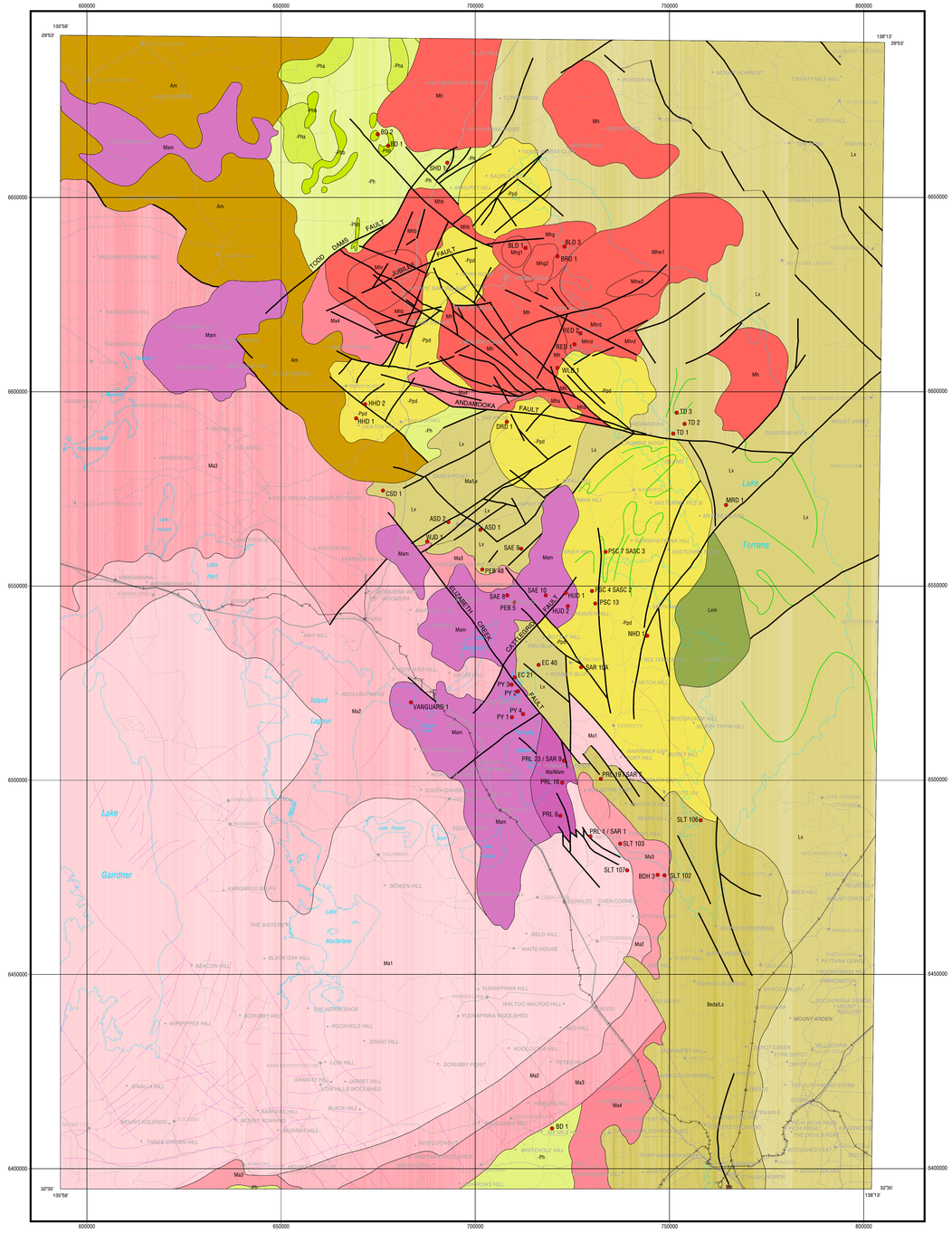
GEOPHYSICAL INTERPRETATION of the CENTRAL OLYMPIC Cu - Au PROVINCE



