

ANTARCTIC GEOLOGICAL 1:250,000 MAP SERIES
MOUNT MURCHISON QUADRANGLE
(VICTORIA LAND)
1997

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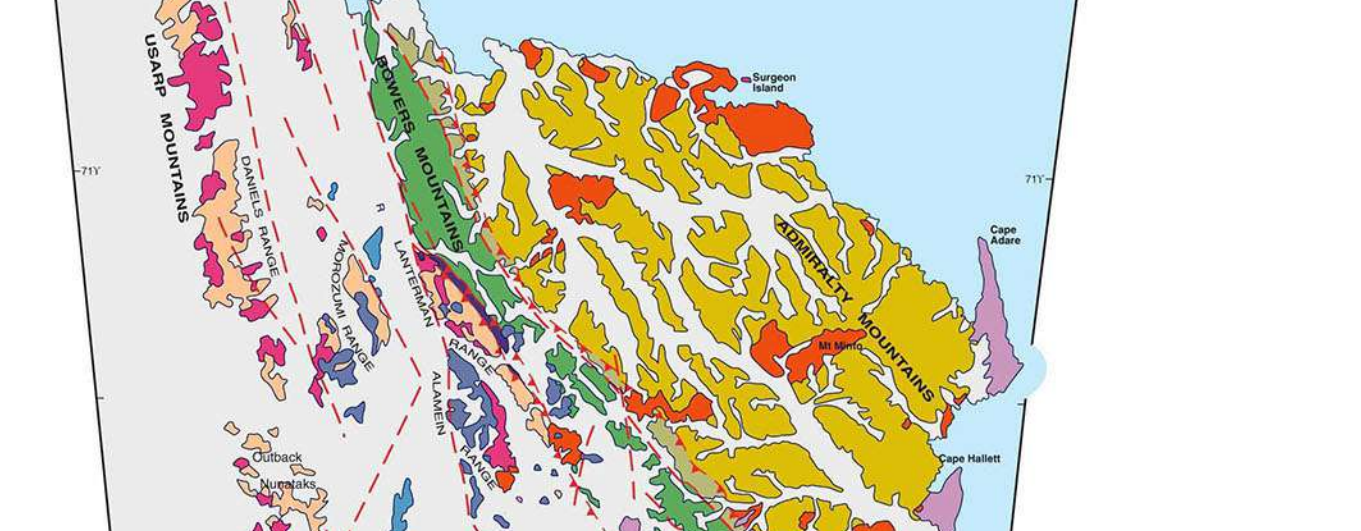
EXPLANATION

Legend for geological units and symbols. Includes sections for Cenozoic magmatism at the Ross Sea Margin, Post-Ross magmatism and sedimentation, Wilson Terrane, Bowers Terrane, and various igneous complexes. Symbols for geological boundaries, faults, and structural features are also listed.

