

PERSONAL INFORMATION

Full Name: Laura Irene Thomson
Nationality: Canadian
Current Position: Assistant Professor, Department of Geography and Planning
Queen's University, Kingston, ON, Canada
Contact: E-mail: lthomson@sfu.ca Telephone: +1 613 859 5679

EDUCATION

Ph.D. **Glaciology, University of Ottawa, Canada.** Supervisor: Dr. Luke Copland. Completed: 08/2016
Thesis: Connections between the mass balance, ice dynamics, and hypsometry of White Glacier, Axel Heiberg Island, Nunavut, Canada

M.Sc. **Geophysics, Western University, Canada.** Supervisor: Dr. G. Osinski. Completed: 08/2011
Thesis: Characterization of Sub-surface Ice Deposits using GPR in the Canadian High Arctic

B.Sc. **Geophysics, Western University, Canada.** Gold medal in Science, 2009

FELLOWSHIPS & EMPLOYMENT

Postdoctoral Fellowship, Simon Fraser University, Burnaby, BC, Canada 09/2016 – 06/2018
Polythermal evolution of high-Arctic glaciers. Dr. Gwenn Flowers

World Glacier Monitoring Service, Guest Scientist. University of Zürich, Switzerland. 12/2014 – 04/2015
Mass balance reanalysis of Arctic reference glaciers. Supervisor: Dr. Michael Zemp.

European Space Agency, Cryosat-2 Validation, ESTEC Noordwijk, The Netherlands. 09/2011 – 09/2012
Mapping Greenland's internal layers with airborne radar. Supervisor: Dr. Malcolm Davidson.

Western Canada Cryospheric Network, University of Northern BC, Canada. 05/2007 – 05/2008
Multi-year glacier inventory for British Columbia. Supervisor: Dr. Brian Menounos.

GRANTS & AWARDS

Banting Postdoctoral Fellow 2018 Endorsed by the University of Zürich *Politely declined*

TanDEM-X Digital Elevation Grant German Aeronautics and Space Research Centre DLR 03/2017
Awarded full topographic coverage of Axel Heiberg Island, NU (L. Thomson as P.I.)

The W. Garfield Weston Award for Northern Research, Post-Doctoral (\$100,000) 09/2016 – 09/2018
Held at Simon Fraser University with Dr. Gwenn Flowers

Faculty of Graduate and Postdoctoral Studies Dean's Scholarship, U. Ottawa (\$2,000) 09/2016

Stan Paterson Scholarship in Canadian Glaciology (\$2,500) 05/2016
Awarded by the Canadian Geophysical Union; Annual Meeting 2016

ESRI Canada GIS Scholarship 2016 (\$1,500) 02/2016
Awarded 1st at University of Ottawa and 2nd in National competition

Ontario Graduate Scholarship (\$15,000) 02/2016 – 08/2016

Excellence Award for Teaching Assistants, University of Ottawa (\$500) 04/2015
For excellence in teaching and dedication to student success

The W. Garfield Weston Award for Northern Research, Doctoral (\$50,000) 05/2014 – 05/2016
Ranked 1st in national selection, Canadian Northern Studies Trust

NSERC Alexander Graham Bell Canadian Graduate Scholarship (\$63,000) 01/2012 – 01/2015

Northern Studies Training Program – Fieldwork support (\$24,733 over 9 years) 07/2008 – 05/2016
Canadian Polar Commission and Polar Knowledge Canada

Student Mobility Bursary, University of Ottawa (\$4,000) 12/2014
Research funding to support collaboration at a foreign institution (University of Zürich)

ArcticNet Training Fund Awards , Government of Canada (\$6,420 total)	02/2012 – 02/2016
SLF Snow science winter school, Davos, Switzerland: February 2016 (\$1,088)	
Univ. Utrecht Glaciology Summer School, Karthaus, Italy: September, 2014 (\$1,932)	
SVALI Subglacial Hydrology Workshop, Reykjavík, Iceland: August, 2013 (\$1,875)	
Glaciers of Patagonia Course, El Chalten, Argentina: February, 2012 (\$2,613)	
George Hobson Award in Geophysics, Canadian Polar Commission (\$1,000)	04/2013
Research Support Opportunity in Arctic Environmental Studies	06/2010 – 06/2013
Logistical support at the Eureka Weather Station, Nunavut (up to \$125,000)	
Polar Continental Shelf Project (\$36,514 logistics support, L. Thomson as P.I.)	04/2012 – 05/2012
University of Ottawa Admission Scholarship, Doctoral (\$72,000)	01/2012 – 12/2015
NSERC CREATE Graduate Scholarship, Masters (\$17,500)	09/2009 – 08/2011
Gold Medal in Science , Western University, Spring Convocation 2009	06/2009
NSERC Undergraduate Student Research Award (\$13,500 over 3 years)	05/2006 – 08/2008
Loran Award , Loran Scholars Foundation (\$100,000)	09/2004 – 09/2009