Legend of Basement* Geology Units

MESOPROTEROZOIC

- Mh — *Hiltaba Suite, undifferentiated*
- Mhb — *Burgoyne Batholith*
- Mhrd — *Red Dam Pluton*
- Mhr — *Roxby Downs Granite*
- Mhg — *Bills Lookout Gabbro / Anorthosite, undifferentiated*
- Mhg1 — *Bills Lookout Gabbro (reversely magnetised)*
- Mhg2 — *Bills Lookout Gabbro (strongly magnetised)*
- Mha — *Arcoona Pluton (Gow, 1996)*
- Mha1 — *West Well Batholith (Gow,1996) - low amplitude, broad wavelength, magnetic high*
- Mha2 — *West Well Batholith (Gow,1996) - high amplitude, high frequency, magnetic high*
- Ma1 — *Yardea Dacite and equivalents*
- Ma2 — *Eucarro Dacite, Yantea Rhyodacite and equivalents*
- Ma3 — *Nonning Rhyodacite, Bunburn Dacite and equivalents*
- Ma4 — *Lower Gawler Range Volcanics, undifferentiated (?Wilgamy Dacite equivalent)*
- Ma/Mam — *Interdigitated felsic and mafic Gawler Range Volcanics*
- Mam — *Mafic Gawler Range Volcanics (Roopena Volcanics and equivalents)*

PALAEOPROTEROZOIC

- Be6a/Lx — *?Wallaroo Group overlain by strongly magnetised Neoproterozoic Beda Volcanics*
- Lx — *Wallaroo Group including felsic volcanics, undifferentiated*
- Lxm — *Wallaroo Group with bimodal volcanics*
- -Ppd — *Donington Granitoid Suite*
- -Ph — *Hutchison Group, undifferentiated*
- -Pha — *Hutchison Group - amphibolite*
- -Phb — *Hutchison Group - banded iron formation*

ARCHAEAN

- Am — *Archaean metamorphics*

* Basement geology units underlie the Pandurra Formation, (minimum age ~1420 Ma, maximum age ~1590 Ma)

- PY 4 — *Exploration drillholes (MER database)*
- *Geological boundary, concealed*
- *Major fault, concealed*
- *Lineament: structural feature of unknown origin*
- *Fracture/joint*
- *Coastline, lakes*
- *Highway/principal road*
- *Secondary road*
- *Minor road*
- *Vehicle track*
- *Railway; siding*
- *Population centre*
- *Homestead*
- *Relief feature*

The Central Oympic Cu-Au Province data is also available from Geoscience Australia as an Online GIS *http://www.ga.gov.au/rural/projects/gaw_mapgis.html*

EXPLANATORY COMMENTS

The Central Olympic Cu-Au province, of the eastern Gawler Craton, lies beneath the Neoproterozoic and youngest sedimentary sequences of the Stuart Shelf. Hiltaba Suite granites and the Gawler Range Volcanics were emplaced at about 1590 Ma. Older basement rocks are Late Archaean metamorphic complexes, and the Palaeoproterozoic Donington Suite, Hutchison Group, and Wallaroo Group.

Except for parts of the Gawler Range Volcanics, none of the basement crops out and is covered by sequences exceeding, in places, 3 km thickness. Interpretation of units and structures was based on gravity and airborne magnetic data. Geological calibration was done by checking exploration drill logs and by examining drill core. Where core was examined, petrophysical properties were measured and used to constrain the interpretation.

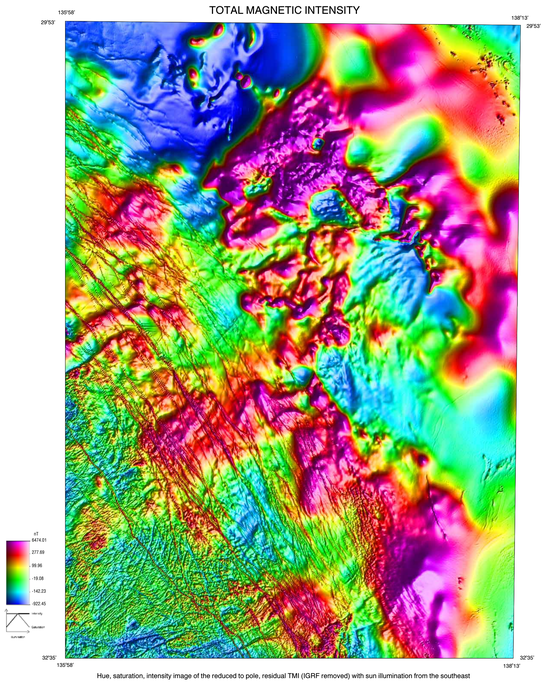
Interpretation and digitisation were completed at 1:250 000 scale for presentation at 1:500 000 scale. The map is not designed to be used at scales larger than 1:250 000. Unit names not appearing in GA's Stratigraphic Names Database are informal and are derived from Gow (1996: *Geological evolution of the Stuart Shelf and Proterozoic iron oxide-associated mineralization: Insights from regional geophysical data*, unpublished PhD thesis, Monash University)

