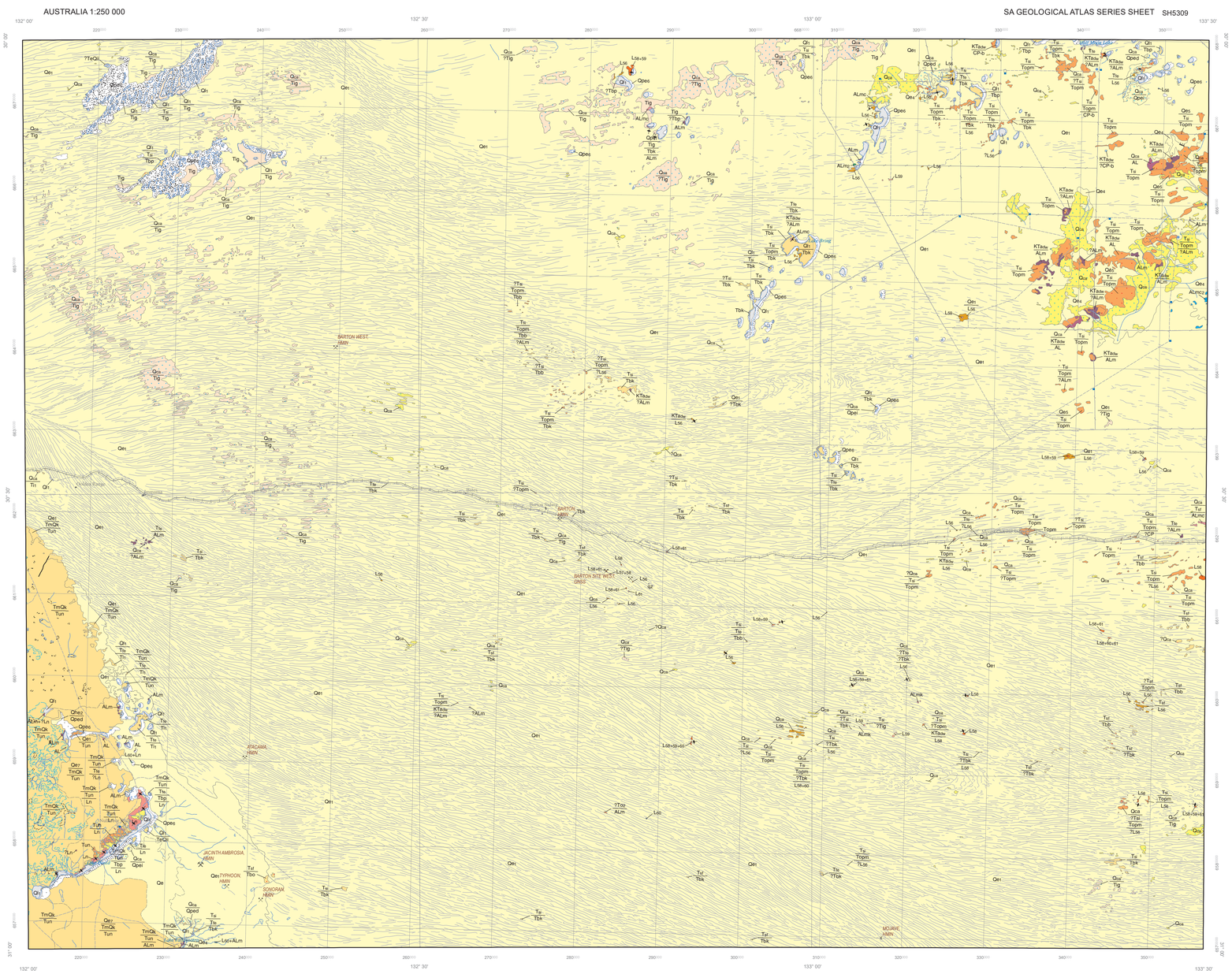
BARTON

GEOLOGICAL SURVEY OF SOUTH AUSTRALIA
DEPARTMENT FOR ENERGY AND MINING

AUSTRALIA 1:250 000

SA GEOLOGICAL ATLAS SERIES SHEET SH5309



REFERENCE

HOLOCENE

- Qhe$_y$ — HOLOCENE AEOLIAN UNIT 2: Holocene sand capping dunes in dunefields.

