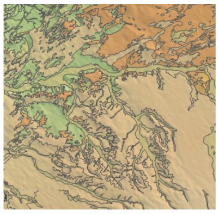
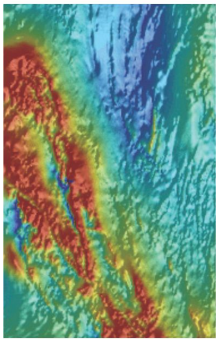


Department of State Development

Metadata: Curnamona Sedimentary Basins

Date Printed: 14/05/2015



Dataset

Title: Curnamona Sedimentary Basins

Custodian: Geological Survey of South Australia. Department for Manufacturing, Innovation, Trade, Resources and Energy, SA

Jurisdiction: South Australia

Description

Abstract:
The Palaeo-Mesoproterozoic Curnamona Province is largely overlain by sedimentary basins which contain any or combinations of Neoproterozoic, Cambrian, Mesozoic and Cenozoic sediments. These cover sequence sediments can introduce considerable complexities and costs to the exercise of conducting exploration for minerals held within the underlying bedrock.

DMITRE's 3D model of cover overlying the Curnamona Province was created as a convenient way of visualising the spatial distribution and thickness of these basinal sediments. The model enables users to make estimations of vertical distances from the surface to key surfaces, including depth to top of Palaeo-Mesoproterozoic, base of Cambrian, base of Mesozoic and base of Cenozoic. The inferred forms of these key surfaces are derived from a combination of drillhole data, seismic data interpretation and aeromagnetic data modelling.

The work began with identifying the statigraphic units that were to be modelled. Due to the regional scale of the project, the stratigraphic pile constructed for this model represents packages of units aggregated into single units. The input data were prepared utilising appropriate subsets of PIRSA's geoscientific database and spatial data library. These data sources included elevation, solid geology, surface geology, faults, field observations, and subsurface sectional interpretations based on geological interpretation of unconstrained geophysical inversions. 2D points were used to define the contact planes between units as parameters for interpolation into 3D objects. In addition to the topographic section (top-down view), the modeller created cross-sectional views of the input data, and added further observation and contact points.

Forward modelling and inversion were not utilised on the Curnamona model, therefore the 3D model has not been tested against geophysical potential field data (gravity and magnetic intensity). The completed model displays 3D objects representing the major stratigraphic units within the cover to the Curnamona Province. The model has been exported to file formats suitable for viewing in Gocad or Adobe Reader.

GEN Category: South Australia

GEN Name: Curnamona Province, South Australia

Geographic Extent Polygon: E327000 N6405000, E327000 N6710000, E600000 N6710000, E600000 N6405000

North bounding latitude: N6710000

South bounding latitude: N6405000

East bounding longitude: E600000

West bounding longitude: E327000

Data Currency

Beginning Date: 20Jun2008

End Date: 2Mar2010

Dataset Status
Progress: Complete

Maintenance: As required

Version Number: 1

Access
Stored format: DIGITAL, 3D-pdf, Gocad, ArcGIS

Available format(s): DIGITAL, 3D-pdf, Gocad, ArcGIS

Access constraint(s): Open File

Data Quality

Positional accuracy: Horizontal accuracy of the drillholes is variable due to the method of capture (map, hand-held GPS, differential GPS, etc); Horizontal accuracy of the sedimentary basin boundaries are variable (interpreted); Vertical accuracy of the interpolated formation surfaces, topographic and basement surfaces are variable due to resampling (topographic surface), interpretation (formation boundaries) and interpolation.

