

In Brief:

- The Mineral Deposits Database contains data regarding mineral occurrences in Manitoba
- In 2024, thousands of new mineral occurrence records were added to the database, and work is ongoing
- New mineral occurrence data are shared annually in GeoFile 5

Citation:

Rinne, M.L. 2024: Progress report on the Manitoba Mineral Deposits Database; *in* Report of Activities 2024, Manitoba Economic Development, Investment, Trade and Natural Resources, Manitoba Geological Survey, p. 1–3.

Summary

The Manitoba Geological Survey began work to update the provincial Mineral Deposits Database (MDD) in 2020. This report summarizes changes to the MDD during the past year, including the consolidation of existing occurrence data and the addition of several thousand new (i.e., historical but previously unrecognized) mineral occurrences, representing a wide range of commodities including critical minerals. The updated mineral occurrence data are published as GeoFile 5, with annual updates.

Introduction

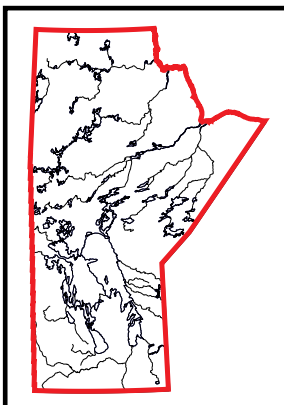
The MDD is Manitoba's primary repository of mineral occurrence data, with locations, selected geochemical data and other information compiled for mines, major prospects and other mineral occurrences. Up-to-date mineral occurrence data are necessary to inform mineral potential assessments, exploration targeting and related aspects of land-use planning.

Since updates to the MDD began in 2020, the Manitoba Geological Survey (MGS) has identified and partially catalogued thousands of mineral occurrences in the province (Figure GS2024-1-1). The criteria used to identify each mineral occurrence, as well as the methods used to collect new mineral occurrence data, are described in Rinne (2021). After sample co-ordinates and other necessary information are captured (an ongoing process), these new occurrence data are shared annually in GeoFile 5. Many of the new occurrence records in GeoFile 5-2024 (Rinne, 2024) are preliminary and lack detailed information aside from the occurrence location, data source(s) and relevant geochemical values. This is a deliberate choice to prioritize timely public releases in favour of completeness, as other information (such as detailed geological descriptions) is time consuming to find and enter for minor occurrences, or in many cases it is simply not available in the source reports. In future updates, some fields may be filled in the existing records as new information is received.

Summary of 2024 updates

Updates to the MDD during the past year involved

- Addition of several thousand new mineral occurrence records collected primarily from nonconfidential industry assessment reports, with 2024 updates focusing mostly on the Superior province. Across the southern parts of the province, new occurrence data relating to potash, helium and silica sand were also gathered from industry websites and recent MGS publications (e.g., Nicolas, 2018).
- Inclusion of all minesite points across the province, taken from Manitoba Economic Development, Investment, Trade and Natural Resources (2024). These sites are classified as separate minesites in the MGS GIS Map Gallery (Manitoba Economic Development, Investment, Trade and Natural Resources, 2024). In the MDD, however, some sites are classified as mine-related infrastructure instead of mines; this prevents counting single deposits as multiple mines, in cases where the deposit is mined from several shafts or access points.
- Deletion or consolidation of approximately 1200 existing records from the 2023 database, mostly to prevent duplication or overlap with other records, and to remove irrelevant/unimportant results. For example, many findings of trace disseminated pyrite without assay data were classified as occurrences in previous versions of the database (Conley et al., 2009) but have been deleted from the 2024 database.
- Hundreds of minor corrections (mostly typos or optical character recognition errors, and some location revisions), some in response to helpful feedback from database users. As in past releases, GeoFile 5-2024 is certain to contain errors—many inherited from the original sources—and users are advised to consult the accompanying ReadMe document that explains some of the limitations of the database.



