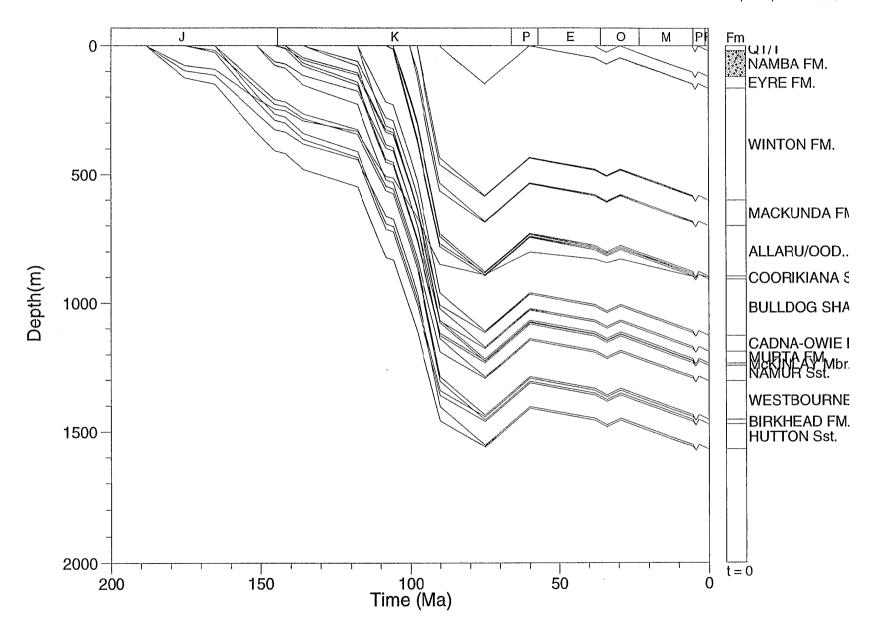






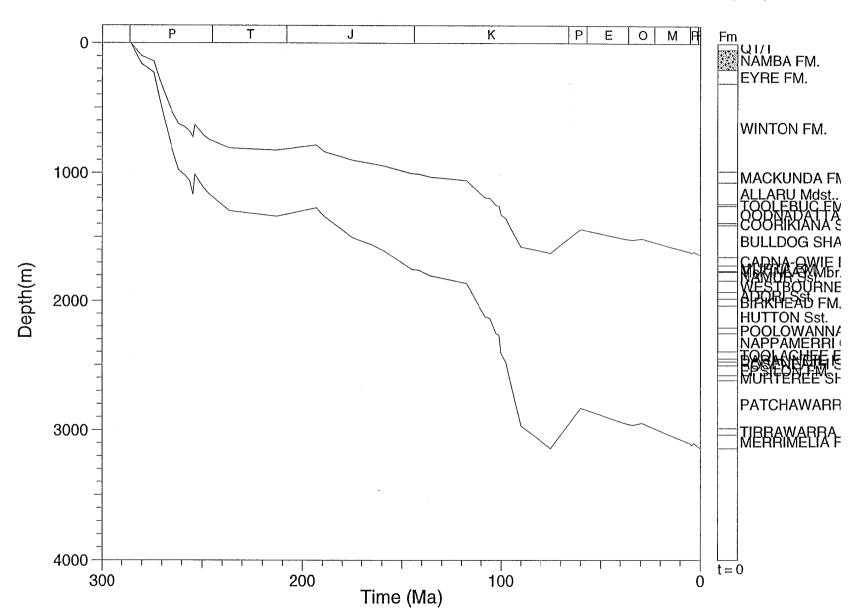






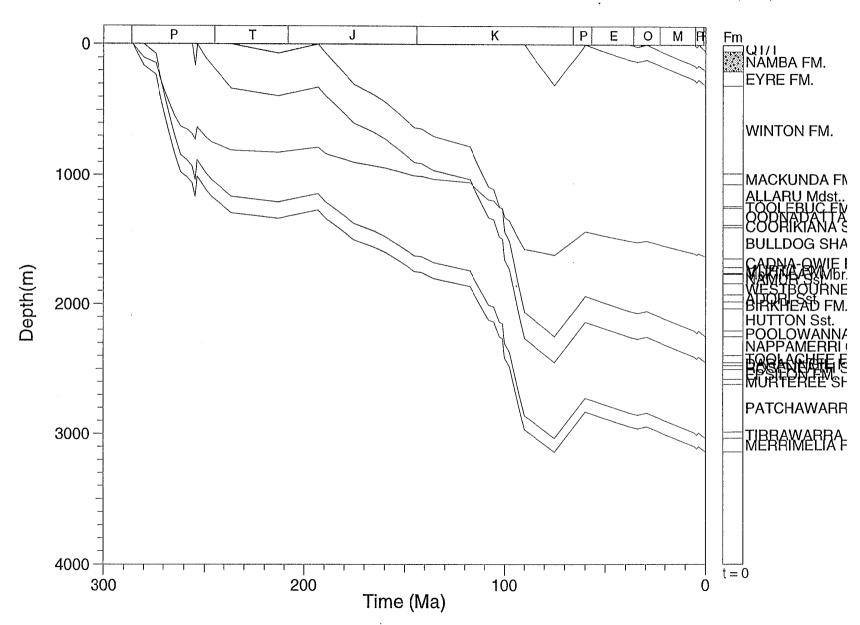
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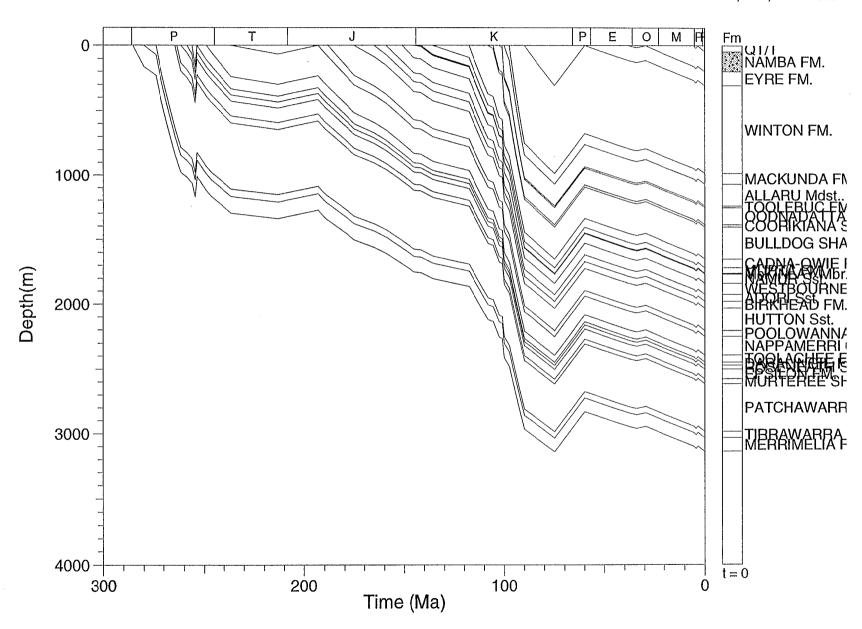
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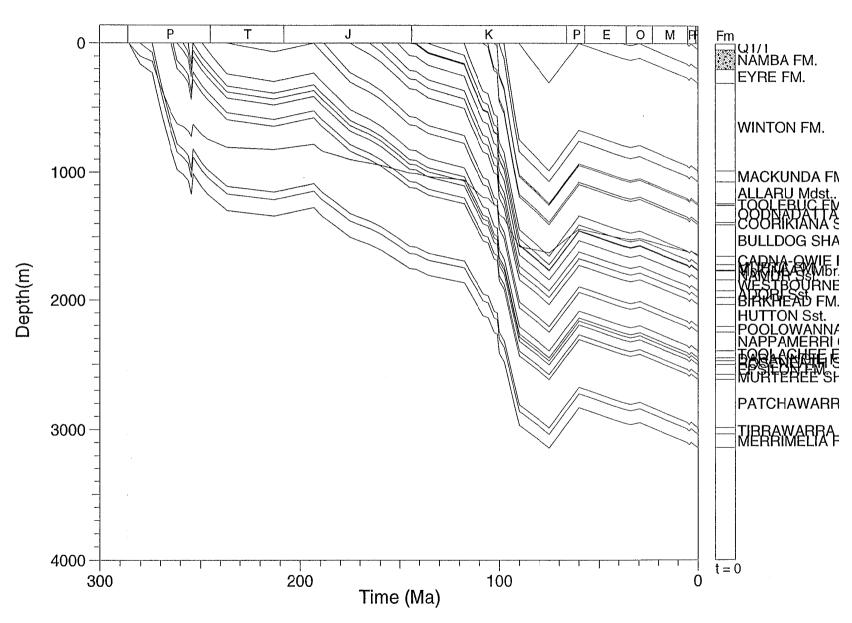
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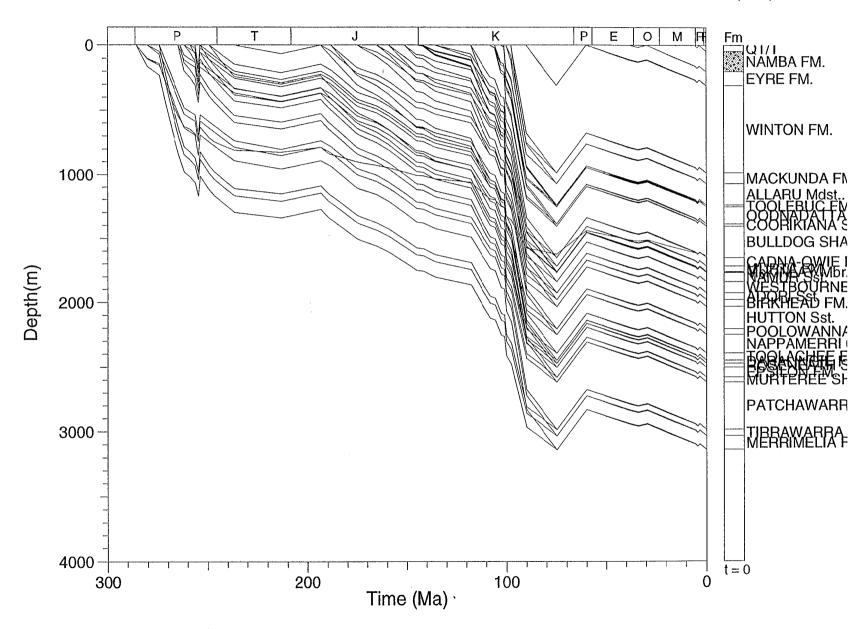
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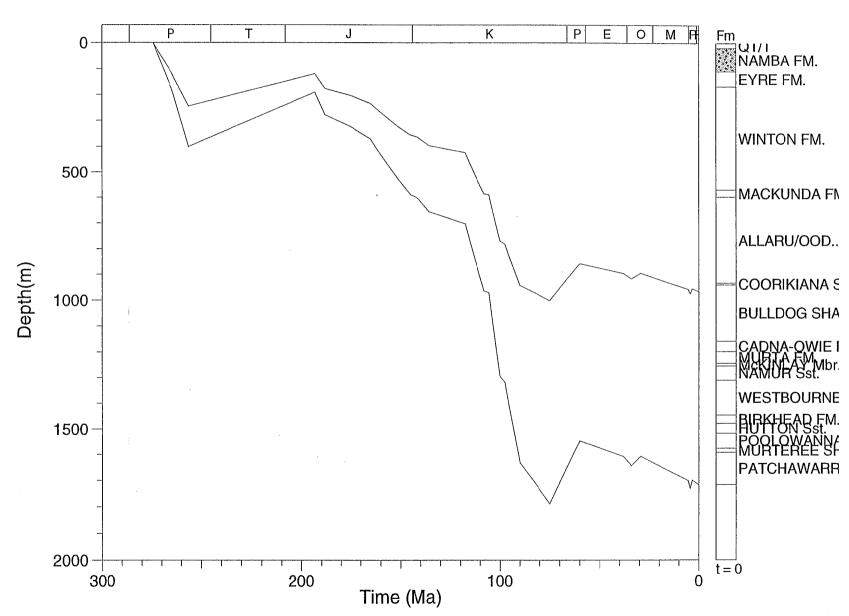


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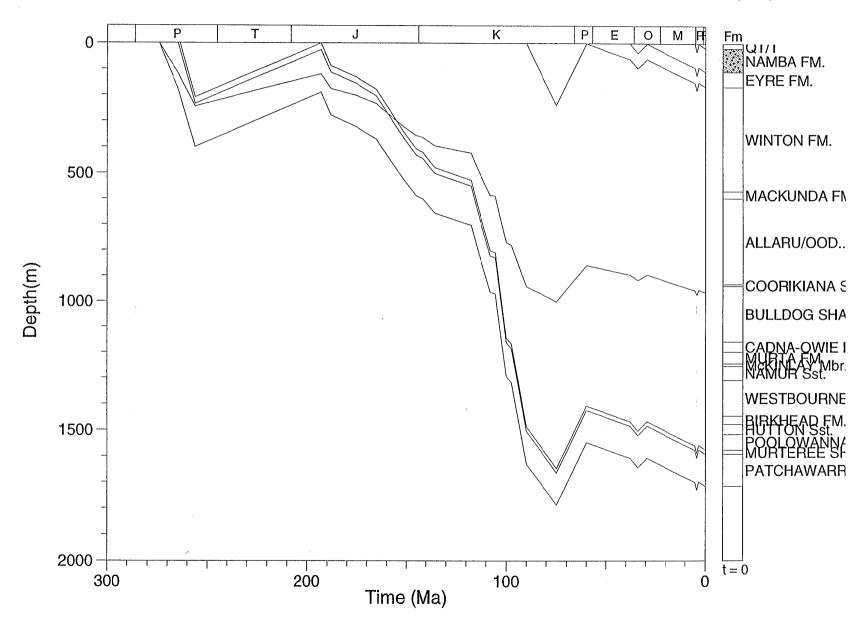




