

Leonard Harvey Thorleifson Ph.D.; April 2023

- Professor, Earth and Environmental Sciences; University of Minnesota; [REDACTED]
- Date and place of birth: [REDACTED]

Education

- Doctor of Philosophy, Geology, University of Colorado, 1989
- Master of Science, Geology, University of Manitoba, 1983
- Bachelor of Arts, Honours, Geography and Biology, University of Winnipeg, 1980
- Bachelor of Science, Geography, University of Winnipeg, 1978

Professional registration

- Professional Geoscientist, Association of Professional Geoscientists of Ontario

Employment

- Professor, Earth and Environmental Sciences, University of Minnesota, 2003 – present
- State Geologist of Minnesota, 2003 - 2023
- Director, Minnesota Geological Survey, 2003 – 2023
- Research Scientist, Geological Survey of Canada, 1986 – 2003

Professional Service

- International Union of Geological Sciences (IUGS), Commission for the Management and Application of Geoscience Information (CGI), Councillor, 2016-2020, Chair, 2020-present
- Geologic Mapping Forum, Co-Organizer, 2018 – present
- 3D Geological Mapping Workshop, Co-Organizer, 2002 - present
- Journal of Great Lakes Research, Associate Editor, 2003-present
- Association of American State Geologists, Acting Secretary, 2022 – 2023; Information Chair, 2016-2023; Treasurer, 2008-2010, 2017-2020; Mapping Chair, 2015-2020; Past President, 2013-2014; President, 2012-2013; President Elect, 2011-2012; Vice President, 2010-2011; Statistician, 2006-2009;
- Minnesota Geospatial Advisory Council, Member, 2019-2021
- Minnesota Center for Mineral Resource Education, Director, 2009-present
- Society for Mining, Metallurgy, and Exploration, Twin Cities, Director, 2008-2020
- National Geospatial Advisory Committee, Member, 2014-2019
- Society for Mining, Metallurgy, and Exploration, Minnesota Section, Chair, 2013-2014
- Geological Society of America Foundation, Trustee, 2007-2012
- Geological Society of Minnesota, Member of the Board, 2008-2012
- Geological Society of America 2011 Annual Meeting, General Chair
- OneGeology Management Committee, 2006-2008
- Canadian Federation of Earth Sciences, President, 2004-2006
- Geological Society of America North Central Annual Meeting, Program Chair, 2005
- Geological Association of Canada, Councillor, 1999-2005, President, 2003-2004

Professional Honors

- Association of American State Geologists Presidential Award, 2009, 2017, 2022
- Honorary Doctor of Science, University of Winnipeg, 2007
- Distinguished Lecturer, Canadian Institute of Mining, Metallurgy and Petroleum, 1998-1999
- Natural Resources Canada Merit Awards; 1996, 1997, 1998, 1999

Selected Publications

Thorleifson, L. H., 2022a, Rationale and methods for jurisdiction-wide 3D geological mapping, *in* Berg, R. C., L. H. Thorleifson K. MacCormack, conveners, 2022, Three-dimensional geological mapping and modeling: Illinois State Geological Survey, Open File 2022-2, p. 3-14.

Thorleifson, L. H., 2022b, Seamless 3D geological mapping, *in* Berg, R. C., L. H. Thorleifson K. MacCormack, conveners, 2022, Three-dimensional geological mapping and modeling: workshop extended abstracts: Illinois State Geological Survey, Open File 2022-2, p. 71-73.

Brock, J., Berry, K., Faulds, J., Berg, R., House, K., Marketti, M., McPhee, D., Schmidt, K., Schmitt, J., Soller, D., Spears, D., Thompson, R., Thorleifson, H., and Walsh, G., 2021, Renewing the National Cooperative Geologic Mapping Program as the Nation's authoritative source for modern geologic knowledge: U.S. Geological Survey Open-File 2021-1013, 10 p.

Hill, P. R., D. Lebel, M. Hitzman, M. Smelror, L. H. Thorleifson, eds., 2020, The Changing Role of Geological Surveys, Geological Society of London, Special Publication 499, 305 pp.