PEER-REVIEWED PUBLICATIONS

1. **Thomson, L.** and Copland, L. (2017) Changing contribution of short-term velocity events to annual velocities following a multi-decadal slowdown at White Glacier. *Annals of Glaciology*, 58(75pt2), 145-154.
[doi: 10.1017/aog.2017.46](https://doi.org/10.1017/aog.2017.46)
2. Wolken, G., Sharp, M., Andreassen, L., Burgess, D., Copland, L., Kohler, J., O'Neel, S., Pelto, M., **Thomson, L.** and Wouters, B. (2017) Glaciers and ice caps outside Greenland. In: Blunden, J. and Arndt, D.S. (eds.). State of the Climate in 2016. Bulletin of the American Meteorological Society, 98(8), S140-S143.
[doi:10.1175/2017BAMSStateoftheClimate.1](https://doi.org/10.1175/2017BAMSStateoftheClimate.1)
3. **Thomson, L.** and Copland, L. (2017) Multi-decadal reduction in glacier velocities and mechanisms driving deceleration at polythermal White Glacier, Arctic Canada. *Journal of Glaciology*, 63(239), p.450-463.
[doi:10.1017/jog.2017.3](https://doi.org/10.1017/jog.2017.3)
4. Copland, L., White, A., Crawford, A., Mueller, D.R., Van Wychen, W., **Thomson, L.**, and Vincent, W.F. (2016) Glaciers, Ice Shelves and Ice Islands in the Eastern Canadian Arctic. Integrated Regional Impact Study 2; in press.
5. **Thomson, L.**, Zemp, M., Copland, L., Cogley, G., and Ecclestone, M. (2016) Reconciling geodetic and glaciological mass budgets: White Glacier, Axel Heiberg Island, NU. *Journal of Glaciology*, 63(237), p. 55-66.
[doi:10.1017/jog.2016.112](https://doi.org/10.1017/jog.2016.112)
6. Wolken, G., Sharp, M., Andreassen, L., Arendt, A., Burgess, D., Cogley, J.G., Copland, L., Kohler, J., O'Neel, S., Pelto, M., **Thomson, L.** and Wouters, B. (2016) Glaciers and ice caps outside Greenland. In: Blunden, J. and Arndt, D.S. (eds.). State of the Climate in 2015. Bulletin of the American Meteorological Society, 97(8), S142-S144, [doi:10.1175/2016BAMSStateoftheClimate.1](https://doi.org/10.1175/2016BAMSStateoftheClimate.1)
7. **Thomson L.** and Copland, L. (2016) White Glacier 2014, Axel Heiberg Island, Nunavut; Mapped using Structure from Motion methods. *Journal of Maps*. [doi: 10.1080:17445647.2015.1124057](https://doi.org/10.1080/17445647.2015.1124057)
8. Sharp, M., Wolken, G., Burgess, D., Cogley, J.G., Copland, L., **Thomson, L.**, Arendt, A., Wouters, B., Kohler, J., Andreassen, L., O'Neel, S. and Pelto, M. (2015) Glaciers and ice caps outside Greenland [in "State of the Climate in 2014"]. *Bulletin of the American Meteorological Society*, 96(7), p. 135-137.
[doi:10.1175/2015BAMSStateoftheClimate.1](https://doi.org/10.1175/2015BAMSStateoftheClimate.1)
9. **Thomson L.**, Osinski G. R., and Pollard W. H. (2013) Application of the Brewster angle of incidence to quantify the dielectric properties and physical nature of ground ice formations below the penetration limit of ground-penetrating radar. *Journal of Applied Geophysics*, 99, p. 12-17. [doi:10.1016/j.jappgeo.2013.08.015](https://doi.org/10.1016/j.jappgeo.2013.08.015)