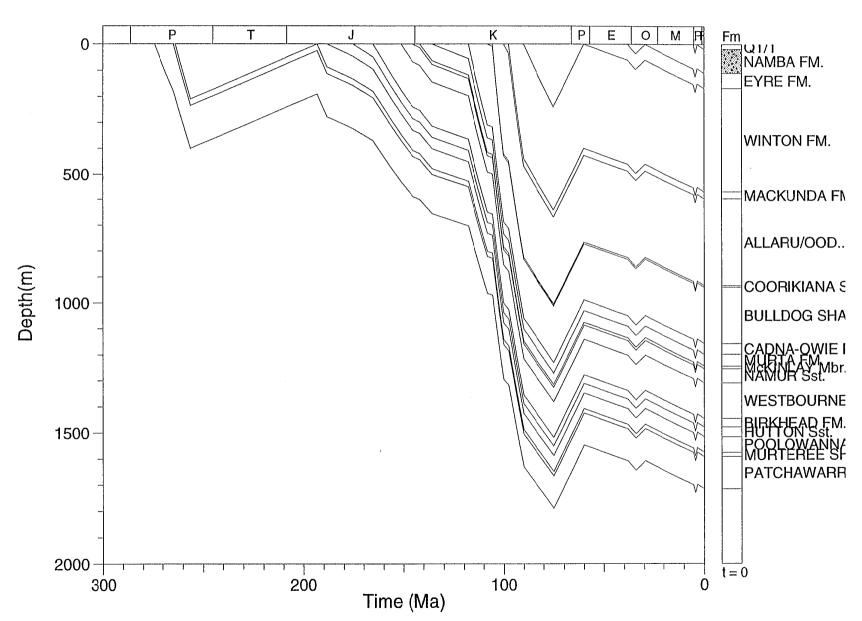




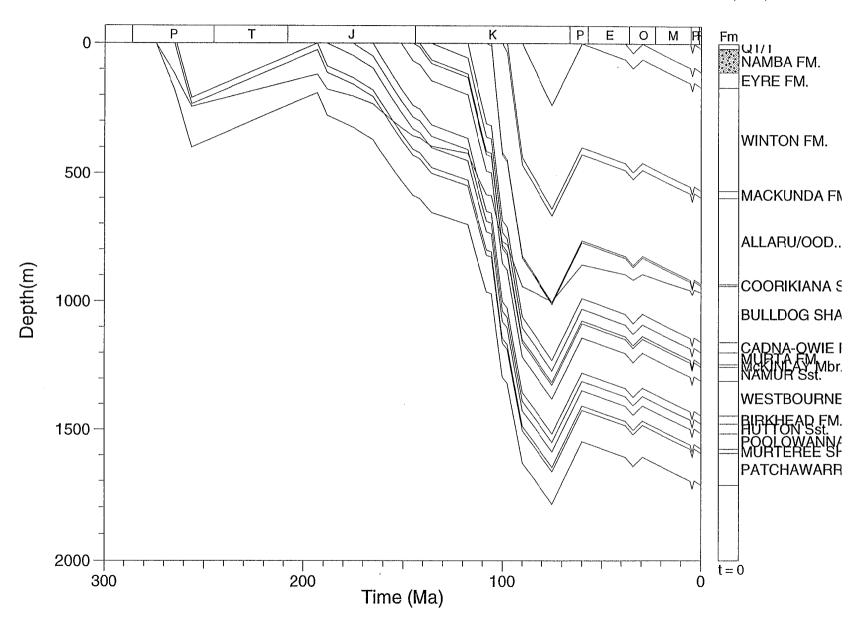




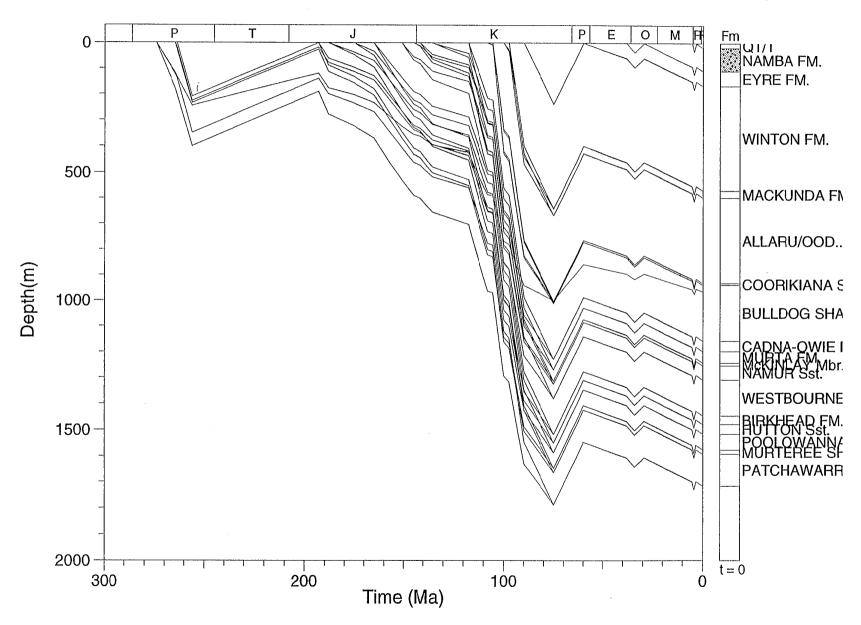




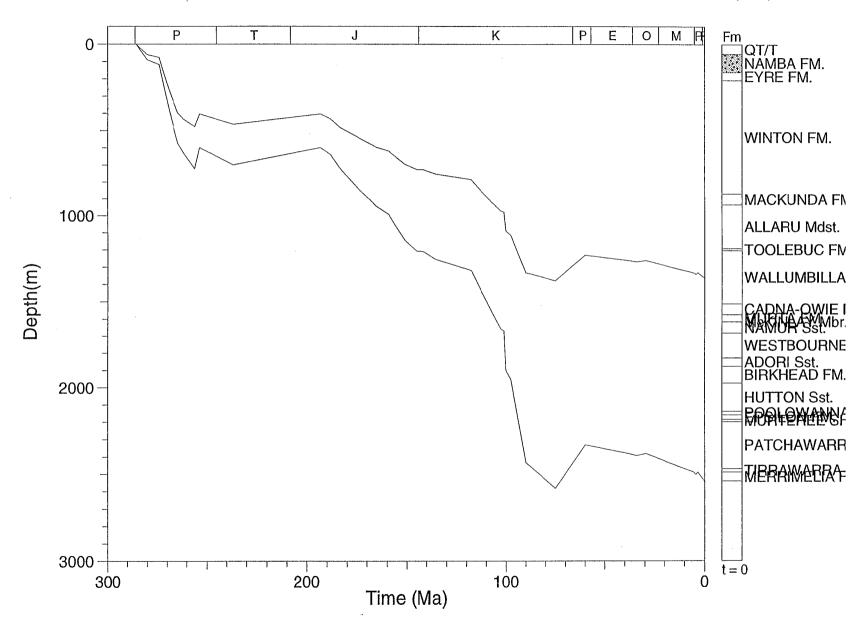




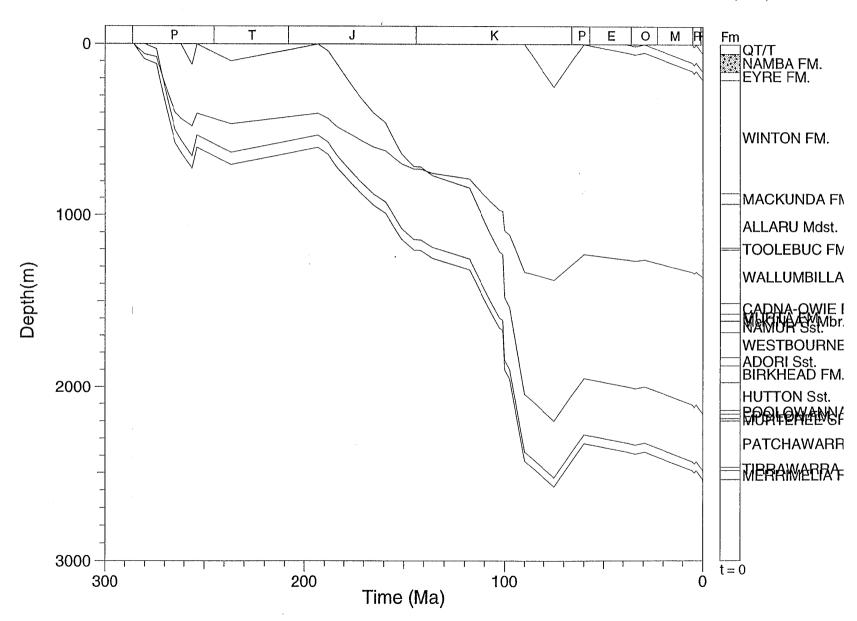




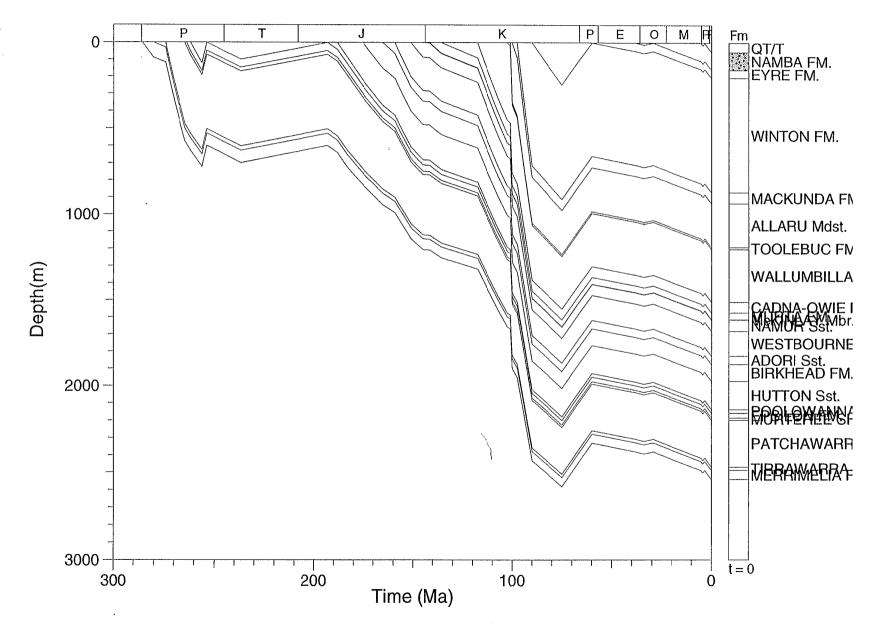




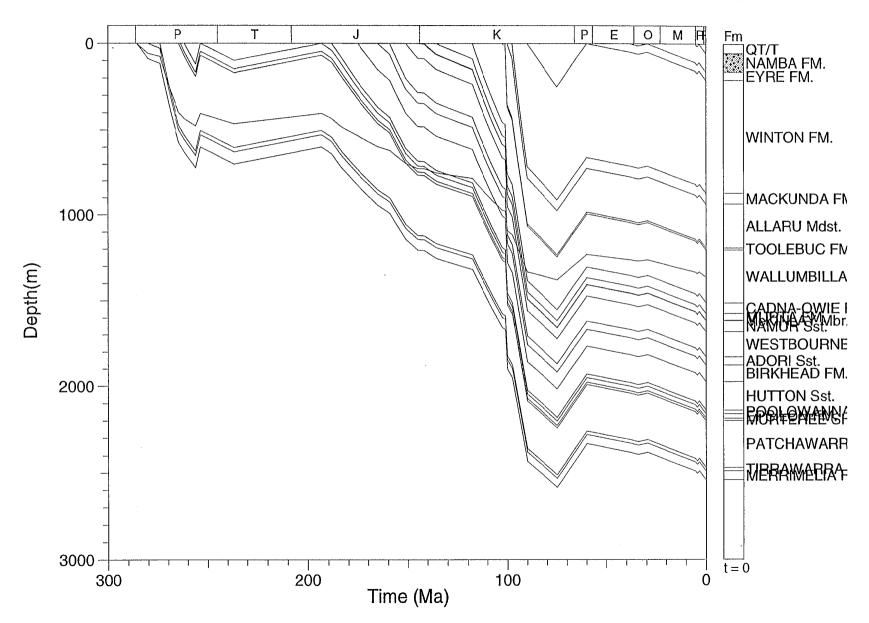




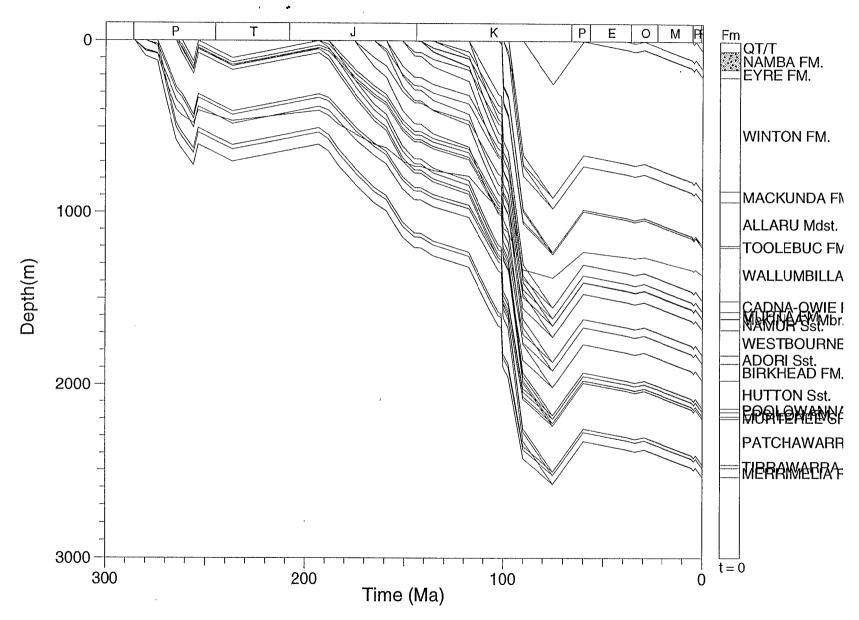




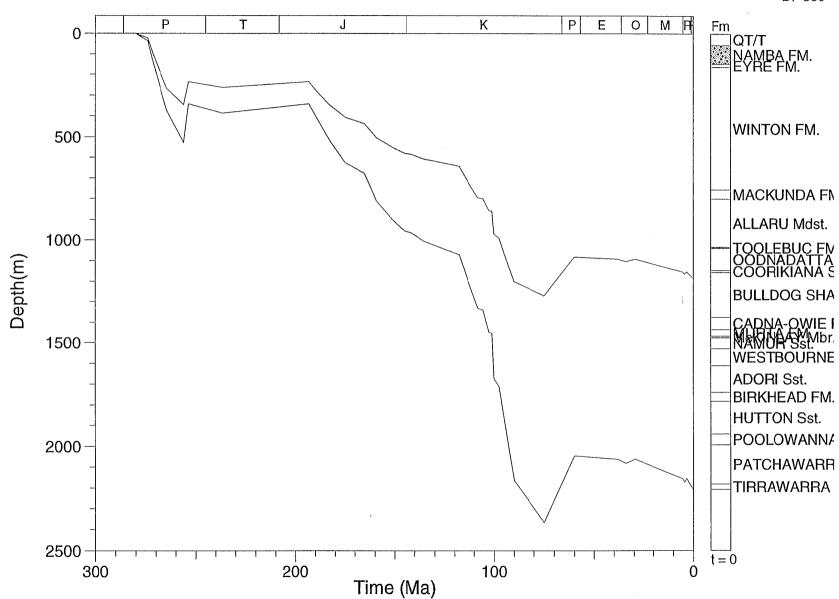




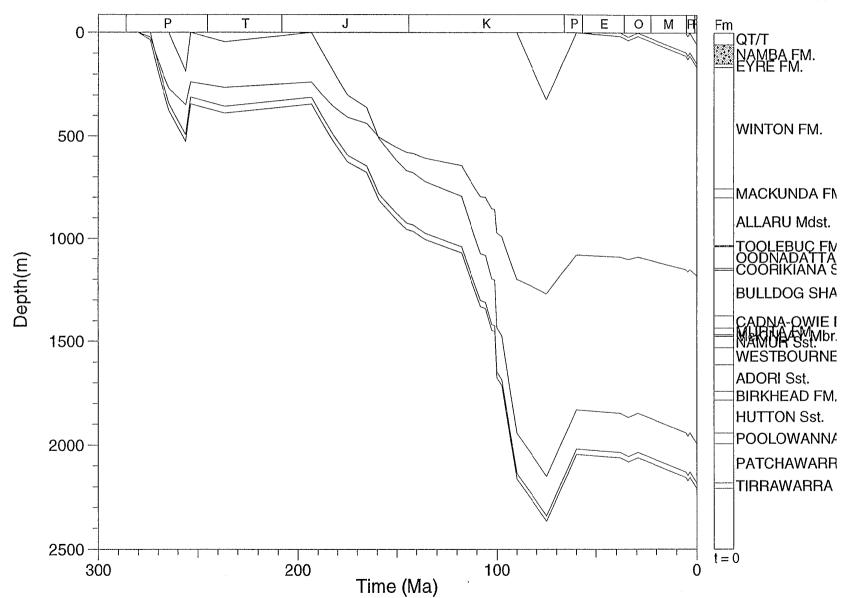






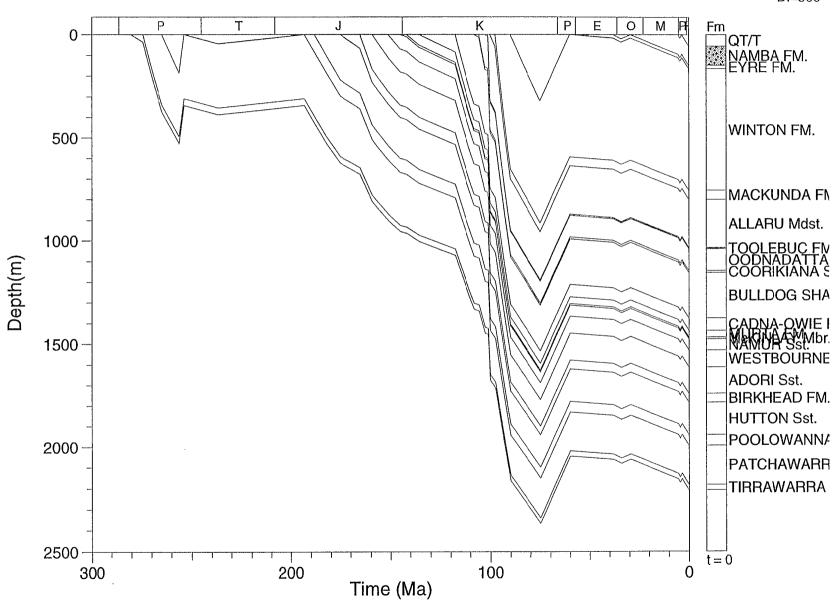




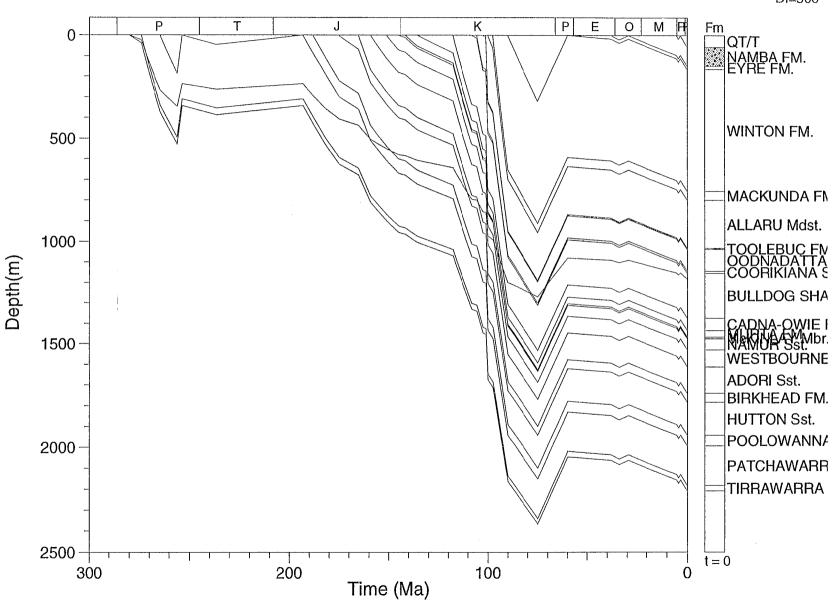




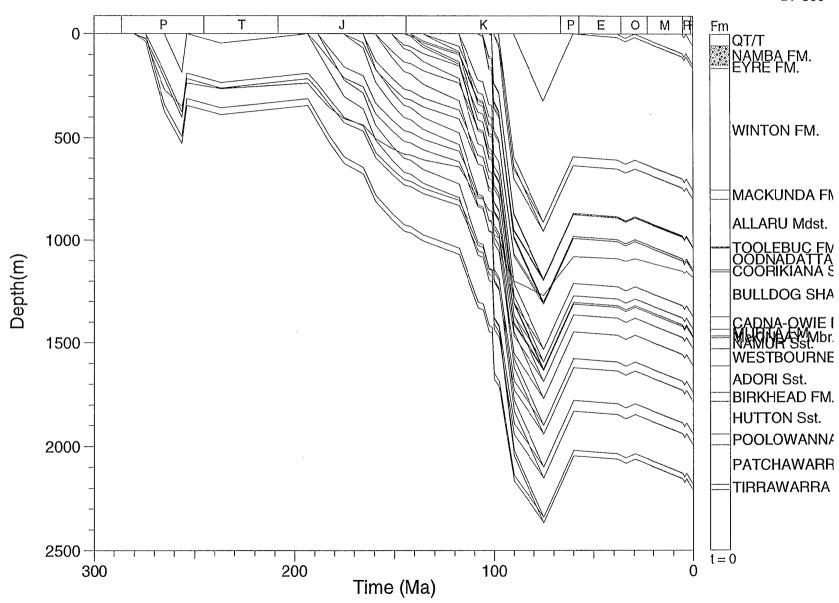




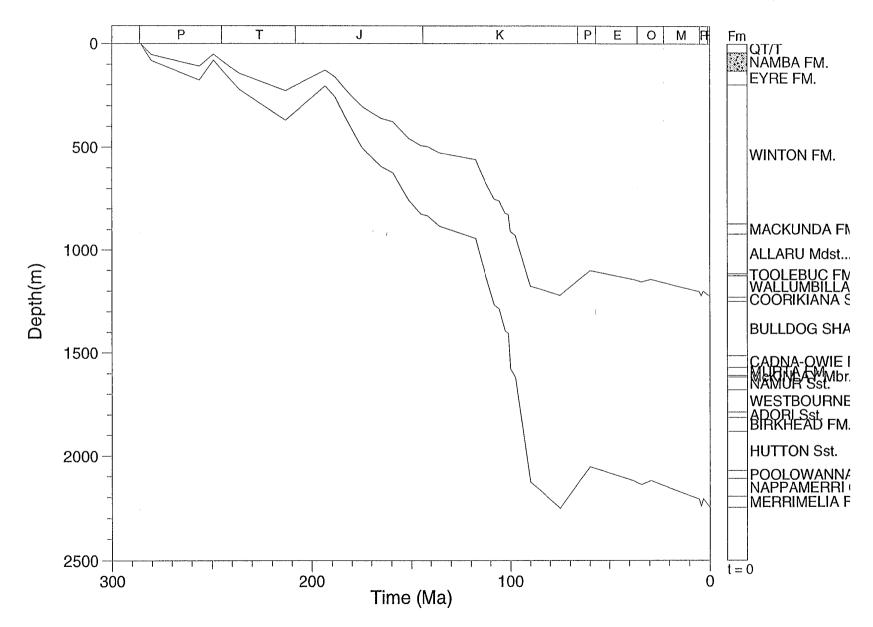




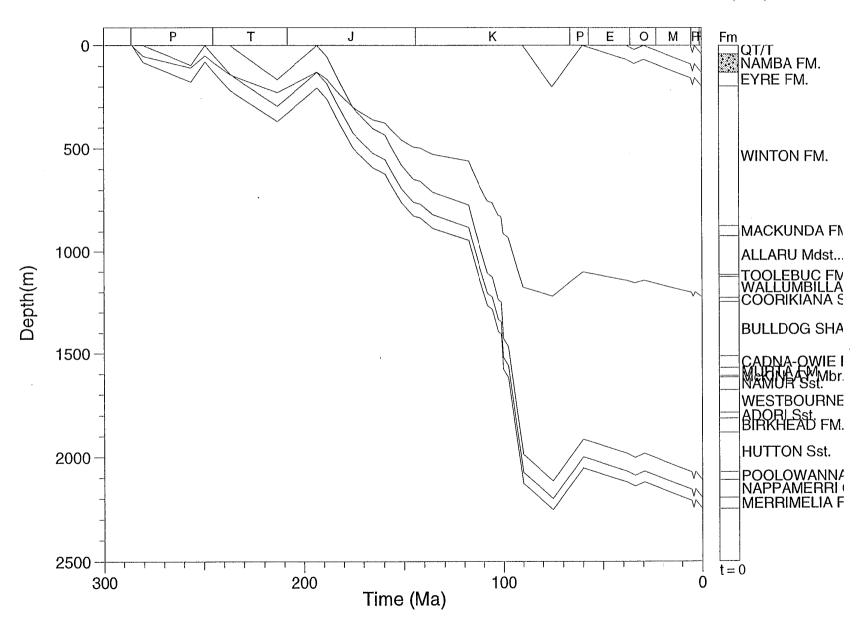




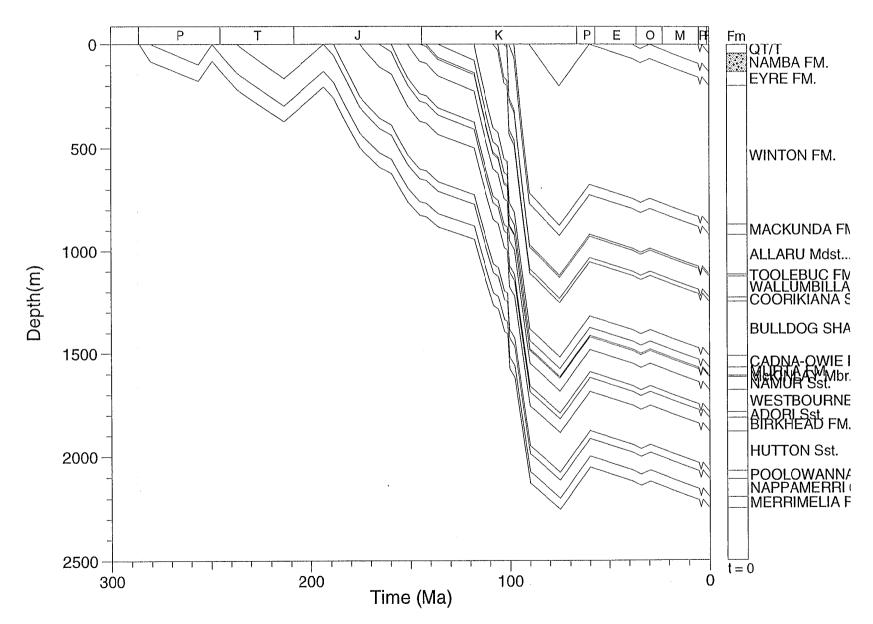




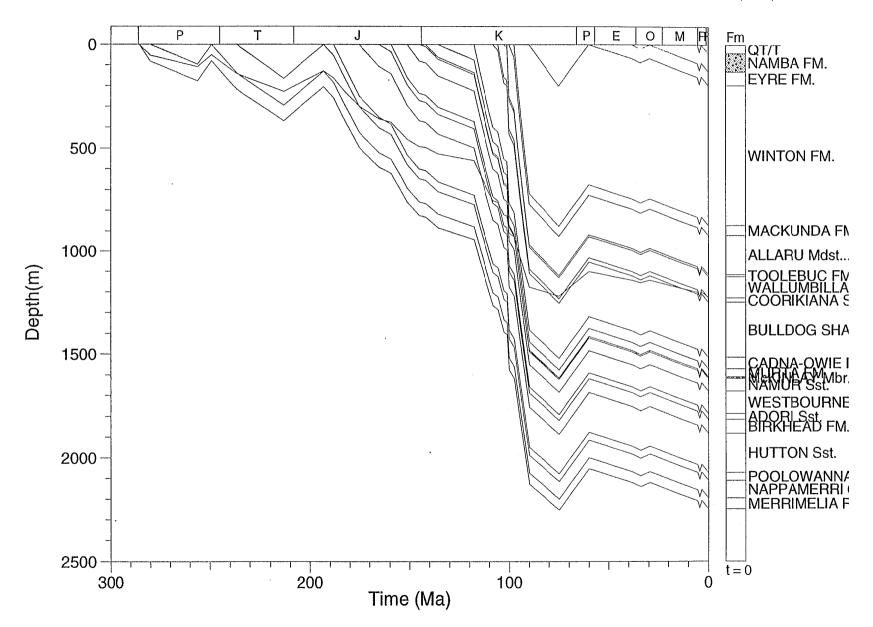




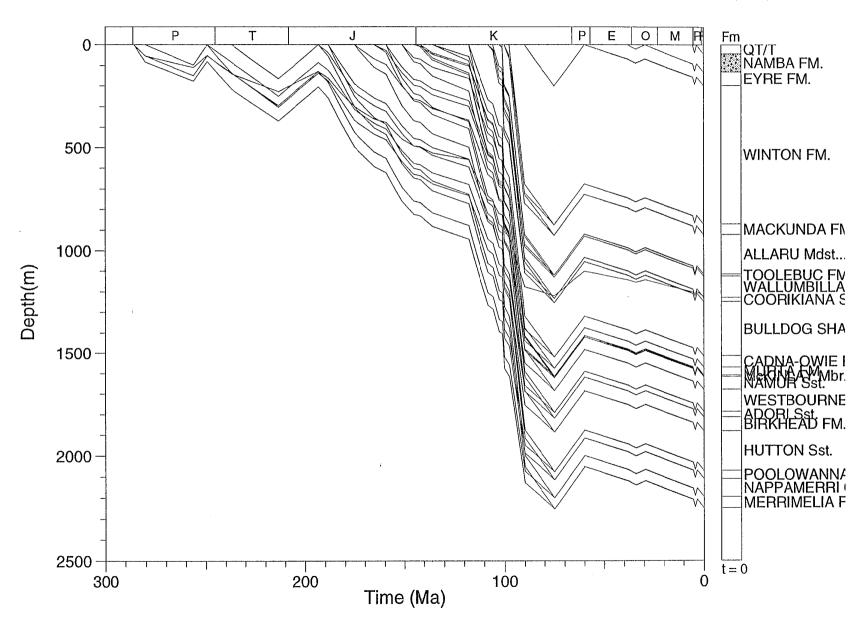




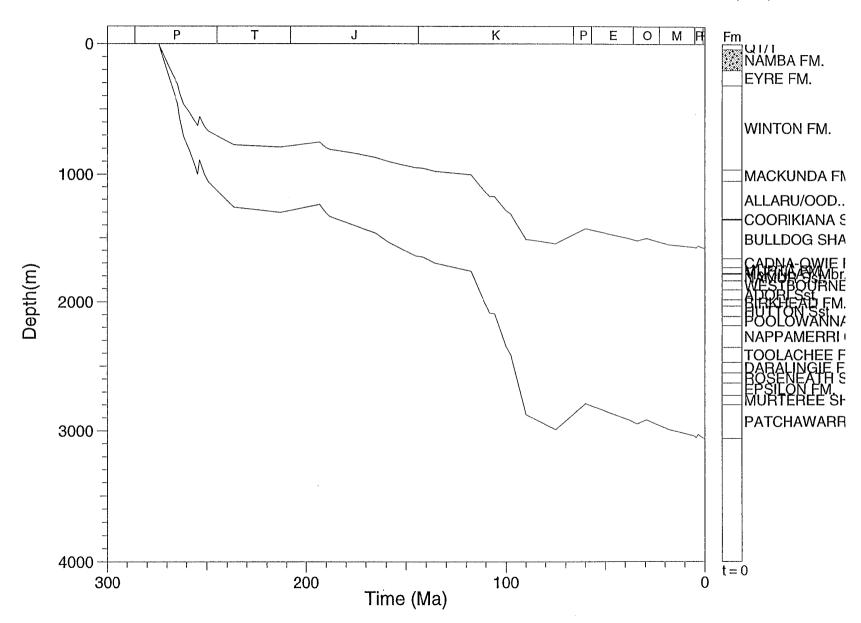