Attribute accuracy: N/A

Contact Information
Contact organisation: Department for Manufacturing, Innovation, Trade, Resources and Energy, South Australia

Contact position: Customer Service Centre

Contact mail address: GPO Box 1671, Adelaide, SA 5001

Contact telephone: 08 8463 3000

Contact email: resources.customerservices@sa.gov.au

Metadata Dates
Add date: 2012-02-20

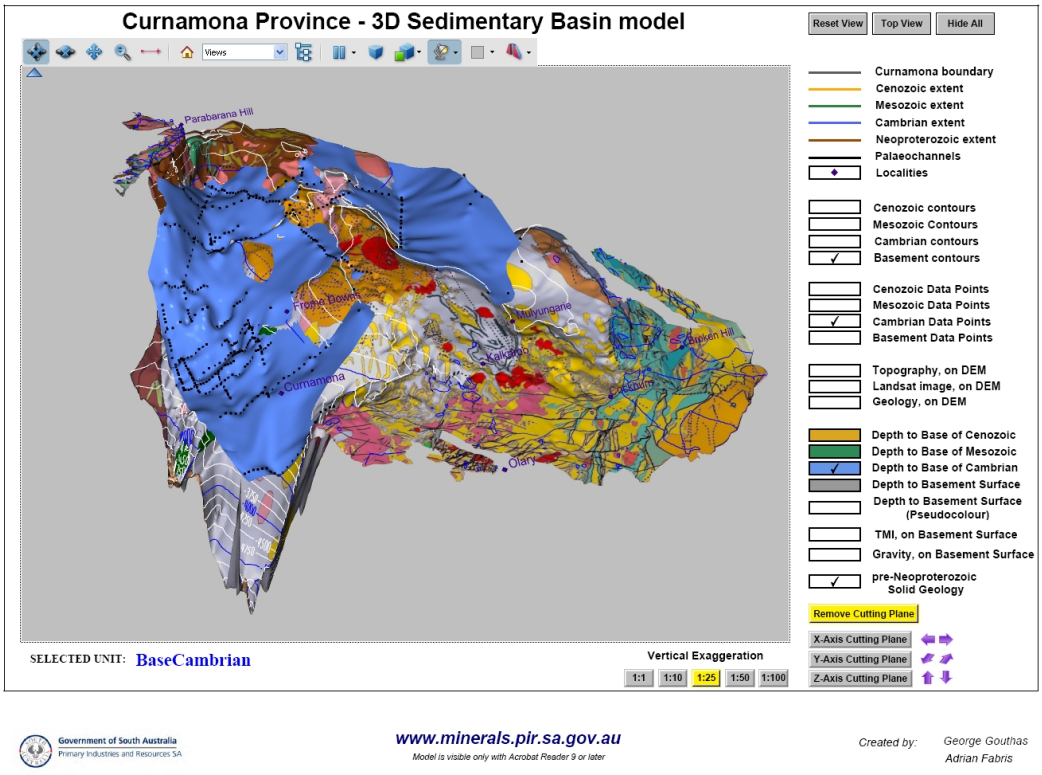
Change date: 2015-05-14

Responsible Party
Responsible party: Chief Geoscientist, Mapping and Exploration, GSSA

Description

Dimension: x,y,h

Sample Graphic(s)



Curnamona Province - Sedimentary Basin 3D-pdf

Usage

Purpose: Exploration geology, 3D visualisation

Use: Exploration geology, 3D visualisation

Usage limitations: This model is presented as a 'proof of concept' only and the accuracy (spatial or otherwise) should not be relied upon for exploration or other decision making processes.

Dataset Associations

Dependant datasets: A guide for mineral exploration through the regolith in the Curnamona Province, South AustraliaAJ Fabris, MJ Sheard, JL Keeling, SM Hill, KG McQueen, CHH Conor and P de Caritat (http://crcleme.org.au/Pubs/curnamona.html)
Adrian J Fabris, George Gouthas and Martin C Fairclough. The new 3D sedimentary basin model of the Curnamona Province: geological overview and exploration implications. MESA Journal 58: 16-24. Department of Primary Industries and Resources South Australia, Adelaide.

Origin

Dataset size: 66.8MB

Projection: UTM Zone 53

Datum: GDA94

Dataset Management

Authorised by: Chief Geoscientist, Mapping and Exploration, GSSA

Attributes