

Drift thickness of southern Manitoba

Description

The drift thickness of southern Manitoba was calculated using the difference between interpreted bedrock topography and the Shuttle Radar Topography Mission (SRTM) 90 metre Digital Elevation Model (U.S. Geological Survey, 2002). The bedrock topography of southern Manitoba was reconstructed using a combination of drillhole and geological mapping data originally plotted and interpreted by hand (Matile and Keller, 2012), modelled in GOCAD® software and subsequently interpolated in ArcGIS. This dataset was compiled using a combination of several drillhole databases:

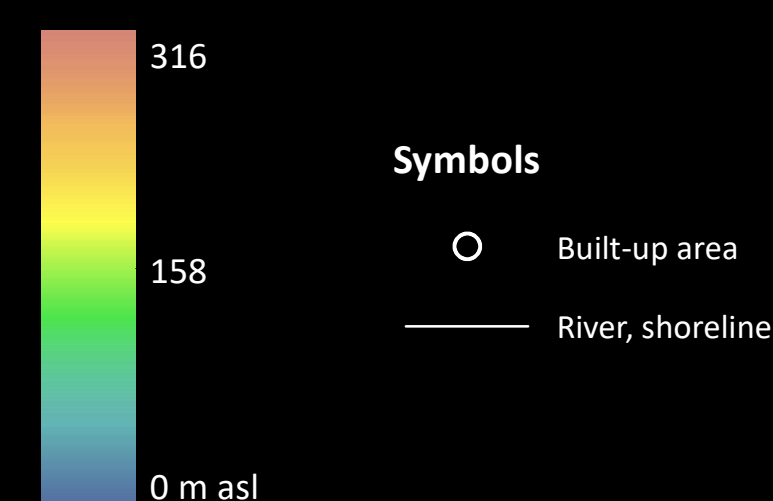
- GWDriill waterwell database (Manitoba Water Stewardship, 2007)
- Manitoba Oil and Gas Well Information System
- Manitoba Stratigraphic Database
- Williston Basin TGI database (Targeted Geoscience Initiative II Working Group, 2009)
- Western Canada Sedimentary Basin database
- rotosonic drillholes collected by the Manitoba Geological Survey.

The drillhole data was combined with buried valley aquifer channel data (Hinton et al., 2007) and various forms of surficial mapping data, which provided context for the interpretation. Due to variations inherent in surface modelling, some values were adjusted to account for overshoot. This dataset represents the Manitoba Geological Survey's interpretation of the available data and was originally modelled from east-west-oriented cross-sections at a 5 km north-south spacing from the United States border to 54°N; no additional data has been added for this release. Further information regarding the cross-section and 3-D modelling methodology can be found in Keller et al. (2009).

Please note, a network of buried valley aquifers cut into the bedrock surface in southwestern Manitoba are not properly displayed at the scale of this map. For more information on buried valley aquifers in southwestern Manitoba, please refer to Cummings et al. (2012), Pugin et al. (2014) and Oldenborger et al. (2016).

This map is a derivative of geological modelling. The intention of this map is to provide an overview of the drift thickness at a regional scale (1:500 000). For more detailed studies, it is recommended the reader verify the modelling output prior to any decision-making.

Legend



Geology and 3-D modelling by G.L.D. Matile and G.R. Keller

GIS/Cartography by H.O. Adediran and G.R. Keller

Suggested reference:

Keller, G.R. and Matile, G.L.D. 2021: Drift thickness of southern Manitoba; Manitoba Agriculture and Resource Development, Manitoba Geological Survey, Geoscientific Map MAP2021-2, scale 1:1 000 000.

