



HODD3 (DH 268313) drillhole report

Sedimentary Copper Mineral Systems of the Stuart Shelf
GSSA–CSIRO project

C Krapf, M Bockmann, A Fabris, G Gordon,
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1 Geological Survey of South Australia,
Department for Energy and Mining

2 CSIRO (*now FMG)

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Report Book 2023/00003



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Acknowledgement of Country

As guests on Aboriginal land, the Department for Energy and Mining (DEM) acknowledges everything this department does impacts on Aboriginal country, the sea, the sky, its people, and the spiritual and cultural connections which have existed since the first sunrise. Our responsibility is to share our collective knowledge, recognise a difficult history, respect the relationships made over time, and create a stronger future. We are ready to walk, learn and work together.

Preferred way to cite this publication

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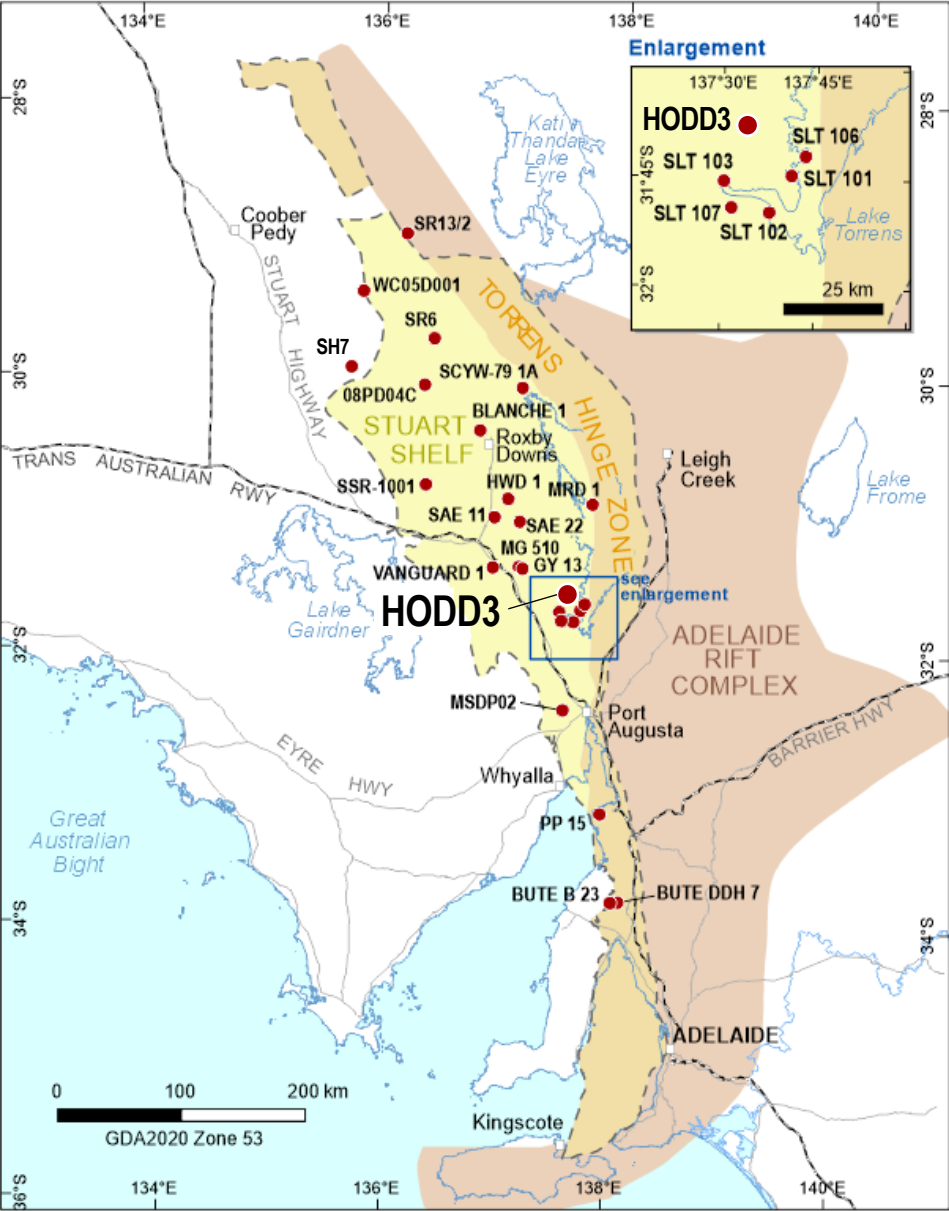
Drillhole information

Drillhole name	HODD3	
Drillhole number	268313	
Tenement	EL 3457	
Location	137.5676598 Long -31.6301654 Lat	743534.57E 6497693.52N GDA2020 Zone 53
Date drilled	14/05/2007	
Drillhole depth	1142.8 m	
Cored interval	1142.8 m	
Azimuth/Dip	270	-60
Reference	ENV11340	
Comment	Punt Hill Prospect	

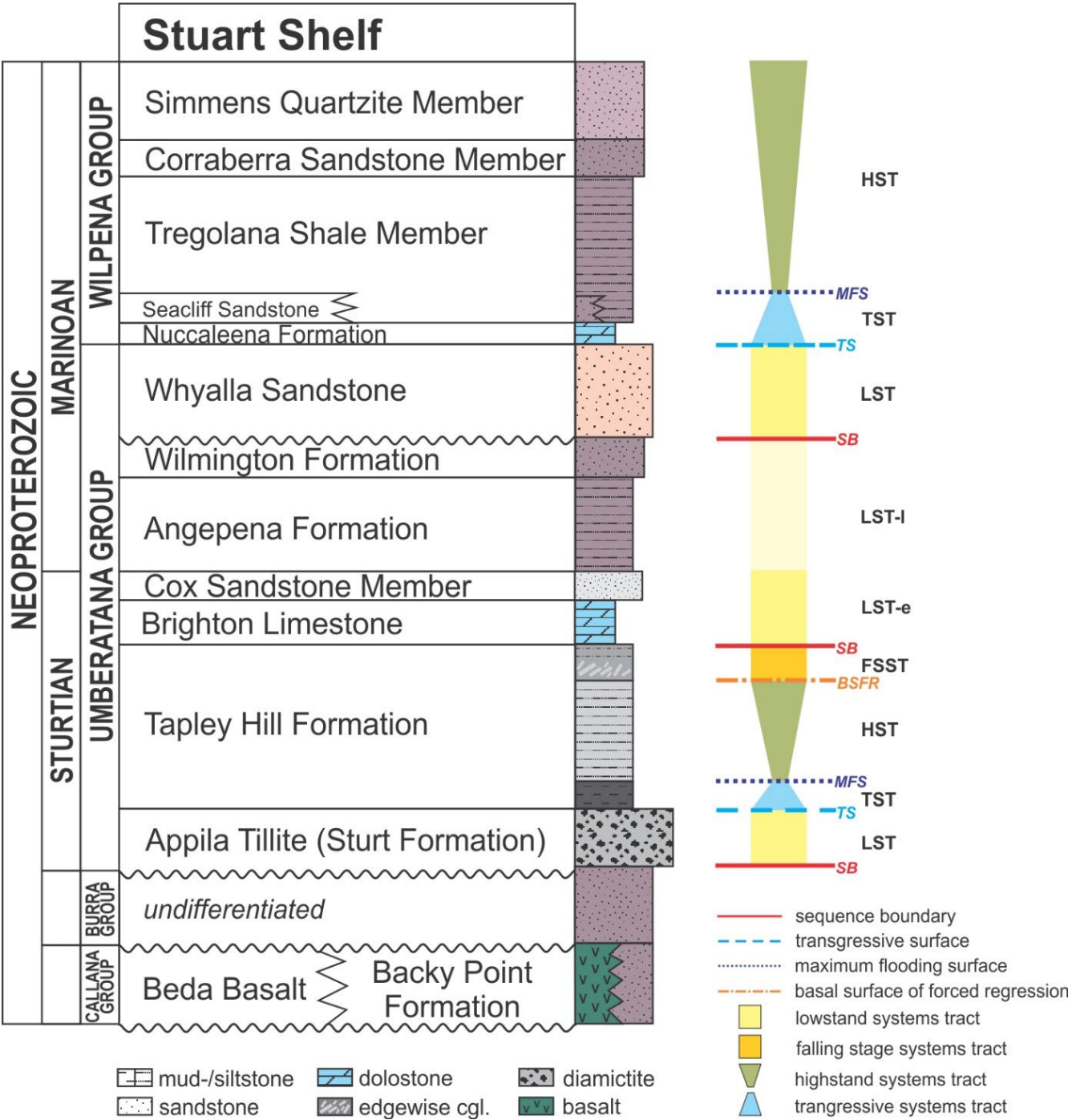
This drillhole report provides a summary of new logging and data collection undertaken as part of the Sedimentary Copper Mineral Systems of the Stuart Shelf GSSA-CSIRO project.