PLEISTOCENE-HOLOCENE

- Qe — QUATERNARY AEOLIAN SEDIMENTS: Undifferentiated Quaternary aeolian sediments.
- Qe$_1$ — QUATERNARY AEOLIAN UNIT 1: Quaternary dunefield sands.
- Qe$_{1_s}$ — QUATERNARY AEOLIAN UNIT 3: Quaternary gypsiferous dunes/lunettes.
- Qe$_4$ — QUATERNARY AEOLIAN UNIT 4: Quaternary sandplain associated with basement. BARTON sheet.
- Qe$_5$ — QUATERNARY AEOLIAN UNIT 5: Quaternary red-brown sand associated with ferruginous and siliceous duricrusts. BARTON sheet.
- Qe$_7$ — QUATERNARY AEOLIAN UNIT 7: Undifferentiated Quaternary, largely calcareous sand in the transitional area between the Nullarbor Plain and Great Victoria Desert. BARTON sheet.
- Ql$_1$ — QUATERNARY LACUSTRINE/PLAYA UNIT 1: Quaternary playa sediments.
- Qca — QUATERNARY CALCRETE: Undifferentiated Quaternary calcrete.

PLEISTOCENE

- Qpe$_5$ — PLEISTOCENE ALLUVIAL/FLUVIAL UNIT 5: Pleistocene fluviatalus orange-brown sand with pebbly and gravelly lenses. BARTON sheet.
- Qpe$_1$ — PLEISTOCENE AEOLIAN UNIT 1: Pleistocene dune core sand.
- Qpe$_{6_s}$ — PLEISTOCENE AEOLIAN UNIT 6: Pleistocene gypsiferous and quartz sand in lunettes. BARTON sheet.
- Qpe$_8$ — PLEISTOCENE AEOLIAN UNIT 8: Pleistocene pale sand, calcareous in part. Based on Qpe2, TALLARINGA.
- Qped — DELISSER FORMATION: Sand, brick red, weakly indurated.
- Qpei — WINTRENA FORMATION: Sand, brown and orange-brown sand, Dunes, aeolian.
- Qpica — PLEISTOCENE CALCRETE: Undifferentiated Pleistocene calcrete.

MIOCENE-QUATERNARY

- TmQk — MIOCENE-HOLOCENE KARST-RELATED DEPOSITS: Undifferentiated karst-related deposits: Miocene to Holocene.
- TmQk$_1$ — MIOCENE-HOLOCENE KARST-RELATED DEPOSITS UNIT 1: Miocene to Holocene carbonate, blue-black picolitic karst-related. BARTON sheet.

OLIGOCENE-PLIOCENE

- Topm — MUNJENA FORMATION: Conglomeratic sand, clayey sand and breccia. Poorly sorted.

OLIGOCENE

- To$_2$ — OLIGOCENE UNIT 2: Oligocene silicified conglomerate, grit, sandstone; fossil leaves. Based on To on TORRENS.

EOCENE-PLEISTOCENE

- TeQ — EOCENE-PLEISTOCENE ROCKS: Undifferentiated Eocene - Pleistocene rocks.
- TeQil — ILKINA FORMATION: Clay, silt, sand, laminated to thinly bedded, local clasts of silcrete and ferricrete. Locally capped by gypsum crust. Palaeochannel fill.
- Ti$_1$ — IMMARNA GROUP UNIT 1: Undifferentiated ferruginised/silicified sand; likely to include Pidinga, Khasta Formations, Yarle Sandstone. BARTON sheet.
- Tig — GARFORD FORMATION: Mudstone, carbonate, stromatolitic, oncolitic and oolitic, gastropods, minor sandstone and grit horizons. Upward change from argillaceous to carbonate mudstone. Lacustrine to flood plain.
- Tiy — YARLE SANDSTONE: Sandstone, silicified and ferruginous. Contains rare clasts of Nullabor Limestone and fossils.
- Tbb — BARTON SAND: Sand, medium-grained, poorly cemented, beach-barrier and aeolian.
- Tbk — KHASTA FORMATION: Sandstone, fine grained, sponge spicules, lamination, cross lamination, vertical Skolithus burrows, small ripples.
- Tbo — OOLDEA SAND: Sand, medium-grained, quartz, well sorted, well rounded, frosted grains, trace quantities of heavy minerals. Aeolian dunes.
- Tbp — PIDINGA FORMATION: Siltstone, carbonaceous; lignite; sand, carbonaceous. Palaeochannel fill.

EOCENE-MIOCENE

- Tun — NULLARBOR LIMESTONE: Limestone, bioclastic, micritic. Subtidal, platformal, above fair weather wave-base.

TERTIARY

- Tfe — TERTIARY FERRICRETE: Undifferentiated Tertiary ferricrete.
- Tsf — TERTIARY SILCRETE/FERRICRETE: Undifferentiated Tertiary silcrete/ferricrete. BARTON sheet.
- Tsi — TERTIARY SILCRETE: Undifferentiated Tertiary silcrete.

