OGS and GSC Plan for Collaborative Work
2014 – 2019

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Since 2005 the Geological Survey of Canada (GSC) has been working on increasing understanding of 30 key Canadian aquifers. In southwestern Ontario work was completed on the Oak Ridges Moraine, Waterloo Moraine and in southern Ontario the remaining aquifer complexes on the list are in the Upper Thames, Grand and Credit river watersheds. To honour provincial responsibility in the domain of groundwater management the GSC completes work under the auspices of the Interprovincial Geoscience Accord and collaboration with appropriate provincial agencies. In the Groundwater Geoscience Program cycle 2014-2019 the GSC is initiating a collaborative project with the OGS and other interested government groups and universities.

The collaborative GSC-OGS study will apply a basin analysis approach to investigating the complex interplay of hydrogeological issues of southern Ontario. The study will advance in an iterative approach that works on multiple aspects of the hydrogeological framework in parallel and sequentially. Public domain data sets (water wells, monitoring data, geochemistry, hydrochemistry, surface mapping) will be integrated into appropriate 3-D databases that will be compatible with delivery via GIN and/or the Federal Geospatial Platform. This will ensure that improvements to these datasets will be available for future studies. The project will advance project objectives under 5 key thematic groupings, each of which will focus on a number of core studies to be refined as funding and project planning advances.

1) **Framework for Sustainable Groundwater Use:** will build on the decade of source water protection work, and Ontario and Government of Canada Open Data initiatives, to develop a groundwater geoscience data network, regional conceptual geological framework, and regional geological model construction of the Phanerozoic bedrock succession and Quaternary geology.

2) **Support Great Lakes water accords:** as identified in bilateral Ontario – Canada agreements by contributing to improved understanding on groundwater – surface water interaction and contributions of groundwater to Great Lakes water quality.

3) **Methods Development for Regional Groundwater Studies:** advance the field collection and data processing of shallow high resolution seismic reflection data, airborne electromagnetic data, downhole geophysical data, pXrf analysis for chem stratigraphy and remote sensing in support of hydrogeology.

4) **Case Studies:** complete work on targeted geographic and thematic issues that can contribute to emerging regional understanding. For example possible studies include groundwater – surface water studies and water quality in the Upper Thames River watershed, depression focused recharge, the Niagara groundwater anomaly, petrophysical studies of aquitards, etc.

5) **Science & Technology Exchange:** demonstrate science leadership through collaboration and coordination of geoscience publications, S&T exchange opportunities, etc. Early progress in this regard is underway with a proposed special issue on the contribution of Quaternary Geology of Southern Ontario and Applications to Groundwater Understanding. This workshop is an additional early initiative in this regard.