Associated newly collected handheld gamma, portable XRF and HyLogger™ data are available for download via the [blue hyperlinks](#) in this report.

Drillhole location



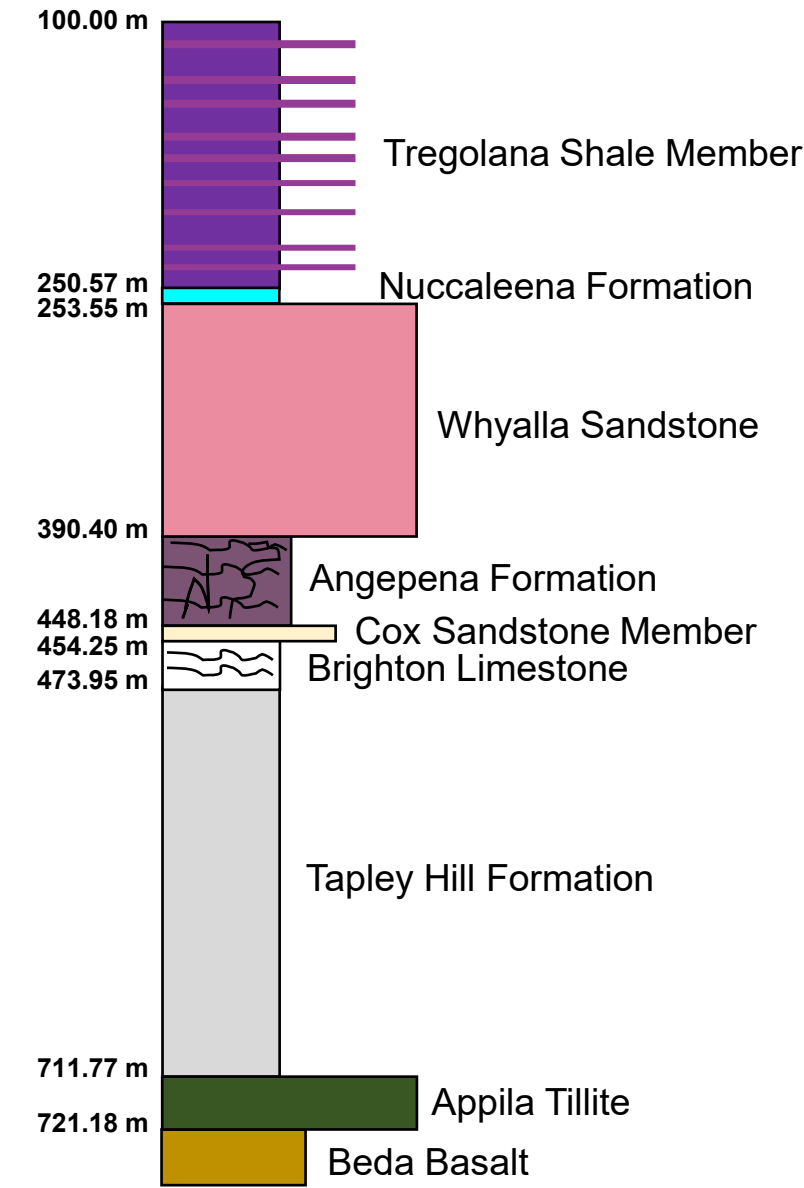
Generalised stratigraphy and sequence stratigraphy of the Stuart Shelf*



*Note: not all stratigraphic units were deposited or preserved throughout the Stuart Shelf