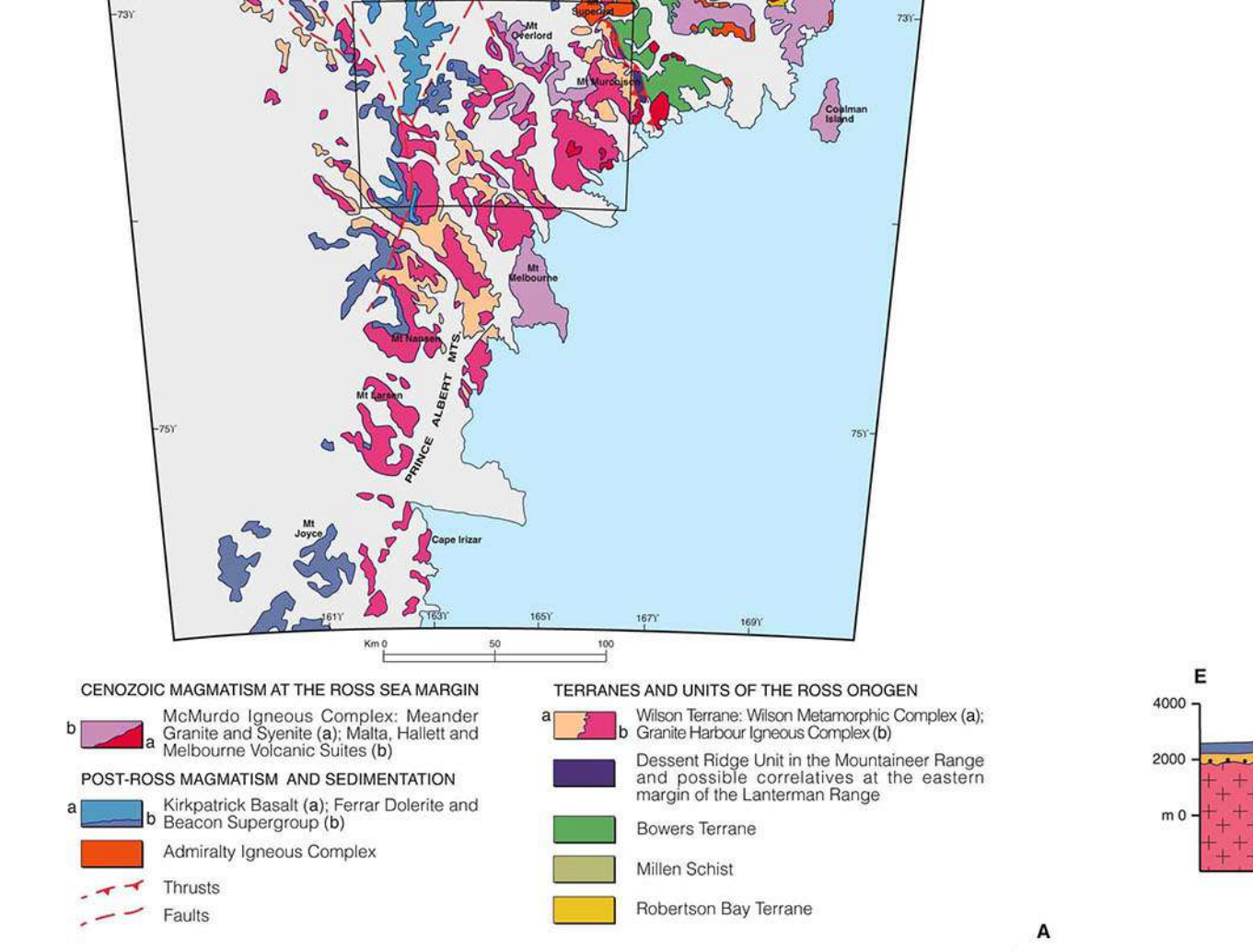
SYMBOLS

Geological boundary, Fault, Regional schistosity, Mineral and stretching lineation, Axial plane trace, Fold axis, Thrust, Regional schistosity, Mineral and stretching lineation, Axial plane trace, Fold axis.

