NORTH QUEENSLAND GEOLOGY

Compiled by John H.C. Bain & Dan Haipola

AGSO

1997

DEPARTMENT OF MINES AND ENERGY

SCALE 1:1 000 000

KILOMETRES

0 10 20 30 40 50 60 70 80 90 100

EQUIDISTANT SIMPLE CONIC PROJECTION
STANDARD PARALLELS:-18°S, -36°S CENTRAL MERIDIAN: 144.5°
AUSTRALIAN GEODETIC DATUM 1966, AUSTRALIAN NATIONAL SPHEROID 1969

Quaternary

- Qa — *Sand, gravel, silt, clay, soil; siliceous hardpan:* ***alluvial***
- Qc — *Mud, silt, sand:* ***marine coastal***
- Qcb — *Quartzose, feldspathic & shelly sand & gravel; beachrock:* ***marine barrier***
- Qcd — *Quartz sand:* ***coastal dunefields***
- Qce — *Sand, silt, mud:* ***estuarine & delta***

Cainozoic

- Cz — *Quartzose sand, silt, clay; soil; talus; ferricrete, silcrete:* ***colluvial & residual***
- Czb — *Bauxite, ferricrete:* ***residual***
- Czv — *Alkali basalt, basanite, hawaiite, tholeiitic basalt, nephelinite, & leucitite lava, breccia & scoria:* ***mafic lavafields***

Pliocene

- T3 — *Silt, clay, clayey quartzose sand & gravel:* ***alluvial***

Mid Miocene-Early Pliocene

- T2 — *Clayey quartose sand & gravel, clay:* ***alluvial***

Paleocene-Early Miocene

- T1 — *Poorly consolidated clayey quartzose sandstone & pebble conglomerate:* ***alluvial***

Early Cretaceous

- K — *Calcareous claystone, siltstone, glauconitic sandstone; carbonaceous limestone; calcareous concretions:* ***shallow marine***
- Ki — *Biotite granite, hornblende-biotite granodiorite:* ***felsic I-type intrusives***

Mid Jurassic-Early Cretaceous

- JK — *Quartzose sandstone, conglomerate, siltstone, claystone; carbonaceous shale, coal; glauconitic sandstone:* ***alluvial to marginal marine:***

Late Permian-Mid Triassic

- PR — *Sandstone, siltstone, carbonaceous mudstone, coal; conglomerate, "red beds", rare tuffs:* ***alluvial***

Late Permian

- Pi — *Muscovite-biotite granite: felsic S-type intrusives*
- Pv — *Andesite to rhyolite lava, rhyolitic ignimbrite & tuff; volcaniclastic sediments:* ***mafic to felsic I-type extrusives***

Late Carboniferous-Early Permian

- Cpi — *Granite, granodiorite, & tonalite; microgranite, microgranodiorite; rhyolite; dolerite, granophyre, diorite, gabbro:* ***felsic I, S, & A-type & mafic intrusives***
- CPv — *Rhyolitic to andesitic ignimbrite, lava, tuff & breccia; basalt lava; volcaniclastic sediments; limestone :* ***felsic I & A-type extrusives***
- CP — *Sandstone, siltstone, carbonaceous mudstone; tuff; conglomerate; coal:* ***alluvial, lacustrine & shallow marine***

Late Devonian-Early Carboniferous

- DCi — *Biotite granite, microgranite; hornblende-biotite granodiorite, microgranodiorite; diorite; rhyolite:* ***felsic I-type intrusives***
- DCv — *Rhyolitic to dacitic ignimbrite; andesite to basalt lava & breccia; rhyolitic lava, tuff & breccia:* ***felsic I-type extrusives***
- DC — *Sandstone, siltstone, conglomerate, mudstone; "red beds"; limestone, carbonaceous mudstone; rhyolite lava, rhyolitic ignimbrite & tuff; coal:* ***alluvial & shallow marine***

Devonian

- D — *Sandstone, mudstone; minor conglomerate, chert, basalt; rare limestone:* ***marine***

Early-Mid Devonian

- Dem — *Limestone, sandstone (calcareous in places), mudstone, conglomerate:* ***shallow marine***

Early Devonian

- Dei — *Porphyritic muscovite-biotite granite, leucogranite, aplite, & pegmatite; biotite & hornblende-biotite granodiorite, monzogranite & tonalite:* ***felsic S & I-type intrusives***

Silurian-Early Devonian

- SD — *Sandstone, mudstone, limestone, chert, siltstone; basalt; conglomerate; tholeiitic basalt lava:* ***shallow marine***

Silurian

- Si — *Porphyritic biotite-hornblende granodiorite & tonalite; quartz diorite, gabbro, troctolite; biotite granite, garnet-muscovite leucogranite:* ***felsic to mafic I-type intrusives***

Ordovician-Silurian

- OSi — *Pyroxene-hornblende-quartz gabbro to diorite; minor olivine-pyroxene gabbro:* ***mafic intrusives***

Late Ordovician

- O3 — *Sandstone, mudstone, conglomerate, limestone, siltstone; basalt; chert, jasper:* ***marine***