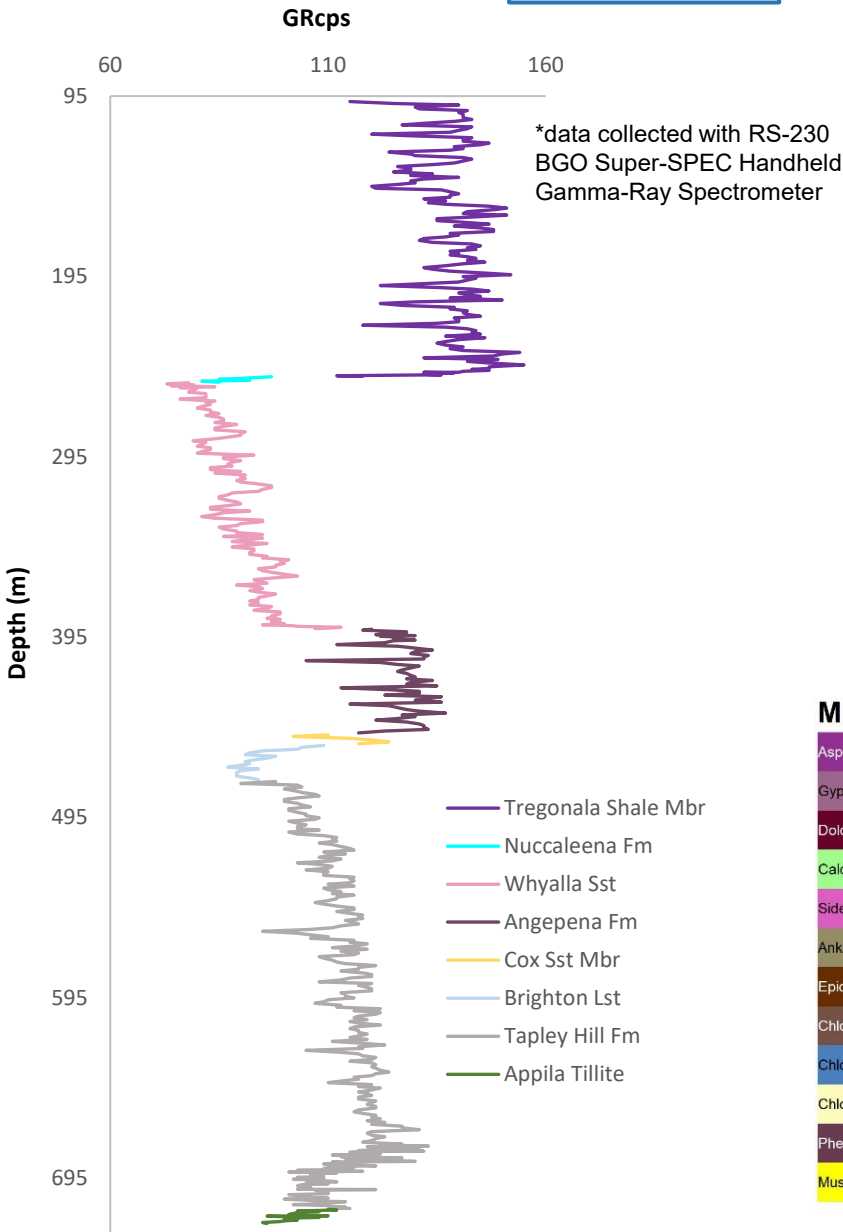
HODD3

generalised stratigraphic log
(depth interval 100 – 722 m)



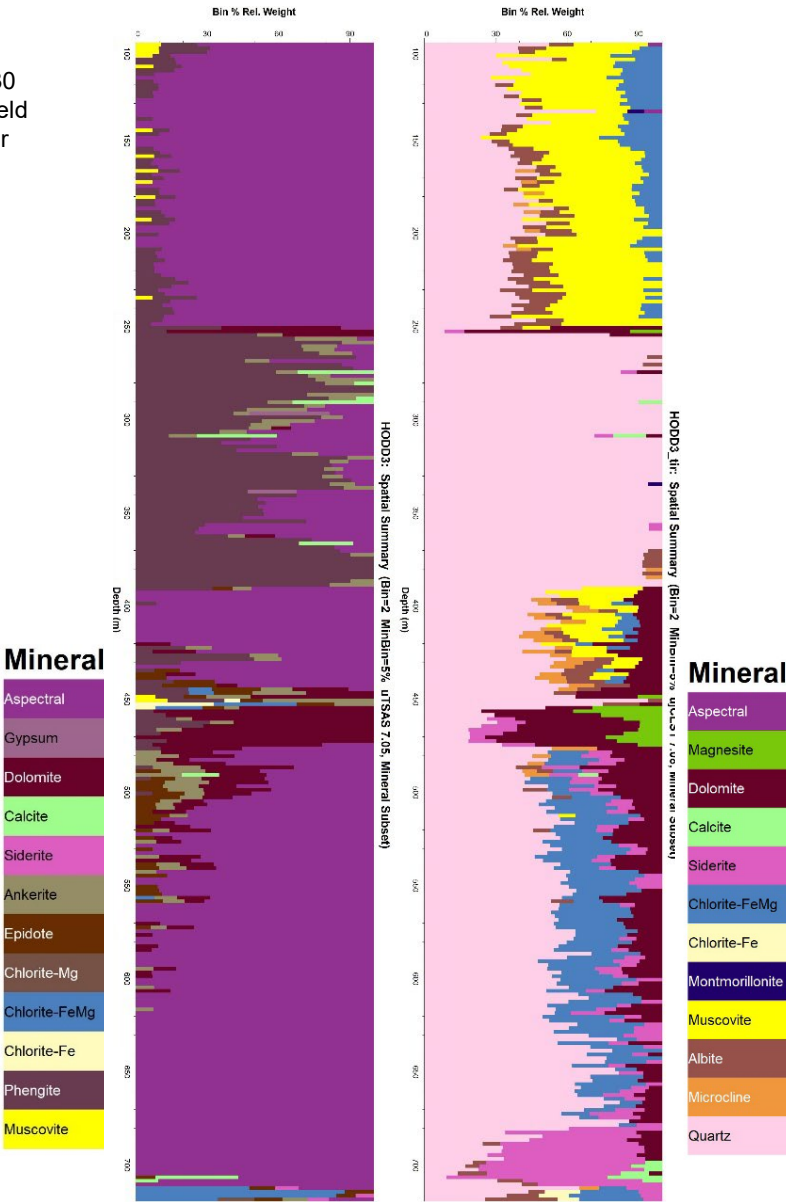
Handheld gamma*

[Download
gamma data](#)



HyLogger™

[Download
HyLogger™ data](#)

