



SUMMARY OF ACTIVITIES **2018:** **Energy and Water**

GEOSCIENCE BC SUMMARY OF ACTIVITIES 2018: ENERGY AND WATER

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Foreword

Geoscience BC is pleased to once again present results from our ongoing projects in our annual *Summary of Activities* publication. Following on from last year, we are publishing the papers in two separate volumes: *Minerals and Mining*, and this volume, *Energy and Water* (previously published as *Summary of Activities: Energy*). Both volumes are available in print and online via www.geosciencebc.com.

Summary of Activities 2018: Energy and Water

This volume, *Summary of Activities 2018: Energy and Water*, contains 13 papers from Geoscience BC-funded projects or 2018 scholarship winners that are within Geoscience BC's strategic focus areas of energy (including oil & gas and geothermal) and water. The papers are divided into five sections, based on Geoscience BC's strategic objectives of

- 1) Identifying New Natural Resource Opportunities;
- 2) Advancing Science and Innovative Geoscience Technologies;
- 3) Facilitating Responsible Natural Resource Development;
- 4) Enabling Clean Energy; and
- 5) Understanding Water.

In the first section, *Identifying New Natural Resource Opportunities*, Wilson and Bustin, and Silva and Bustin describe their ongoing research into the quantification of the gas- and liquids-in-place, and flow characteristics in northeastern British Columbia (BC), a Geoscience BC-funded project that is nearing completion. In addition, scholarship recipient Kunert (et al.) discusses spatial and temporal trends during deposition of the Gordondale member and Poker Chip Shale. In the *Advancing Science and Innovative Geoscience Technologies* section, Chalmers et al. introduce a new Geoscience BC-supported project that aims to reduce the uncertainty of producing H₂S from the Montney reservoir.

The three papers in the *Facilitating Responsible Natural Resource Development* section are focused on hydraulic fracturing in northeastern BC. Babaie Mahani and Kao discuss the determination of accurate local magnitude for induced earthquakes, and Bustin et al. give an update on the ongoing collection of ground-motion data from induced seismicity. Scholarship recipient Onwuemeka (et al.) discusses upcoming research aimed at increasing our understanding of earthquake processes and helping adequately assess seismic hazards to better inform the public and assist both regulators and industry operators in developing policies to reduce risk and improve hazard assessment.

In the *Enabling Clean Energy* section, Whiticar et al. present an update on testing a drone-mounted open-path laser spectrometer to measure greenhouse-gas emissions; Evans highlights ongoing development of a natural gas atlas for BC; and scholarship recipient Warwick (et al.) discusses the development of a volcanic-hazard map for Mount Meager.

Finally, in the *Understanding Water* section, Cahill, Ladd et al. discuss ongoing technical and community-engagement work focused on better understanding the impacts of fugitive gas on groundwater. Cahill, Beckie et al. introduce a new Geoscience BC-supported project characterizing methane in groundwater in the Peace region. Haynes et al. present their final report on understanding changes in permafrost in northeastern BC.

Geoscience BC Energy and Water Publications 2018

In addition to the two *Summary of Activities* volumes, Geoscience BC releases interim and final products from our projects as Geoscience BC reports. The following seven Energy and Water reports were published in 2018, with an eighth report to be released in early 2019:

- Ten technical papers in the *Geoscience BC Summary of Activities 2017: Energy and Water* volume (Geoscience BC Report 2018-04)
- **Processing and Inversion of SkyTEM Data Leading to a Hydrogeological Interpretation of the Peace River North Western Area**, by Aarhus Geophysics Aps and GEUS—Department of Groundwater and Quaternary Geology Mapping (Geoscience BC Report 2018-06)

- **Peace Area Project – Comparison of Resistivity, Gamma and Geological Logs with Airborne EM Inversions**, by M. Best and V. Levson (Geoscience BC Report 2018-08)
- **Geoscience BC Peace Project: Final Report**, by S.E. Morgan and D.M. Allen (Geoscience BC Report 2018-13)
- **Mapping the Susceptibility to Amplification of Seismic Ground Motions in the Montney Play Area of Northeast British Columbia**, by P.A. Monahan, V.M. Levson, B.J. Hayes, K. Dorey, Y. Mykula, R. Brenner, J. Clarke, B. Galambos, C. Candy, C. Krumbiegel and E. Calderwood (Geoscience BC Report 2018-16) – *scheduled for release early January 2019*
- **Techno-Economic Assessment of Geothermal Energy Resources in the Sedimentary Basin in Northeastern British Columbia**, by K. Palmer-Wilson, W. Walsh, J. Banks and P. Wild (Geoscience BC Report 2018-18)
- **Clarke Lake Gas Field Reservoir Characterization**, by E. Renaud, J. Banks, N.B. Harris and J. Weissenberger (Geoscience BC Report 2018-19)
- **Identification and Evaluation of New Resource Oil Plays in Northeast British Columbia’s Portion of the Western Canadian Sedimentary Basin**, by Petrel Robertson Consulting Ltd. (Geoscience BC Report 2018-20)

All releases of Geoscience BC reports and data are published on our website and are announced through our website and e-mail updates. Most final reports and data can also be viewed through our Earth Science Viewer at <http://www.geosciencebc.com/s/WebMaps.asp>.

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