Compiled by N. G. Direen and P. Lyons, Geoscience Australia, May 2002

Image processing by F. M. Dance, P. Milligan and M.Pejic

Cartography by L. M. Highet

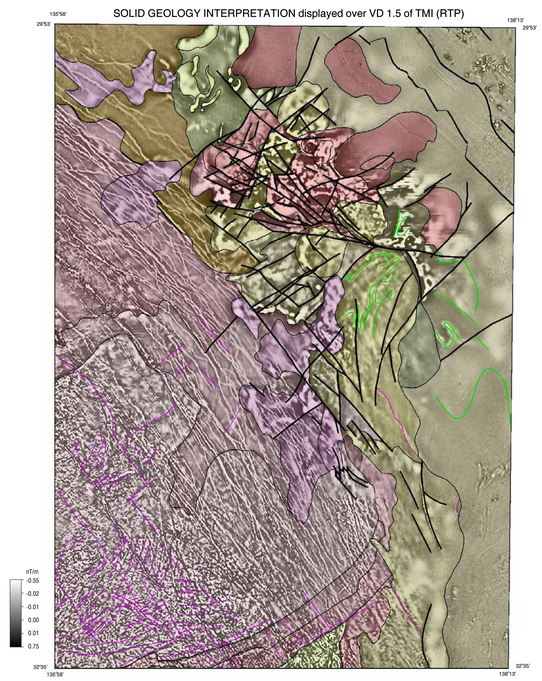
TOTAL MAGNETIC INTENSITY



Hue, saturation, intensity image of the reduced to pole, residual TMI (IGRF removed) with sun illumination from the southeast

SCALE 1:1 000 000
0 10 20 30 40 50 Km

SOLID GEOLOGY INTERPRETATION displayed over VD 1.5 of TMI (RTP)



Greyscale image of 1.5 vertical derivative of TMI (rtp) overlain by transparent solid geology interpretation

SCALE 1:1 000 000
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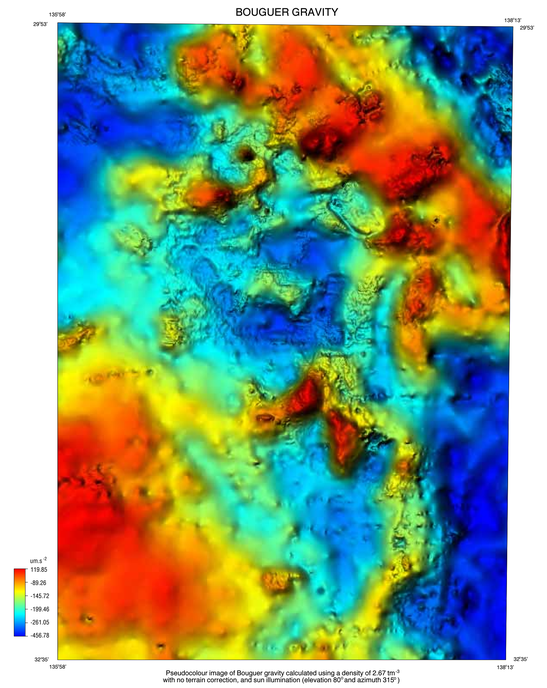
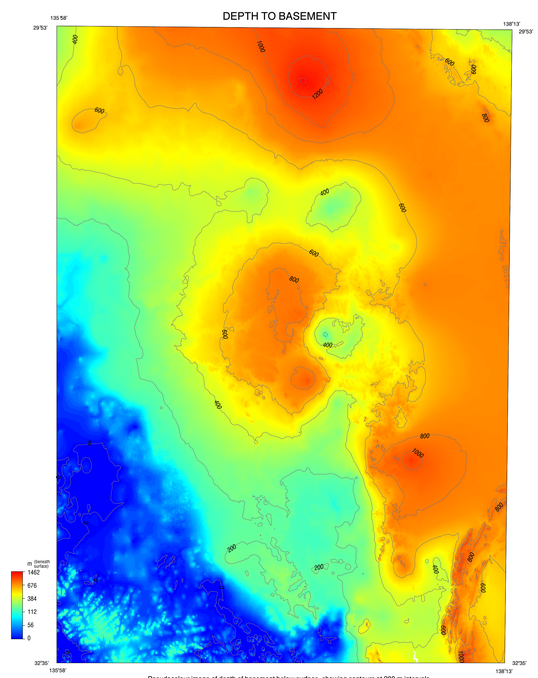
BOUGUER GRAVITY