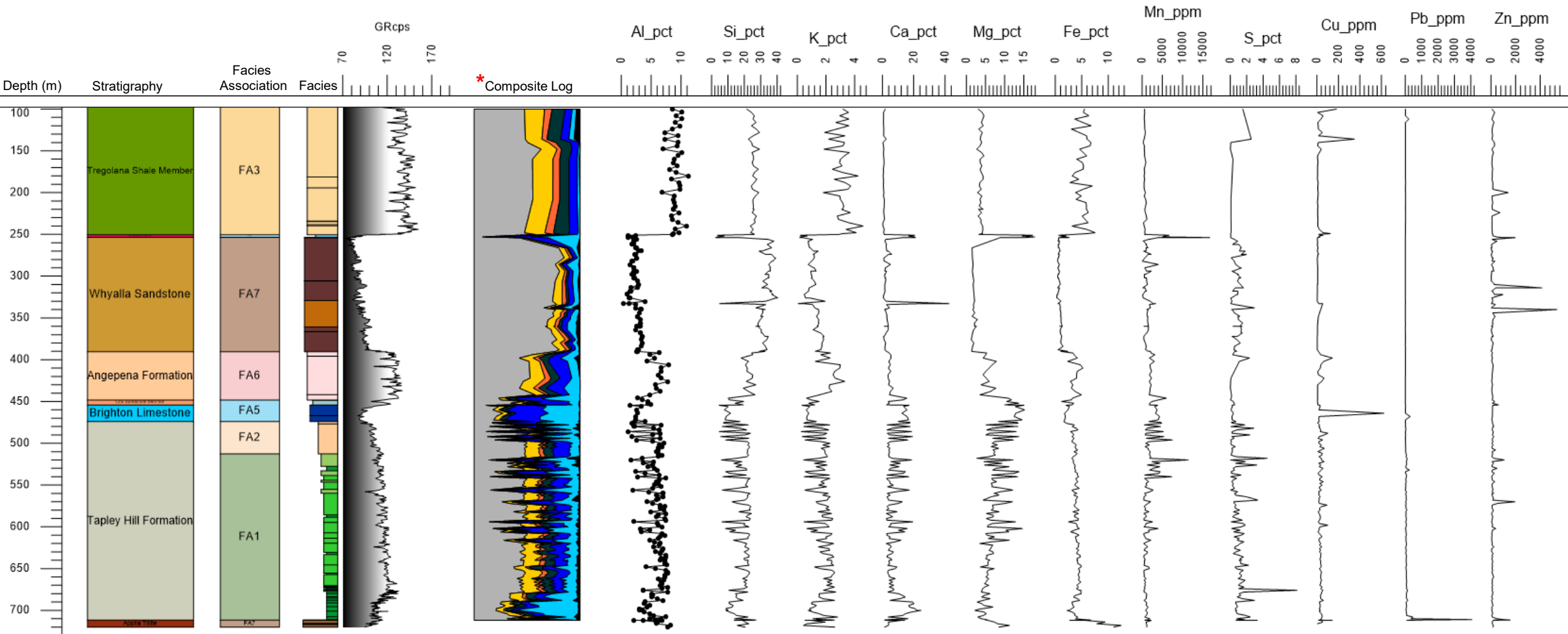


Combined STRATER log (stratigraphy, facies, gamma and handheld pXRF* - corrected)

HODD3 (depth interval 100 – 722 m)



[Download pXRF data](#)



Facies Association (FA)

- FA1: offshore
- FA2: offshore transition
- FA3: lower shoreface - prodelta
- FA4: shoreface to delta front
- FA5: shallow subtidal to subtidal
- FA6: intertidal to supratidal
- FA7: glacial to fluvio-glacial

*

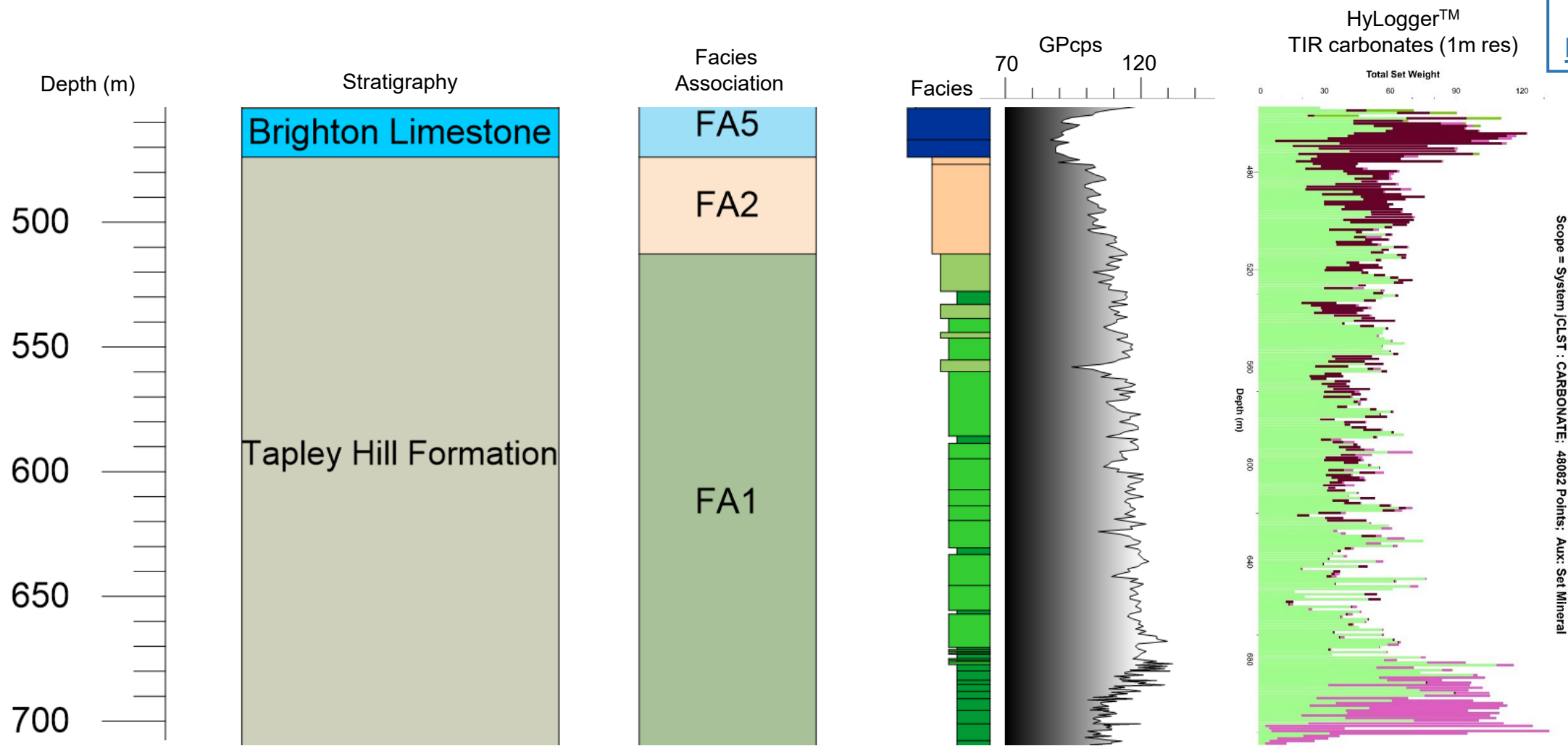
- Mg_pct
- Al_pct
- Si_pct
- S_pct
- K_pct
- Ca_pct
- Fe_pct
- Cu_ppm
- Pb_ppm
- Zn_ppm

*data collected with Vanta™ Handheld XRF

HODD3 Carbonate Content

Tapley Hill Formation and Brighton Limestone interval (454.24 – 711.66 m)

[Download HyLogger™ data](#)



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- FA7: glacial to fluvio-glacial

