Foreword

On behalf of the Manitoba Geological Survey (MGS), it is my privilege to present the *Report of Activities 2020*—the annual peer-reviewed volume of geoscience projects results by the MGS.

On October 24, 2019, the Resource Development Division merged with the Department of Agriculture and the Water Stewardship and Biodiversity Division from Sustainable Development to become the Department of Agriculture and Resource Development. This amalgamation brings agriculture, forestry and peatlands, wildlife and fisheries, water science and Crown lands together with mining, oil and gas and the Geological Survey. The goal is to have all the land uses under one ministry, which will help streamline processes and create the foundation for an integrated planning approach to the land, its resources and development thereof.

After over a decade of declining budgets, the MGS saw a slight increase in its operating budget for this fiscal year. This allowed the MGS to plan a more robust field season than in recent years. Then the COVID-19 pandemic spread to Canada, with a historical shutdown and isolation period that has affected everyone in every sector and walk of life. The resource industry was hit hard, with exploration programs being halted and mining operations running on minimal staff or shut down temporarily. In March, the MGS moved to a dominantly "work from home" model, with only a skeleton staff in the office at any time. The field program immediately was in danger of being completely cancelled. As the field season approached, the geologists developed multiple versions of field programs while considering a strict set of health protocols and ensuring there would be expediting support and enough leeway time to prepare.

Despite the challenges brought on by the pandemic, six field projects were successfully completed this year. This *Report of Activities* annual volume and accompanying preliminary map and data repositories present the findings of new and advanced projects, and includes important contributions to Manitoba's geological knowledge infrastructure. This volume includes two critical mineral projects: (1) expanded mapping from last year's field program in Russell Lake with new graphite occurrences and insights into their importance (Martins and Couëslan, GS2020-5, this volume); and (2) investigations into Zr- and light rare-earth element (REE)-enriched rocks on the Huzyk Creek property and implications for Zr, Nb, U and REE potential in the Kisseynew domain (Couëslan, GS2020-3, this volume). Surficial (Gauthier and Hodder, GS2020-6, this volume) and bedrock (Rinne, GS2020-1, this volume) mapping along and near the newly extended East Side Road, located along the eastern shore of Lake Winnipeg, reported many new exposures, good field access and identified potential for multiple deposit types, including possible granite dimension stone quarry sites near Bloodvein First Nation. Ongoing studies in the exposed and sub-Phanerozoic portions of the Flin Flon belt continued southeast of Wekusko Lake, in the areas of the Mitishto and Hargrave rivers, where the Watt River volcanicogenic massive-sulphide (VMS) deposit is located; new insights suggest great potential for VMS as well as magmatic Ni-Cu deposits to occur in the area (Reid, GS2020-4, this volume). Surficial geological mapping and till sampling, including kimberlite-indicator minerals samples, in northeastern Manitoba will inform drift exploration in the Fox River belt, with potential to host Ni, Cu and platinum-group element deposits, and provide information to better assess the regional-scale diamond potential of the area (Gauthier and Hodder, GS2020-7, his volume).

The MGS, while engaged in field projects, is also hard at work on internal initiatives to improve service delivery and products. Two examples of such initiatives include till-matrix geochemistry compilations and updating the Mineral Deposits Database (MDD). The former consists of the compilation of MGS data from 12 464 till samples collected from 53 different projects (Gauthier, this volume, GS2020-8) since the 1980s. The data is represented in a series of publications that will inform exploration projects for years to come. The MDD, which consists of a compilation of reported mineral occurrences throughout Manitoba dating back decades, is being updated and modernized to include previously excluded mineral occurrences, including critical minerals and rare metals. This year, the MDD update was focused on the Island Lake region. This work resulted in adding approximately 100 new occurrences in the database, and updating 150 existing ones (Rinne, GS2020-2, this volume). This is a multi-year initiative of a client-focused product that is frequently used by the exploration community.

With a reduction in field programming in recent years and more geologists being in the office, this has allowed the MGS to focus on preparing data and reports for publication and public release. Putting fingers to keyboard, the MGS was able to complete larger, more time-consuming geoscience reports (Open Files, Geoscientific Reports, Geoscientific Papers), as well as compile old datasets from previous field programs never before released to the public. The result is a record year in publications and new releases. Since October 1, 2019, the MGS had a total of 81 releases, including new data releases (Data Repository Items), various reports and digital re-releases (old reports previously only available in hard copy). An impressive accomplishment given that the staff count of the MGS is the smallest it has been since the 1960s. I encourage everyone to take the time to review the long list of information now available digitally, and to stay informed by bookmarking the new releases webpage at https://www.manitoba.ca/iem/info/libmin/newpubs.html to keep on top of the great work the MGS is doing. You can also subscribe to our new releases mailing list (minesinfo@gov.mb.ca) and have our new publications notices sent directly to your inbox.

One of the key support services the MGS benefits from, and could not function without, are the Geoscience Data Management (GDM) section (Greg Keller, Acting Section Head) and the Regulatory Geoscience section (Pamela Fulton-Regula, Acting Chief Geologist). The GDM section provides

GIS and digital services and is often behind the scenes on all the products the MGS produces. This includes setting up our digital needs for field projects and producing our preliminary maps, document and map scanning, and database creation and upkeep. This hard-working and skilled group was key to the creation of the long anticipated new 250k scale common map legend which has now transitioned into updating the Manitoba 1:1M map legend, and the compilation and digitization of historical aggregate reports and maps. The Regulatory Geoscience section includes crucial work such as the review of assessment reports and assignment of work credits, Phanerozoic stratigraphic tops picking and oil field coding, field expediting services, and rock preparation and core library management.

Over the last year, the MGS successfully hired a GIS geologist, Hakeem Adediran, to be mentored and trained by the senior GIS Geologist, Len Chackowsky. This succession plan will ensure the wealth of information, expertise and corporate knowledge Len has will be transferred to a new generation of geoscientists, helping to maintain the legacy of the MGS.

The recent passing of two fellow MGS retirees Doug Berk (Core Lab Manager) and Glenn Conley (Database Geologist) have saddened us, while reminding us to chase our dreams and enjoy every day as it comes. My condolences go out to the families of these two exceptional individuals.

The dedicated and diligent work of the MGS Chief Geologist (Christian Böhm), all the project geologists, GIS technicians, and lab technicians went into the production of the *Report of Activities 2020*. I would like to acknowledge Bob Davie and his hard-working team from RnD Technical who carefully performed technical editing, and Craig Steffano who managed report production and publication layout. I would like to thank everyone at the MGS for their valuable contributions, dedication, and enthusiasm to the projects and initiatives tackled over the last year. The MGS did not let COVID-19 hold them back, and they excelled despite the challenges it presented.

Michelle P.B. Nicolas, P.Geo., FGC

Acting Director, Manitoba Geological Survey