10. **Thomson L.**, Osinski G. R., and Pollard W. H. (2012) The dielectric permittivity of terrestrial ground ice formations: Considerations for planetary exploration using ground-penetrating radar. *Journal of Geophysical Research*, **117**, E09003. [doi:10.1029/2012JE004053](https://doi.org/10.1029/2012JE004053)
11. **Thomson L.**, Osinski G. R., and Ommanney C. S. L. (2011) Glacier change on Axel Heiberg Island, Nunavut, Canada. *Journal of Glaciology*, **57**(206), p. 1079-1086. [doi:10.3189/002214311798843287](https://doi.org/10.3189/002214311798843287)
12. Barfoot T., Furgale P., Stenning B., Carle P., **Thomson L.**, Osinski G., Daly M., and Ghafoor N. (2011) Field testing of a rover guidance, navigation, and control architecture to support a ground-ice prospecting mission to Mars. *Robotics and Autonomous Systems*, **59**(6), p. 472-488. [doi:10.1016/j.robot.2011.03.004](https://doi.org/10.1016/j.robot.2011.03.004)
13. Osinski G., Barfoot T., Ghafoor N., Izawa M., Banerjee N., Jasiobedzki P., Tripp J., Richards R., Auclair S., Sapers H., **Thomson L.**, and Flemming R. (2010) Lidar and the mobile Scene Modeler (mSM) as scientific tools for planetary exploration. *Planetary and Space Science*, **58**(4), p. 691-700. [doi:10.1016/j.pss.2009.08.004](https://doi.org/10.1016/j.pss.2009.08.004)
14. Tycner, C., Jones, C. E., Sigut, T. A., **Thomson, L.**, Molak, A. (2006) Models of Be star disks constrained by long-baseline Interferometry. *Bulletin of the American Astronomical Society*, **38**, p.1073.

NON-PEER REVIEWED PUBLICATIONS

15. Anderson, R., McLennan, D., **Thomson, L.**, Wegeberg, S., Pettersvik Arvnes, M., Sergienko, L., Behe, C., Moss-Davies, P., Fritz, S., Christensen, T., and Price, C. (2016). Circumpolar Biodiversity Monitoring Program: Coastal Expert Workshop Meeting Report. CAFF International Secretariat, Akureyri, Iceland. ISBN: 978-9935-431-53-0.
16. **Thomson, L.**, McLennan, D., Anderson, R., Wegeberg, S., Pettersvik Arvnes, M., Sergienko, L., Behe, C., Moss-Davies, P., Fritz, S., Christensen, T., and Price, C. (2016) Circumpolar Biodiversity Monitoring Programme: Coastal Expert Workshop Meeting Summary. CAFF International Secretariat, Akureyri, Iceland. ISBN: 978-9935-431-52-3.
17. **Thomson, L.** and Copland, L. (2016) Collaborative bedrock mapping of White Glacier basin, Axel Heiberg Island, Nunavut. In Report of Activities for High Arctic Large Igneous Province (HALIP) – GEM 2 Western Arctic Region Project: Bedrock Mapping and Mineral Exploration, (ed.) M.-C. Williamson; Geological Survey of Canada, Open File 7950, p. 14-26. [doi:10.4095/297487](https://doi.org/10.4095/297487)
18. **Thomson, L.** (2015) Expedition Fiord Map Series, Axel Heiberg Island, Nunavut: Digital maps and supporting documentation. World Glacier Monitoring Service, Fluctuations of Glaciers: http://www.wgms.ch/fog_maps.html
19. **Thomson, L.** (2014) Report from the Third International Summer School in Glaciology: McCarthy, Alaska, USA, 6–16 August 2014. International Glaciological Society's ICE Bulletin, 165(2): 37-39.
20. **Thomson, L.** (2012) Deriving snowfall accumulation in the dry snow zone of Greenland using ASIRAS. ESTEC Working Paper. *European Space Research and Technology Centre*, European Space Agency, Noordwijk, The Netherlands.