Dolomite Magnesite
Calcite Siderite

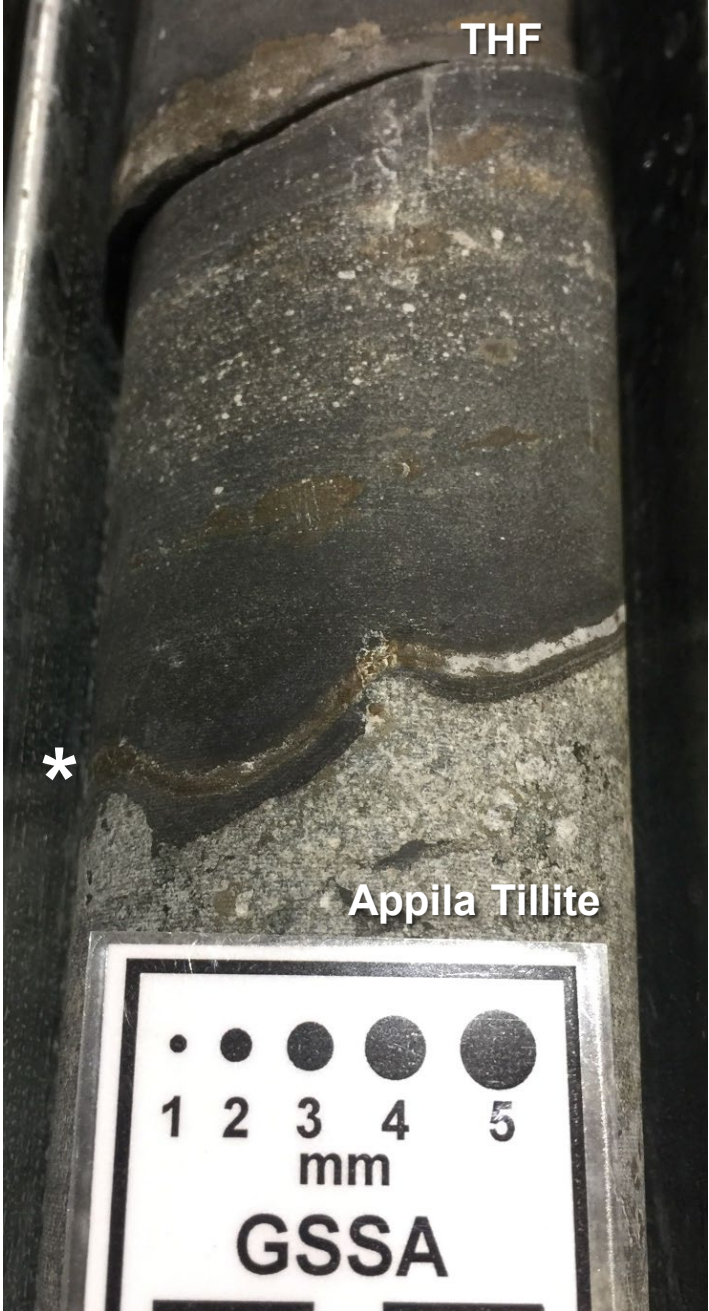
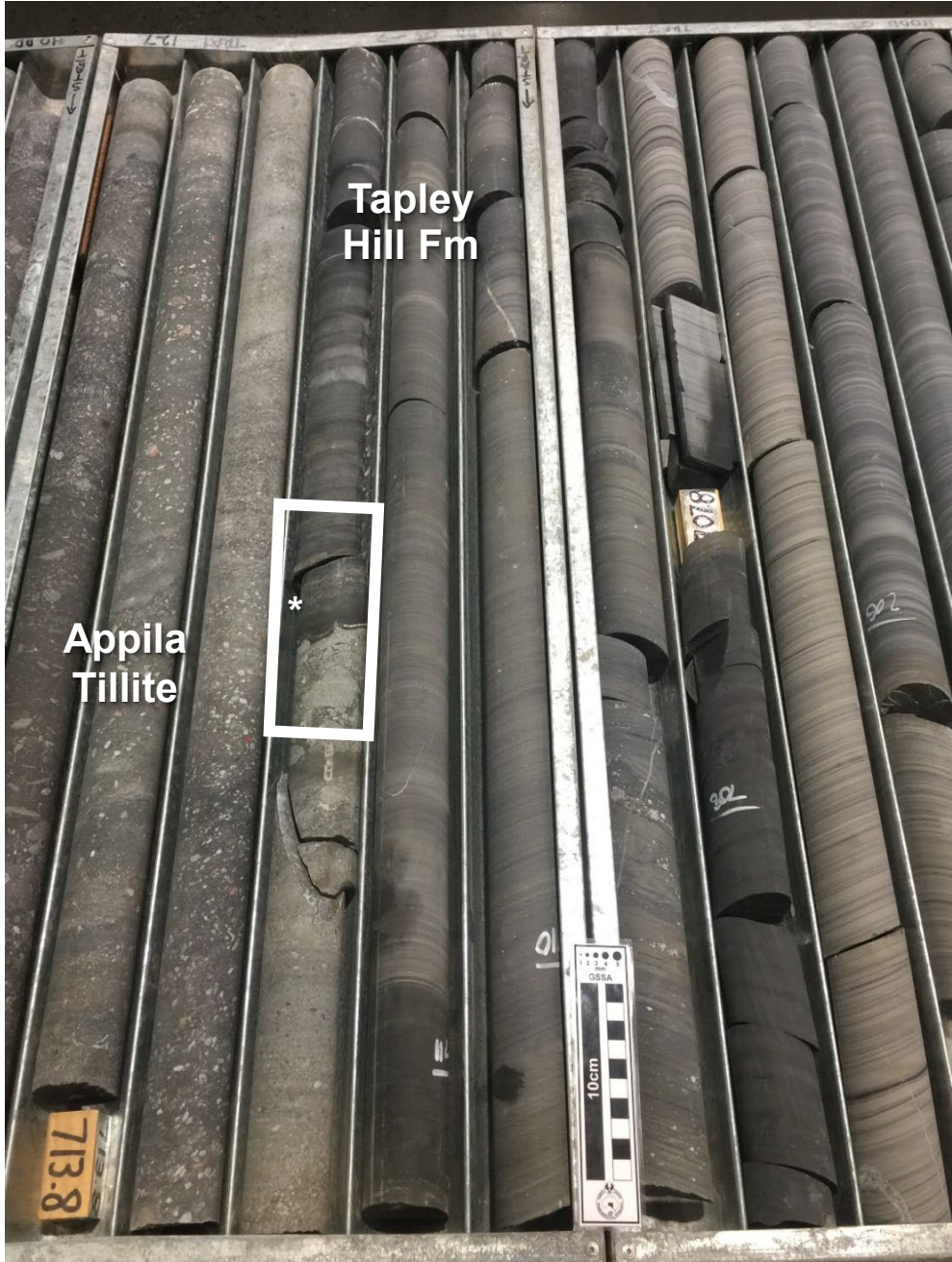
Contact Beda Basalt – Appila Tillite (721.18 m)



Appila Tillite – diamictite and laminated mudrock



Contact Appila Tillite – Tapley Hill Formation (THF) (*711.77 m)



Tapley Hill Formation

offshore marine – below wave storm base

interbedded laminated calcareous siltstones and black mudstones



black
mudstone

Tapley Hill Formation

offshore transition – between storm wave base and fair-weather wave base
cm-scale intercalated calcareous siltstones and very fine-grained sandstones



Tapley Hill Formation

offshore transition – between storm wave base and fair-weather wave base
dm-scale intercalating siltstones and very fine grained sandstones