MacCormack, K.E., Berg, R.C., Kessler, H., Russell, H.A.J. and Thorleifson, L.H. (eds.) (2019): 2019 synopsis of current three-dimensional geological mapping and modelling in geological survey organizations; Alberta Geological Survey, AER/AGS Report 112, 307 p.

Thorleifson, L. H., 2018, Rationale and methods for regional 3D geological mapping, *in* Berg, R.C., K. MacCormack, H.A.J. Russell, and L.H. Thorleifson, conveners, 2018, Three-dimensional geological mapping: Illinois State Geological Survey, Open File 2018-1, p. 1-11.

Thorleifson, L.H., 2011, Potential for implementation of mineral carbonation as a carbon sequestration method in Minnesota: Minnesota Geological Survey Open-File Report 11-2, 26 p.

Lively, R., T. Wahl, and H. Thorleifson. 2011. Minnesota Geological Survey Information Systems. *In* Soller, D.R., ed., 2011, Digital Mapping Techniques '09—Workshop Proceedings, Morgantown, West Virginia, May 10–13, 2009: USGS Open-File 2010-1335, p. 207-218.

Thorleifson, Harvey, Richard C. Berg, Hazen A.J. Russell, 2010, Geological mapping goes 3-D in response to societal needs, *GSA Today*, Volume 20, Issue 8 (August 2010), pp. 27-29

Thorleifson, Harvey, 2009, An Agenda for Development of Vertically Georeferenced, Web-optimized, Subsurface Information; Three-Dimensional Geologic Mapping, Workshop Extended Abstracts, October 17, 2009, 2009 Annual Meeting, Geological Society of America, Portland

Thorleifson, L. H., 2009, Assessment of preservation needs and long-range plan for geologic collections and data in Minnesota; Minnesota Geological Survey, 31 p.

Thorleifson, L. H., ed., 2008, Potential capacity for geologic carbon sequestration in the Midcontinent Rift System in Minnesota, Minnesota Geological Survey Open File 08-01, 138 p.

Thorleifson, L. H., 2008, Understanding Canada's Water, Canadian Water Treatment, January/February 2008, v. 8, no. 1, p. 32-33

Thorleifson, L. H., 2005, Geological map of the future: digital, interactive, and three-dimensional, in The Current Role of Geological Mapping in Geosciences, S. R. Ostaficzuk, ed., NATO Science Series, IV. Earth and Environmental Sciences v. 56, p. 23.

Brooks, G., C. F. M. Lewis, and L. H. Thorleifson. 2005. Influence of loss of gradient from postglacial uplift on Red River flood hazard; The Holocene, v. 15, no. 3, pp. 347-352.

Thorleifson, L. H. and S. Hanmer. 2005. Conference Report, Geoscience Summit 2004 Ottawa, Ontario 16 - 17 October 2004, Geoscience Canada v. 32. no. 2, p. 49-63.

Thorleifson, L. H. 2004. Presidential Address: Geoscience for the needs of Canadians, Geoscience Canada, v. 31. no. 3, p. 97-101.

Thorleifson, L. H. 2004. Mapping; Geotimes annual highlights issue, v. 49, no. 7, p. 32-33.

Thorleifson, L. H. and Pyne, D. M. 2004. Conversion of lithological data in the Manitoba water well database (GWDrill) to a mappable format; in Soller, D.R., editor, 2003, Digital Mapping Techniques '03 -- Workshop Proceedings: U.S. Geological Survey Open-file Report 03-471.

Thorleifson, L. H. and Berg, R. C. 2002; Three-Dimensional Geological Mapping for Groundwater Applications; Abstracts; Geological Survey of Canada Open File 1449, 87 p.

Berg, R. C. and L. H. Thorleifson. 2001; Geological Models for Groundwater Flow Modeling; GSA North-Central Section, Workshop Extended Abstracts. Illinois State Geological Survey Open File Series 2001-1, 62 pp.

Maathuis, H. and Thorleifson, L. H. 2000. Potential impact of climate change on Prairie groundwater supplies: review of current knowledge. Saskatchewan Research Council Publication No. 11304-2E00, 43 p., 28 figures, three appendices.