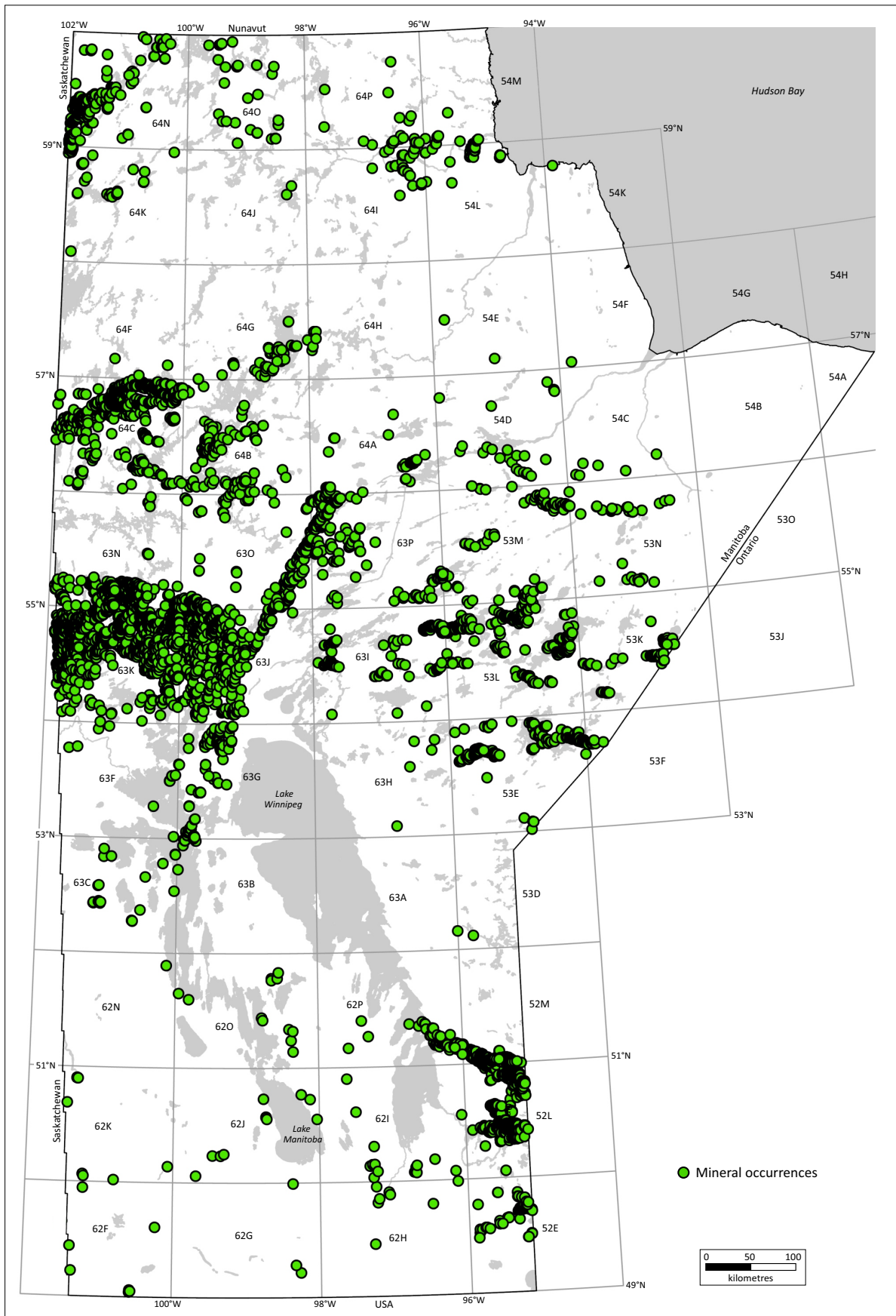


Figure GS2024-1-1: Map of Manitoba showing the locations of mineral occurrences in the 2024 version of the Mineral Deposits Database (Rinne, 2024). These occurrence data can be subdivided by commodity type, selected geochemical values or other fields in GeoFile 5-2024.

- Addition of more categories to the “Occurrence classification” and “Sample medium” fields, in order to better capture specific cases such as ore mineral separates or concentrates sampled from operating mines.
- Addition of a “Mineral deposit model” field, essentially following the classification scheme of Hofstra et al. (2021), with some modifications including the addition of general deposit types for coal, brine and silica sand deposits. This classification was selected to be compatible with the Critical Minerals Mapping Initiative¹. In GeoFile 5-2024, a tentative deposit model—or depending on the available data, a less precise “deposit group” of Hofstra et al. (2021)—has been assigned to the three operating mines in Manitoba (Tanco, Thompson and Lalor), and to about half of the 264 historical mine records. As updates proceed, many occurrences are likely to remain unclassified as they lack sufficient data or context needed to infer a deposit model.

Future work

Since 2020, MDD updates were primarily targeted at remote regions of Manitoba that were underrepresented in the existing database. The updates have been carried out mostly region-by-region, with areas of focus occasionally adjusted in response to community requests for mineral occurrence maps. Updates are now mostly complete in NTS 53, 54 and 64, though these regions are likely to see a few minor changes (e.g., additional occurrences, corrections) in future releases.

Further work is planned to involve processing of text and assay tables in remaining assessment reports, which are mostly covering parts of NTS 63; continued georeferencing of mineral occurrences that have been tentatively identified but not yet spatially located; gathering more comprehensive data concerning quarries and industrial minerals; and continued population of blank fields in existing records as new information is gathered. It is also anticipated that additional fields or other changes may be necessary to accommodate future use cases.

Economic considerations

Since 2020, Manitoba’s Mineral Deposits Database has expanded from 2760 occurrences to approximately 19 600, along with thousands of tentative occurrences awaiting georeferencing for inclusion in future releases. Compared to the previous

MDD, the current version of the database provides a much more comprehensive picture of the spatial distribution of various mineral commodities in Manitoba. This new dataset supports better decision-making regarding land use and mineral potential, and enables more thorough evaluations of Manitoba’s critical-mineral systems.

Acknowledgments

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¹ The Critical Minerals Mapping Initiative is a joint effort by the geological surveys of Canada, Australia and the United States. This initiative aims to build a global database for critical mineral geochemistry, and ultimately to support a more robust critical mineral supply chain. More information is available at <https://www.usgs.gov/centers/gggsc/science/critical-minerals-mapping-initiative-cmmi>.