Mid Ordovician

- O2i — *Hornblende-biotite & biotite granodiorite & granite:* ***felsic to mafic I-type intrusives***

Early Ordovician

- O1 — *Mudstone, siltstone, sandstone; basalt; chert, jasper:* ***marine***

Late Cambrian-Early Ordovician

- €Oi — *Biotite & hornblende-biotite granite & granodiorite; hornblende-pyroxene metadiorite:* ***felsic to intermediate S & I-type intrusives***
- €Ov — *Rhyolite to dacite lava & breccia; rhyolitic to dacitic breccia; andesite, andesitic breccia, basalt; minor sandstone & siltstone:* ***felsic I-type extrusives***
- €O — *Sandstone, siltstone; felsic & intermediate volcanics:* ***deep marine***

Late Neoproterozoic-Mid Cambrian

- n€Ci — *Greenstone, metadolerite, metabasalt?,amphibolite:* ***mafic intrusives/extrusives***
- n€C — *Mica & chlorite schist, biotite gneiss, amphibolite, quartzite, meta-arenite, calc-silicate granofels, migmatite; minor metachert, ironstone, serpentinite, phyllite*

Mesoproterozoic ?

- nnEi — *Serpentinite, clinopyroxenite, amphibolite: mafic/ultramafic intrusives*

Mesoproterozoic (Calymmian)

- mEi — *Porphyritic biotite-muscovite granite; garnet-muscovite leucogranite, pegmatite; granodiorite, tonalite; trondjhemite; microdiorite:* ***felsic S & I-type intrusives***
- mEv — *Rhyolitic ignimbrite; rhyolite, dacite & andesite lavas; dacitic ignimbrite; volcanic-derived sandstone; siltstone:* ***felsic S or I?-type extrusives***
- mEm — *Metadelerite, grading into foliated amphibolite:* ***mafic intrusives***
- mE — *Mudstone, siltstone (partly carbonaceous); metasandstone, slate, phyllite, quartzite, mica schist (locally graphitic), gneiss; migmatite*

Palaeoproterozoic (Statherian)

- pEi — *Metadolerite & metagabbro, grading into foliated amphibolite & granulite:* ***mafic intrusives***
- pEv — *Metabasalt with local pillows, hyaloclastite breccia, grading into foliated amphibolite & granulite:* ***mafic extrusives***
- pE — *Mica schist, quartzite, gneiss, calc-silicate, slate, phyllite, mudstone, siltstone, meta-arenite (mainly carbonaceous, some calcareous); amphibolite; migmatite*

Note: Only the dominant rock types are listed, generally in order of abundance
Main depositional environments & main igneous classes are in **bold type**

About this map

Sources of geological information: This map was compiled from all AGSO/BMR and Deparment of Mines and Energy vector digital geological map datasets available September 1996, using Arc/Info software. Individual datasets were formed into 1:250000 sheet areas, rasterised, and smoothed to reduce the number and complexity of polygons. The raster data were re-vectorised and merged into a single seamless dataset. Most of the map is derived from post-1970 mapping (much of it at 1:100000 scale, especially in the geologically complex eastern part of the map) published as second edition 1:250,000 scale geological series, and special regolith-landform, and coastal zone maps. First edition (mostly pre-1970) 1:250000 geological series maps were used for the Torres Strait Islands, parts of Cape York Peninsula north of 140°S, the Cape Melville area, the Carpentaria and Eromanga Basins in the southwestern part of the map, and much of the Ingham-Innisfail and Ayr-Bowen areas. Some boundaries were derived from a digital version of the 1975 1:2500000 scale Queensland Geology map. Cainozoic map unit boundaries in Cape York Peninsula north of 160°S are derived from AGSO/CYPLUS regolith landform and coastal zone maps.

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Associated publications: For additional information see the following: Bain, JHC & Draper, JJ (eds), 1997, North Queensland Geology, AGSO Bulletin 240/Queensland Geology 9, Canberra & Brisbane; and Bain, JHC, & Draper, JJ, 1997, Atlas of North Queensland Geology, AGSO, Canberra/GSQ, Brisbane.

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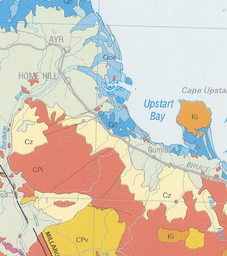
- Geological boundary
- Fault, major
- Fault, minor
- Fault, concealed
- Au — Undeveloped mineral deposit
- Au — Operating mine
- Au — Historic mine

Ag - silver, Au - gold, Bx - bauxite, Bi - bismuth, Cu - copper, C - coal, Co - cobalt, Kaol - kaolinite, Mo - molybdenum, Oil - oil shale, Ni - nickel, Pb - lead, Sil - silica sand, Sn - tin, U - uranium, W - tungsten, Zn - zinc

- Highway or principal road
- Secondary road
- Vehicle track
- Railway
- CAIRNS — City
- Pentland — Town or village
- Glencoe — Homestead or outstation



Gulf of Carpentaria

CORAL SEA

Great Barrier Reef