CONFERENCE PRESENTATIONS

21. **Thomson, L.** (2017) Advances to glacier and mountain cartography using Structure from Motion. Canadian Cartographic Association meeting, Ottawa, ON, Canada (oral presentation).
22. **Thomson, L.** (2017) The stability of White Glacier changes since 1960. Canadian Geophysical Union meeting, Vancouver, BC, Canada, (poster presentation).
23. **Thomson, L.** and Copland, L. (2017) Changing contribution of short-term velocity events to annual velocities following a multi-decadal slowdown at White Glacier. International Symposium on the Cryosphere in a Changing Climate, Wellington, New Zealand (oral presentation).
24. Copland, L., Herdes, E., Schaffer, N., and **Thomson, L.** (2017) Long-term and short-term evolution of glacier velocities in northern Canada. International Symposium on the Cryosphere in a Changing Climate, Wellington, New Zealand (oral presentation).

25. **Thomson, L.**, and Copland, L. (2016) Changes to the mass balance, hypsometry, and dynamics of White Glacier, Nunavut, over the past half-century. Canadian Meteorological and Oceanographic Society's 50th Congress and joint annual Canadian Geophysical Union meeting, Fredericton, NB, Canada (oral presentation).
26. Copland, L. and **Thomson, L.** (2016) The use of structure from motion to produce a high resolution digital elevation model of White Glacier Basin, Axel Heiberg Island. Geological Survey of Canada HALIP Workshop, Ottawa, Canada (oral presentation).
27. Hackett, M., **Thomson, L.**, and Copland, L. (2016) Use of GPR and Photogrammetry to study glacier change for Baby Glacier, Axel Heiberg Island, Canada, 1959-2015. Workshop on the Dynamics and Mass Budget of Arctic Glaciers, Benasque, Spain (oral presentation).
28. **Thomson, L.**, and Copland, L. (2015) Formation and drainage of an ice-marginal lake triggers ice speed-up event at White Glacier, Nunavut. ArcticNet Scientific Meeting 2016. Vancouver, BC, Canada. **Awarded 3rd place, poster competition.**
29. **Thomson, L.**, and Copland, L. (2015) A new 1:10,000 map of White Glacier, Axel Heiberg Island, NU, using Structure from Motion. 72nd Eastern Snow Conference, Jouvence Orford, QC, Canada (oral presentation).
30. Delaney, F., Copland, L., Lacelle, D. and **Thomson, L.** (2015) Investigation of O and D isotope variability across the Canadian Arctic in the past ~40 years. 72nd Eastern Snow Conference, Jouvence, QC (oral presentation).
31. Hackett, M., **Thomson, L.** and Copland, L. (2015) Using DEM differencing to calculate volume change of two alpine glaciers on Axel Heiberg Island, Nunavut, Canada, 1959-2014. 72nd Eastern Snow Conference, Jouvence Orford, QC, Canada (oral presentation).
32. **Thomson, L.**, Copland, L., and Zemp, M. (2015) Comparing the Geodetic and Glaciological mass budgets of White Glacier, Axel Heiberg Island, NU. IASC Workshop on the dynamics and mass budget of Arctic glaciers & the IASC Network on Arctic Glaciology Annual Meeting. Obergurgl, Austria (oral presentation).
33. **Thomson, L.** and Copland, L. (2014) Improvements to ASTER elevation models for applications in Glaciology. 71st annual Eastern Snow Conference. Boone, NC, USA. **Conference Best Student Poster Prize.**
34. **Thomson, L.** and Copland, L. (2014) Changes to the dynamics of Arctic mountain glaciers: Case study of White Glacier, Axel Heiberg Island, Nunavut. Workshop on the Dynamics and Mass Budget of Arctic Glaciers & the IASC Network on Arctic Glaciology Annual Meeting. Ottawa, Ontario, Canada (oral presentation).
35. **Thomson, L.**, Osinski, G., Pollard, W. (2014) The characterization of ground ice deposits using GPR techniques. Ottawa-Carleton Student Northern Research Symposium. Ottawa, Ontario, Canada (oral presentation).
36. **Thomson, L.** and Copland, L. (2013) Assessing the role of hypsometry, hydrology, and thermal structure in the dynamics of White Glacier, Axel Heiberg Island, Nunavut. ArcticNet Annual Scientific Meeting, Halifax, Nova Scotia, Canada (oral presentation).
37. **Thomson, L.** and Davidson, M. (2012) Multi-year snowfall accumulation across central Greenland derived from ASIRAS (poster). ArcticNet Annual Scientific Meeting, Vancouver, BC, Canada (poster presentation).
38. Osinski, G., Henry, H., Mader, M., **Thomson, L.**, Gilbert, A., Marion, C., Papadimos, A., and Brown, P. (2011) Collaborative Planetary Science Outreach Strategies: A Canadian Perspective. 42nd Lunar and Planetary Science Conference, The Woodlands, Texas, USA.
39. **Thomson, L.**, and Osinski, G. (2010) GPR as a tool for characterizing ground ice in the High Arctic: Implications for future Mars based radar investigations. AGU Fall Meeting 2010. San Francisco, CA, USA (oral presentation).
40. **Thomson, L.**, Osinski, G., and Barfoot, T. (2010) Applications of Lidar and Ground Penetrating Radar in the Canadian High Arctic: Implications for Mars Exploration. The Third European Conference on Permafrost. Longyearbyen, Norway (oral presentation).
41. Mader, M. and **Thomson, L.** (2010) Exploring other worlds by exploring our own. Science Teacher's Association of Ontario (STAO) conference, Toronto, ON, Canada (joint oral presentation).