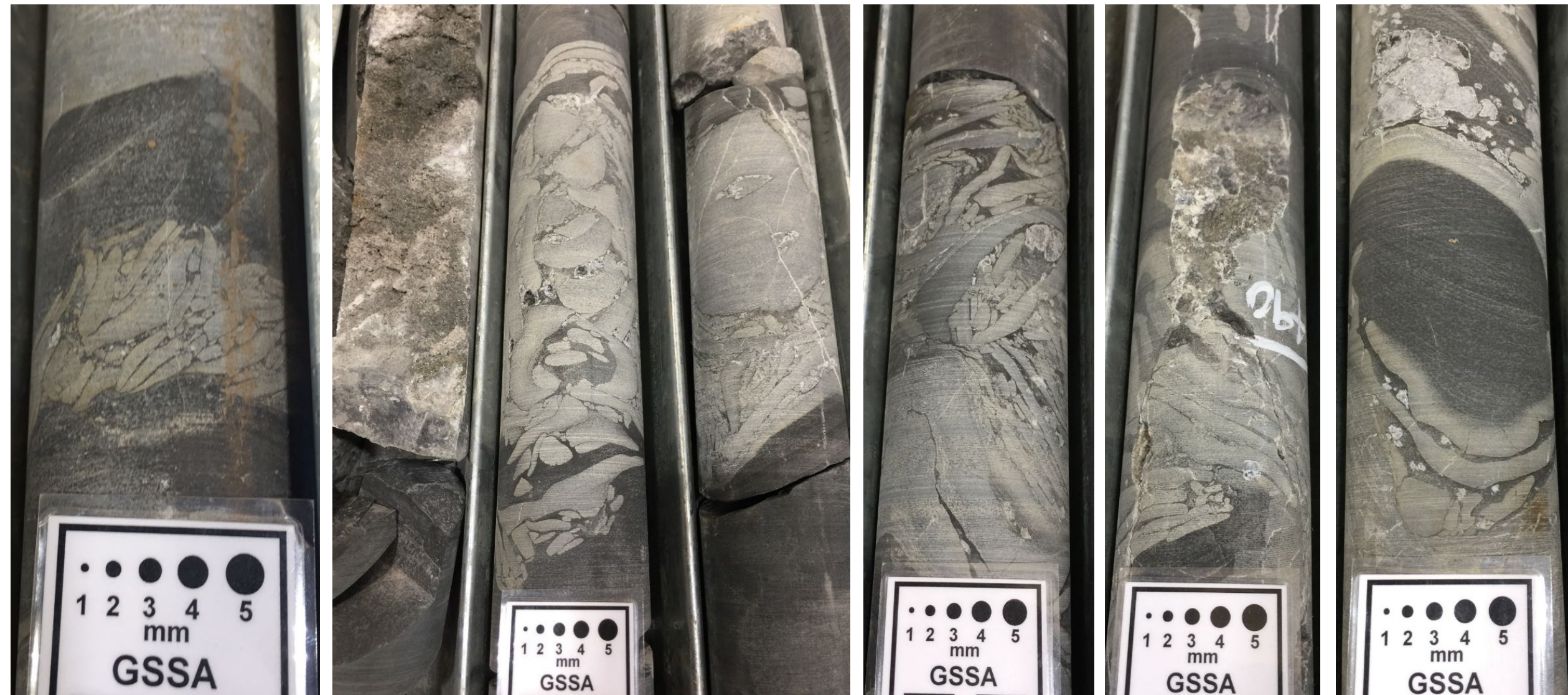


pyrite

Tapley Hill Formation

offshore transition – between storm wave base and fair-weather wave base

edgewise conglomerate with reworked carbonate clasts → *first occurrence represents basal surface of forced regression*



Tapley Hill Formation

offshore transition – between storm wave base and fair-weather wave base
slumps

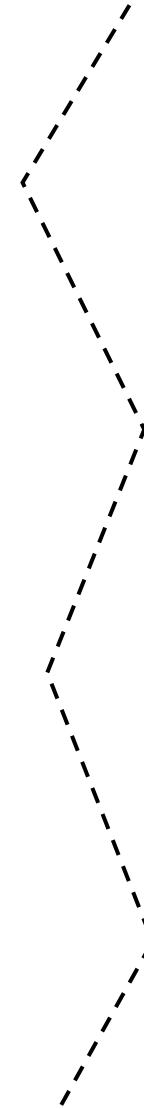


Brighton Limestone (depth 454.25 – 473.95 m)

