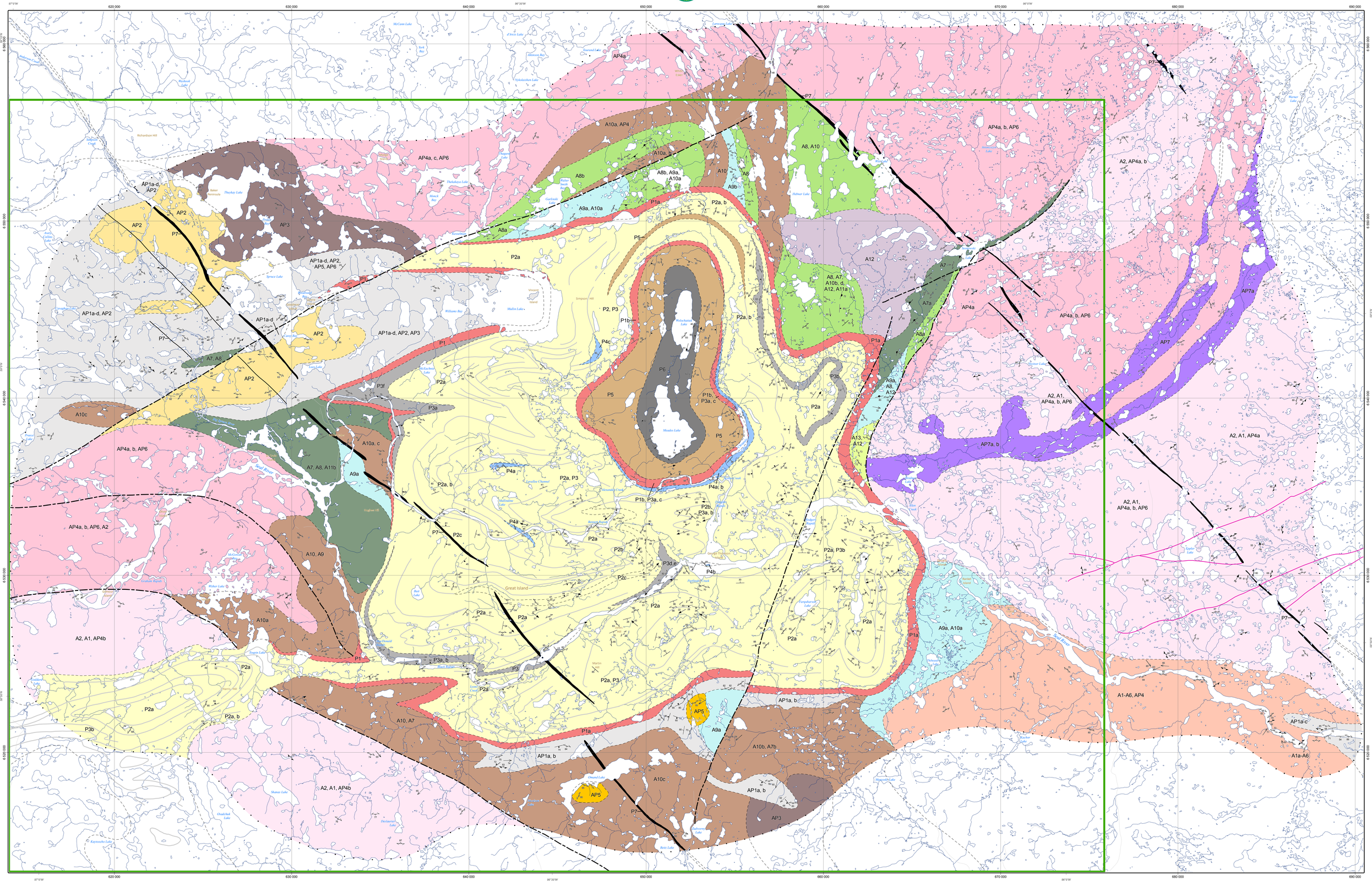
Preliminary Map PMAP2009-4

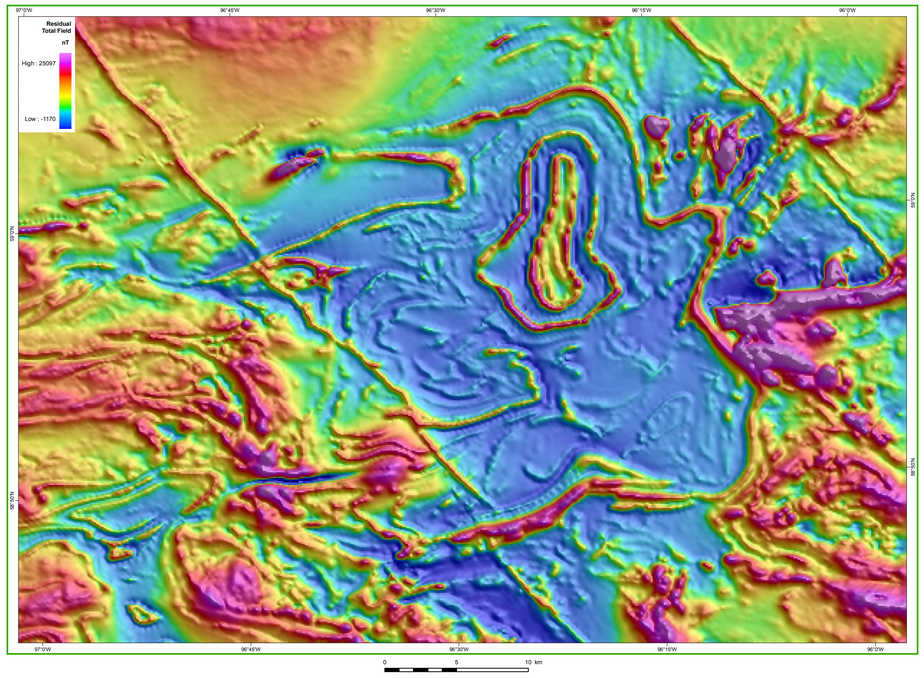


Universal Transverse Mercator projection, zone 14, NAD83

0 5 10 km

1:75 000

Printed 2009



The magnetic data used to produce this map is available from Natural Resources Canada at: http://apps1.gdr.nrcan.gc.ca/mirage/mirage_list_e.php?id=247465

REFERENCE:
Fortin, R., Coyle, M., Carson, J.M. and Kiss, F. 2009: Airborne geophysical survey of the Great Island and Seal River area, Manitoba (NTS 64P/03, 64P/02, 64P/01 and part of 54M/04, 64I/16 and part of 54 L/13, 64I/15, 64I/14, 64I/11, 64I/10, 64I/09 and part of 54L/12, 64I/07, 64I/06, 64I/08 and part of 54L/05, parts of 64I, 64P, 54L and 54M); Geological Survey of Canada, Open File 6065 to 6076; Manitoba Science, Technology, Energy and Mines, Manitoba Geological Survey, Open File OF2009-1 to OF2009-12, 1 DVD-ROM (120 colour maps), scale 1:50 000.

Legend

Mesoproterozoic
ca. 1.27 Ga Mackenzie dike swarm
Post-tectonic dikes

- P7 — Gabbro

Paleoproterozoic
Great Island Group

- P6 — Greywacke-mudstone turbidites; thin, feldspathic greywacke beds; minor calcsilicate layers