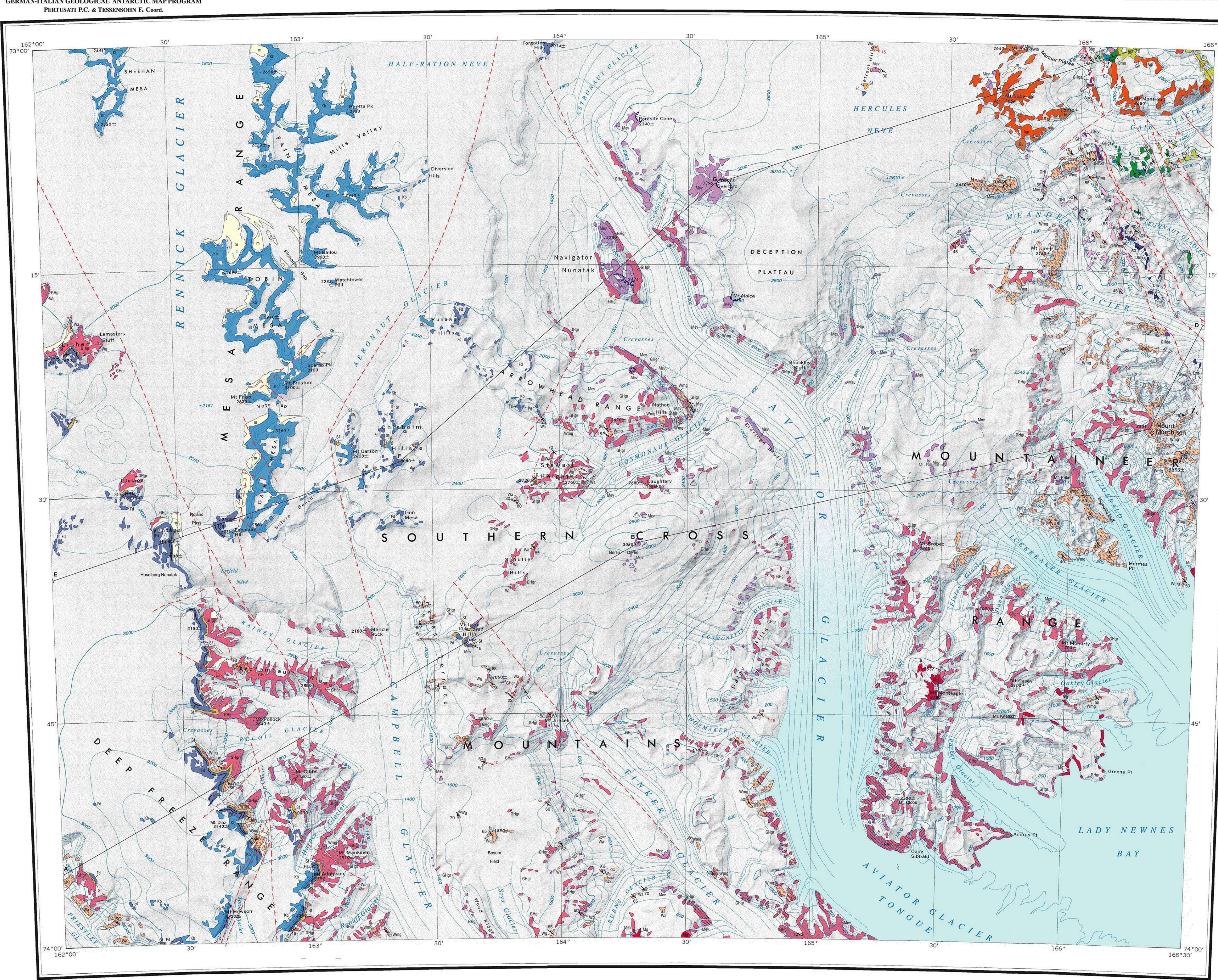
TECTONIC SKETCH MAP OF NORTHERN VICTORIA LAND



SYNOPTIC TABLE OF STRATIGRAPHIC AND TECTONIC RELATIONSHIPS IN NORTHERN VICTORIA LAND



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U.S. GEOLOGICAL SURVEY MAPS ANTARCTICA, 1:250,000 RECONNAISSANCE SERIES
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SCALE 1:250,000
Legend Central Core Projection - Standard Parallels 72° 40' and 70° 20'. Contour Interval 200 Meters - Datum is mean sea level

INDEX TO ADJOINING SHEETS
LOCATION DIAGRAM



ROSS TECTONICS
In the western and central part of the quadrangle, the regional schistosity is the axial plane foliation of isoclinal folds that deform an earlier metamorphic fabric. The structural features of the Mt. Murchison area have been described by Kistner et al. (1986) and by Capponi et al. (1997). The latter describe two main deformation phases (D1 and D2) well recognizable at Retreat Hills and Niagara Heights. The first phase isoclinal folds and associated schistosity were deformed by later, asymmetric, isoclinal folds, with a more complex geometry. This development increases from north to south, and south of Friesland Ridge, the cleavage trends NW-SE and dips moderately toward SW, being the main regional foliation. Southward in the Mt. Murchison area, the cleavage development is more complex and results in a sequence of folds and cleavages that are more or less parallel to the main regional foliation. The deformation phase was synchronous with metamorphism which reached high grade conditions in the region between Aviator and Meander Gls. and medium to low grade conditions in the Friesland Ridge area. In general, the deformation phase was characterized by brittle-ductile to brittle conditions, with brittle fracture, stretching lineations, and a high dispersion of lineation dip of the folds on their own axial planes, frequently parallel to the shear bands. S.C. surface systems are well developed and indicate a northward tectonic transport. These kinematic indicators show the same character and attitude as those within the underlying DRU.

DESSERT RIDGE UNIT
In the DRU the most common structural feature is a penetrative schistosity with a marked stretching lineation. The schistosity dips moderately to steeply SW and is well developed throughout the unit. This isoclinal foliation is developed in a sequence of folds and cleavages that are more or less parallel to the main regional foliation. The deformation phase was synchronous with metamorphism which reached high grade conditions in the region between Aviator and Meander Gls. and medium to low grade conditions in the Friesland Ridge area. In general, the deformation phase was characterized by brittle-ductile to brittle conditions, with brittle fracture, stretching lineations, and a high dispersion of lineation dip of the folds on their own axial planes, frequently parallel to the shear bands. S.C. surface systems are well developed and indicate a northward tectonic transport. These kinematic indicators show the same character and attitude as those within the underlying DRU.

WILSON TERRANE
The Wilson Terrane is a major tectonic unit in the quadrangle, which is bounded to the north by the Wilson-Bowers Boundary and to the south by the Ross Event. It is composed of a variety of igneous and metamorphic rocks. The Wilson Terrane is a major tectonic unit in the quadrangle, which is bounded to the north by the Wilson-Bowers Boundary and to the south by the Ross Event. It is composed of a variety of igneous and metamorphic rocks.

BOBBER TERRANE
The Bowers Terrane is a major tectonic unit in the quadrangle, which is bounded to the north by the Wilson-Bowers Boundary and to the south by the Ross Event. It is composed of a variety of igneous and metamorphic rocks.

ROBERTSON BAY TERRANE
The Robertson Bay Terrane is a major tectonic unit in the quadrangle, which is bounded to the north by the Wilson-Bowers Boundary and to the south by the Ross Event. It is composed of a variety of igneous and metamorphic rocks.

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Computer Graphic and GIS by Department of Earth Sciences University of Siena - Drawn by G. Ozio.