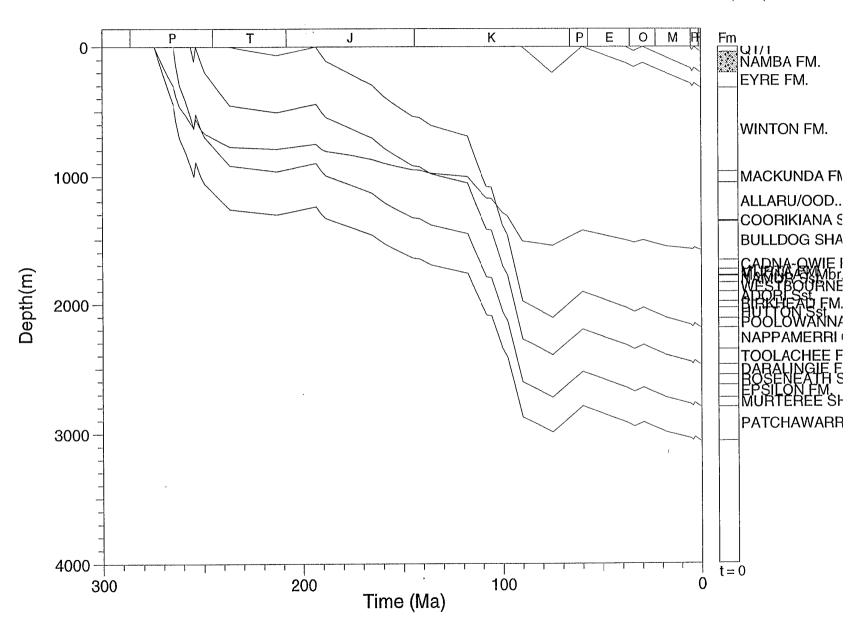




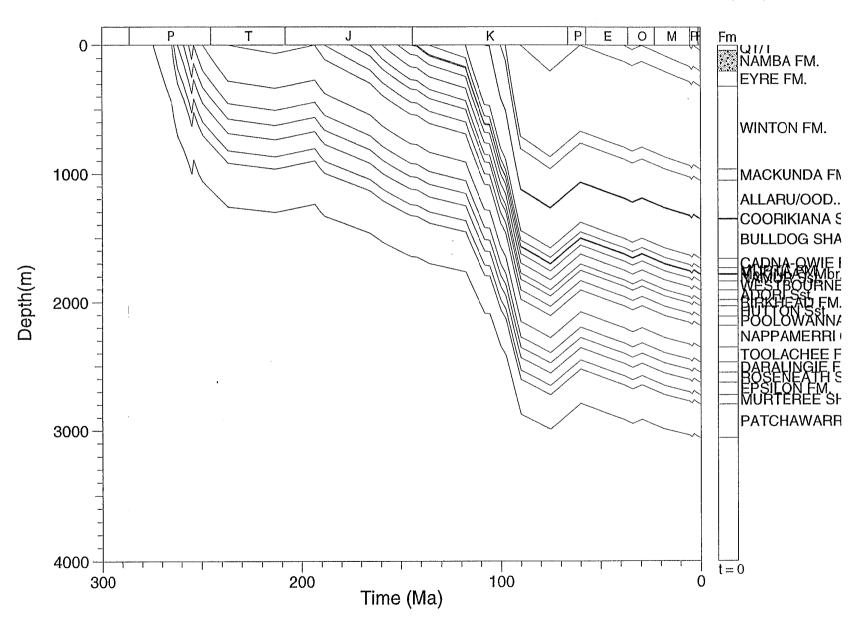




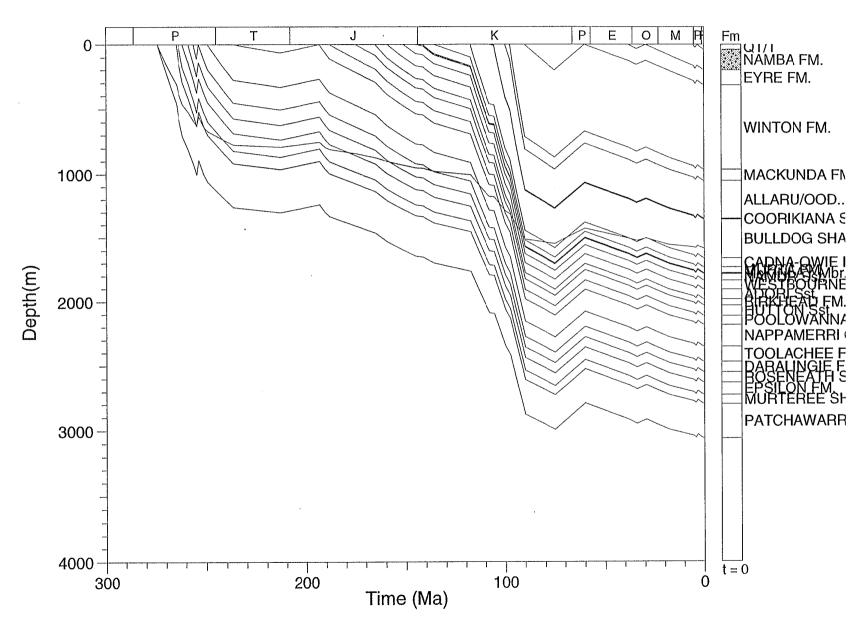




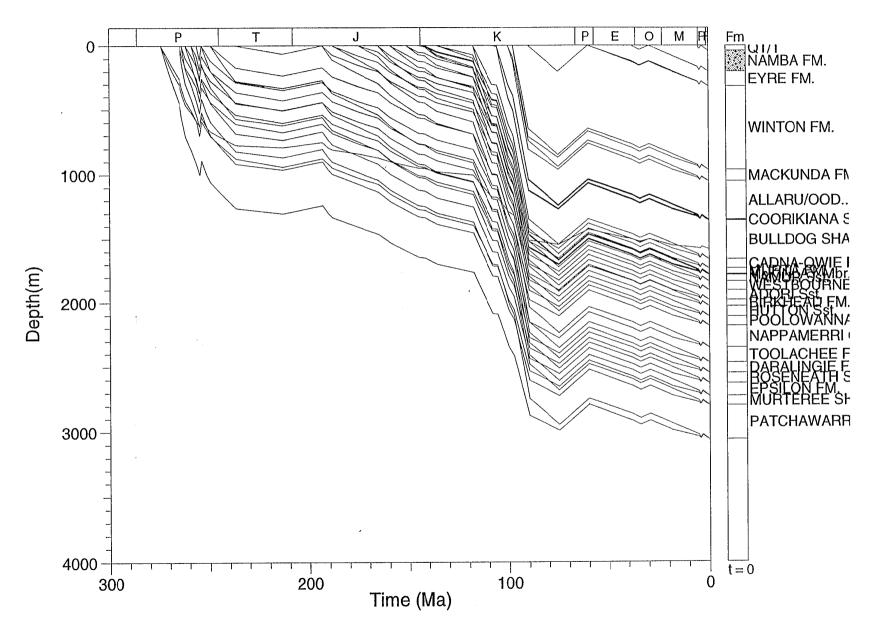




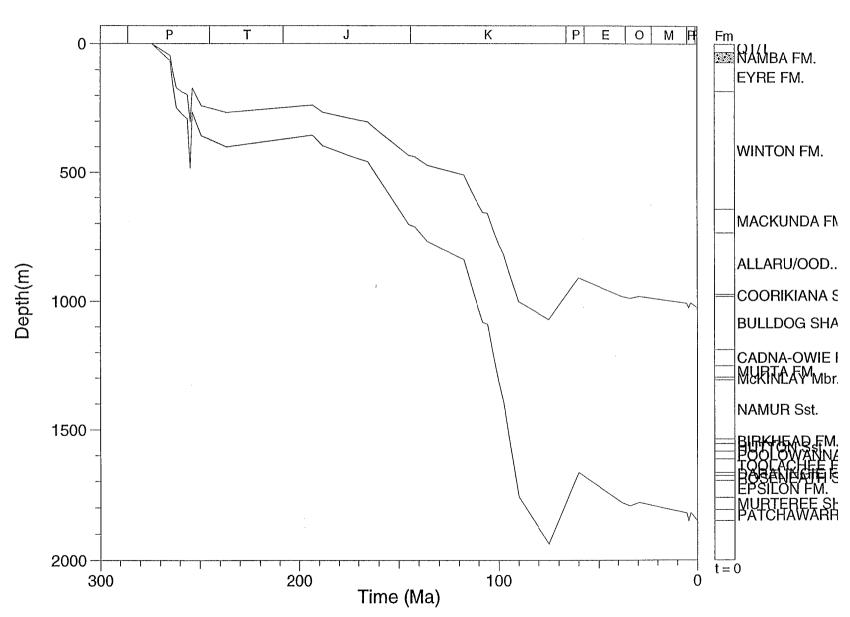




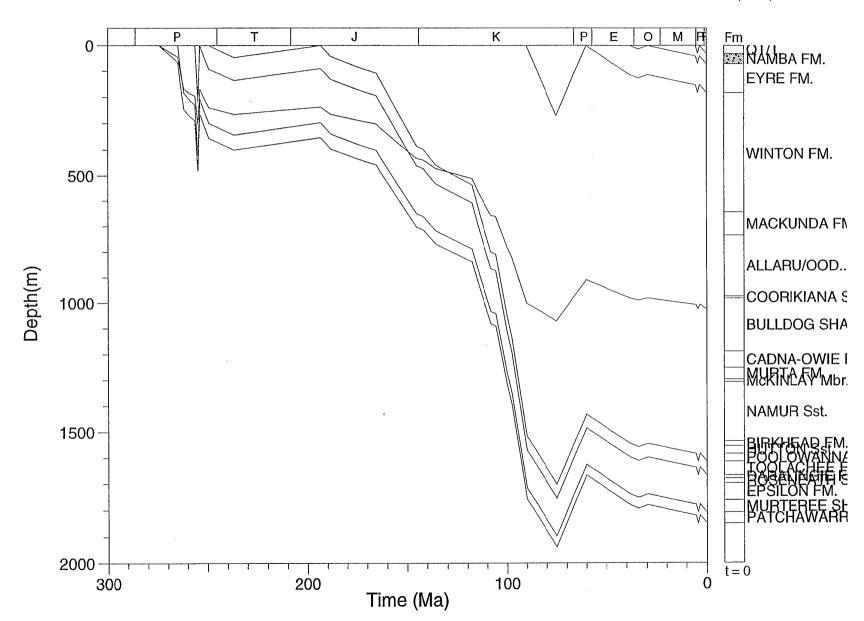




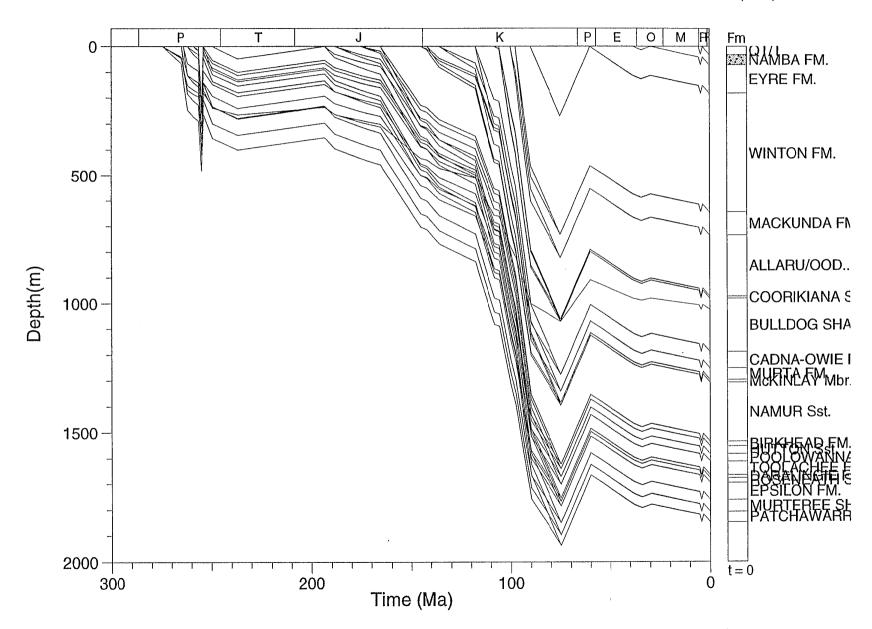




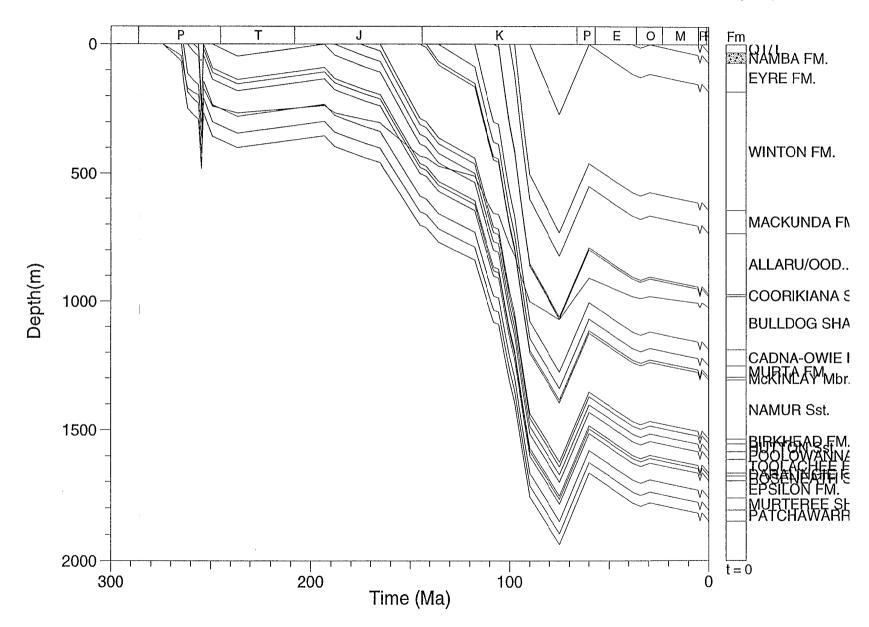


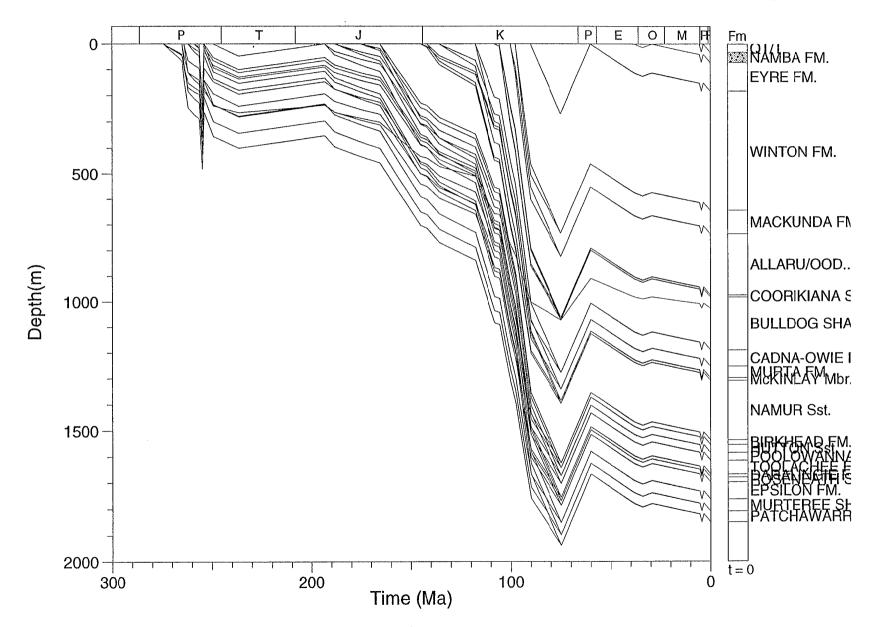






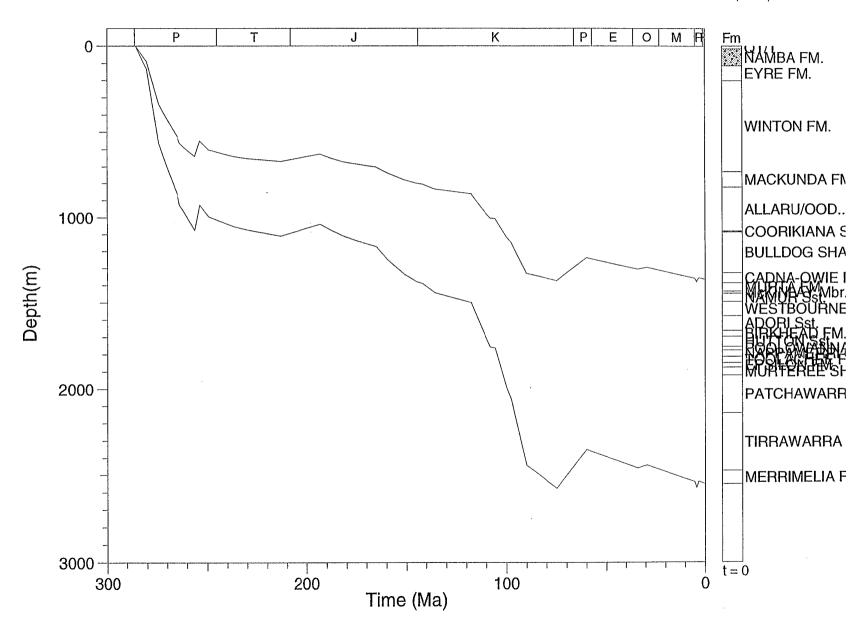


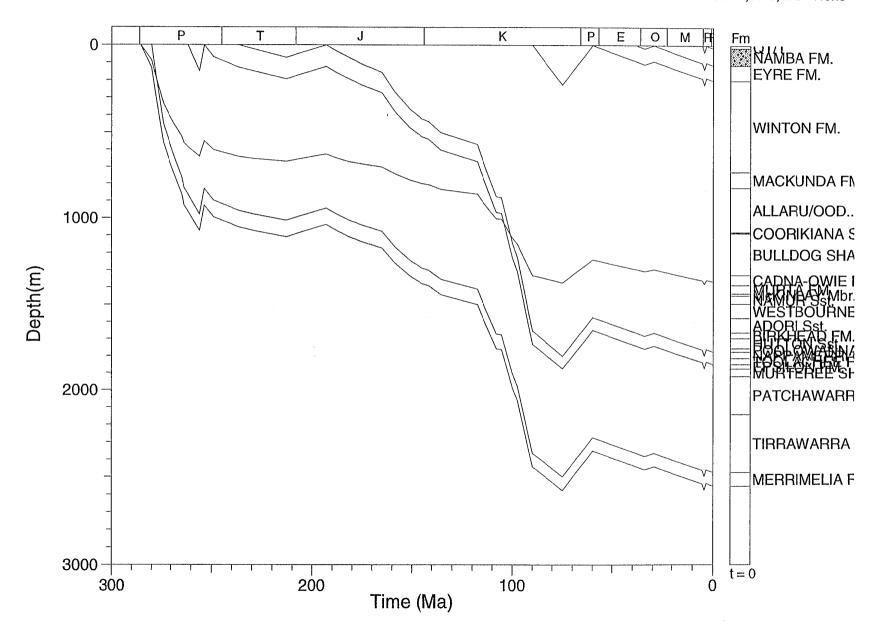




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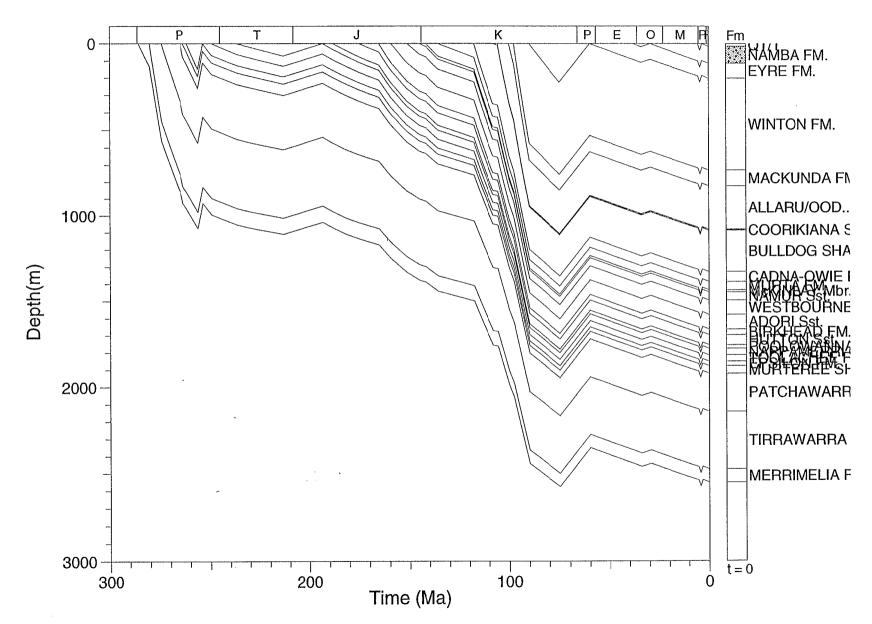






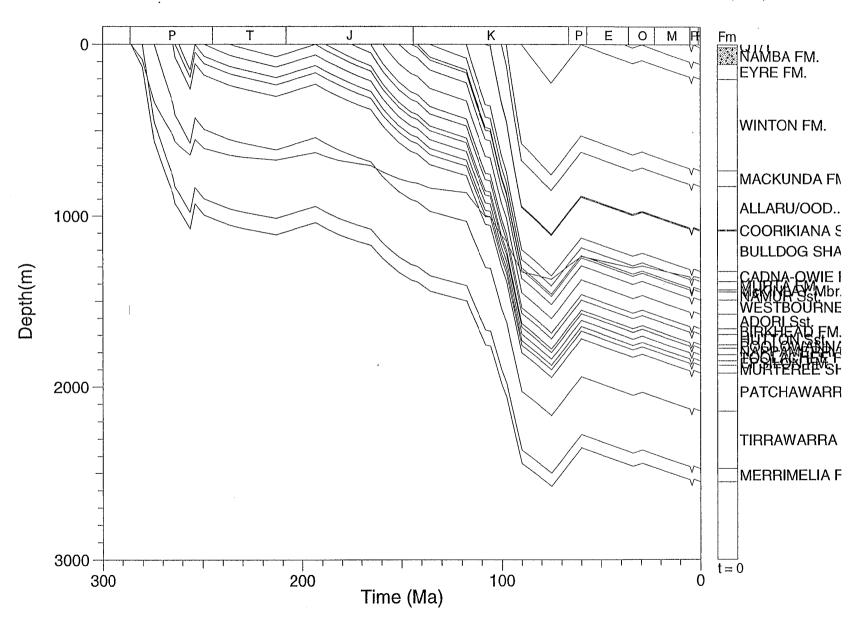
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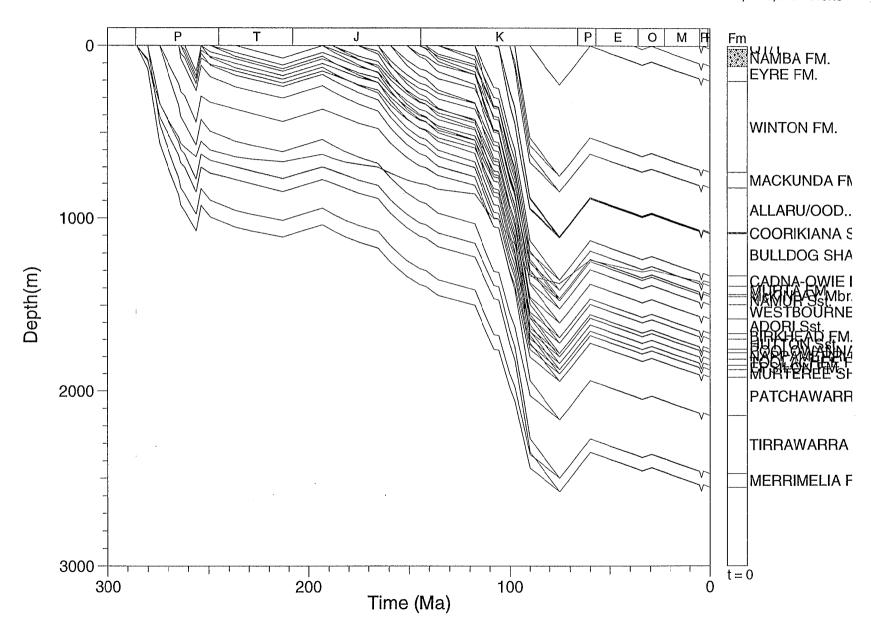




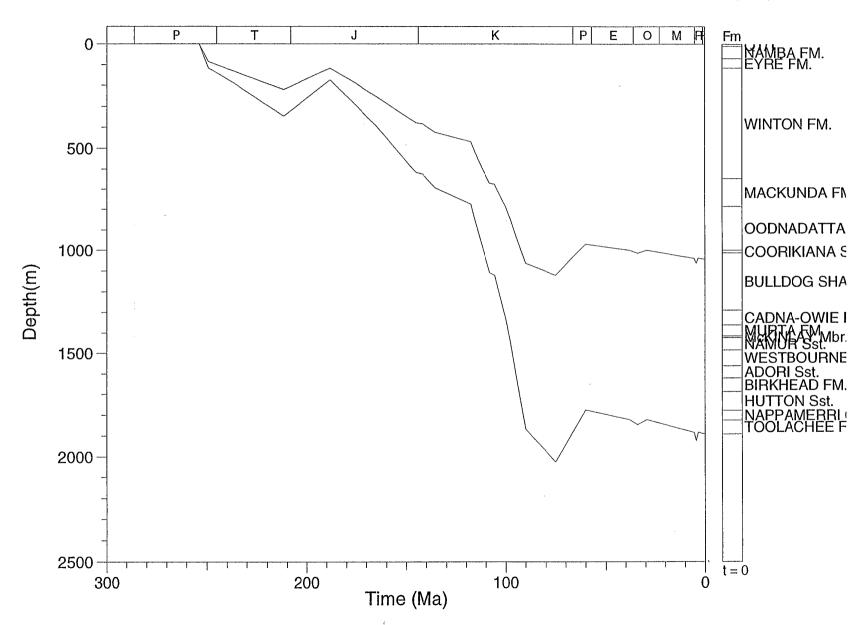
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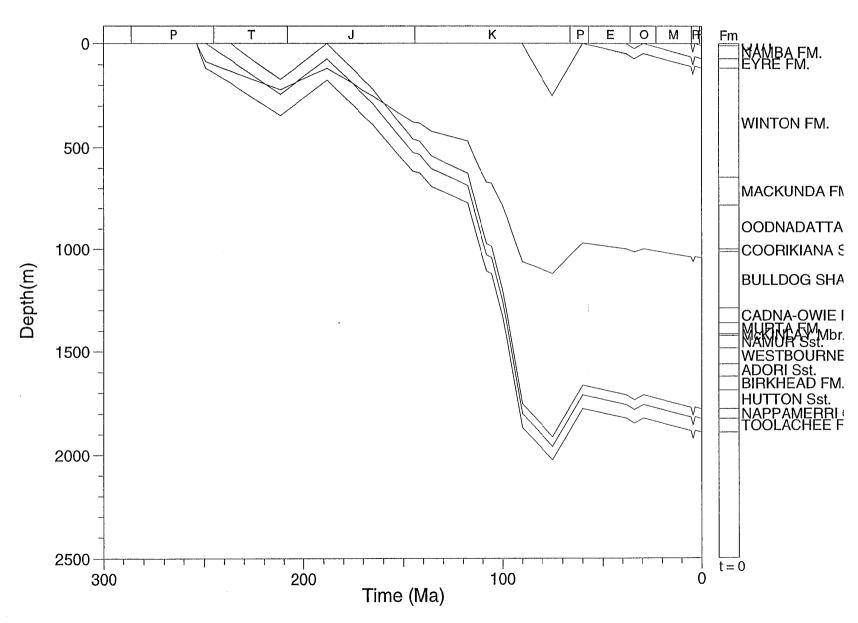




