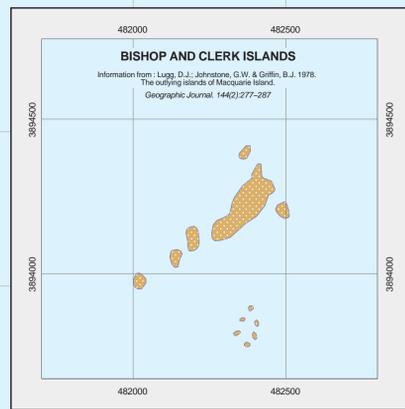


GEOLOGY OF MACQUARIE ISLAND – SHEET 7



Geology by B.D. Goscombe, BSc (Hons), PhD and J.L. Everard, BSc (Hons), December 1984 – May 1995; September 1995 – January 1996. Project initiated and supervised by A.V. Brown, BSc (Hons), PhD, Director, Mineral Resources, Tasmania, with funds provided by the Australian Antarctic Foundation, and logistical support provided by the Australian Antarctic Division.

Base map drawn from several sources:
The SPOT multispectral satellite mosaic produced by the Australian Centre for Remote Sensing (ACRES) 1994.
Division of National Mapping Macquarie Island 1:50,000 topographic map (1971) resampled to conform with the satellite mosaic along coastline and lakes.
Aerial photographs flown in 1976 (mainly in the north of the island).
GPS positions and field observations.

Map produced by the Data Management Group, Mineral Resources Tasmania, using GIS software. Original map produced March 1998.
Absolute position with respect to horizontal datum and topographic features is approximate.

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ALLUVIAL, LACUSTRINE AND SWAMP DEPOSITS

Alluvium, including deposits at the margin of lakes.
Colluvium of wash slopes.

SLOPE DEPOSITS

Scree slopes.
Alluvial fans, with slopes of less than 22 degrees.
Deposits of large (2–20m) boulders along coasts, typically in bays on west coast.

BEACH AND AEOLIAN DEPOSITS

Pebbly to cobbly beach deposits.
Aeolian silt and sand deposits, often with gravel lag; approximate thickness of deposit in metres indicated where known.
Palaeo-beach deposits of rounded and smoothed cobbles and pebbles, less commonly with coarse sand.
Scattered palaeo-beach cobbles and pebbles (shown as overprint on underlying units).

SEDIMENTARY ROCKS

Mudstone and siltstone, usually laminated and red.
Sandstone and pebbly sandstone with muddy to silty matrix; usually grey, greenish-grey or red.
Conglomerate, usually clast supported, consisting of sub-rounded to sub-angular cobbles to boulder-sized clasts of basalt and dolerite, in a mudstone to sandstone matrix.
Sedimentary rock matrix between pillows or lavas or blocks in breccias indicated:
lime – lime to pale pink limestone.
mud – red to grey mudstone.

VOLCANICLASTIC ROCKS

Hyaloclastite breccia consisting of angular to sub-rounded blocks of usually aphyric basalt in a glass matrix.
Plagioclase-phyric blocks indicated (pg). % proportion of glass indicated (20g).
Volcaniclastic breccia, matrix-supported, with blocks of usually aphyric basalt; plagioclase-phyric basalt blocks indicated (sp).
Volcaniclastic breccia, clast-supported, with blocks of usually aphyric basalt; plagioclase-phyric basalt blocks indicated (sp).
Breccia containing isolated pillows or lensoidal zones of pillows indicated (pill).

LAVAS

Pillow basalt, aphyric to very sparsely aphyric (<5% plagioclase phenocrysts), usually amygdaloidal.
Pillow basalt, sparsely to moderately aphyric (5–30% plagioclase phenocrysts), usually amygdaloidal.
Pillow basalt, densely to very densely aphyric (>30% plagioclase phenocrysts), usually amygdaloidal.
Hyaloclastite (glass and basalt fragments) matrix of pillows indicated (% proportion of glass (20g), with hyaloclastite matrix containing plagioclase phenocrysts (20g-sp)).
Disaggregated pillows indicated by overprint.

20g

Tabular basalt flows, medium- to fine-grained, usually aphyric; rarely sparsely plagioclase-phyric (sp) or densely plagioclase-phyric (pp). Rarely with zones of pillows (pill).
Tabular basalt flows, medium- to coarse-grained with mesoscopically visible plagioclase laths, usually aphyric; rarely sparsely plagioclase-phyric (sp). Rarely with zones of pillows (pill). Auto-brecciation indicated (brecc).

Geological boundary – position approximate.
Geological boundary – position inferred.
Fault – position approximate.
Fault – inferred.
Dolerite dykes, trace or trend.
Track.
Topographic high point.

Bedding in sedimentary rock – right way up, overturned.
Bedding defined by orientation of massive tabular lava units.
Bedding defined by lithological layering of distinct rock units.
Strike and dip of dyke or vein, vertical.
Cleavage, fracture-cleavage or fractures – dipping, vertical.
Strong penetrative cleavage with possible grain-refinement.
Strike and dip of outcrop scale fault.
Trend and plunge of slickenside, with indicated fault plane.
Sense of movement on fault or ductile shear zone – dextral, sinistral (note: for scarp on the plateau, the most recent, but not necessarily the most important, sense of movement is indicated).