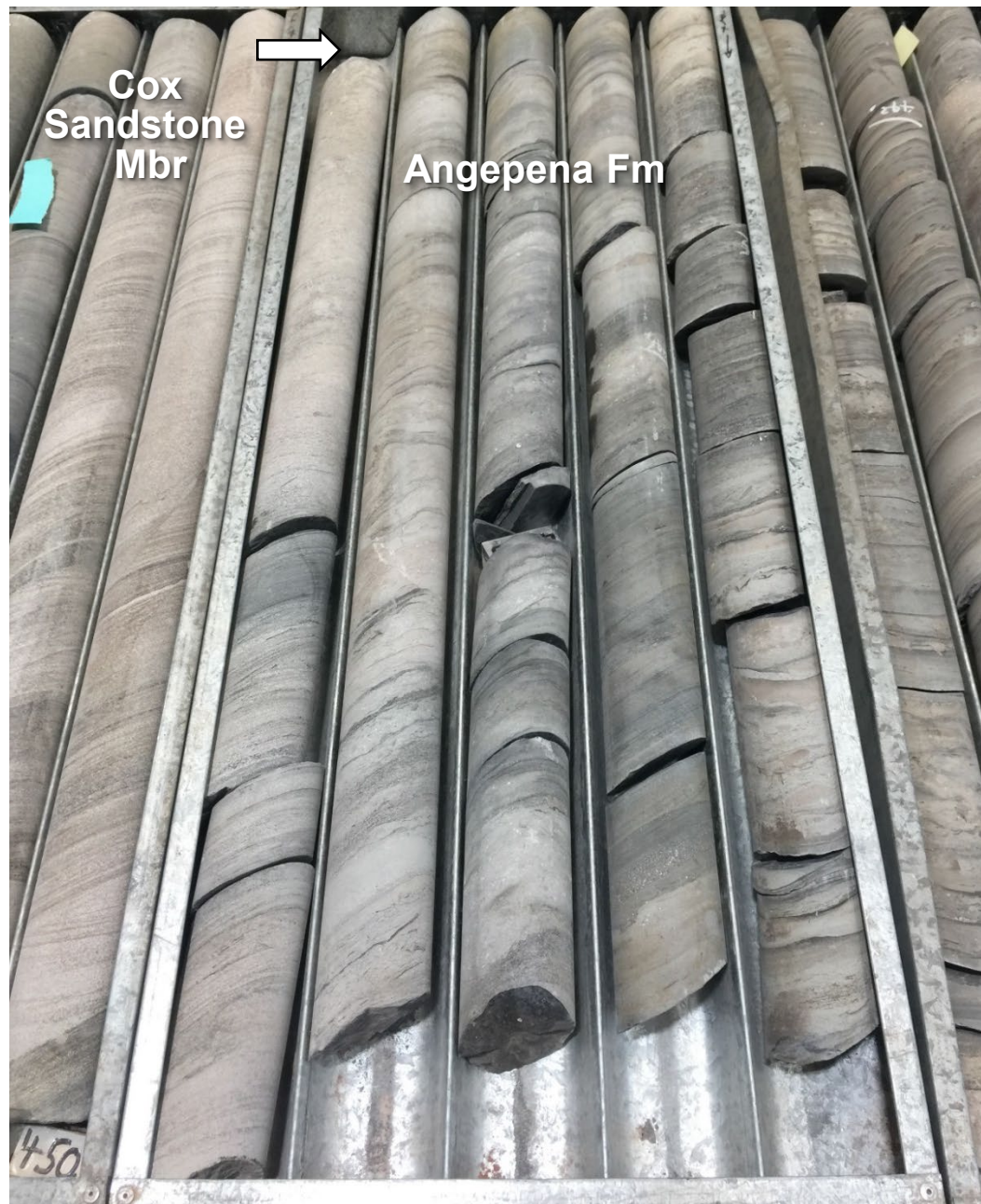
microbiolaminites and stromatolites



Transition Tapley Hill Fm (slump interval) → Brighton Limestone → Cox Sandstone Member (shallow subtidal to subtidal sandstone)



Transition Cox Sandstone Mbr (depth 448.18 – 454.25 m) – Angepena Formation (depth 390.44 – 448.18 m)

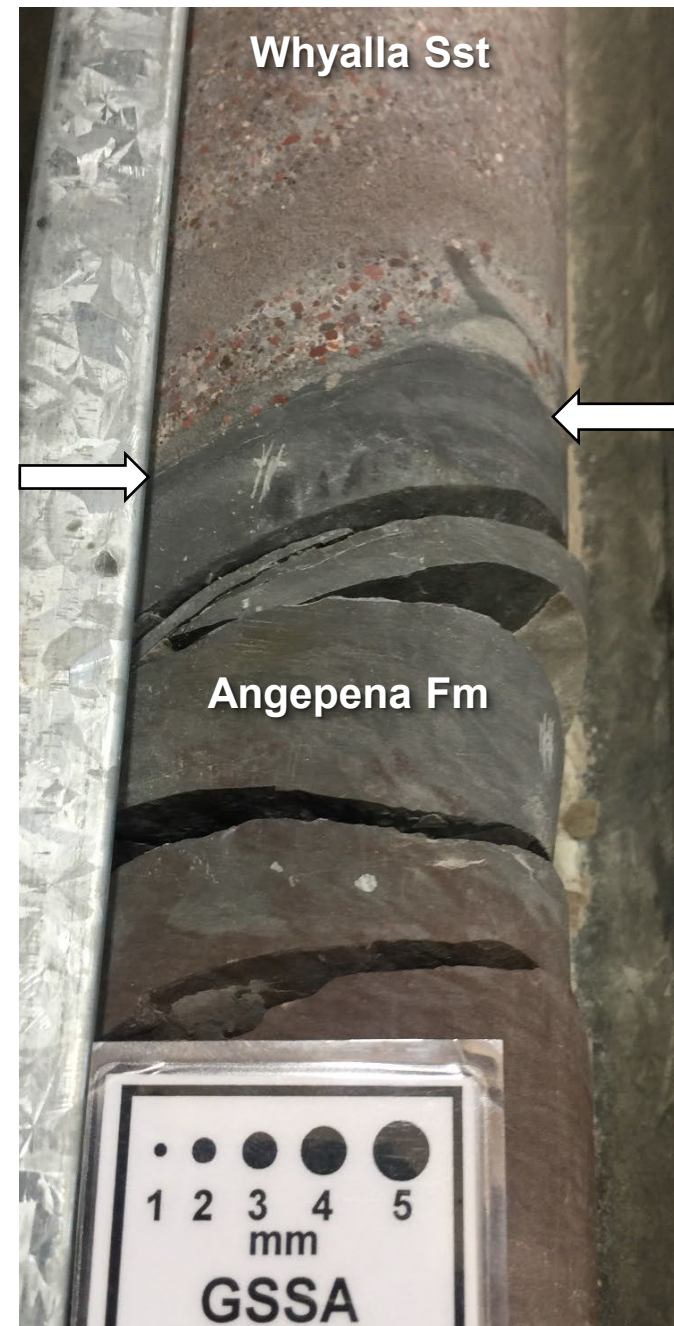
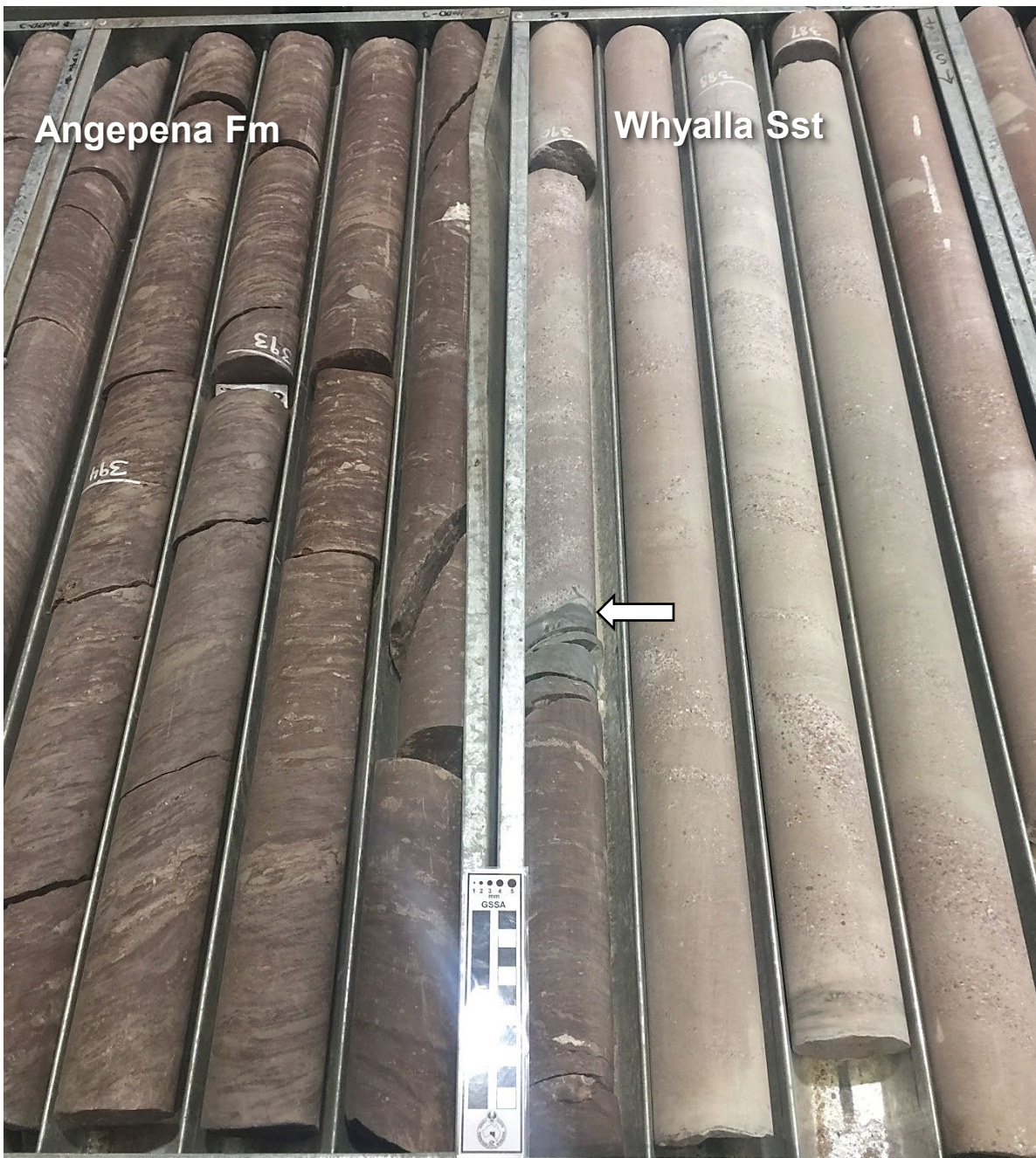