- P5 — Greywacke-mudstone[1] turbidites; thick, quartzose greywacke beds
- P4 — Dolomitic marble and calcsilicate rocks
  - a) Pink marble
  - b) Buff marble
  - c) Actinolite ± diopside calcsilicate
- P3 — Mudstone with subordinate arenite
  - a) Black-grey, graphitic and sulphidic
  - b) Grey-brown, micaceous
  - c) Reddish-brown, hematitic
  - d) Light grey-green, sericitic
  - e) Green with pink garnet/ferrous beds
  - f) Coarse garnet and andalusite porphyroblasts
- P2 — Quartz arenite with subordinate mudstone[2]
  - a) Planar bedded
  - b) Crossbedded
  - c) Magnetite-bearing
- P1 — Iron formation
  - a) Silicate facies
  - b) Silicate-oxide facies

—— **Angular unconformity** ——

Late Neoarchean or Paleoproterozoic (?)
Intrusive rocks

- AP7 — Serpentinite, peridotite, gabbro
  - a) Peridotite: serpentinized
  - b) Leuco- to mesogabbro
- AP6 — Granitic pegmatite
- AP5 — Quartz ± feldspar porphyry
- AP4 — Granite, granodiorite
  - a) Equigranular
  - b) Porphyritic
  - c) Augen-granite
- AP3 — Gabbro; derived amphibolite
- AP2 — Two-mica granite