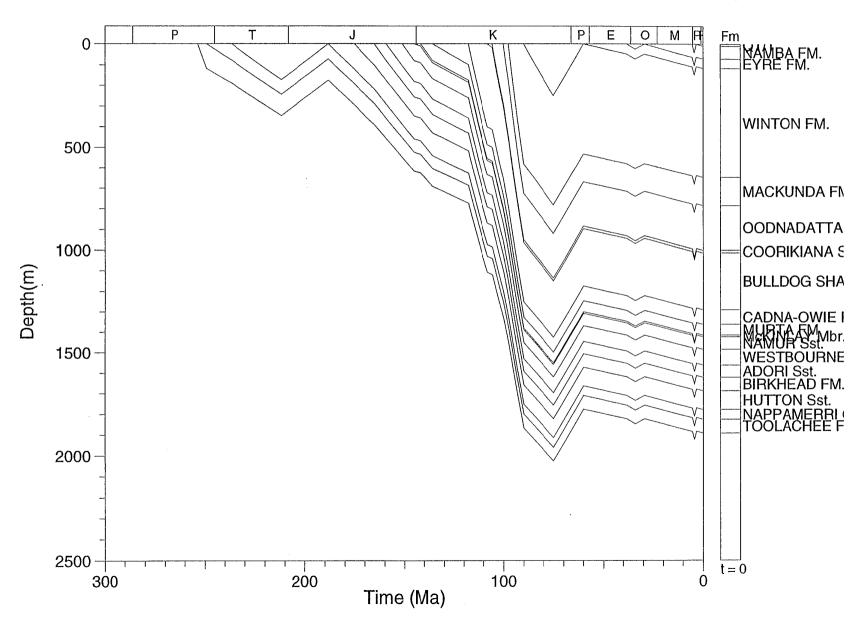




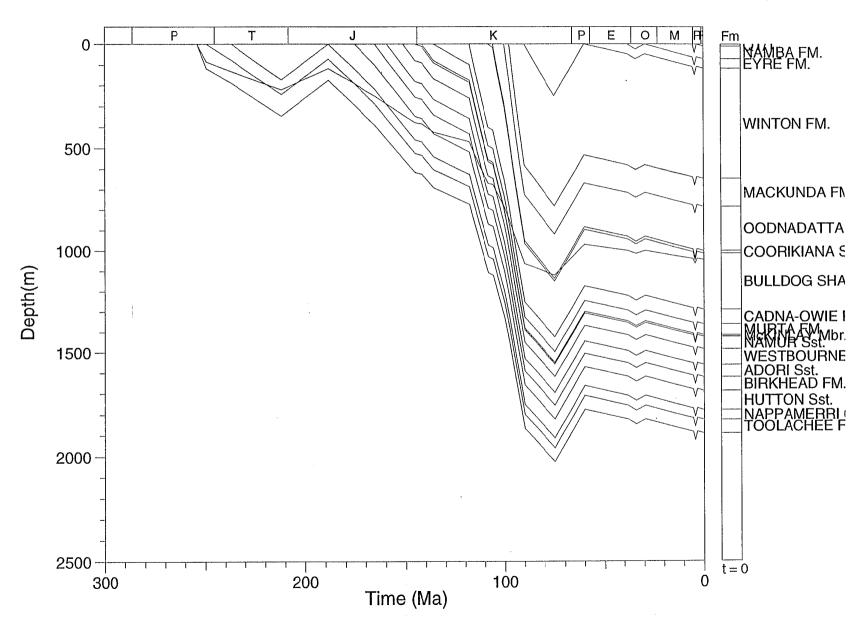




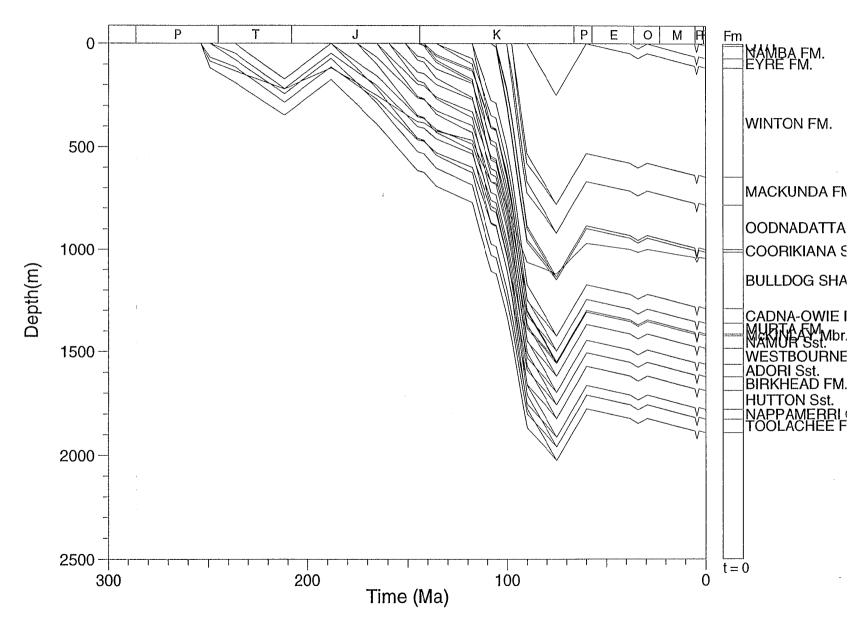




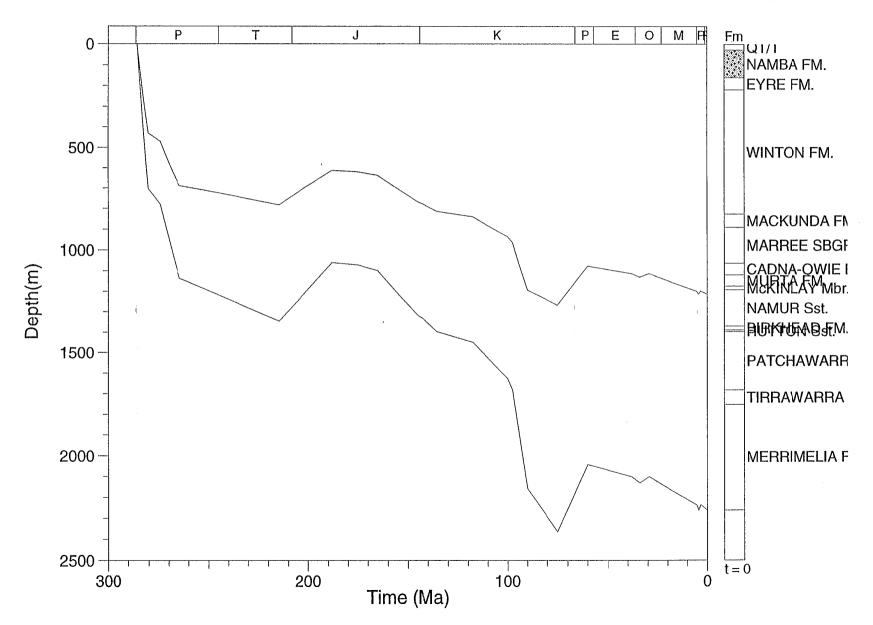






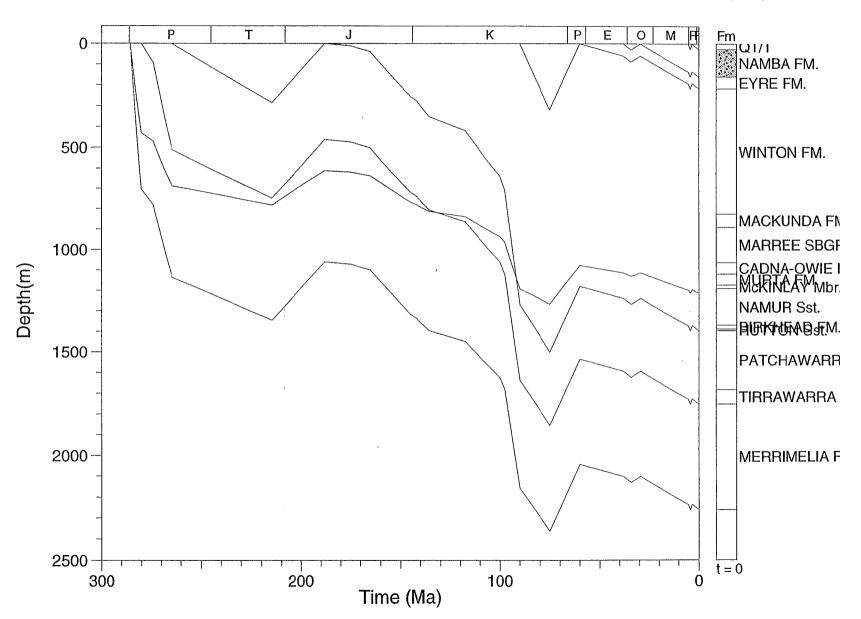




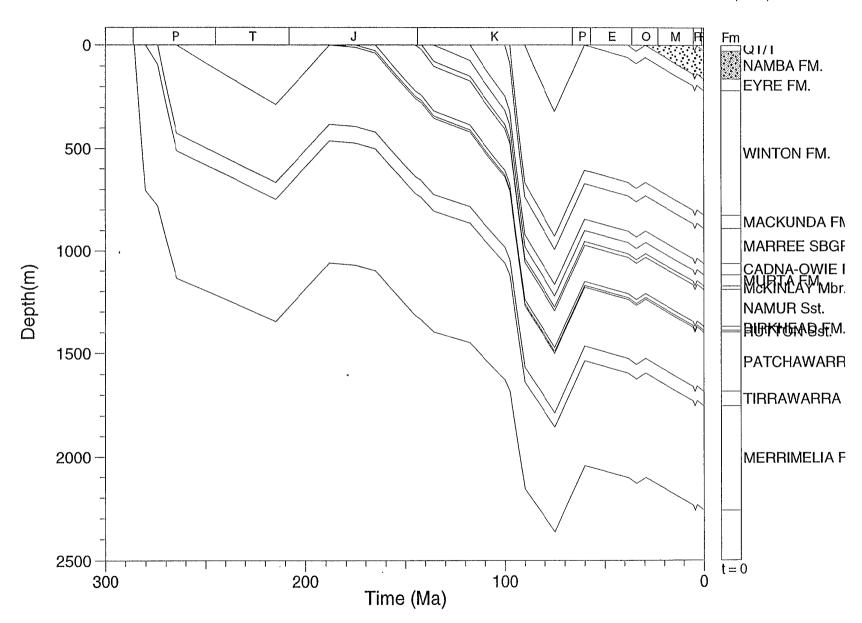




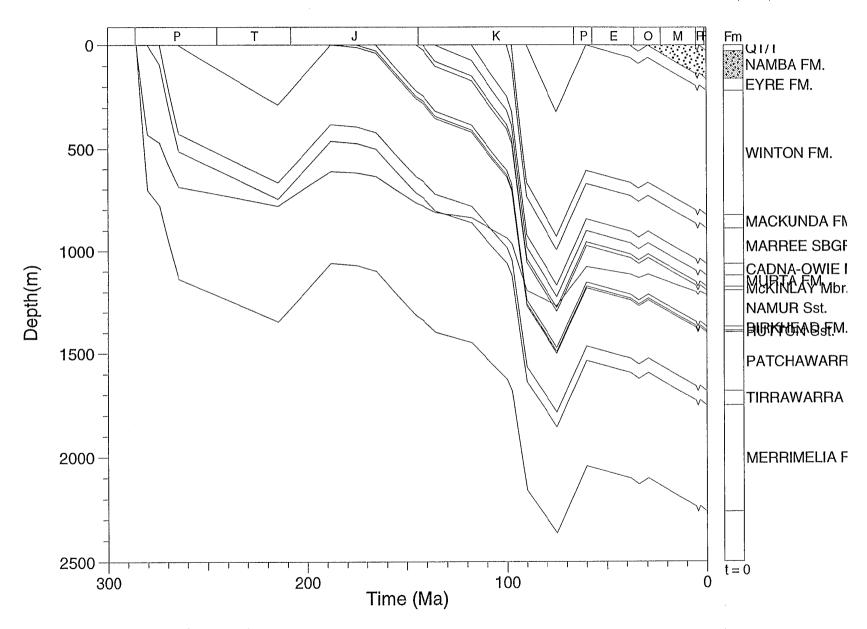




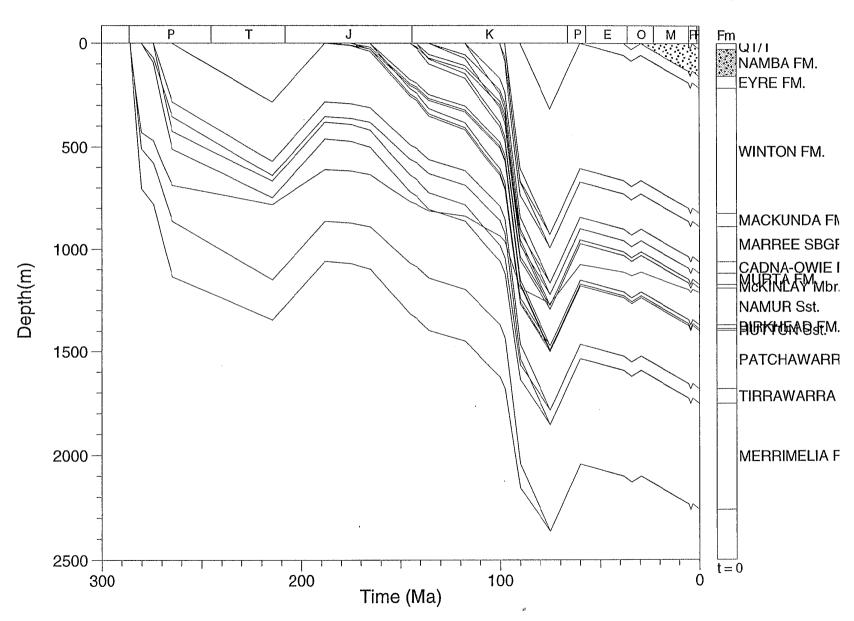




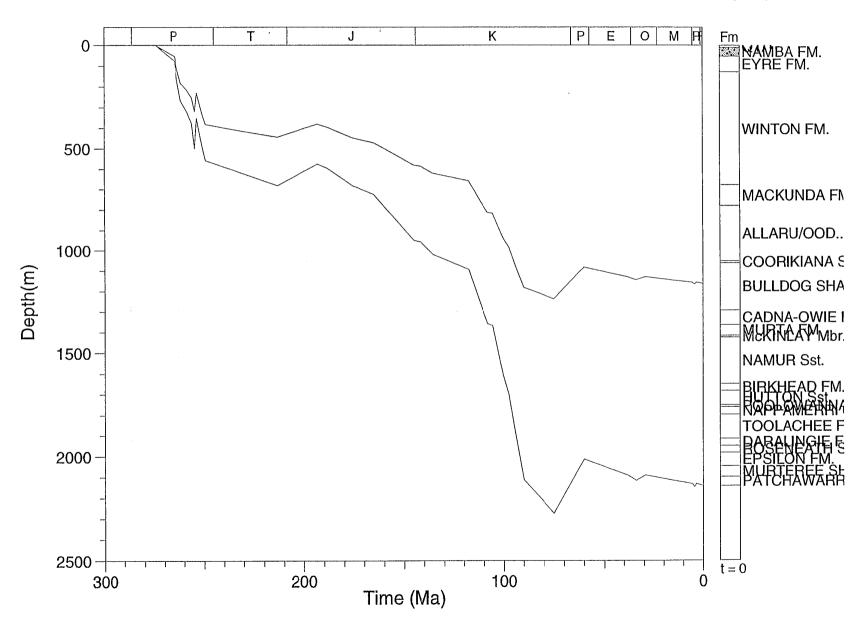




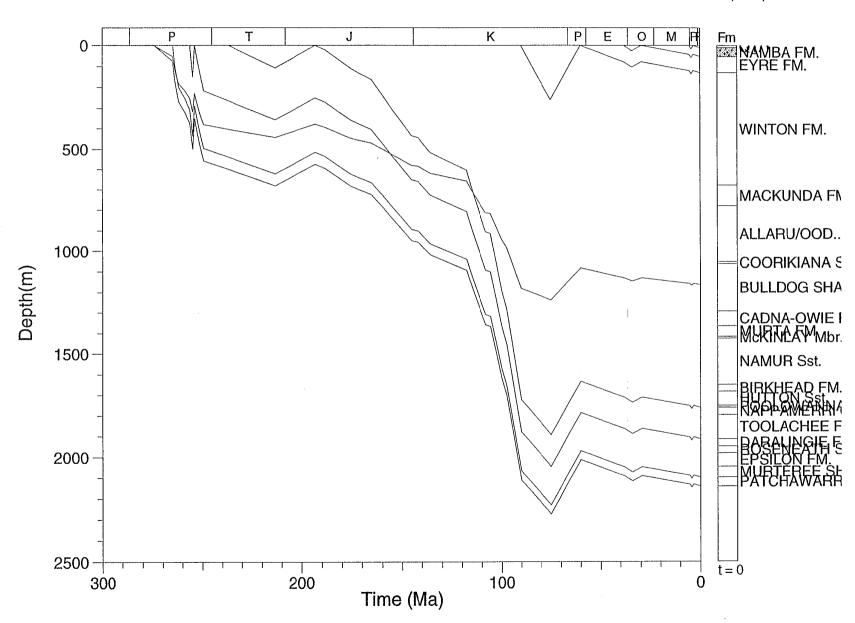




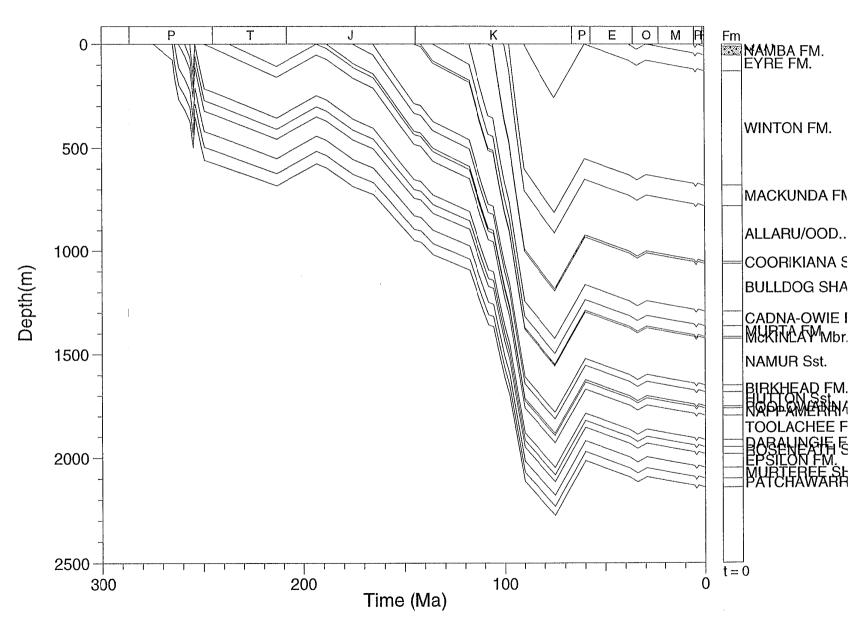




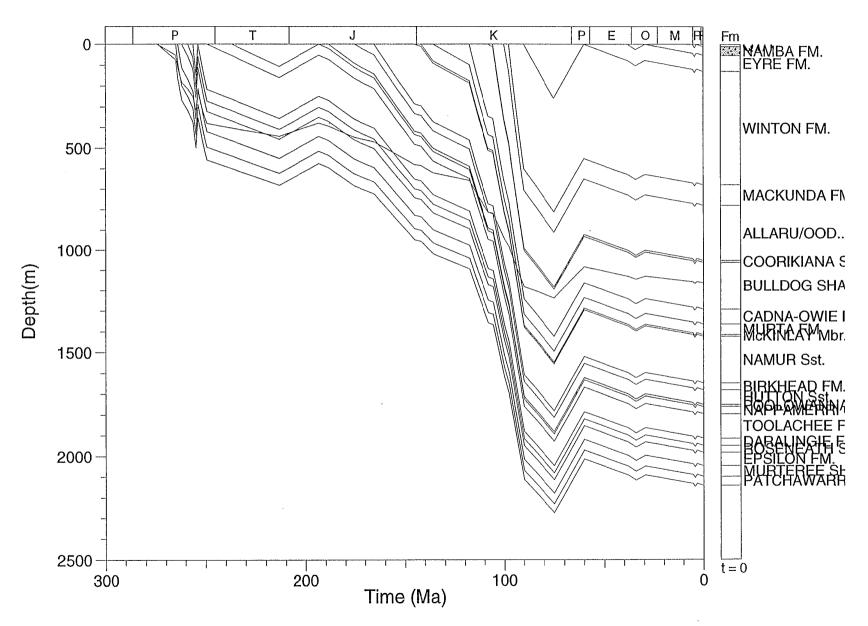




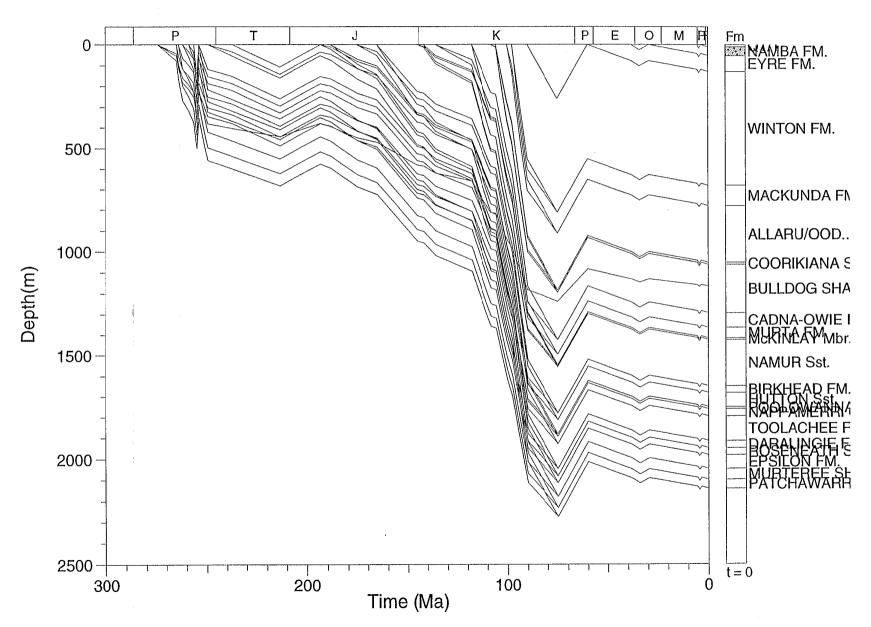










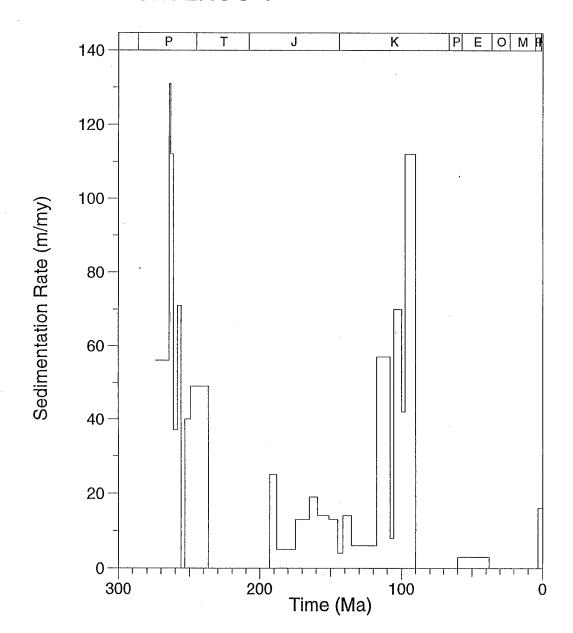


APPENDIX III

SEDIMENTATION RATE Vs TIME

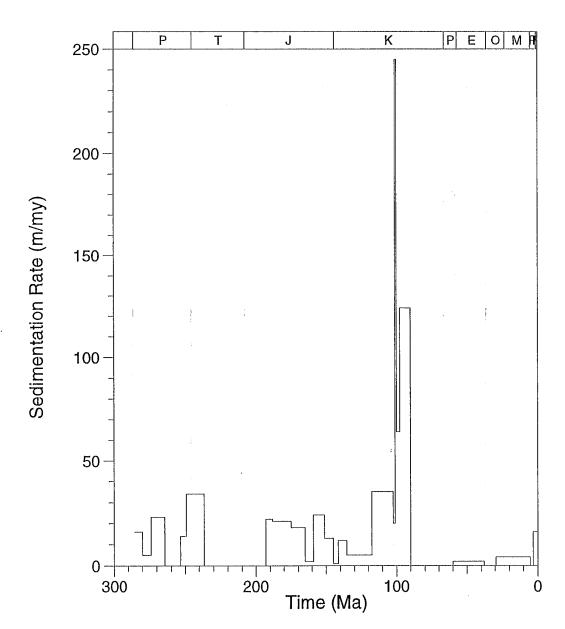






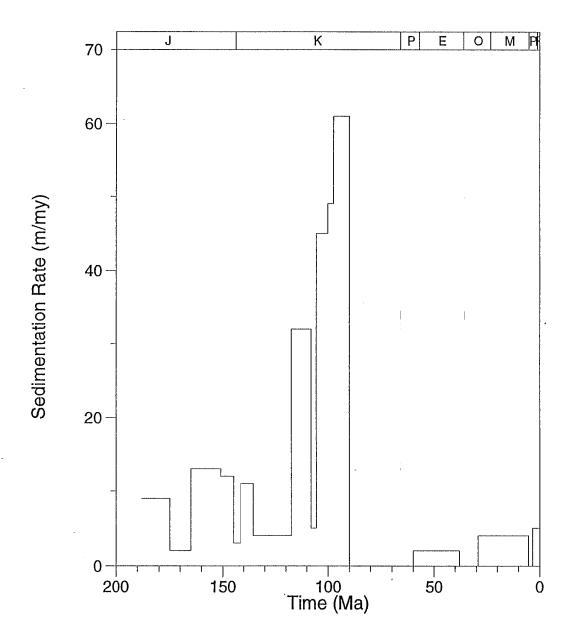






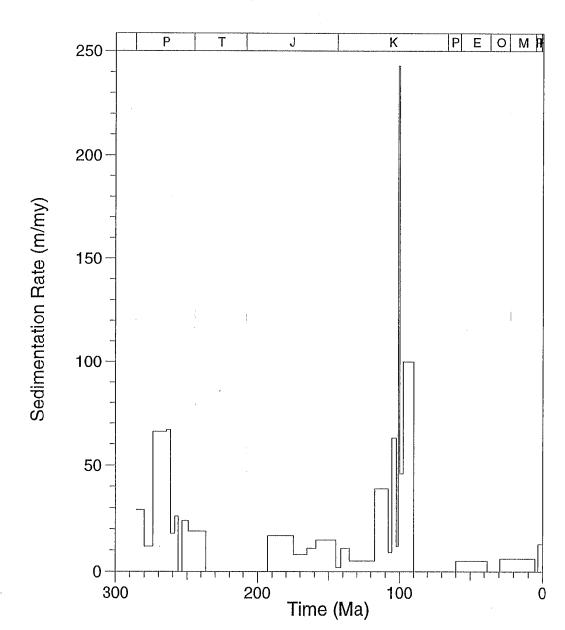






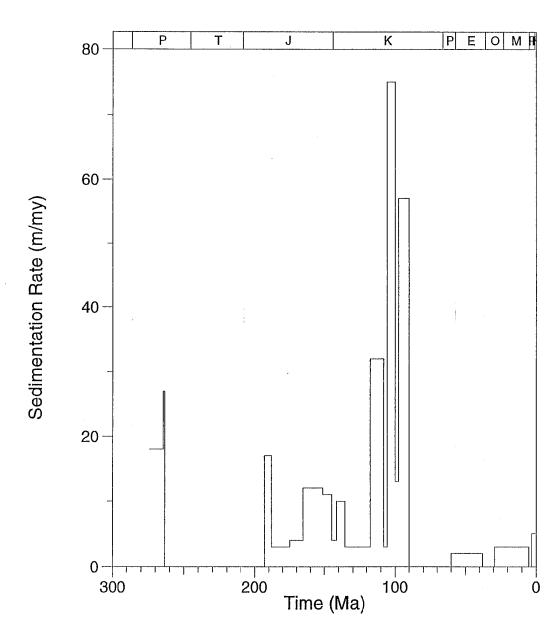






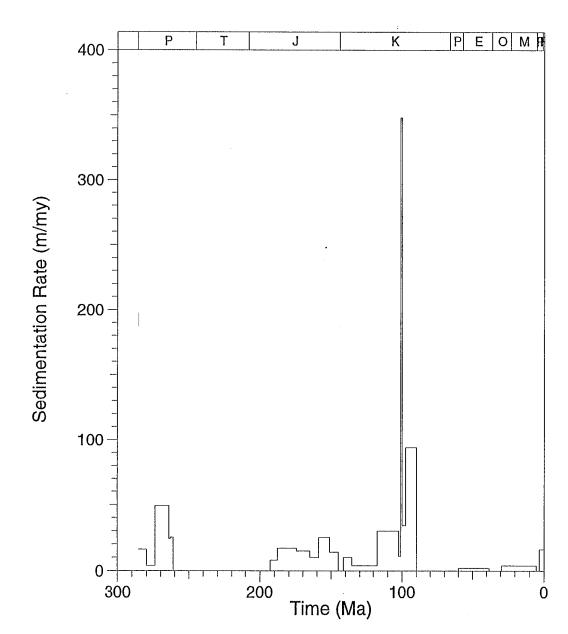






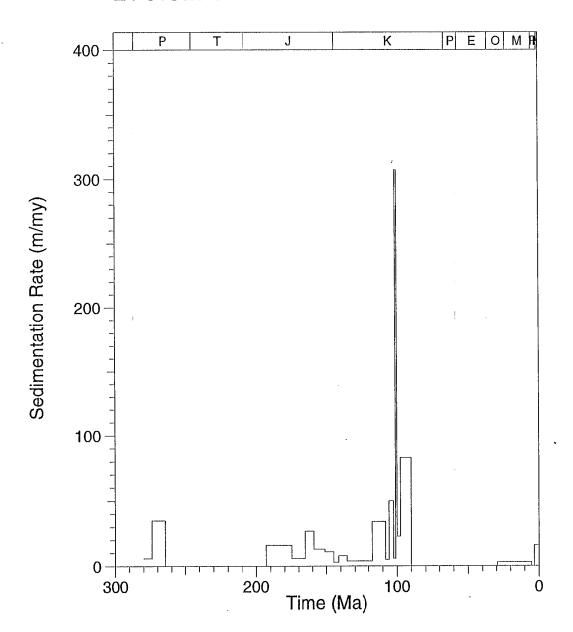






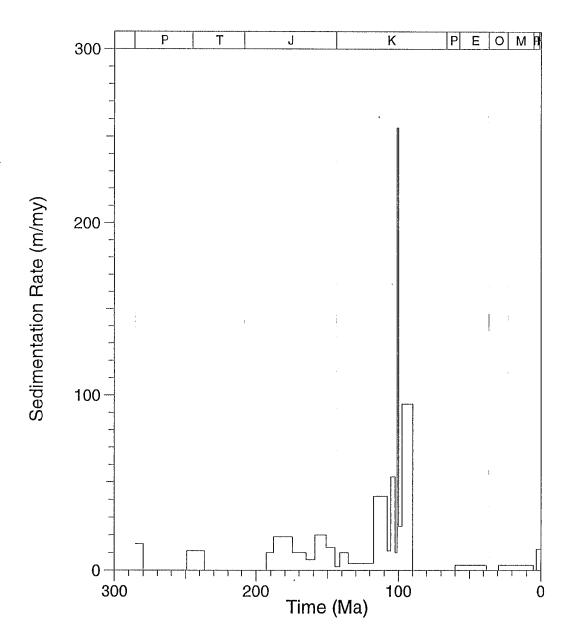






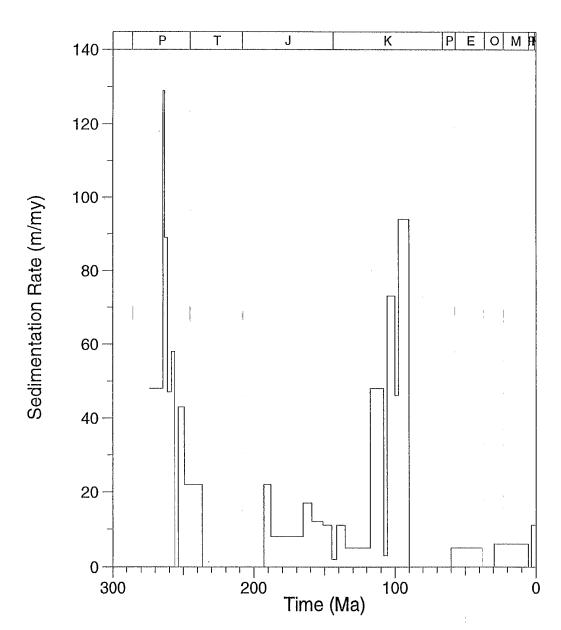






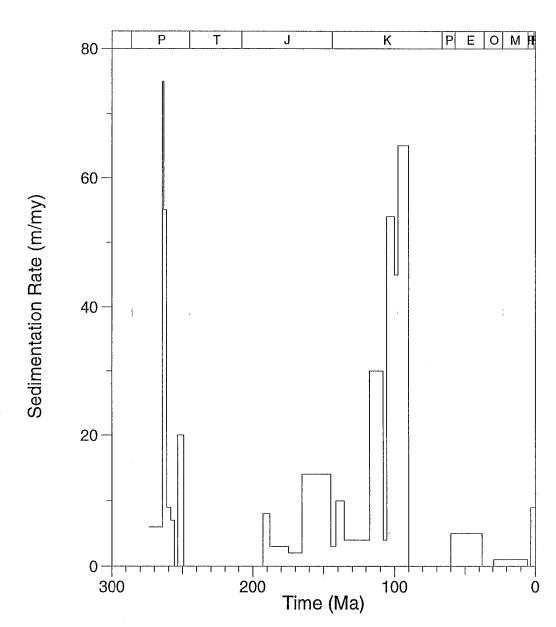






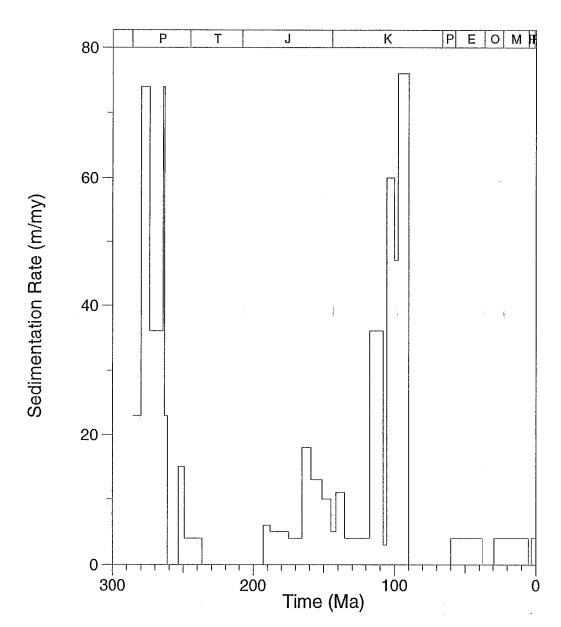






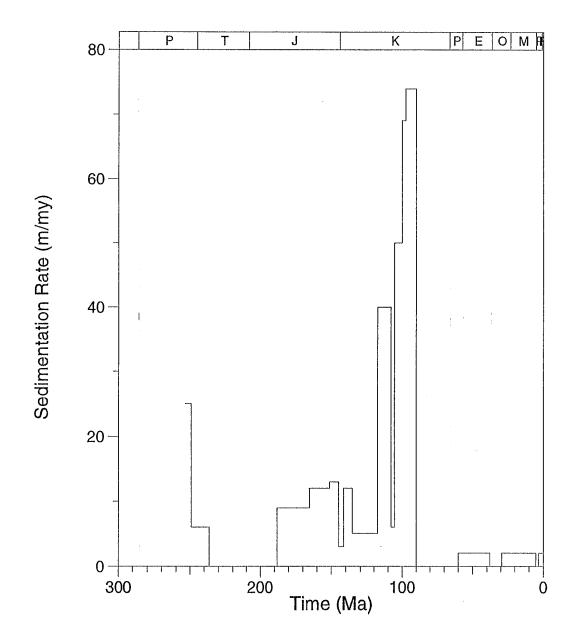






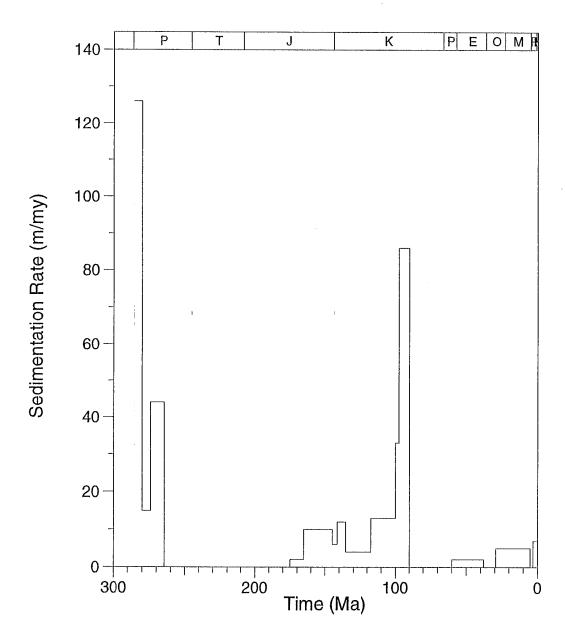






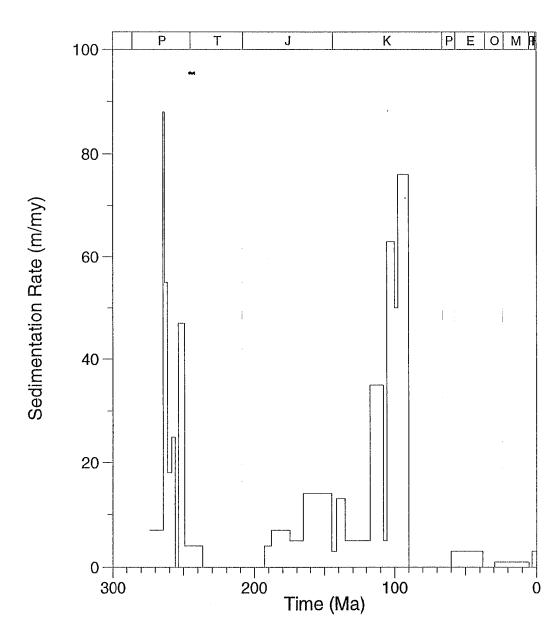










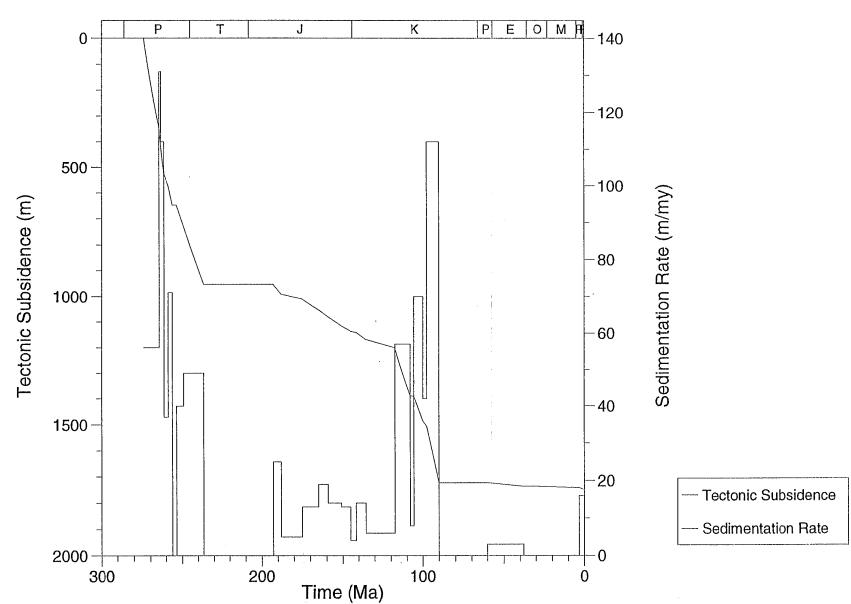


APPENDIX IV

SEDIMENTATION RATE AND TECTONIC SUBSIDENCE Vs TIME

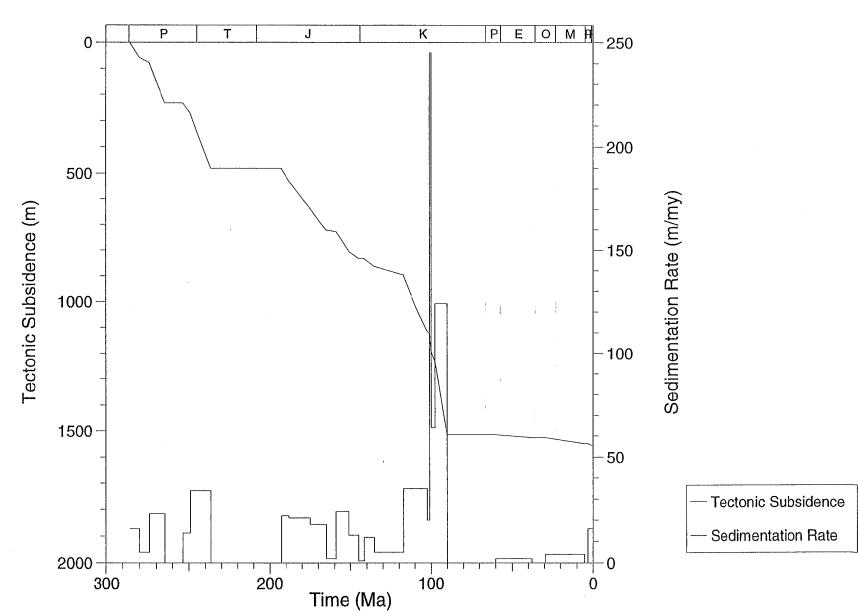


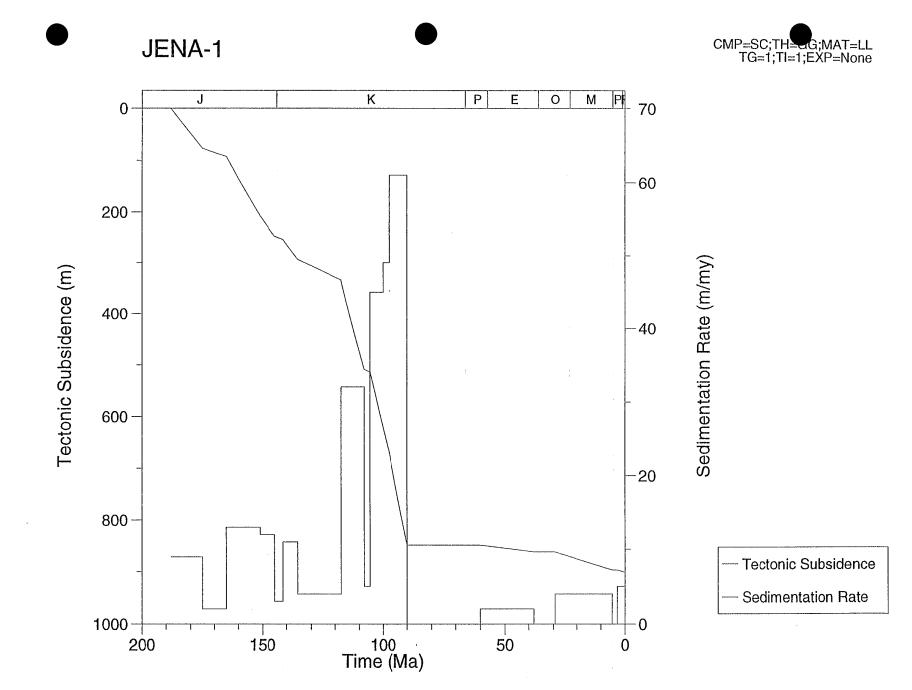






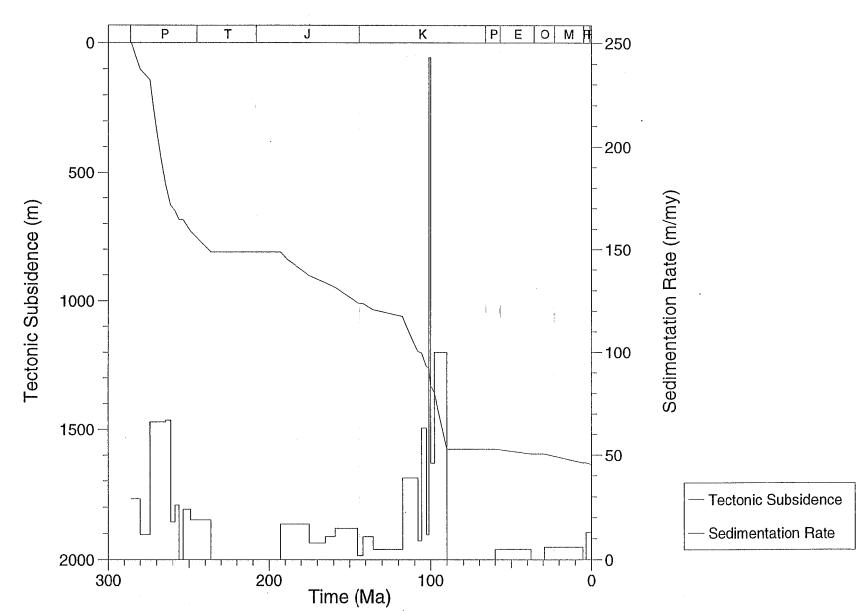


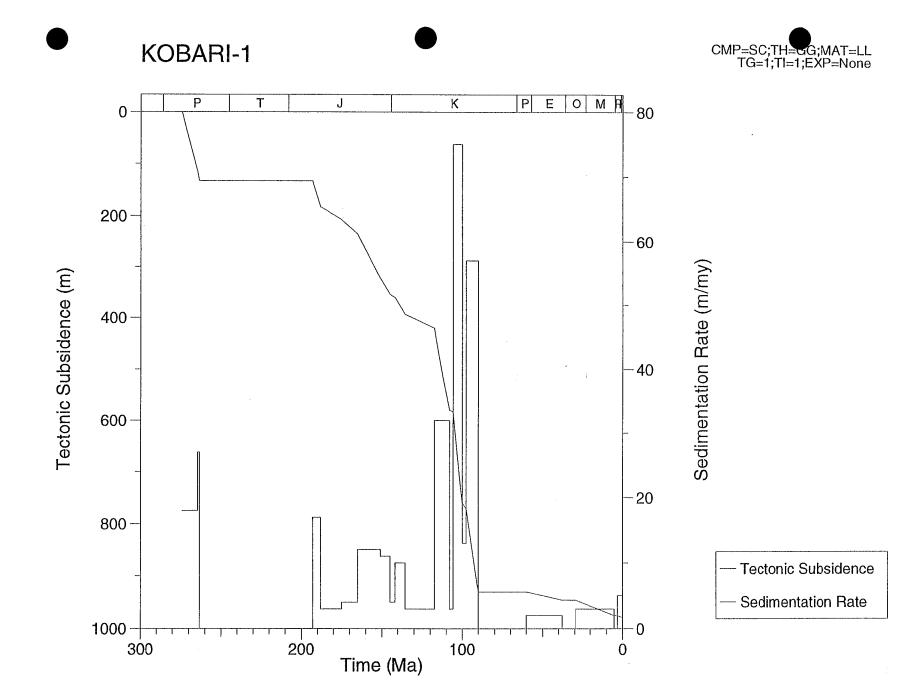






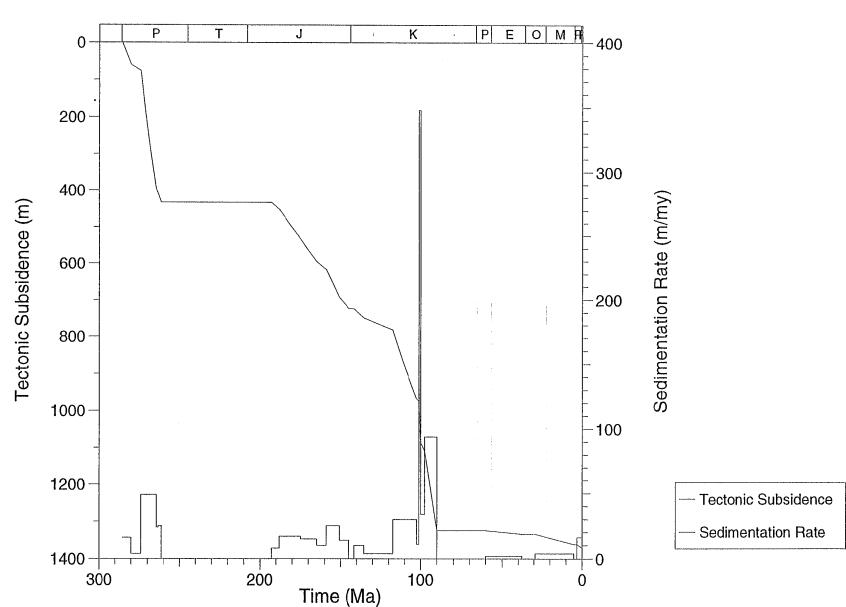


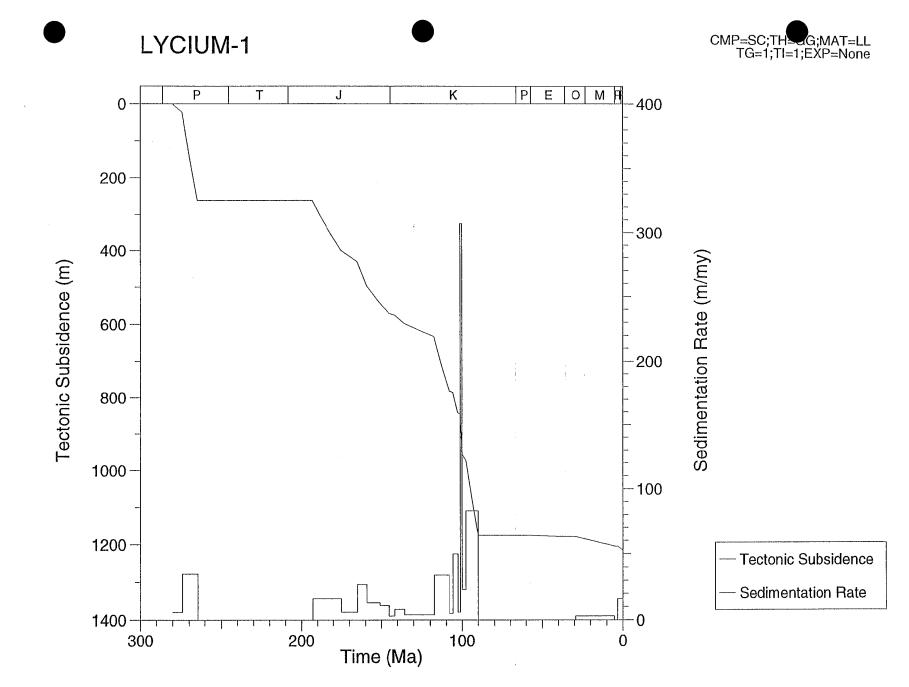


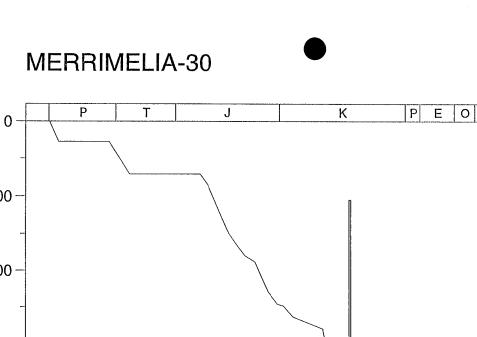






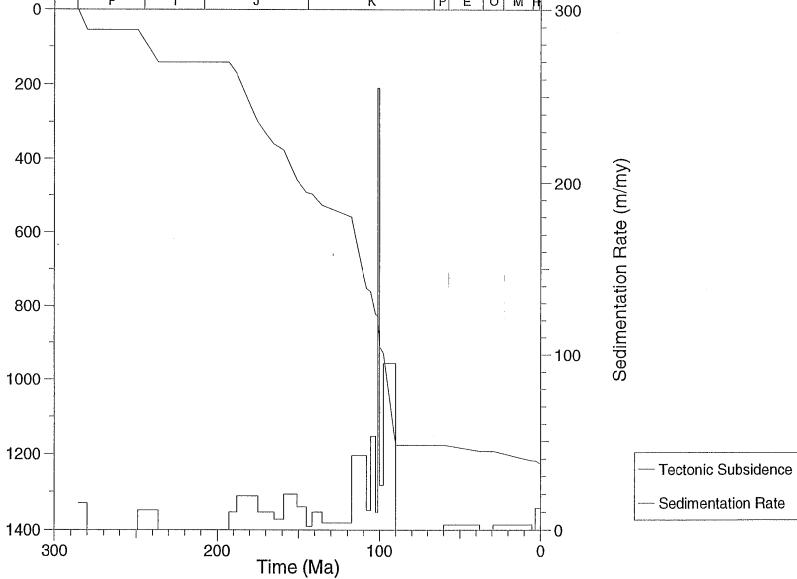






Tectonic Subsidence (m)

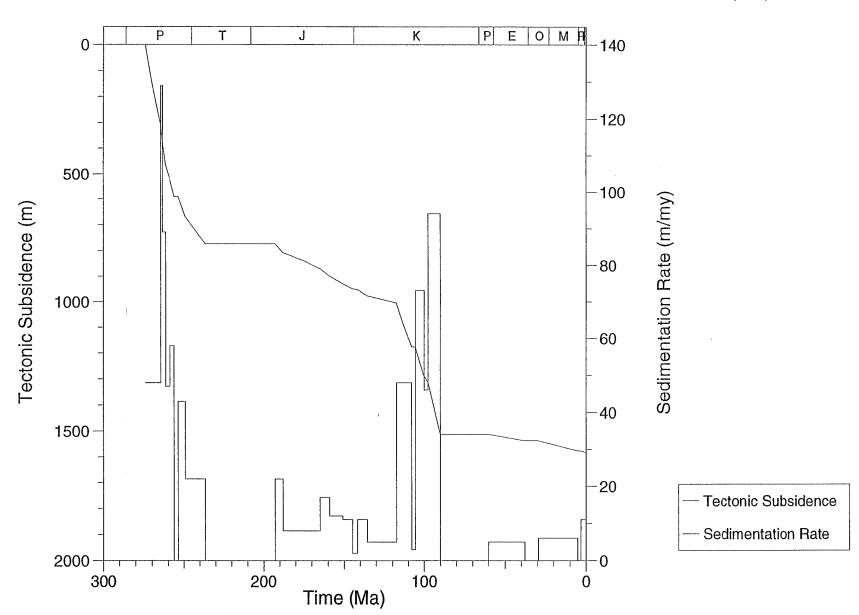




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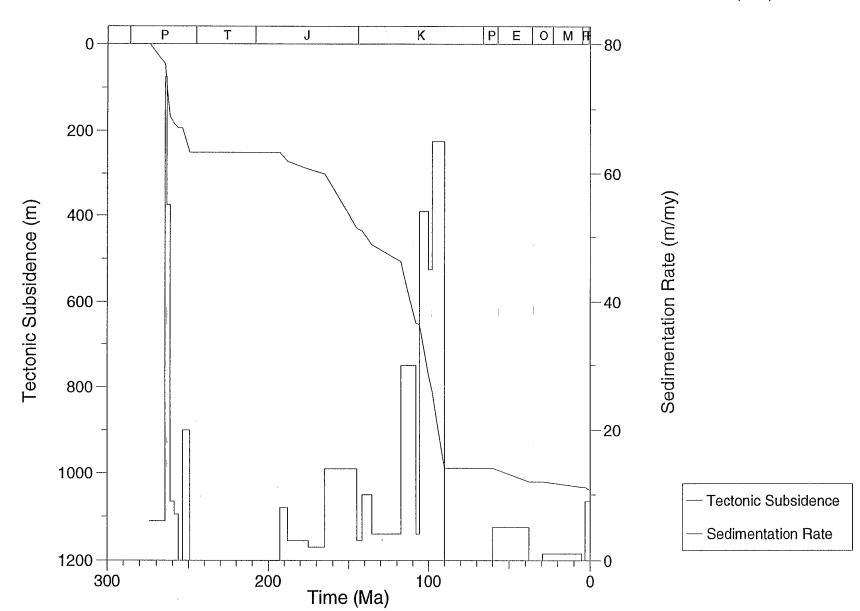




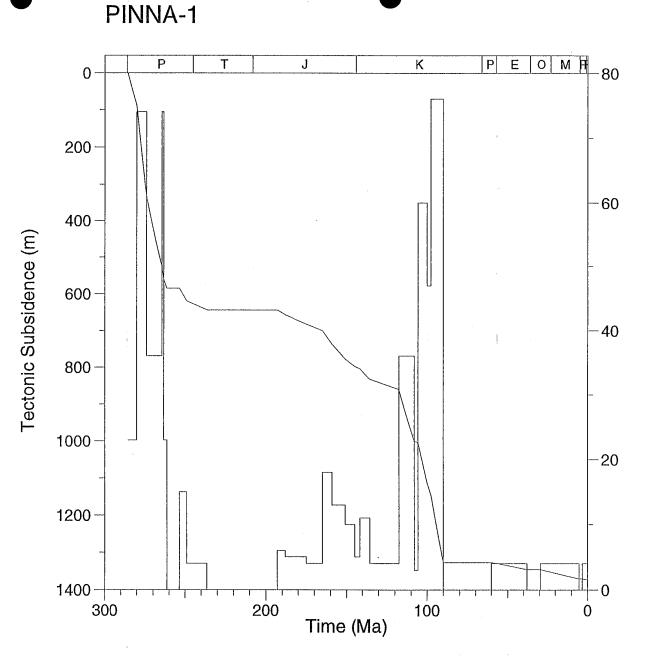












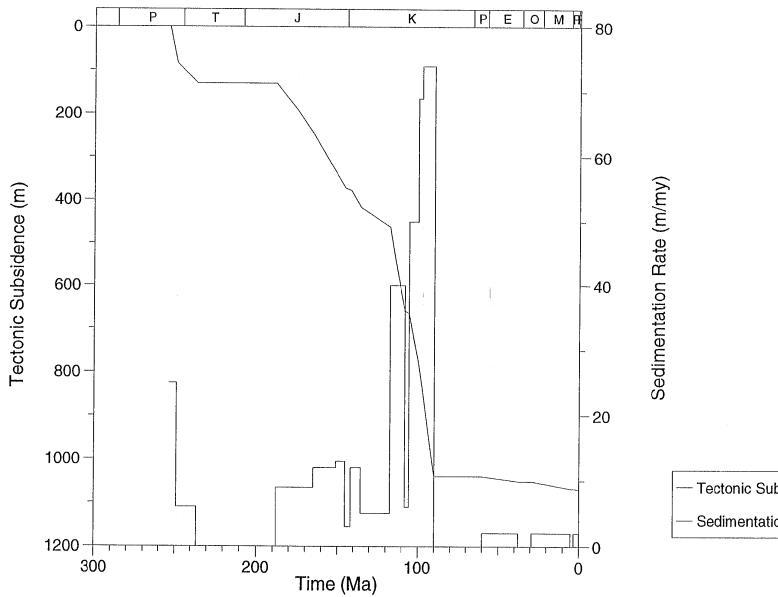
Sedimentation Rate (m/my)

Tectonic Subsidence

— Sedimentation Rate





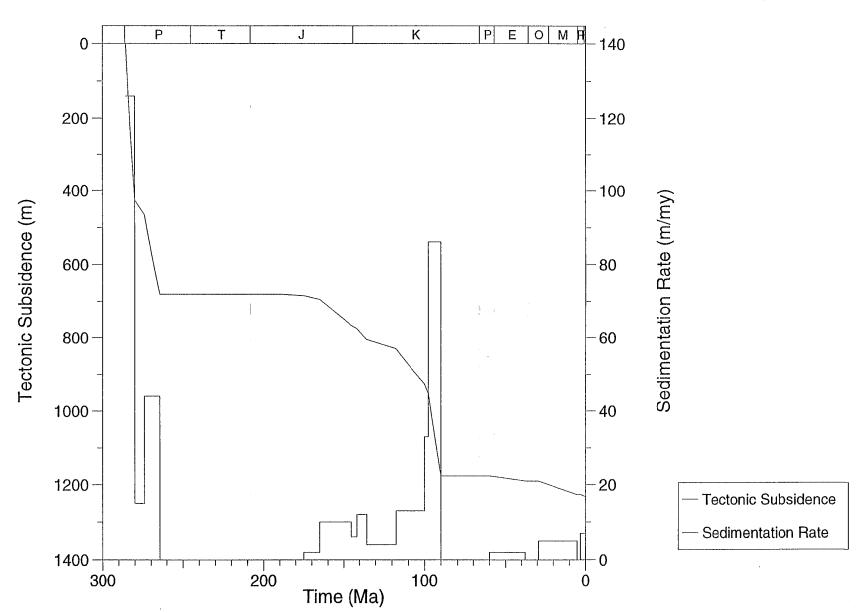


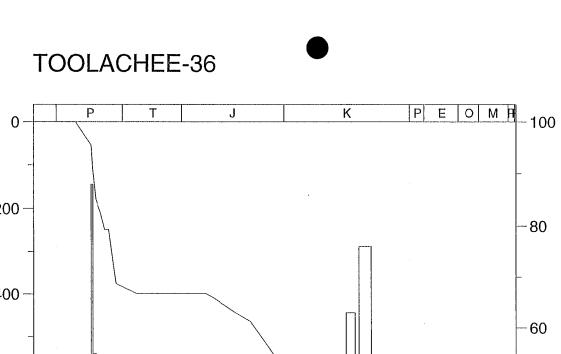
Tectonic Subsidence

Sedimentation Rate

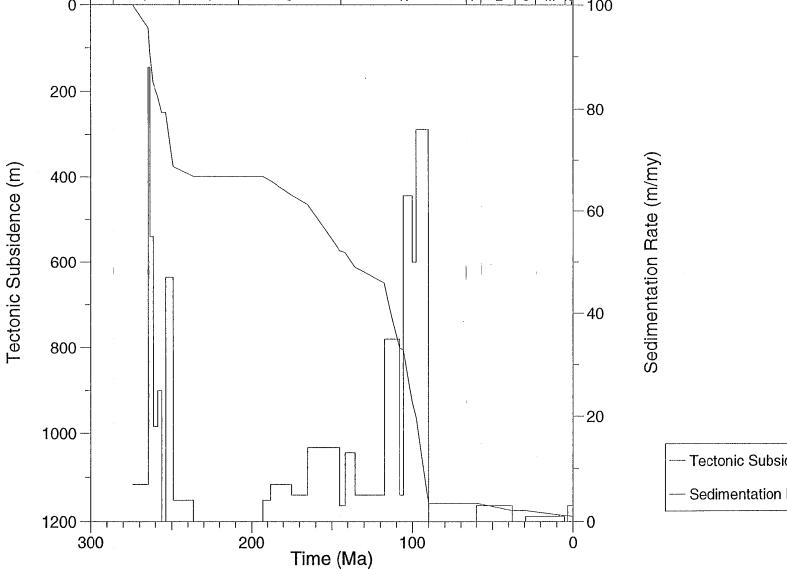












- Tectonic Subsidence

Sedimentation Rate

APPENDIX V

Moussavi-Harami (1966), Petroleum Geology of South Australia Volume II, MESA (in press) and Moussavi-Harami, Alexander and Frears (1996), abstract submitted for 'The Mesozoic of The Eastern Australian Plate Conference'.

BURIAL HISTORY OF THE EROMANGA BASIN IN NORTHEAST SOUTH AUSTRALIA

by

REZA MOUSSAVI-HARAMI

INTRODUCTION

The Eromanga Basin was formed by crustal downwarping of central Australia during the Early Jurassic (Veevers, 1984; Veevers and Li, 1991; Veevers et al., 1991). Sediments of the Eromanga Basin are Early Jurassic to early Late Cretaceous in age; they unconformably lie over the Cooper Basin or older strata and are themselves unconformably overlain by Tertiary sediments of the Lake Eyre Basin. Thickness of Jurassic to Cretaceous sediments in the Cooper Basin region ranges from less than 1200 metres in the Tinga Tingana area in the south to more than 2200 metres in the Patchawarra and Nappamerri Troughs in the north.

Deposition ceased by the end of early Late Cretaceous and the Eromanga Basin became a site of erosion and non-deposition until the Late Paleocene. The Tertiary Lake Eyre Basin unconformably covers the Eromanga succession and consists of three unconformity-bounded sequences.

Knowledge gained from burial history analysis of the Eromanga Basin in northeast South Australia includes: variation in sedimentation and subsidence rates which may be related to tectonic reactivation; timing of structural episodes and erosion patterns, and; constraints on timing of hydrocarbon generation and migration, which will aid future petroleum discoveries.

METHODS AND MATERIAL

The subsurface information comprises stratigraphic data from 1020 petroleum and stratigraphic wells, as well as the Eromanga Basin 'Z', 'P' and 'C' horizons depth structure contour maps. Detailed information used in this study is given in Moussavi-Harami (1996). Burial history diagrams were constructed for 14 wells, whose locations were selected to represent the principal tectonic and stratigraphic elements of the Cooper Basin Region (Figure 1). These diagrams started from the basal unit in the Eromanga Basin. Ages used for the construction of these diagrams were determined by calibrating the palynological work of Price et al. (1985) for the Mesozoic of the Eromanga Basin and other published stratigraphic information (Wopfner, 1974; Wopfner and Cornish, 1967; Wopfner et al., 1970 and 1974; Callen, 1981 and 1990; Moore and Pitt, 1984 and 1985; Moore et al., 1986; Burger, 1986;