Angepena Formation

sand-/mudflats



Transition Angepena Formation – Whyalla Sandstone



Whyalla Sandstone (depth 253.55 – 390.44 m)

planar bedded fine- to coarse-grained sst



'floating' coarse-grained sandstone patches



soft sediment deformation



massive sst



granular sst

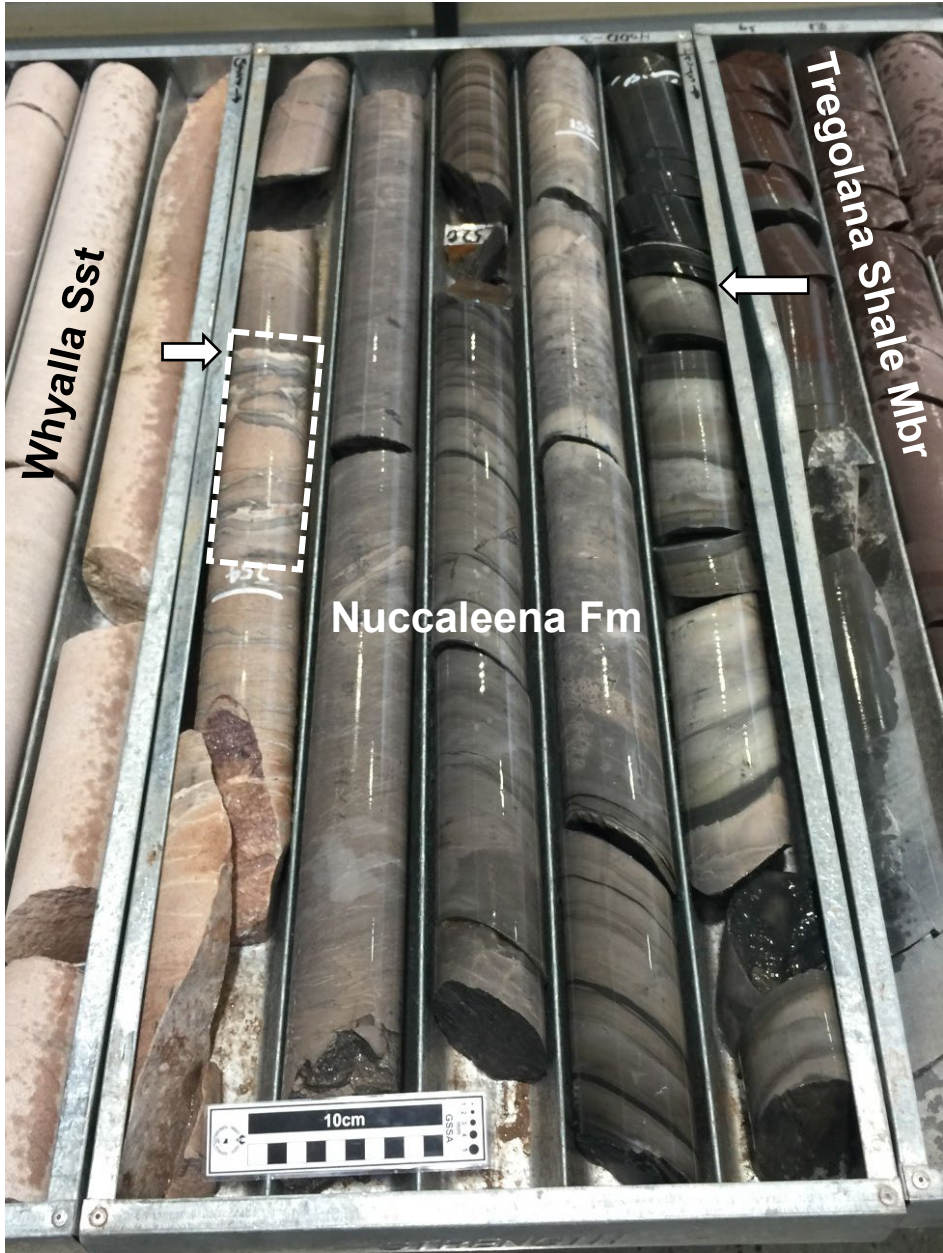


well rounded granules



fluorite veins (~333 m)

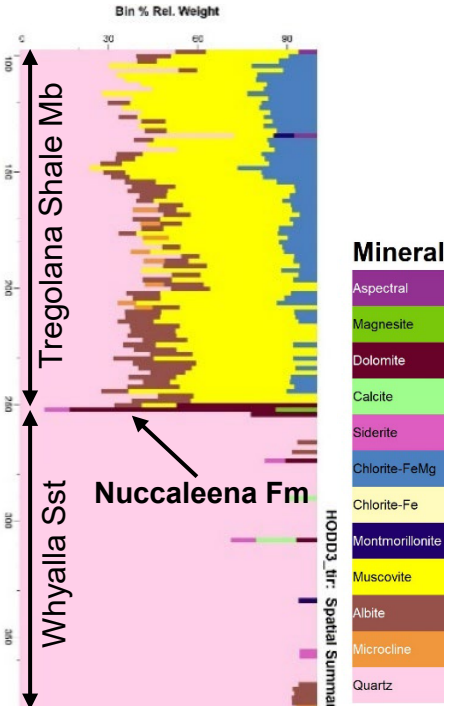
Transition Whyalla Sandstone – Nuccaleena Formation – Tregolana Shale Member



Nuccaleena Formation (cap dolomite)
(depth 250.57 – 253.55 m)



HyLogger™



Tregolana Shale Member (depth 66 – 250.57 m)

fining upward laminated to ripple cross laminated sandstones and siltstones with rip-up clasts, convolute bedding and soft sediment deformation