CRETACEOUS-PALEOCENE

- KTadw — CRETACEOUS-PALEOCENE DEEP WEATHERING: Undifferentiated deep weathering.

CRETACEOUS

- Kmb — BULLDOG SHALE: Mudstone, grey, bioturbated, fossiliferous and shaky; minor silt to very fine-grained sandstone intervals.

CARBONIFEROUS-PERMIAN

- CP — CARBONIFEROUS-PERMIAN ROCKS: Undifferentiated Carboniferous-Permian rocks.
- CPb — BOORTHANNA FORMATION: Diamictite with shale intercalations in the basal unit, the upper unit with rhythmically bedded coarse and fine-grained clastics. Subaqueous deposition of glacial debris transported as mud flows.

PALAEOPROTEROZOIC

- L$_{56}$ — PALAEOPROTEROZOIC UNIT 56: Undifferentiated granitoid rocks, mostly foliated, north and west Gawler Craton. Uncertain age, may include Peter Pan Supersuite, Tunkillia Suite.
- L$_{57}$ — PALAEOPROTEROZOIC UNIT 57: Gneiss, folded, banded, migmatitic. Intruded by L58. BARTON sheet.
- L$_{58}$ — PALAEOPROTEROZOIC UNIT 58: Granodiorite gneiss, fine to medium-grained, comagmatic with L59, L60. BARTON sheet.
- L$_{59}$ — PALAEOPROTEROZOIC UNIT 59: Gneissic granite, red-pink, medium to coarse-grained, leucocratic granite gneiss, comagmatic with L58, L60. BARTON sheet.
- L$_{60}$ — PALAEOPROTEROZOIC UNIT 60: Diorite; amphibolite dykes, comagmatic with L58, L59. BARTON sheet.
- L$_{61}$ — PALAEOPROTEROZOIC UNIT 61: Aplite, pegmatite veins. BARTON sheet.
- Ln — TUNKILLIA SUITE: Orthogneiss, granitic to quartz syenitic; biotite granite, adamellite and granodiorite; minor mylonite; minor amphibolite, rhyolite, rhyodacite and aplite dykes. Alkali-calcic, I-type, 1709-1666 Ma.

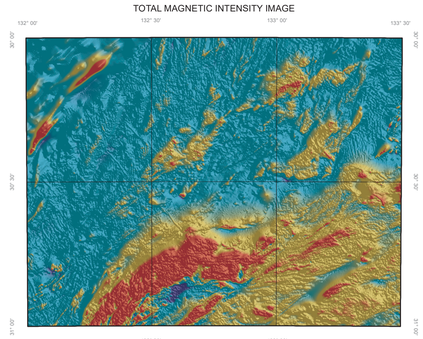
ARCHAEAN-PALAEOPROTEROZOIC

- AL — ARCHAEAN-PALAEOPROTEROZOIC ROCKS: Undifferentiated Archaean and/or Palaeoproterozoic rocks.
- ALm — MULGATHING COMPLEX: Paragneiss, arenaceous and aluminous; iron formation; granitic gneiss; felsic and mafic-ultramafic volcanic and intrusive rocks. Granulite to amphibolite facies. Protoliths ~2560–2460 Ma.
- ALm$_1$ — MULGATHING COMPLEX UNIT 2: Meta-mafic rocks, undifferentiated.
- ALmo — CHRISTIE GNEISS: Gneiss with migmatitic layers, paragneiss, carbonate, calcsilicate, quartzite. Age (U-Pb)2437+/-11Ma. With banded iron formation.
- ALmc$_2$ — CHRISTIE GNEISS UNIT 2: Banded iron formation: qtz-mgt-dop-hyp-amph gneiss; qtz- microcline-plag gneiss. Age(U-Pb)2437+/-11Ma, BARTON sheet.
- ALmk — KENELLA GNEISS: Gneiss, local pegmatitic separations. ?metavolcs. Concordant with ALmc.

MISCELLANEOUS

- QZ — QUARTZ VEIN: Quartz veins/bodies, undifferentiated.

TOTAL MAGNETIC INTENSITY IMAGE



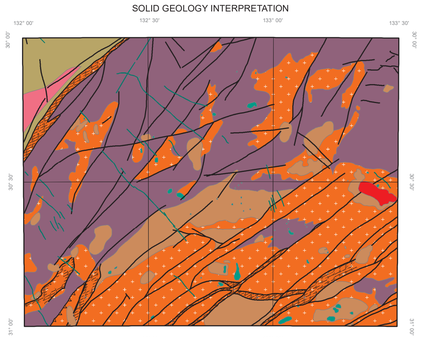
SCALE 1:1000000

The Total Magnetic Intensity Image has been compiled using aeromagnetic data from the Department for Energy and Mining, South Australia. Aeromagnetic data have been merged, gridded and image processed by the Geological Survey of South Australia.

nTesla: -1784.4 — -809.699 — 3.079 — 815.857 — 7269.238

A two standard deviation contrast stretch has been applied to the raster image above.