Wiltshire, 1989; Krieg et al., 1990, 1991 and 1995; Alexander and Frears, 1995; Gravestock et al., 1995) to the geological time scale (Haq et al., 1987 and 1988; Harland et al., 1990; Paine, 1992; Drexel et al., 1993). For calculations, the 4.2 Unix version of Basin Mod software (1994) of the National Centre for Petroleum Geology and Geophysics (NCPGG) at the University of Adelaide was used. The model of Sclater and Chrisite (1980) was used for the computation of decompacted sediment thickness, because it has been assumed that the rate of sedimentation was relatively high in the Eromanga Basin and this model is more accurate for areas with rapid deposition that result in exponential porosity decrease with depth. Rock types and thickness of each stratigraphic interval were determined from well logs and published regional stratigraphic studies (e.g. Gravestock et al., 1995; Krieg et al., 1995). The only marine sediments are in the middle part of the Eromanga sequence set (or supersequence) and were deposited in a shallow-marine epicontinental sea with the maximum water depth of probably no more than 100 to 150 metres (Moore et al., 1986; Ozimic, 1986; Sherwood and Cook, 1986). Palaeobathymetry variations on a small portion of the studied interval are not likely to affect the burial history diagrams. Consequently no palaeobothymetry correction has been used for construction of these diagrams.

Missing and erosional intervals during each uplift event, are interpreted from the restored isopach maps of each sedimentary package, and published (e.g. Morton, 1987; Eadington et al., 1989; Gravestock et al., 1995; Krieg et al., 1995) and unpublished data (e.g. well completion reports). These maps were constructed by using the interpretation of depositional environment of each unit, the present-day stratigraphic thickness and local and regional structural configuration of basins. Moussavi-Harami (1996) constructed the first regional isopachs of the study area.

STRATIGRAPHIC SEQUENCES

Based on examination of data from 1020 wells, structural contour maps of seismic horizons, published data (Wopfner et al., 1974; Moore and Pitt, 1984 and 1985; Burger, 1986; Morton, 1987; Wiltshire, 1989; Krieg et al., 1990 and 1995; Gravestock et al., 1995; Callen et al., 1995) and unpublished data (Price et al., 1985; Channon and Wood, 1989), four different unconformity-bounded sequences and sequence sets (or supersequences) are identified for the Eromanga and Lake Eyre Basins in northeast South Australia (Figure 2). These sequences range from Early Jurassic to Recent and will be summarised here in ascending order from sequence set J-K to T₃-Q. Details of stratigraphic variations and depositional environments of each unit are given by Alexander and Sansome (this volume).

Sequence Set J-K (Early Jurassic to Late Cretaceous)

This sequence set consists of a stack of three higher order sequences bounded by two major unconformities, one Late Cretaceous and the other Early Jurassic (Figure 2). The lower sequence is non-marine and is overlain by marginal marine to marine rocks of the middle sequence. This part of the interval underlies the upper non-marine sequence at the top (Krieg et al., 1995; Gravestock et al., 1995).

The lower sequence starts with the Early to Middle Jurassic Poolowanna Formation and Hutton Sandstone which unconformably overlie the Permo-Triassic rocks of the Cooper Basin (Figure 2). These siliciclastic sediments were deposited in fluvial environment (Moore, 1986) with parts redistributed across the basin by aeolian and lacustrine processes (Wiltshire, 1989). A restored isopach map of these units indicates that the estimated thickness ranges from 40 metres in the south (Tinga Tingana Trough) to more than 360 metres in the north, where the major depocenter was in the Patchawarra Trough (Figure 3). Toward the south, east and west, these units thin and are replaced (or intertongue) with the Middle to Late Jurassic Algebuckina Sandstone (Figures 2 and 3). In general, the restored isopach map shows that the source points were in the south and southeast and sediments were carried by streams that were flowing from the south toward the north and northwest and redistributed across the study area.