—— **Intrusive contact** ——

Late Neoarchean or Paleoproterozoic
Garlinski Lake greenstone belt
Omand Lake assemblage

- AP1 — Conglomerate and quartz arenite[3]
  - a) Polymictic pebble and cobble conglomerate
  - b) Quartz arenite: planar and crossbedded
  - c) Arenite and mudstone: planar bedded
  - d) Biotite ± sillimanite ± cordierite ± garnet paragneiss; biotite-sillimanite arkose; arenite and mudstone precursor; minor calcsilicate

—— **Unconformity** ——

Late Neoarchean
Sosnowski Lake assemblage

- A13 — Leucodiorite
- A12 — Gabbro; may include ultramafic phases
- A11 — Iron formation
  - a) Oxide-silicate
  - b) Silicate-sulphide
- A10 — Volcaniclastic rocks
  - a) Intermediate to felsic
  - b) Mafic to intermediate
  - c) Heterolithologic
  - d) Felsic volcanic sandstone, bedded
- A9 — Dacite and rhyolite[4]
  - a) Massive to brecciated (probable flows)
  - b) Dacite dikes: porphyritic, locally amygdaloidal
- A8 — Andesite
  - a) Pillowed flows, flow breccia: aphyric; includes rare massive flows
  - b) Pillowed flows, flow breccia: plagioclase phyric
- A7 — Basalt and basaltic andesite; related gabbro
  - a) Pillowed to massive flows, flow breccia: aphyric
  - b) Pillowed to massive flows, flow breccia: plagioclase phyric

Mesoarchean to Neoarchean
Seal River intrusive complex

- A6 — Diabase (dikes)
- A5 — Feldspar (± hornblende, quartz) porphyry (dikes)
- A4 — Hornblende diorite (dikes)
- A3 — Biotite granodiorite (dikes)[5]
- A2 — Biotite ± hornblende granite; heterogeneous
- A1 — Orthogneiss
  - a) Includes amphibolite or metagabbro enclaves

[1] Youngest detrital zircon 1880 Ma; latest Neoarchean detritus dominates
[2] Youngest detrital zircon 1980 Ma; latest Paleoproterozoic detritus dominates
[3] Youngest detrital zircon 1880 Ma; Mesoarchean detritus dominates
[4] U-Pb zircon age of ca. 2570 Ma
[5] U-Pb zircon age of ca. 2860 Ma

Symbol

Planar structures

- Bedding: tops unknown, known, overturned
- Pillows: tops unknown, known, overturned
- Foliation
- Gneissosity
- Fold axial plane

Linear structures

- Fold axis: symmetry unknown, S, Z
- Stretching lineation

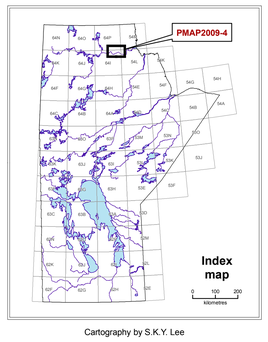
- Geological contacts (in part inferred from geophysical data)
- Form line
- Fault, shear zone
- Mackenzie dike
- Dike inferred from magnetics, age unknown
- Mapping limit
- Extent of GSC magnetic data (Fortin et al., 2009)

Bedrock geology of the Great Island area, Manitoba (parts of NTS 54L13, 54M4, 64I15, 16, 64P1, 2)

Geology by:
S.D. Anderson, C.O. Böhm, E.C. Syme, A.R. Carlson and L.A. Murphy

This map is a provisional summary of work carried out during the summer field season and is produced directly from the geologist's manuscript. It is not to be regarded as a final interpretation of the geology of the area.

This map is available to download free of charge at www.manitoba.ca/minerals; to purchase a copy contact Publication Sales at 1-800-223-5215 or (204) 945-4154 or minesinfo@gov.mb.ca.



Cartography by S.K.Y. Lee

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Manitoba Geological Survey, 2009

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Anderson, S.D., Böhm, C.O., Syme, E.C., Carlson, A.R. and Murphy, L.A. 2009: Bedrock geology of the Great Island area, Manitoba (parts of NTS 54L13, 54M4, 64I15, 16, 64P1, 2); Manitoba Innovation, Energy and Mines, Manitoba Geological Survey, Preliminary Map PMAP2009-4, scale 1:75 000.

Manitoba