42. **Thomson, L.**, and Osinski, G. (2009) Revisited inventory of glaciers on Axel Heiberg Island, Nunavut. EOS Transactions American Geophysical Union Joint Assembly Supplement, abstract PP11A-08. AGU Joint Assembly. Toronto, Canada (oral presentation).
43. Soare, R., Osinski, G., and **Thomson, L.** (2009) Perennial mounds in Utopia Planitia: (HiRISE) Evidence of a Glacial Origin. 40th Lunar and Planetary Science Conference, The Woodlands, Texas, USA.

INVITED PRESENTATIONS

44. **Thomson, L.** (2017) How do we measure glacier change? Quest University, Squamish, BC, Canada.
45. **Thomson, L.** (2016) Glaciology in the Canadian Arctic: Monitoring change from the ground alongside remote sensing. Quest University, Squamish, BC, Canada.
46. **Thomson, L.** (2016) 55 years of research at White Glacier, Axel Heiberg Island, Nunavut. Department of Earth Sciences Seminar Series, Simon Fraser University, Burnaby, BC, Canada.
47. Copland, L., and **Thomson, L.** (2016) The History of Swiss-Canadian Collaboration near Expedition Fiord, Axel Heiberg Island. Swiss-Canadian Polar Research Symposium, Ottawa, Canada.
48. **Thomson, L.** (2016) 55 years of research at White Glacier, Axel Heiberg Island, Nunavut: Early studies and recent results. Phipps-Langlois Geography Seminar Series, University of Ottawa, Ottawa, Canada.
49. **Thomson, L.** (2016) 55 years of research at White Glacier, Axel Heiberg Island, Nunavut. GSC Ottawa Discussion Group, Geological Survey of Canada, Ottawa, Canada.
50. **Thomson, L.** (2016) Connections between the mass balance, ice dynamics, & hypsometry of White Glacier. Glaciology Group Meeting, Simon Fraser University, Vancouver, Canada.
51. **Thomson, L.** (2016) Alpine glacier sensitivity and stability in the Swiss Alps and the Canadian High Arctic. Colloquium in Glaciology, ETH Zürich, Zürich, Switzerland.
52. **Thomson, L.** (2016) Keynote speaker, University of Ottawa Spring Orientation Day for Teaching Assistants.
53. **Thomson, L.** (2015) Glaciology on Axel Heiberg Island, Nunavut, Canada: 1960 to 2014. University of Zürich Research Forum on Cryosphere and Geomorphology, Zürich, Switzerland.