The Birkhead Formation (Middle to Late Jurassic) is composed of interbedded siltstone, mudstone and sandstone with minor coal seams that were deposited in flood-basin lacustrine and meandering fluvial environments (Paton, 1986). The estimated thickness of the unit on the restored isopach map ranges from zero in the south to more than 150 metes in the Patchawarra Trough and increases toward the northeast in Queensland (Figure 4), as shown by Paton (1986). This trend shows that during deposition of the Birkhead Formation, the major depocenter was probably in the northeast, outside the study area (Cooper Region). It thins toward the northwest to less than 70 metres, west of well Charo-1, and intertongues with the Algebuckina Sandstone in the Poolowanna Trough region. Southward, it also thins and reached zero thickness and possibly intertongues with the Algebuckina Sandstone.

The Late Jurassic Adori Sandstone, Westbourne Formation and Namur Sandstone are mainly composed of sandstone, siltstone and minor shale that were deposited in fluvial and lacustrine environments (Wiltshire, 1989; Gravestock et al., 1995) (Figure 2). A restored isopach map of these combined units indicates that the major depocenters were in the Nappamerri and Patchawarra Troughs and the estimated thickness in the study area ranges

from 110 to 290 metres (Figure 5). Thickness of these units decreases to less than 140 metres toward the north (Cordillo Dome) and northwest (over the Birdsville Track Ridge), beyond the Cooper region. Generally, the differences in thickness between ridges and troughs are mainly related to differential compaction, rather than tectonic sinking. Northwest-southeast thinning of this interval in the northwestern part of the study area is probably related to the beginning of structural growth of the Late Jurassic to Early Cretaceous in the west (Figure 5).

The youngest unit in the lower non-marine sequence is the Early Cretaceous (Neocomian) Murta Formation which is composed of interbedded siltstone, shale and very fine-grained sandstone that were deposited in lacustrine environment (Ambrose et al., 1986). A restored isopach map of the Murta Formation shows that this interval has a relatively uniform thickness in the Cooper Region and the difference between troughs and structural ridges are mainly related to differential compaction (Figure 6). Thickening of this unit toward northeast indicates that the depocenter was further to the northeast in Queensland. Thinning of this interval toward the northwest to 20 metres, replacing or intertonguing with the Namur or Algebuckina Sandstones over the Birdsville Track Ridge, shows the structural growth during the Late Jurassic to Early Cretaceous to the west (Ambrose et al., 1986) (Figure 6).

The middle marine sequence of the Eromanga Basin starts with the Lower Cretaceous (Neocomian to Aptian) siliciclastic sediments of the Cadna-owie Formation (sequence K₁; Figure 2) deposited during early transgressive and high stand systems tracts in marginal marine and high energy shoreline environments (Wopfner et al., 1970; Moore and Pitt, 1985). A restored isopach map of this unit shows that the estimated thickness ranges from 40 to more than 114 metres and the major depocenters were mainly in the Nappamerri and northern Patchawarra Troughs (Figure 7). The estimated thickness of this unit decreases to less than 50 metres toward the northwest over the Birdsville Track Ridge. Another depocenter was present in the Allunga Trough and Dunoon Embayment, where more than 90 metres of sediments were deposited in contrast to less than 60 metres over the Murteree Ridge (Figure 7). It is interpreted that the thickness of the Cadna-owie Formation in the Milpera Embayment and Tinga Tingana Trough is 65 and 70 metres respectively, with the unit correspondingly thin (45 metres) over the Milpera Ridge (Figure 7).

The mid to late Early Cretaceous Marree Subgroup (sequences K_2 and K_3 ; Figure 2) is mainly composed of marine shale, siltstone and sandstone. The upper part of the Bulldog Shale and Wallumbilla Formation (sequence K_2) were deposited during the first major transgression (transgressive systems tracts, TST) in a shallow marine environment, while the

Coorikiana Sandstone was deposited during eustatic fall of sea-level in a shoreline environment (Morgan, 1980). The maximum transgression (maximum marine flooding surface, MFS; sequence K₃) took place during deposition of the Toolebuc Formation which is composed of black calcareous siltstone and mudstone with marine fauna, and is represented by a condensed section that can be traced for hundreds of kilometres in South Australia and southwest Queensland (Moore et al., 1986; Ozimic, 1986). A second condensed section (possibly MFS; sequence K2) has also been identified as a separate entity from the Toolebuc Formatio (Alexander and Sansome, this volume). The fine-grained sediments of the Allaru Mudstone and Oodnadatta Formation were deposited during regression in low energy shallow marine environment (Morgan, 1980; Moore and Pitt, 1985).