Thorleifson, L. H. and R. G. Garrett. 2000. Lithology, mineralogy, and geochemistry of glacial sediments overlying kimberlite at Smeaton, Saskatchewan. GSC Bulletin 551, 40 p.

Todd, B. J., C. F. M. Lewis, E. Nielsen, L. H. Thorleifson, R. K. Bezys, and W. Weber. 1998. Lake Winnipeg: geological setting and sediment seismostratigraphy; Journal of Paleolimnology, v. 19, p. 215-244.

Lambert, A., T. S. James, and L. H. Thorleifson. 1998. Combining geomorphological and geodetic data to determine postglacial tilting in Manitoba; *J. Paleolimnology*, v. 19, p. 365-376.

McClenaghan, M. B., Thorleifson, L. H., and DiLabio, R. N. W. 1997. Till Geochemical and Indicator Mineral Methods in Mineral Exploration; in *Proceedings of Exploration 97: Fourth Decennial International Conference on Mineral Exploration*, ed. A. G. Gubins, p. 233-248.

Thorleifson, L. H. and R. G. Garrett. 1997. Kimberlite indicator mineral and geochemical reconnaissance, southern Alberta; in *Canada-Alberta Agreement on Mineral Development (1992-1995)*; ed. R. W. Macqueen; Geological Survey of Canada Bulletin 500, p. 209-233.

Thorleifson, L. H. 1996. Review of Lake Agassiz History. in *Sedimentology, Geomorphology, and History of the central Lake Agassiz Basin, Field Trip B2*, Teller, J. T., Thorleifson, L. H., Matile, G., and Brisbin, W. C., eds., Geological Association of Canada Guidebook, p. 55-84.

Thorleifson, L. H., P. H. Wyatt and T. A. Warman. 1993. Quaternary stratigraphy of the Severn & Winisk drainage basins, Ontario. Geological Survey of Canada Bulletin 442, 59 p.

Thorleifson, L. H. and F. J. Kristjansson. 1993. Quaternary geology and drift prospecting, Beardmore- Geraldton area, Ontario. Geological Survey of Canada Memoir 435, 146 p.

Thorleifson, L. H., P. H. Wyatt, W. W. Shilts, and E. Nielsen. 1992. Hudson Bay Lowland Quaternary stratigraphy: evidence for early Wisconsinan glaciation centred in Quebec. in P. U. Clark and P. D. Lea, eds, Geological Society of America Special Paper 270, p. 207-221.

Rannie, W. F., L. H. Thorleifson and J. T. Teller. 1989. Holocene evolution of the Assiniboine River paleochannels and Portage la Prairie alluvial fan. *Canadian Journal of Earth Science*, v. 26, pp. 1834-1841.

Forman, S. L., A. G. Wintle, L. H. Thorleifson and P. H. Wyatt. 1987. Thermoluminescence properties and age estimates for Quaternary raised marine sediments, Hudson Bay lowland, Canada. *Canadian Journal of Earth Science*, v. 24, pp. 2405-2411.

Teller, J. T. and L. H. Thorleifson. 1987. Catastrophic flooding into the Great Lakes from Lake Agassiz. in *Catastrophic Flooding (Binghamton Symposium in Geomorphology; V. 18)*, edited by L. Mayer and D. Nash, Allen and Unwin, p. 121-138.

Dredge, L. A. and L. H. Thorleifson. 1987. The Middle Wisconsinan history of the Laurentide Ice Sheet. *Géographie physique et Quaternaire*, v. XLI, no. 2, p. 215-235.

Teller, J. T., L. H. Thorleifson, L. A. Dredge, H. C. Hobbs and B. T. Schreiner. 1983. Maximum extent and major features of Lake Agassiz. in *Glacial Lake Agassiz*, edited by J. T. Teller and Lee Clayton, Geological Association of Canada, Special Paper 26, p. 43-45.

Teller, J. T. and L. H. Thorleifson. 1983. The Lake Agassiz - Lake Superior Connection. in *Glacial Lake Agassiz*, edited by J. T. Teller and Lee Clayton, Geological Association of Canada, Special Paper 26, p. 261-290.