References

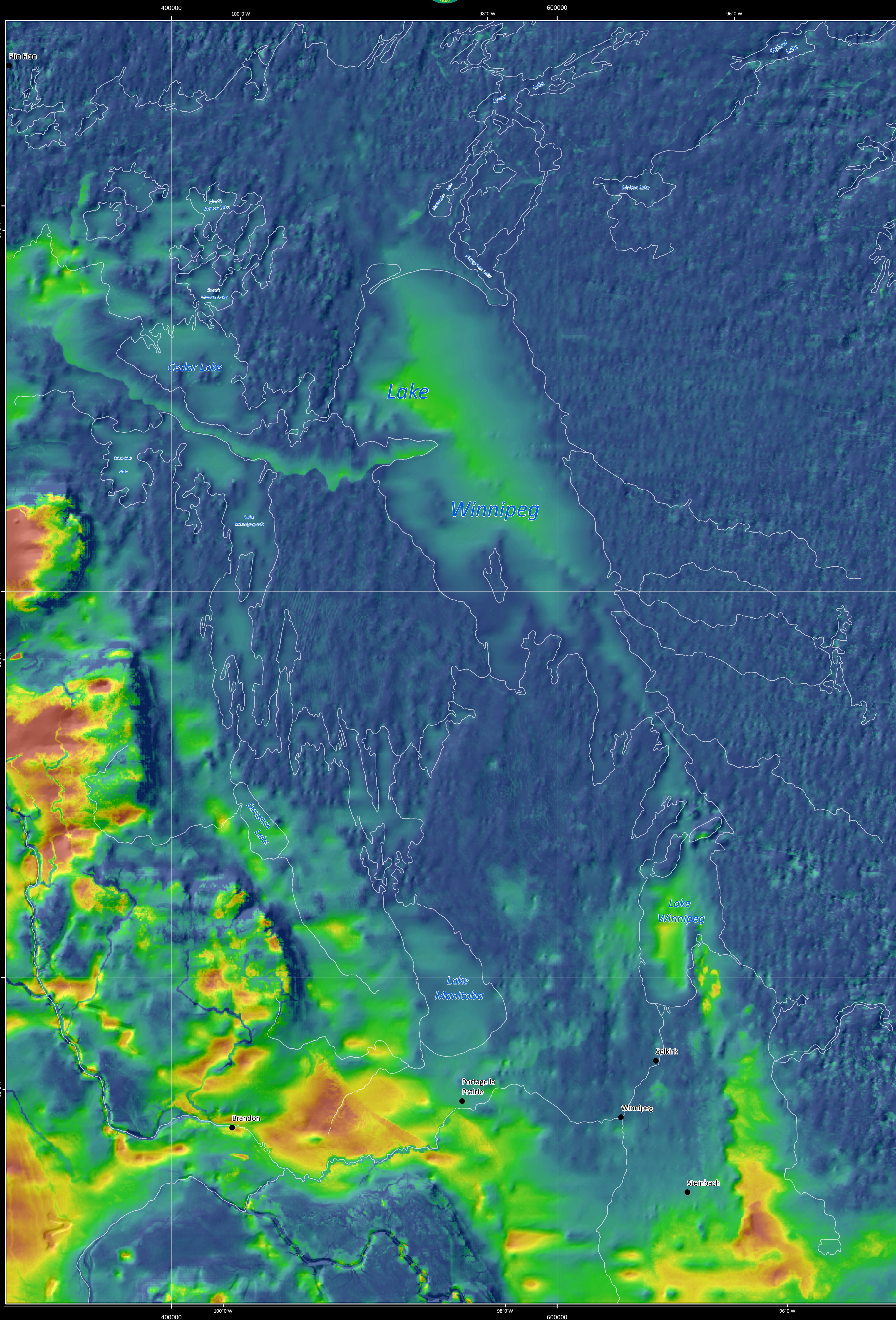
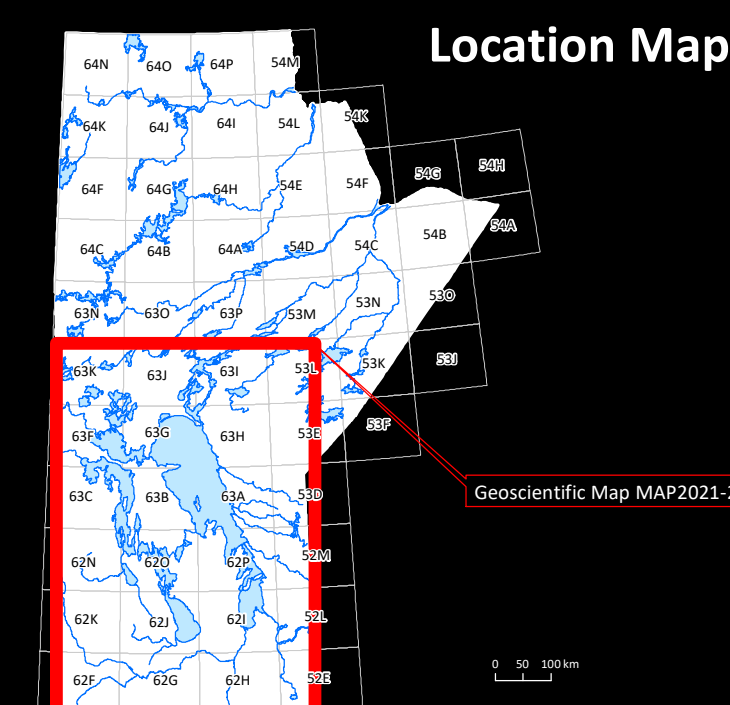
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Scale 1:1 000 000