The youngest unit in the middle marine sequence is the Mackunda Formation which consists of interbedded glauconitic sandstone, siltstone and shale deposited in a marginal marine environment. The estimated thickness of the Marree Subgroup and Mackunda Formation on the restored isopach map ranges from 250 to 900 metres (Figure 8), where the major depocenters were in the Nappamerri and northern Patchawarra Troughs. The unit also thickens toward the northeast in Queensland. The estimated thickness over the structural ridges was probably less than 600 to 700 metres and the differences are probably related to compaction rather than tectonic sinking. These units thin toward the northwest (less than 300 metres) over the Birdsville Track Ridge and thicken again toward the Poolowanna Trough in the western Eromanga Basin (Alexander and Jensen-Schmidt, 1995). This is possibly related to structural activity of the Birdsville Track Ridge that allowed more sediments to be deposited on both of its flanks.

The upper non-marine sequence of the Eromanga Basin is the Winton Formation (Late Cretaceous) which is composed of interbedded siltstone, shale and sandstone with numerous thin coal seams deposited in fluvial to lacustrine environments (Krieg et al., 1995). The estimated thickness of the Winton Formation on the restored isopach map in the study area ranges from 275, in the south, to more than 1125 metres, in the northeast in the northern Patchawarra Trough, at the South Australian-Queensland border (Figure 9). This unit thins toward the north and east (Innamincka Dome), where it is exposed at surface and the top is eroded. It is interpreted that the maximum thickness over the Innamincka Dome was about 800 metres and more than 300 metres of sediments have been eroded during the Late Cretaceous to Early Tertiary from this area (Figure 9). Another depocenter was probably present in the southern Nappamerri Trough, were more than 950 metres of sediments may have been deposited before thinning toward the south and southeast. The maximum estimated thickness in Mettika and Kidman Embayments was probably 700 to 725 metres,

respectively, and the Winton Formation gradually thins over the Toolachee ridge (Figure 9). It is well worth noting that the maximum thickness over the Gidgealpa-Merrimelia-Innamincka and Murteree-Nappacoongee Ridges is less than in the troughs and this is also probably related to differential compaction between these areas. Southward, this unit thickens to 600 metres in the Milepera Embayment and Tinga Tingana Trough and thins again toward the south and east.

A restored isopach map of the entire supersequence (J-K) indicates that the thickness ranges from 1100 to 3000 metres in the study area (Figure 10). During deposition, two major depocenters were present in the southern Nappamerri and northern Patchawarra Troughs, where it is interpreted up to 3000 metres of sediments were deposited (Figure 10). Over the ridges (such as GMI) and structural highs (such as Moomba and Bulyeroo), the thickness varies from 1500 to 2300 metres, while in the troughs, the thickness increases. These differences are mainly related to differential compaction rather than regional tectonic activity. In general, this supersequence thins towards the northwest over the Birdsville Track Ridge to less than 1600 metres, but thickens again in the Poolowanna Trough (Alexander and Jensen-Schmidt, 1995). It should be noted that the isopach map reflects the pre-Jurassic structural elements (ridges and highs) that were reactivated during Late Triassic diastrophism in the Cooper Basin and formed the basement of the Eromanga Basin.

Sequence T₁ (Late Paleocene to Mid Eocene)

This sequence consists of the Eyre Formation that disconformably overlies the Winton (Late Cretaceous) and underlies the Namba (Middle to Late Tertiary) Formations respectively (Figure 2). It is mainly composed of sandstone with minor interbeds of lignite deposited in broad shallow braided stream systems (Wopfner et al., 1974; Gravestock et al., 1995; Callen et al., 1995). Thickness of this unit on the restored isopach map ranges from 30 to 140 metres in the Callabonna Sub-Basin (Figure 11). It is interpreted that two major depocenters in the Cooper Basin region were present in the southern Nappamerri and Allunga-Wooloo Troughs, separated by the Moomba high, and more than 140 metres of sediments have been deposited in these regions (Figure 11). This unit thins over the Nappacoongee and Strzelecki highs, but thickens over Toolachee Field and the maximum estimated thickness was probably more than 120 metres. In the southernmost part of the study area, the maximum interpreted thickness of the Eyre Formation is about 100 metres within the Tinga Tingana Trough and thins toward the margins of the basin in the south and east.

In the Patchawarra Trough, the maximum estimated thickness was about 130 metres in the central part, north of the Tirrawarra and Moorari Fields (Figure 11). Variation in thickness in the central Patchawarra Trough reflects the structural movement after deposition of this unit in this area (Figure 11). Over the Innamincka Dome, this unit is probably eroded and the upper Eromanga sequence crops out at the surface. Over the Gidgealpa-Merrimelia Ridges, the thickness ranges from 60 to 80 metres and the differences with troughs is mainly attributed to differential compaction.

Sequence T₂ (Late Oligocene to Late Miocene)

This sequence is represented by the Namba Formation, composed of interbedded sandstone, siltstone, shale and dolomite locally, deposited in alkaline lake to fluvial environments (Gravestock et al., 1995; Callen et al., 1995). It disconformably overlies the Early Tertiary and is disconformably overlain by the latest Tertiary and Qauternary sequence (Figure 2). A restored isopach map of the Namba Formation shows that the estimated thickness ranges from 30 to 210 metres and the major depocenter was in the western Allunga Trough (Figure 12), where the thick basal dolomite of the Namba was deposited in a broad shallow lake. In the Patchawarra Trough, it is interpreted that three separate or possibly connected lakes (depocenters) may have been present in the Late Oligocene to Late Miocene. It should be noted that the central part of the Patchawarra Trough (Tirrawarra Field) received less sediment during deposition of the Namba Formation (Figure 12). This is mainly related to structural activity (uplift) in this area, after deposition of the Eyre Formation, during the Late Eocene to Early Oligocene. Based on the structural contour map at the top of the Winton Formation (Late Cretaceous) (Morton, 1987), another depocenter may have existed south of the Merrimelia Ridge, in the southern Nappamerri Trough and more than 140 metres of sediments were deposited in this area (Figure 12). This unit thins towards the northwest (over the Birdsville Track Ridge) and reached to less than 90 metres.

Another depocenter was probably present west of the Pando Field, where the estimated maximum thickness of the Namba Formation was more than 180 metres in this area. This unit thins towards the south, over the Dunoon Ridge, but thickens again to 170 metres. This indicates that a series of depressions or lakes existed in the study area, as described for other parts of South Australia (Callen, 1981, 1990). Thinning of the Namba Formation in the eastern Strzelecki is probably related to uplift during the Mid Tertiary that prevented deposition of the thick basal dolomite.

Sequence T₃-Q (Late Pliocene to Quaternary)

This sequence unconformably overlies the Namba Formation and comprises sand, silt and clay units with some dense evaporite horizons in soils, deposited in fluvial channel, saline lake and aeolian environments (Callen, 1992; Callen et al., 1995; Gravestock et al., 1995). An isopach map of surficial, post-Namba Formation units, indicates that their thickness ranges from zero to more than 60 metres (Figure 13). Northeast-southwest thinning of these units, to less than 20 metres over ridges (GMI and M-N) shows that structural activity of the basement (rising) caused these ridges to be sites of erosion and sediment bypass rather than deposition (Figure 13).

BURIAL HISTORY

Burial history analysis is very important in order to place constraints on the timing of thermal maturation of organic matter, and generation and migration of hydrocarbons in a sedimentary basin. Thermal maturity of organic matter progressively increased as sediments subsided through time. The rate of total subsidence varies and depends on geological setting. For example, the subsidence rate in a tectonically active area, such as a rift basin, is much more than that in an intracratonic basin, which is mostly stable through time. For simplicity, the terms used in this paper for comparison of the relative subsidence rate are given in Table 1.

Burial history diagrams were constructed for 14 wells in northeast South Australia (Figure 1). For simplicity, the burial history diagrams of 6 wells (Cuttapirrie-1, Merrimelia-30, Moomba-57, Jena-1, Strzelecki-5 and Tinga Tingana-1), representing the key tectonic and stratigraphic elements of the Cooper Basin region, are presented in this paper (Figures 14 to 18). Detailed discussion of the burial history of the Cooper, Eromanga and Lake Eyre Basins in northeast South Australia are given by Moussavi-Harami (1996). Interpretation is presented here in ascending order from sequence set J-K to T-Q and mostly from the northern to southern part of the study area.

Sequence Set J-K

After a long period of uplift and erosion from Late Triassic to Early Jurassic, continental downwarping within the Australian landmass created the Eromanga Basin and sedimentation continued from the Early Jurassic to Late Cretaceous (approximately from 193 to 90 Ma), without any major break. As stated earlier, the Eromanga Basin succession can be divided into three parts and the burial history of each part is discussed in ascending order.

Lower non-marine succession

In the Patchawarra Trough and on the Merrimelia Ridge, the subsidence rate above the basal unconformity was initially moderate (average 10.3, 14.2 and 10.9 metres per m.y. in Lycium-1, Cuttapirrie-1 and Merrimelia-30, respectively), during deposition of the Poolowanna Formation and Hutton Sandstone, and decreased to an average of 5.5 to 9.5 metres per m.y. during deposition of the Birkhead Formation (about 175 Ma) (Figure 14). The higher subsidence rate was mostly related to rapid deposition of coarse-grained siliciclastic sediments in fluvial environments, and to tectonic subsidence. The lower rate can be attributed to less sedimentation and compaction rates in the Patchawarra Trough (Figure 19). As seen on the restored isopach map of the Birkhead Formation (Figure 4), two major depocenters were present in the southern Patchawarra Trough and north of Cuttapirrie-1. As a result, the rate of subsidence in these areas was higher (average 8.25 and 9.1 metres per m.y. in Kuenpinnie-1 and Cuttapirrie-1, respectively) than other parts of the basin.

Due to a high rate of coarse-grained siliciclastic sedimentation (Adori Sandstone, Westbourne Formation and Namur Sandstone) in the Late Jurassic (approximately 165 to 145 Ma) (Figure 19), the subsidence rate increased again in the northern part of the study area (average 10 and 11 metres per m.y. in Merrimelia-30 and Cuttapirrie-1, respectively; Figure 14). However, during deposition of the Murta Formation (Neocomian), the subsidence rate was low to moderate (approximately 6.5 metres per m.y.) in the Patchawarra Trough which resulted from a low rate of fine-grained siliciclastic sedimentation in the lacustrine environment (Figure 19).

During Early to Middle Jurassic, the rate of subsidence in the Wooloo Trough (average 11 metres per m.y. in Kirralee-1) and the Moomba high (average 10.46 metres per m.y. in Moomba-57; Figure 15) was relatively moderate and higher than the Nappamerri and Allunga Troughs (average 7.1 metres per m.y. in Buyleroo-1 and 3.46 metres per m.y. in Pinna-1). This can be related to higher rate of coarse-grained siliciclastic sedimentation in this area. It should be noted that during the Later Jurassic (approximately 175 to 165 Ma), differential compaction in the Nappamerri Trough created more accommodation for deposition of fine-grained sediments of the Birkhead Formation in a lacustrine environment. Subsequently, the rate of subsidence during this period was higher in the Nappamerri Trough (average 13.5 metres per m.y.) than over the Moomba high (about 8 metres per m.y.). During the Tithonian (165-145), the subsidence rate in the central part of the study area was moderate, ranging from 13.5 metres per m.y. in Moomba-57 to 20 metres per m.y. in

Buyleroo-1. This again resulted from rapid deposition of very coarse-grained siliciclastic sediments (Figure 19), differential compaction between trough and high, as seen on restored isopach map (Figure 5), as well as tectonic sinking (Figure 15). At the beginning of the Early Cretaceous, the subsidence rate decreased again, resulting from a low rate of fine-grained siliciclastic sedimentation of the Murta Formation.

During deposition of the Early to Middle Jurassic sediments in the southern and southeastern portions of the study area, the subsidence rate was low, ranging from 3.08 metres per m.y. in Mulga-2 to 4.88 metres in Jena-1 (Figure 16) and Kobari-1. This low rate was due to onlap of sediments over the Murteree Ridge and on the margin of the Cooper Basin region. Note that during deposition of the Birkhead Formation (175 Ma), the subsidence rate decreased to an average of 3 to 5 metres per m.y., which resulted from a low fine-grained siliciclastic sedimentation rate. Due to rapid deposition of coarse-grained terrigenous sediments of the Adori Sandstone, Westbourne Formation and Namur Sandstone in the Late Jurassic (approximately 165 to 145 Ma), the subsidence rate in the south and southeast increased to an average of 14 metres per m.y. (Figure 17). This was less (about 12 metres per m.y.) in Kobari-1 and Tinga Tingana-1 (Figure 18).

In general, from the Early Jurassic to Early Cretaceous, the rates of subsidence decreased from the north (average 15 metres per m.y. in Cuttapirrie-1) toward the south (about 6.22 metres per m.y. in Tinga Tingana-1). This can also be seen on the restored isopach map of the J-K sequence set, where the major depocenter was in the northern Patchawarra Trough and the thickness of sequence increases toward the northeast into the Queensland, while it gradually thins toward the northwest and southeast (Figure 10).

Marine succession

Due to comparatively greater downwarping of the northern part of the Australian continent in the Early Cretaceous (approximately 135.5 Ma), the epicontinental sea transgressed from northeast toward the south and southwest into the South Australian portion of the Eromanga Basin. The oldest marine unit is the Cadna-owie Formation (sequence K_1 ; Figure 2) that was deposited as a hightstand systems tract in high-energy shoreline to shallow marine environments. The rate of subsidence was relatively low during deposition of the Cadna-owie Formation(Figures 14-18), averaging 4 to 5 metres per m.y. in the Patchawarra Trough and the Nappamerri Trough. This rate decreased toward the south to an average of 3 metres per m.y. in the Kobari Embayment and Tinga Tingana Trough.

this time is mainly due to deposition of fine to medium-grained siliciclastic sediments rather than tectonic sinking (figure 19).

The first major transgression started in the Aptian (about 117.5 Ma) and lasted through Early Albian time (108 Ma). This transgression created sufficient accommodation space for very rapid deposition of a thick fine-grained siliciclastic sequence of the Bulldog Shale and the Wallumbilla Formation (sequence K2; Figure 2). It should be noted that maximum marine transgression was reached during deposition of the upper Bulldog Shale and equivalents, which is also consistent with global sea-level curves of Haq et al. (1987, 1988). During this period, the rate of subsidence was high in the northern Patchawarra and central Nappamerri Troughs, averaging 43.20 and 42.11 metres per m.y. in Cuttapirrie-1 (Figure 14) and Buyleroo-1, respectively, as a result of higher rate of fine-grained siliciclastic sedimentation in a marine environment (Figure 19), as well as basement subsidence. This higher sedimentation rate was possibly related either to slumping and mass flow processes on a mildly unstable shelf, or to rapid deposition along reactivated major faults in these areas. However, it decreased to an average 32.63 and 26.32 metres per m.y. over ridges (Merrimelia-30 and Jena-1; Figures 14 and 16). The difference between troughs and ridges can be attributed to sediment loading and compaction and possibly to minor tectonic subsidence, as suggested by Zhou (1989). A restored isopach map of the Marree Subgroup also shows that the maximum thickness of these units was more than 900 metres in the northern Patchawarra and Nappamerri Troughs, increasing toward the northeast into the central Eromanga Basin in Queensland (Figure 8). Note that this very high subsidence rate decreases gradually toward the west and northwest to about 28.95 metres per m.y. in Lycium-1 in the southern Patchawarra Trough. By comparison, approximately 1000 km further west, close to the southwestern margin of the basin, the subsidence rate is 4.3 metres per m.y. in Manya-5 (Officer Basin ; Moussavi-Harami and Gravestock, 1995), and is probably related to sediment loading rather than tectonic activity. During this period, the subsidence rate in Kirralee-1 (about 33.5 metres per m.y.) was less than in Moomba-57 (41.05 metres per m.y.; Figure 15), because the former is located at the margin of the Wooloo Trough. Due to a lower rate of fine-grained siliciclastic sedimentation, the subsidence rate also decreased to 31.58, 27.37 and 28.11 metres per m.y. in Strzelecki-5 (Figure 17), Toolachee-36 and Mulga-2, respectively. Further south, the subsidence rate decreased in Kobari Embayment (about 25.89 metres per m.y. in Kobari-1) and reduced to 12.57 metres per m.y. for the total Marree Subgroup in the Tinga Tingana Trough (Figure 18), where the sedimentation rate was relatively low (Figure 19).

In middle Albian Time, the sea regressed toward the east and the Coorikiana Sandstone was deposited, during a lowstand phase of sedimentation in a shoreline environment (Figure 2). During the late Albian, sea-level rose again rapidly worldwide, and maximum transgression took place during this period, depositing mainly marine shales and mudstones of sequence K3 (upper Marree Subgroup) (Figure 2). During this period, the basin subsided at a relatively higher rate in troughs (e.g. 46.8 metres per m.y. in Bulyeroo-1) than on ridges (e.g. 27.5 metres per m.y. in Jena-1). This is interpreted to be caused in part by very high rates of finegrained siliciclastic sediment loading and compaction rather than tectonic activity (Figure 19). A restored isopach map of the Marree Subgroup and Mackunda Formation shows that a major depocenter may have been present in the southern Nappamerri Trough and the maximum rate of subsidence may have taken place in this area, but the paucity of data does not allow a better understanding in support of this interpretation (Figure 8). During deposition of these units, the subsidence rate was lower in the south (average 25 and 16 metres per m.y. in Kobari-1 and Tinga Tingana-1, respectively), which resulted from a lower rate of sedimentation in this area (Figures 18 and 19). Overall, the subsidence rate during late Albian to early Cenomanian, Mackunda Formation deposition (Figure 2), was higher in the northern Patchawarra Trough (approximately 52 metres per m.y. in Cuttapirrie-1; Figure 14) than other parts of the study area. This high subsidence rate can be related to sediment loading and compaction, as well as probably tectonic sinking. The subsidence rate decreased toward the northwest in the southern Patchawarra Trough (average 23.2 metres per m.y. in Lycium-1). This is interpreted to be related to a lower rate of sedimentation (as shown on restored isopach map; Figure 8) and compaction, as Lycium-1 approaches the crest of one of the structures which comprises the Birdsville Track Ridge. Southward, subsidence also decreased to an average of 14 and 30 metres per m.y. in Kobari-1 and Tinga Tingana-1 which is mainly related to lower sedimentation rate over relatively shallow proterozoic basement, but with continued subsidence of the Tinga Tingana Trough.

Upper non-marine succession

This period of subsidence, which created more accommodation space for deposition of marine sequences (K_1 , K_2 and K_3) was followed by a fall of sea level and the study area became a site of continental sedimentation. During the Late Cretaceous (Cenomanian), the rate of subsidence was much higher in the northern Patchawarra Trough (average 122.67 metres per m.y. in Cuttapirrie-1) and the Nappamerri Trough (113.33 metres per m.y. in Bulyeroo-1) than over the intervening GMI Ridge (average 93.33 metres per m.y. in Merrimelia-30) (Figure 14). This was mainly due to differential compaction and very rapid deposition of medium to fine-grained siliciclastic sediments of the Winton Formation in

fluvial and lacustrine environments, as well as tectonic sinking along the old zones of weakness, as suggested by Moore and Pitt (1984). A restored isopach map of the Winton Formation (Figure 9) also shows that the major depocenter was in the northern Patchawarra Trough. More than 1125 metres of sediments were deposited in this area, thickening toward the northeast into Queensland. Southward, the subsidence rate decreased to an average of 60 metres per m.y. in Kobori-1, but increased to 85.33 metres per m.y. in Tinga Tingana Trough (Figure 18), which resulted from more sediment loading and basement subsidence in trough. It is worth noting that the subsidence rate in Toolachee-36 and Strzelecki-5 was about 77 metres per m.y. which somewhat much lower than in troughs to the north (Figure 17). This difference again is probably related to a lower rate of sedimentation and compaction between ridges and troughs (Figure 19). Thinning of the Winton Formation toward the margin of the basin in mainly related to severe erosion during Late Cretaceous to Early Tertiary time (e.g. Alexander et al., 1996).

In relation to a very high subsidence rate in Early to Late Cretaceous, Gallagher and Lambeck (1989) suggested that subsidence of the Eromanga Basin in the Jurassic can follow a simple thermally-based mechanism, by which subsidence rate decreases exponentially to nearly linear with time. However, from the mid-Cretaceous (about 110 Ma), the rates of subsidence increased suddenly by about 5 to 10 times that of the earlier Jurassic and lasted for about 20 m.y. through the Late Cretaceous. These authors concluded that this rapid subsidence rate during deposition of marine and upper non-marine portions of the Eromanga Basin resulted from variation in sediment influx, with sediment sourced from an active volcanic are located off the east coast of the Australian continent, rather than from a primarily tectonic mechanism beneath the lithosphere of the Eromanga Basin. Zohu (1989) also suggested that the abnormal subsidence during deposition of marine and upper nonmarine portions of the Eromanga may be related to 1) regional tectonic compression that was generated by rifting processes on the southern and eastern margin, 2) by active volcanoes along the northeast margin of the continent, and 3) by metamorphic phase transition in the deepest parts of the crust from eclogite to granulite. Based on this study, the high subsidence rate, during the Early to Late Cretaceous, is mainly related to rapid deposition of fine-grained siliciclastic sediments in marine and non-marine environments, as well as possibly tectonic subsidence along reactivated major faults.

Winton Unconformity

The Winton epoch of sedimentation and subsidence was followed by a period of uplift and erosion from Turonian to Late Palaeocene (approximately from 90 to 60 Ma; Figure 2). This

is attributed to east-west directed basement compression on regional scale, starting from the eastern margin of the continent (Veevers, 1984; Shaw, 1991). This period of non-deposition is shown as a horizontal segment on the tectonic and total subsidence curves (Figures 14a to 18a). A restored isopach map of the Eromanga sequence set shows that more than 3000 metres of sediments may have been deposited in the Cooper Basin region, within the Patchawarra and Nappamerri Troughs, increasing into southwestern Queensland (Figure 10). Moore and Pitt (1984) estimated that up to 800 metres of the Winton Formation were eroded from the crests of major structures in southwest Queensland where erosion was severe, while this erosion was less in South Australia. It is calculated that more than 350 metres of sediments were eroded over the Innamincka Dome where the Winton Formation crops out at the surface; this is similar to estimates suggested by Moore and Pitt (1984). Based on a restored isopach map of the J-K sequence set, it is calculated that the amount of section lost at the top Winton unconformity ranges from 150 to 440 metres (Table 2). The maximum estimate of section lost was in Cuttapirrie-1 close to the margin of the Cooper Basin which is possibly related to the initiation of movement of the Cordillo Dome in the north, prior to deposition of the Eyre Formation. The amount of section lost during the Late Cretaceous to Early Tertiary, for 6 modelled wells is presented in Table 2. Lost section is also shown by upward movement of the curves on the interpretive burial history diagrams (Figures 14b to 18b).

Sequence Set T-Q

During the Late Paleocene to Middle Eocene (approximately from 60 to 38 Ma), sedimentation resumed in northeast South Australia and coarse-grained siliciclastic sediments of the Eyre Formation were deposited as sheet sands in braided stream systems. This sequence (T₁) subsided at a very low rate, ranging from 0.91 to 6.45 metres per m.y. A restored isopach map of the Eyre Formation shows that the major depocenters were in the southern Nappamerri Trough, Moomba high, Wooloo Trough and Allunga Trough (Figure 11), where the subsidence rate was higher than other parts of the study area (6.45, 5.45 and 4.55 metres per m.y. in Moomba-57, Kirralee-1 and Pinna-1, respectively). In general, the distribution of sediments, during the Late Paleocene to Middle Eocene, is mainly related to the structural highs that were formed during the Permian and Triassic time, as also noted by Callen in Gravestock et al. (1995). The subsidence rate over the GMI Ridge and M-N Ridge was very low about (3.41 and 2.27 metres per m.y. in Merrimelia-30 and Jena-1, respectively). The differences in subsidence rate between troughs and ridges is mainly related to higher sediment loading and compaction rather than basement subsidence.