SOLID GEOLOGY INTERPRETATION



SCALE 1:1000000

Modified from Interpreted Crystalline Basement Geology Of The Gawler Craton (Fairclough et al. 2003)
Interpreted Solid Geology Of The Curnamona Province (Burtt and Betts, 2003).
Musgrave Block, Central Australia: regional geology from interpretation of aeromagnetic data (Rankin and Newton, 2002), Solid Geology South Australia (Cowley, 2006).

Solid Geology

- Ng — Gairdner Dolerite
- Mh — Hiltaba Suite
- MH6 — Hiltaba Suite unit 6
- kM14 — Palaeoproterozoic-Mesoproterozoic unit 14
- L36 — Palaeoproterozoic unit 36
- L38 — Palaeoproterozoic unit 38
- L-d — Moondrah Gneiss
- ALm — Mulgathing Complex

Solid Geology - Linear Structure

- Fault position accurate
- Mylonite zone
- Fault reverse triangles upthrown side

SCALE 1:250,000

KILOMETRES 5 — 0 — 5 — 10 — 15 — 20 — 25 KILOMETRES

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2020

Topographic detail based on TOPO-250K GEODATA (source scale 1:250 000) supplied by Geoscience Australia - National Mapping Division, ACT.
The relationship between this data and DEM data is not guaranteed.

Computer generated from SA_GEOLOGY database
(Digital data available upon request)
Current version 2018.Digital

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Grey numbered lines indicate the 10000 metre Map Grid
Transverse Mercator Projection, Geocentric Datum Australia, 2020.

The lake boundaries displayed on this map may have been derived from geological interpretation and may not match lakes interpreted by topographic mapping authorities.
Not all structures are represented on this particular map.

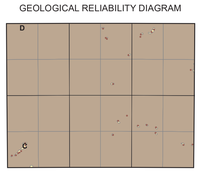
Mapping and Compilation by M.C. Benbow, B.Sc., A.F. Crooks, B.Sc., L.R. Rankin, B.Sc.(Hons), and A.R. Martin, B.Sc.(Hons)

R.C. Cobcroft, Director, Geological Survey of South Australia.

Geological boundaries displayed on this map have been Derived from geological interpretation and are not intended to be used for navigational purposes.

Copies of this map can be obtained from the Department for Energy and Mining SA, Adelaide.
2020

GEOLOGICAL RELIABILITY DIAGRAM



Barton sheet published 1995 — SCALE 1:2000000

Geological Field Observations

A: Detailed ground traverses
B: Image interpretation with limited ground traverses
C: Image interpretation with potentially some minor ground traverses
D: Image interpretation only

INDEX TO 1:100 000 SHEETS

Immarna 5337	Lake Bring 5437	Mobella 5537
Pidinga 5336	Barton 5436	Taloreh 5536

INDEX TO ADJOINING 1: 250 000 SHEETS

Magnetic Declination 2000
(Annual variation +1.4 minutes)

MAURICE	TALLARINGA	COOBER PEDY
OOLDEA	BARTON	TARCOOLA
NULLARBOR	FOWLER	CHILDARA

DIGITAL EDITION
SUBJECT TO AMENDMENT
See published printed map for further information

CULTURAL FEATURES

- MINOR ROADS
- VEHICULAR TRACKS
- OPERATIONAL RAILWAY
- ABANDONED RAILWAY
- FENCE
- IDENTIFIED POINT
- YARDS
- LANDING GROUND

MINING

- PROSPECT
- DEPOSIT - NO MINING
- MINE - METALS AND INDUSTRIAL MINERALS

GEOLOGICAL BOUNDARY

- GEOLOGICAL BOUNDARY POSITION ACCURATE
- GEOLOGICAL BOUNDARY POSITION APPROXIMATE

HYDROGRAPHIC AND GEOMORPHIC FEATURES

- INTERMITTENT LAKE
- MINOR WATERCOURSE
- BORE
- WATER TANK
- SAND RIDGE

COMMODITIES

COAL	Coal
GNSS	Gneiss
HMIN	Heavy Minerals

STRUCTURAL FEATURES

- TECTONIC FOLIATION - HORIZONTAL
- TECTONIC FOLIATION - VERTICAL
- TECTONIC FOLIATION

LINEAR STRUCTURES

- ESCARPMENT
- FAULT POSITION ACCURATE
- KARST FORMATIONS
- SINKHOLES

Government of South Australia
Department for Energy and Mining

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