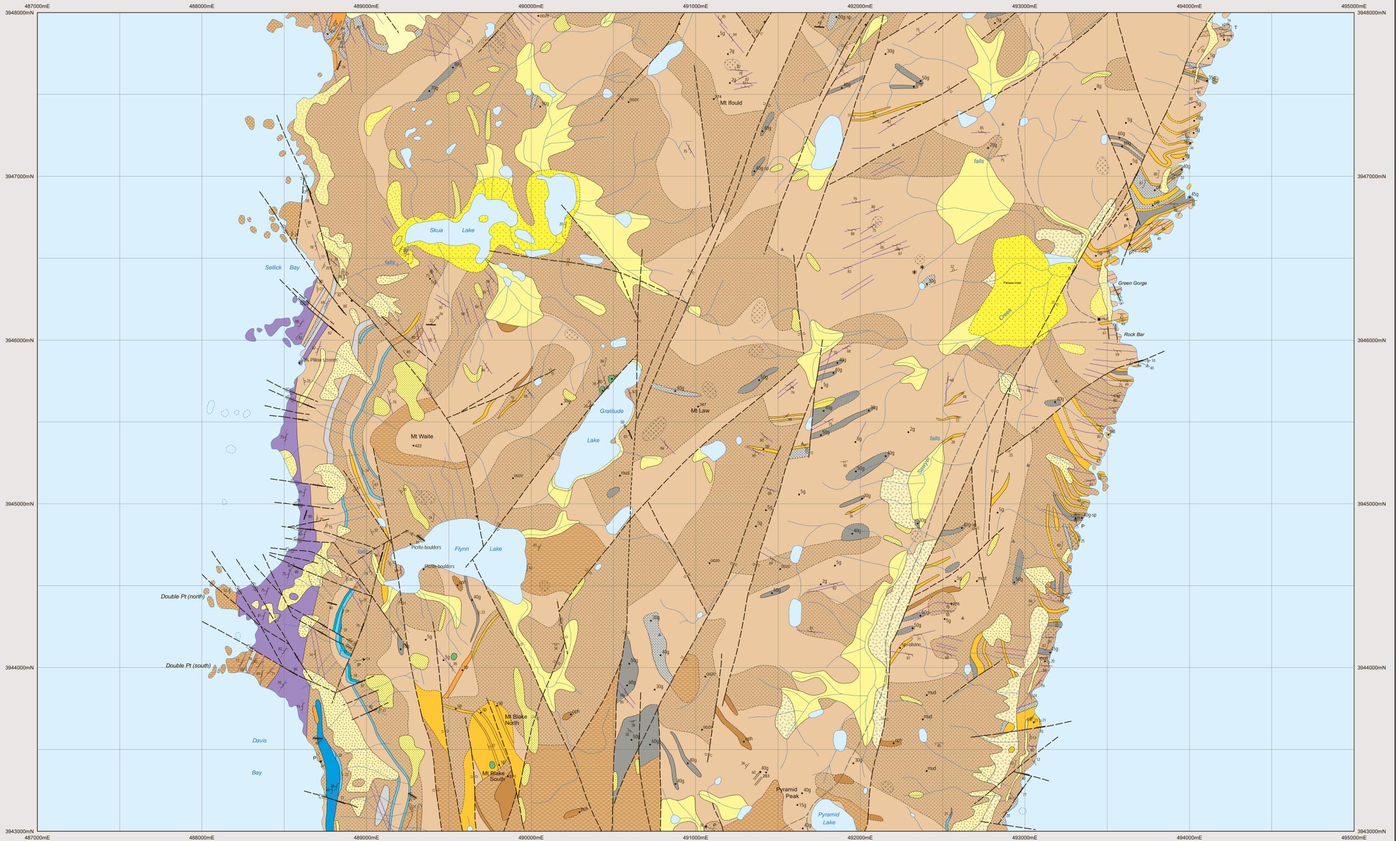


# GEOLOGY OF MACQUARIE ISLAND - SHEET 4



Geology by B.D. Goscombe, BSc (Hons), PhD and J.L. Everett, BSc (Hons), December 1984 - May 1985; 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.

Bathymetry 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) warped to conform with the satellite mosaic along coastline and lakes. Incomplete aerial photograph 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.
  - Older alluvium of terraces.
  - Colluvium of wash slopes.
  - Flags, swamps and "waterboer" (includes significant areas of peat without bedrock outcrop).
- 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.

- SEDIMENTARY ROCKS**
- Mudstone and siltstone, usually laminated and red.
  - Sandstone and poorly sandstone with muddy to silty matrix; usually grey, greenish-grey or red.
  - Conglomerate, usually clay 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 in basins or blocks in breccia indicated.
  - ooze - pale grey to green siliceous ooze.
  - 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 (sp); % proportion of glass indicated (sp).
  - Volcaniclastic breccia, matrix-supported, with blocks of usually aphyric basalt; plagioclase-phyric basalt blocks indicated (sp).
  - Aeolian silt and sand deposits, often with gravel lag; approximate thickness of deposit in metres indicated where known.

- LAVAS**
- Pillow basalt, aphyric to very sparsely phytic (~5% plagioclase phenocrysts), usually amygdaloidal.
  - Pillow basalt, sparsely to moderately phytic (5-30% plagioclase phenocrysts), usually amygdaloidal.
  - Pillow basalt, densely to very densely phytic (~30% plagioclase phenocrysts), usually amygdaloidal.
  - Hyaloclastite (glass and basalt fragments) matrix of pillows indicated; % proportion of glass (sp); with hyaloclastite matrix containing plagioclase phenocrysts (20-30%).
  - Disaggregated pillows indicated by overprint.
  - Tabular basalt flows, medium- to fine-grained, usually aphyric; rarely sparsely plagioclase-phyric (sp) or densely plagioclase-phyric (sp). Rarely with zones of pillows (pl).
  - Tabular basalt flows, medium- to coarse-grained with mesocrystally visible plagioclase laths, usually aphyric; rarely sparsely plagioclase-phyric (sp). Rarely with zones of pillows (pl). (Autochthonous indicated (brcc)).
  - Hornblende-phyric massive subular basalt flows, medium-grained. Rarely sparsely plagioclase-phyric (sp). Rarely with mesocrystally visible interlocking plagioclase laths (sp).
  - Small plugs of picrite. Picritic pillow basalts indicated (pl) (490000E 3947000N). Glass-bearing, matrix-supported breccia indicated (brcc) (490000E 3946750N).
- INTRUSIVE ROCKS**
- Shielded dolerite dykes with rare screens of pillow basalt.

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

- Bedding in sedimentary rock - right way up.
- Bedding defined by orientation of massive tabular lava units.
- Bedding defined by lithological layering of distinct rock units.
- "Bedding" defined by plane of pronounced flattening of pillows.
- Attitude and direction of flow of lava, indicated by pillows (P), rope lava (R), lava tubes (T) or drag on underlying sediments (D).
- Trend and plunge of flow of lava, indicated by long axes of pillows (P) or rope lava (R).
- Slope and dip of palaeo-canyon or palaeo-est, filled by conglomerate and/or block breccia; dip not specified.
- Slope and dip of dyke or vein.
- Cleavage, fracture-cleavage or fractures - dipping.
- Slope and dip of outcrop scale fault; vertical.
- Trend and plunge of slickensides, within indicated fault plane.
- Sense of movement on fault or disjunct shear zone - dextral, sinistral; (note: for scarps on the plateau, the most recent, but not necessarily the largest, sense of movement is indicated).