This period of sedimentation was followed by a prolonged period of uplift and erosion, from Late Eocene to Early Oligocene (approximately 38 to 29.3 Ma), related to an epeirogenic movement. During this period, portions of the Early Tertiary (T₁) and Late Cretaceous (Winton Formation) sedimentary section were eroded from the crests of anticlines, such as the Innamincka Dome and domes comprising the Birdsville Track Ridge (Wopfner et al, 1974; Moore and Pitt, 1984). Shaw (1991), in his study of the Tertiary structures in southwest Queensland, suggested that in addition to regional Tertiary uplift, deformation during this period may have also involved reactivation of pre-existing basement faults. Based on a restored isopach map of the Eyre Formation, it is calculated that the amount of section lost during the Late Eocene to Early Oligocene in the study area, ranges from 12 to 36 metres (Table 2). However, the sparseness of Tertiary data does not allow confirmation of the amount of erosion, which may have been greater than that assumed here. It should be noted that maximum erosion was over the Innamincka Dome (approximately 50 to 60 metres).

After this period of uplift and erosion, downwarping (approximately 29.3 Ma) caused the Moomba high and the Wooloo Trough areas to subside at a relatively higher rate than other parts of the study area during the Late Oligocene to Miocene. The subsidence rate was about 7.13 and 7.08 metres per m.y. in Moomba-57 and Kirralee-1, respectively. This moderate rate can be attributed to deposition of carbonate (dolomite) in a large shallow alkaline lake that formed during the Late Eocene and Early Oligocene. As seen on the restored isopach map for the Namba Formation (Figure 12), there may have been a number of deopocenters (lakes) present during the Late Oligocene to Miocene in the northern and western parts of the study area, where dolomite formed. Lower rates of subsidence occur in the east and southeast of the Cooper Basin region (average 2.70, 2.0 and 1.88 metres per m.y. in Strzelecki-5, Toolachee-36 and Mulga-2, respectively). This is related to both the gradual uplift of the area, which prevented the formation of dolomite, and to the lower rate of sedimentation (Figure 19), as shown by thinning of the Namba Formation on the restored isopach map (Figure 12). A very low rate of subsidence in Buyleroo-1 (average 1.17 metres per m.y.) in the central Nappamerri Trough is also related to slow uplift from the east.

During the Early Pliocene (approximately 5.3 Ma), an epeirogeny caused the study area to be a site of erosion and non-deposition. Based on a restored isopach map, it is calculated that the amount of section lost ranges between 15 metres (in Toolachee-36) and 54 metres (in Buyleroo-1) (Table 2). It should be noted that the amount of section lost may have been more, but the paucity of data does not allow confirmation of this much erosion. It is also interpreted that the maximum estimated thickness of sediments eroded during this period was

more than 100 metres on the western flank of the Innamincka Dome (Figure 12), related to gradual uplift of the dome. The amount of uplift and erosion was probably more severe in the western Eromanga Basin where up to 500 metres of sediment were eroded on the crest of the Dalhousie/McDills Ridge (Alexander and Jensen-Schmidt, 1995). On the southern margin of the basin 350 metres of uplift and erosion of the northern Flinders Ranges occurred during Miocene time (Foster et al., 1994).

In the Late Pliocene to Quaternary, the basin subsided and sedimentation resumed as fine to coarse-grained siliciclastics were deposited in fluvial and aeolian environments. The rate of subsidence was relatively higher in the Nappamerri Trough and Patchawarra Trough (average 16 metres per m.y.) than Merrimelia Ridge and Murteree-Nappacoongee Ridge (average 12.42 and 5.45 metres per m.y. in Merrimelia-30 and Jena-1, respectively; Figures 14 and 16). An isopach map of the surface to top Namba Formation (sequence T₃-Q; Figure 13) indicates that the thickness of this sequence is less than 10 metres over the M-N Ridge and the Strzelecki and Toolachee fields. Thinning over ridges and highs is related to Late Tertiary and Quaternary structural activity and basement movement along pre-existing structural trends, which are still active today.

IMPLICATIONS FOR PETROLEUM EXPLORATION

Important implications derived from this burial history analysis include: understanding of timing of hydrocarbon source maturity and, the effects of burial history on petroleum reservoir properties. In addition subsidence and sedimentation rates for all 14 modelled wells enabled adjustments to age interpretations based on limited palynological data for the Late Jurassic Birkhead Formation, Adori Sandstone and Westbourne Formation.

Hydrocarbon Source Maturity

During Early Jurassic to Early Cretaceous deposition of the lower non-marine sequence set, sediments subsided at higher rate in the Patchawarra Trough than other parts of the basin..

Some Late Jurassic and Early Cretaceous source rocks reached maturity during the Late Cretaceous, when thick siliciclastic sediments of the Winton Formation were deposited. This can also be supported by evidence of high to very high subsidence and sedimentation rates during this period, as shown by this analysis. However, oil generation commenced according to the depth of burial and the local palaeogeothermal gradient. Moore and Pitt (1984) stated

that in the Nappamerri Trough, where palaeotemperature was high, the Late Jurassic source rocks reached the initial stage of maturation in the early Late Cretaceous (about 90-100 Ma), while in other parts of the basin, these rocks reached maturity in Late Cretaceous to Early Tertiary. Kantsler et al. (1986) also believed that the Lower and Middle Jurassic source rocks reached maturity after deposition of Winton Formation, in the Late Cretaceous to Tertiary. Based on data from oil and source maturity, Tupper and Burckhardt (1990) concluded that generation of hydrocarbon in the Eromanga Basin commenced prior to maximum burial depth and the peak expulsion of oil occurred during the Late Cretaceous. Consequently, structures that formed before the Early Tertiary uplift are the best exploration targets. Based on above discussion, generation and migration of petroleum in the Eromanga Basin may be continuing at the present time.

Reservoir Quality

Porosity in the Eromanga Basin reservoir rocks, such as Hutton and Namur Sandstones, is mainly intergranular primary (E. Alexander MESA personal comm., 1996). Moreover, minor secondary porosity is also present in the Hutton Sandstone in southwest Queensland and formed from dissolution of feldspar and lithic fragments (Green et al. 1989). These porosities may have been generated at maximum depth of burial, sometimes during the Early to Late Cretaceous.

Late Jurassic Chronostratigraphy

Using the palynological framework of Price et al. (1985), more than 200 to 250 metres of fine to coarse-grained siliciclastic sediments of the Adori Sandstone, Westbourne Formation and Namur Sandstone were deposited in a very short period of time (about 5 Ma) in the Late Jurassic (Tithonian). However, the subsidence and sedimentation rates, using standard chronostratigraphy, were anomalously high during this period. Taking into account that the central part of Australian continent was not tectonically active during the Early to Middle Jurassic (Veevers, 1984; Veevers and Li, 1991; Veevers et al., 1991). Thus this high sedimentation and subsidence rate is not likely. The spore-pollen biozonation of the Eromanga succession is of low resolution and is difficult to correlate with other regions where radiometric age control is provided. Thus, a revision of absolute age date was necessary to produce a more realistic and consistent lower rate of subsidence and sedimentation. This revision (Table 3), used for reconstruction of the burial history and sedimentation rate charts, illustrates clearly that prior to very rapid deposition in marine

environments and high subsidence in the Early to Late Cretaceous, this region was subsiding at a very slow to moderate rate.

CONCLUSIONS

Burial history analysis of the Eromanga Basin in northeast South Australia, using data from 14 key wells in principal structural elements of the basin, leads to the following conclusions:

- During the Early Jurassic to beginning of the Early Cretaceous, the subsidence rate in the north (Patchawarra Trough) was higher than other parts of the Cooper Basin region.
- The subsidence rate during the Early to Late Cretaceous was high due to rapid deposition of fine-grained siliciclastic sediments of the marine and upper non-marine successions of the Eromanga sequence set.
- 3. The Jurassic source rocks of the Eromanga Basin are likely to have reached initial stages of hydrocarbon generation in the late Early to Late Cretaceous, when the subsidence rate was relatively high, and became fully mature in Late Cretaceous to Early Tertiary.
- 4. Based on reconstruction of the restored isopach maps, the amount of section lost at the Late Cretaceous unconformity ranges from 150 to 440 metres in the Cooper Basin region.
- 5. The combination of burial history curves and sedimentation rate diagrams can be used to improve the absolute stratigraphic age and correlation in thick, non-marine siliciclastic sequences where biostratigraphic resolution is low.

Table 1. Simplified glossary of subsidence rate descriptors used in this study

Descriptor	Total subsidence rate (metre per m.y.)	Example
low	<5	intracratonic basins (e.g. Cooper, Eromanga and Lake Eyre)
moderate	5-25	intracratonic basins
rapid	26-200	foreland basins (e.g. Officer Basin; Moussavi-Harami and Gravestock, 1995)
very rapid	201-500	rift basins (e.g. Otway basin, Hill, 1995)
Pulsed rapid (transient, short-lived movements)	>500	rift basins (e.g. Otway basin; Hill, 1995)

Table 2. Interpretive amount of section lost by erosion at each unconformity.

Section lost (metre)

Well Name	Top Eromanga Unconformity	Top Eyre Formation Unconformity	Top Namba Formation Unconformity
Cuttapirrie-1	440	19	54
Jena-1	150	25	22
Merrimelia-30	200	20	35
Moomba-57	200	32	_ 25
Strzelecki-5	250	24	40
Tinga Tingana-1	320	29	26

Table 3. former and revised absolute ages of the lower boundaries of some Late Jurassic formations. The revised ages were used for construction of burial history diagrams

Formation Name	Age (Ma)	Revised age (Ma)	
Murta Formation	145	135.5-145	
Namur Sandstone	147	145-151	
Westbourne Formation	148	151-159	
Adori Sandstone	150	159-165	
Birkhead Formation	167	165-175	

- Figure 1. Location of the study area and 14 wells used in burial history analysis.
- Figure 2. Generalised stratigraphic column and sequences of the Cooper, Eromanga and Lake Eyre Basins in northeast South Australia.
- Figure 3. Restored isopach map of Hutton Sandstone and Poolowanna Formation (Early to Middle Jurassic).
- Figure 4. Restored isopach map of Birkhead Formation (Middle to Late Jurassic).
- Figure 5. Restored isopach map of Adori Sandstone, Westbourne Formation and Namur Sandstone (Late Jurassic).
- Figure 6. Restored isopach map of Murta Formation (Early Cretaceous).
- Figure 7. Restored isopach map of Cadna-owie Formation (sequence K_1 ; Early Cretaceous).
- Figure 8. Restored isopach map of Marree Subgroup and Mackenda Formation (sequences K_2 and K_3 ; Early to Late Cretaceous).
- Figure 9. Restored isopach map of Winton Formation (Late Cretaceous).
- Figure 10. Restored isopach map of J-K sequence (Jurassic to Cretaceous sequence set).
- Figure 11. Restored isopach map of Eyre Formation (Late Paleocene to Middle Ecene).
- Figure 12. Restored isopach map of Namba formation (Late Oligocene to Miocene).
- Figure 13. Isopach map of Late Pliocene-Quaternary
- Figure 14. (a) Burial history of wells Cuttapirrie-1 (Trough) and Merrimelia-30 (Ridge). Solid lines show total subsidence and dashed lines tectonic subsidence. (b) interpretive burial history of wells Cuttapirrie-1 and Merrimelia-30. Parameters in Table 2 have been used for constructions of interpretive diagrams.
- Figure 15. (a) Burial history and (b) interpretive burial history of well Moomba-57. Parameters in Table 2 have been used for constructions of interpretive diagram.
- Figure 16. (a) Burial history and (b) interpretive burial history of well Jena-1. Parameters in Table 2 have been used for construction of interpretive diagram.
- Figure 17. (a) Burial history and (b) interpretive burial history of well Strzelecki-5. Parameters in Table 2 have been used for construction of interpretive diagram.
- Figure 18. (a) Burial history and (b) interpretive burial history of well Tinga Tingan-1. Parameters in Table 2 have been used for construction of interpretive diagram.
- Figure 19. Sedimentation rate vs time for six wells, representing different structural elements in the Cooper Basin region. Note, the rate of sedimentation is very high during Early to Late Cretaceous.

REFERENCES

- Alexander, E. and Drexel, J.E., 1996. Petroleum Geology of South Australia, Volume II: Eromanga Basin: Petroleum Division, Mines and Energy South Australia.
- Alexander, E. and Frears, B., 1995, Petroleum Exploration and Development in South Australia (10th Edition): Petroleum Division, Mines and Energy South Australia, 147p.
- Alexander, E. and Jensen-Schmidt, B., 1995, Eringa Trough Exploration Opportunity: Department of Mines and Energy South Australia. Report Book, 95/36 99p.
- Ambrose, G., Suttill, R. and Lavering, I., 1986, The geology and hydrocarbon potential of the Murta Member (Mooga Formation) in the southern Eromanga Basin: in D.I. Gravestock, P.S. Moore and G.M. Pitt (eds.), Contribution to the Geology and Hydrocarbon Potential of the Eromanga Basin. Geological Society of Australia, Special Publication, 12:71-84.
- Burger, D., 1986, Palynology, cyclic sedimentation, and palaeoenvironments in the Late Mesozoic of the Eromanga Basin: in D.I. Gravestock, P.S. Moore and G.M. Pitt (eds.), Contributions to the Geology and Hydrocarbon Potential of the Eromanga Basin. Geological Society of Australia, special publication, 12:53-70.
- Callen, R.A., 1981, FROME, South Australia, sheet SH 54-10, Geological Survey of South Australia, 1:250,000 Geological Series, Explanatory Notes.
- Callen, R.A., 1990, CURNAMONA, South Australia, Geological Survey of South Australia, 1:250,000 Geological Series, Explanatory Notes, sheet SH54-14,
- Callen, R.A., 1992, Late Cainozoic fluvial sands of the northern Strzelecki Desert-Yandruwantha Sand. Geological Survey of South Australia, Quarterly Geological Notes, 121: 2-7.
- Callen, R.A., Alley, N.F. and Greenwood, D.R., 1995, Lake Eyre Basin: <u>in</u>, J.F. Drexel and W.V. Preiss (eds.), The Geology of South Australia, Volume 2 The Phanerozoic. Geological Survey of South Australia, Mines and Energy South Australia Bulletin, 54:199-194.
- Channon, G.J. and Wood, G.R., 1989, Stratigraphy and hydrocarbon prospectivity of Triassic sediments in the Northern Cooper Basin, South Australia. *Department of Mines and Energy, Confidential Envelope*, 8126 (Unpublished).
- Drexel, J.F., Preiss, W.V. and Parker, A.J., 1993, The Geology of South Australia, Volume 1
 The Precambrian. Geological Survey of South Australia, South Australian
 Department of Mines and Energy Bulletin 54.
- Eadington, P.J., Hamilton, P.J. and Green, P.M., 1989, Hydrocarbon fluid history in relation to diagenesis in the Hutton Sandstone, southwest Queensland: in B.J. O'Neil (editor), The Cooper and Eromanga Basins, Australia. Proceedings of the Cooper and Eromanga Basins Conference, Adelaide, 1989, Petroleum Exploration Society of Australia' Society of Petroleum Engineers, Society of Exploration Geophysicists (SA Branches), pp.601-618.

- Foster, D.A., Murphy, J.M. and Gleadow, A.J.W., 1994, Middle Tertiary hydrothermal activity and uplift of the northern Flinders Ranges, South Australia. Insights from apatite fission-track thermochronology. *Australian Journal of Earth Science*, 41:11-17.
- Gallagher, K. and Lambeck, K., 1989, Subsidence, sedimentation and sea-level changes in the Eromanga Basin, Australia. *Basin Research*, 2:15-131.
- Gatehouse, C.G., 1972, Formation of the Gidgealpa Group in the Cooper Basin. Australian Oil and Gas Review, 18:(12)10-15.
- Gravestock, D.I., Callen, R.A., Alexander, E.M. and Hill, A.J., 1995, STRZELECKI, South Australia, Mines and Energy South Australia, 1:250,000 Geological Series Explanatory Notes. sheet SH 54-2,
- Green, P.M., Eadington, P.J., Hamilton, P.J. and Carmichael, D.C., 1989, Regional diagenesis an important influence in porosity development and hydrocarbon accumulations within the Hutton Sandstone, Eromanga Basin: in B.J. O'Neil (editor), The Cooper and Eromanga Basins, Australia. Proceedings of the Cooper and Eromanga Basins Conference, Adelaide, 1989, Petroleum Exploration Society of Australia, Society of Petroleum Engineers, Society of Exploration Geophysicists (SA Branches), pp. 619-628.
- Haq, B.U., Hardenbol, J. and Vail, P.R., 1987, Chronology of fluctuating sea levels since the Triassic. *Science*, 235:1156-1167.
- Haq, B.U., Hardenbol, J. and Vail, P.R., 1988, Mesozoic and Cenozoic chronostratigraphy and cycles of sea level change: in C.K. Wilgus, B.S. Hastings, C.G.St.C. Kendall, H.W. Posamentier, C.A. Ross and J.C. Van Wagoner (eds.), Sea-Level Changes: An Integrated Approach. Society of Economic Palaeontologists and Mineralogists (SEPM), Special Publication. 42:71-108.
- Harland, W.B., Armstrong, R.L., Cox, A.V., Craig, L.E., Smith, A.G. and Smith, D.G., 1990, A Geologic Time Scale 1989. *Cambridge University Press, Cambridge*, 263p.
- Krieg, G.W., Alexander, E.M. and Rogers, P.A., 1995, Jurassic-Cretaceous epicratonic Basins, Eromanga Basin: in J.F. Drexel and W.V. Preiss (eds.), The Geology of South Australia, Volume 2 The Phanerozoic. Geological Survey of South Australia, Mines and Energy South Australia, Bulletin, 54:101-127.
- Krieg, G.W., Callen, R.A., Gravestock, D.I. and Gatehouse, C.G., 1990, Geology: in M.J. Tyler, C.R. Twidale, M. Davies and C.B. Wells (eds.), Natural History of the North East Deserts. *Royal Society of South Australia Publications* 6:1-26.
- Krieg, G.W., Rogers, P.A., Callen, R.A., Freeman, P.J., Alley, N.F. and Forbes, B.G., 1991, CURDIMURKA. South Australia, Geological Survey of South Australia, 1:250,000 Geological Series Explanatory Notes, sheet SH53-8.
- Moore, P.S. and Pitt, G.M., 1984. Cretaceous of the Eromanga Basin implication for hydrocarbon exploration. *APEA Journal*, 24:358-376.
- Moore, P.S. and Pitt, G.M., 1985. Cretaceous subsurface stratigraphy of the southwestern Eromanga Basin a review: in J.M. Lindsay (editor), Stratigraphy, Palaeontology, Malacology. Papers in honour of Dr Nell Ludbrook. South Australia Department of Mines and Energy, special publication 5:269-286.

- Moore, P.S., Pitt, G.M. and Dettmann, M.E., 1986. The Early Cretaceous Coorikiana Sandstone and Toolebuc Formation: Their recognition and stratigraphic relationship in the southwestern Eromanga Basin: in D.I. Gravestock, P.S. Moore and G.M. Pitt (eds.), Contribution to the Geology and Hydrocarbon Potential of the Eromanga Basin. Geological Society of Australia, special publication, 12:97-114...
- Morgan, R., 1980. Eustacy in the Australian Early and Middle Cretaceous. Geological survey of New South Wales Bulletin 27.
- Morton, J.G.G., 1987. Post Cretaceous structure of the Cooper Basin region in South Australia and its relevance to petroleum migration and entrapment. South Australia Department of Mines and Energy. Report Book, 81/83.
- Moussavi-Harami, R and Gravestock, D.I., 1995. Burial history of the eastern Officer Basin, South Australia. *APPEA Journal*, 35:307-320.
- Ozimic, S., 1986. The geology and petrophysics of the Toolebuc Formation and its time equivalents, Eromanga and Carpentaria Basins. in D.I. Gravestock, P.S. Moore and G.M. Pitt (eds.), Contribution to the Geology and Hydrocarbon Potential of the Eromanga Basin. Geological Society of Australia, special publication, 12:119-138.
- Paine, A.G.L. (editor), 1992. Australia, evolution of a continent. Bureau of Mineral Resources, Paleogeographic Group, Australia.
- Paton, I.M., 1986. The Birkhead Formation a Jurassic petroleum reservoir: in D.I. Gravestock, P.S. Moore and G.M. Pitt (eds.) Contribution to the Geology and Hydrocarbon Potential of the Eromanga Basin. Geological Society of Australia, special publication, 12:119-138.
- Price, P.L., Filatoff, J., Williams, A.J., Pickering, S.A. and Wood, G.R., 1985. Late Paleozoic and Mesozoic palyno-stratigraphical units. CSR Oil and Gas Division, palynology facility report, 274/25 (unpublished).
- Sclater, J.G. and Christie, P.A.F., 1980. Continental stretching: An explanation of the post Mid-Cretaceous subsidence of the Central North Sea Basin. *Journal of Geophysical Research*, 85:3711-3739.
- Shaw, R.D., 1991. Tertiary structuring in southwest Queensland: implication for petroleum exploration. *Exploration Geophysics*, 22:339-344.
- Sherwood, N.R. and Cook, A.C., 1986. Organic matter in the Toolebuc Formation: in D.I. Gravestock, P.S. Moore and G.M. Pitt, Contributions to the Geology and Hydrocarbon Potential of the Eromanga Basin. *Geological Society of Australia, Special Publication*, 12:255-266.
- Tupper, N.P. and Burckhardt, D.M., 1990, Use of the methylphenanthrene index to characterise expulsion of Cooper and Eromanga Basin oils: *APEA Journal*, 30:373-385.
- Veevers, J.J. (editor), 1984. Phanerozoic Earth History of Australia. Oxford Geological Sciences Series, 2, Clarendon Press, Oxford, 418p.
- Veevers, J.J., Powell, C. McA and Roosts, S.R., 1991. Review of seafloor spreading around Australia. I. Synthesis of the patterns of spreading. *Australian Journal of Earth Sciences*, 38:373-389.

- Veevers, J.J. and Li, Z.X., 1991. Review of seafloor spreading around Australia. II. Marine magnetic anomaly modelling. Australian Journal of Earth Sciences, 38:391-408.
- Wiltshire, M.J., 1989. Mesozoic stratigraphy and palaeogeography, eastern Australia: in B.J. O'Neil (editor), The Cooper and Eromanga Basins, Australia: Proceedings of the Cooper and Eromanga Basins Conference, Adelaide, 1989. Petroleum Exploration Society of Australia, Society of Petroleum Engineers, Australian Society of Exploration Geophysicists (SA branches), pp.279-291.
- Wopfner, H., 1974. Post-Eocene history and stratigraphy of northeastern South Australia. Royal Society of South Australia, Transactions, 98:1-12.
- Wopfner, H. and Cornish, B.E., 1967. S.A.G. Fortville No. 3, Well Completion Report; Geological Survey of South Australia, Report of Investigation, No.29:61P.
- Wopfner, H., Freytag, I.B. and Heath, G.R., 1970. Basal Jurassic-Cretaceous rocks of western Great Artesian Basin, South Australia: Stratigraphy and environment. American Association of Petroleum Geologists Bulletin, 54:383-416.
- Wopfner, H., Callen, R. and Harris, W.K., 1974. The Lower Tertiary Eyre Formation of the southwestern Great Artesian Basin. *Journal of the Geological Society of Australia*, 21:17-51.
- Zhou, S., 1989. Subsidence history of the Eromanga Basin, Australia: in B.J. O'Neil (editor), The Cooper and Eromanga Basins, Australia. Proceedings of the Cooper and Eromanga Basins Conference, Adelaide, 1989, Petroleum Exploration Society of Australia, Society of Petroleum Engineers, Australian Society of Exploration Geophysicists (SA branches), pp.329-335.

BURIAL HISTORY OF THE EROMANGA BASIN IN NORTHEAST SOUTH AUSTRALIA

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ABSTRACT

The intracratonic Eromanga Basin of central Australia was formed during the Early Jurassic, approximately 193 m.y. ago. The southwestern portion of the Eromanga Basin in South Australia contains four unconformity-bounded sequence and sequence set, from Jurassic to Quaternary in age. the thickness of sediments in the study area range from less than 1200 metres in the south to 2200 metres in the north (Patchawarra and Napamerri troughs). Burial history is interpreted from a series of diagrams generated from well data in the key tectonic and stratigraphic elements of the Cooper Basin region in northeast South Australia. During the Early Jurassic to beginning of the Early Cretaceous, the subsidence rate was higher in the north (Patchawarra Trough) than south (Tinga Tingana Trough). Differences in subsidence rates are related to sediment loading and compaction. During the Early Cretaceous, subsidence in the northeast created more accommodation space for marine transgression from northeast into South Australian portion of the Eromanga Basin. From Early to Late Cretaceous, the subsidence rate in the study area was high, probably due to rapid deposition of fine-grained siliciclastic sediments of the marine and non-marine succession, as well as tectonic subsidence. During the Tertiary to Quaternary, subsidence rates were low to moderates due to sediment loading rather than tectonic sinking. The Jurassic source rocks of the Eromanga Basin are likely to have reached initial stages of hydrocarbon generation in the late Early to Late Cretaceous, when the subsidence rate was relatively high, and became fully mature in Late Cretaceous to Early Tertiary