Pseudocolour image of Bouguer gravity calculated using a density of 2.67 tm^{-3} with no terrain correction, and sun illumination (elevation 80° and azimuth 315°)

SCALE 1:1 000 000
0 10 20 30 40 50 Km

DEPTH TO BASEMENT

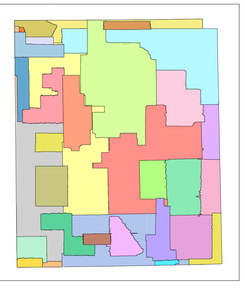


Pseudocolour image of depth of basement below surface, showing contours at 200 m intervals

SCALE 1:1 000 000
0 10 20 30 40 50 Km

AIRBORNE SURVEY INDEX

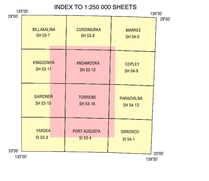
Survey	Year	Line Spacing	AGL	Line Direction
SA Exploration Initiative - Area B1S	1993	400 m	80 m	90°
TESA Survey Area AB	1999	400 m	80 m	90°
SA Exploration Initiative - Area A	1993	400 m	80 m	90°
SA Exploration Initiative - Area B	1993	400 m	80 m	90°
SA Exploration Initiative - Area C	1993	400 m	80 m	90°
SA Exploration Initiative - Area B1S	1994	400 m	80 m	90°
SA Exploration Initiative - Area B1S	1994	400 m	80 m	90°
SA Exploration Initiative - Area B1?	1995	400 m	80 m	90°
Hamus Hill	1994	300 m	80 m	0°
Yardea	1990	300 m	65 m	0°
Lake Gairdner	1994	300 m	80 m	90°
SA Exploration Initiative - Area B1?	1995	400 m	80 m	90°
Cultana	1993	300 m	80 m	0°
Lake Hart North	1990	400 m	125 m	90°
Stuart	1991	300 m	80 m	90°
Gawler Range Volcanics	1981	250 m	70 m	135°
Andamooka	1976	400 m	100 m	90°
Woomera Areas A, B	1993	300 m	80 m	0°
Woomera Areas A, B	1993	300 m	80 m	90°
Tregolana	1981	300 m	95 m	0°
TESA Survey Area D1-3	1999	400 m	80 m	0°
Tunrip Ridge	1994	250 m	80 m	90°
Millers Creek Area	1991	200 m	60 m	90°
Eyre Peninsula	1998	500 m	105 m	90°
Flinders Ranges	1998	400 m	60 m	90°
Flinders Ranges	1998	400 m	60 m	90°
SA Exploration Initiative - Area B1S	1994	400 m	80 m	90°
Riddle Hill	1990	150 m	100 m	90°
Andamooka	1976	400 m	100 m	0°
Kingoonya	1982	250 m	70 m	45°
Reedy Lagoon	1998	200 m	70 m	0°
Reedy Lagoon	1997	200 m	70 m	0°
Central South Australia	1990	2000 m	150 m	90°
Andamooka - Torrens	1992	1600 m	150 m	90°



REGIONAL MAP

MAP LOCALITY

INDEX TO 1:250 000 SHEETS



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Government of South Australia

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INTERPRETED BASEMENT GEOLOGY
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Subject to amendment