UNIVERSITY TEACHING

Course Instructor

Advanced Remote Sensing (GEG3105) – Department of Geography, University of Ottawa (Fall 2012)

Teaching Assistant

Advanced Geospatial Information Systems (GEG3312) – Geography, University of Ottawa (Fall 2015)

*Geomorphology (GEG2301) – Geography, University of Ottawa (Fall 2014)**

Geography of Polar Regions (GEG3107) – Geography, University of Ottawa (Spring 2014)

**Awarded University of Ottawa's Excellence award for Teaching Assistants*

FIELD CAMPAIGNS

Mass balance and Ice Dynamics, Axel Heiberg Island, NU, CA. (2009 – present, 15 campaigns to date)

Ground ice studies with GPR, Axel Heiberg, Ellesmere, and Devon Islands, NU, Canada. (2009 – 2011)

Geological field assistant, Devon Island, Nunavut, Canada. Supervisor: Dr. Gordon Osinski (07/2008)

Glaciological field assistant, Cariboo Mountains, Canada. Mentor: Dr. Matthew Beedle (05/2008)

RELEVANT COURSES, WORKSHOPS & TRAINING EXPERIENCES

Crevasse Rescue Training – Mountain Sense Guiding. Instructor: Jamie Whiteside. Canmore, AB. March 25-26, 2017
SLF 2nd Snow Science Winter School – Coordinator: Dr. Martin Schneebeli, Preda and Davos, CH, Feb.14-20, 2016
Project Management for Research – Instructor: Dr. Pamela Alean-Kirkpatrick, Zürich, CH, March 5-19, 2015
Karthus Summer School – Coordinator: Johannes Oerlemans, Karthus, Italy, September 9-20, 2014
Summer School in Glaciology – Coordinator: Regine Hock, McCarthy, Alaska, August 6-16, 2014
Outreach and Media Relations in the Sciences (ESG5310) – University of Ottawa, May 5 – June 18, 2014
Arctic Field Safety Training – University Centre in Svalbard UNIS, Norway, February 10-14, 2014
SVALLI workshop on Subglacial Hydrology – University of Iceland, Reykjavik, August 26-30, 2013
Wireless Sensor Networks in Glaciology – Kananaskis Field Station, Canada, August 12-17, 2013
Glaciology (AG825) – Instructor: Doug Benn, University Centre in Svalbard UNIS, Spring 2013
Glacier Remote Sensing (GEO5540) – Instructor: Andreas Käab, University of Oslo, Spring 2013
The Polar Environment (GEG5310) – Instructor: Christian Zdanowicz, University of Ottawa, Fall 2012
Glaciers of Patagonia (GEG8900) – Instructor: Luke Copland, University of Ottawa, Spring 2012

PROFESSIONAL SERVICE & DEVELOPMENT

Reviewer: Nature Geoscience; J. Glaciology; Annals of Glaciology; Journal of Maps 08/2015 – present
Session Co-chair: Measuring and Modelling Glaciers, Canadian Geophys. Union Meeting 05/2017
SFU Postdoc Research Day, organizing team member and keynote speaker coordinator 03/2017
Session Chair: General Cryosphere I and II, Canadian Geophysical Union Meeting 06/2016
International Map Year, Canadian Committee member 07/2015 – 09/2016
Research Committee, Abstract/Proceedings reviewer of the Eastern Snow Conf. 06/2015 – present
Geography Departmental Assembly, PhD student representative to Department 08/2014 – 08/2016
Learning Outcomes Committee, PhD student representative to Department 09/2014 – 11/2014
Scholarship Assessor – Evaluation of student applications for annual Loran Award 10/2013 – present

SCIENCE & EDUCATION OUTREACH

Inquiry outreach film, with Simon Fraser University and the Coquitlam School District 08/2017 - present
Scientific Research and Outreach webpage – www.whiteglacier.org 09/2015 – present
Let's Talk Science (national outreach programme), Department Coordinator 08/2014 – 09/2015
Snow Outreach - Qarmartalik School, Resolute Bay, NU (45 students, ages 6-16) 05/2015
Snow Outreach - Nakkertok Nordic Ski Centre, Ottawa, ON (30 students, ages 9-16) 03/2014
Snow Outreach - Encounters with Canada, Ottawa, ON (40 students, ages 13-16) 02/2014
Guest Scientist – Polar Continental Shelf Project Open House, Resolute Bay, NU 07/2013
Outreach coordinator – Centre for Planetary Science and Exploration, Western Uni. 09/2009 – 08/2011
Outreach coordinator – Planetary and Space Science Centre, U. of New Brunswick 04/2010 – 09/2010

MEMBERSHIPS & AFFILIATIONS

International Glaciological Society
Canadian Geophysical Union
Association of Polar Early Career Scientists
GlacioEx and ArcticNet (Supported student, 2012-2016)
Alpine Club of Canada