

Professional Appointments

Memorial University of Newfoundland, Department of Physics and Physical Oceanography, St. John's, Newfoundland. 2007 to present:

Canada Research Chair in Glacial Dynamics Modelling and Associate Professor.

**University of Toronto, Dept. of Physics, Toronto, Ont. 1999 to 2006:
Research Associate.**

**University of Georgia, Dept. of Geography, Athens, Ga, 1998-1999:
Research Scientist.**

**University of Toronto, Dept. of Physics, Toronto, Ont. 1995-1998:
Postdoctoral Fellow.**

Work experience that has provide a broader perspective

Hillside Farm, Eramosa township, Ontario, 1984-1997: Owner and operator

Research Overview

My expertise is in earth systems modelling (with a focus on interactions between ice-sheets and the rest of the earth system), model calibration, and data assimilation. My work has two underlying themes. Firstly, useful model-based predictions of complex environmental phenomena require uncertainty quantification. Secondly, in order to obtain maximum information about past and future evolution of such phenomena, statistically rigorous integration of available data and models is required. Within my research group, we are refining methodologies for such integration and applying them to constrain past, present, and future evolution of the ice and climate system. I am especially interested in elucidating ice sheet/climate system feedbacks driving centennial to millennial scale oscillations during the last glacial cycle. Relatedly, I am also pursuing various approaches to develop bounds on potential instabilities in the ice/climate system.

Research contributions: Sample of Refereed Publications

full list is online:

<http://www.physics.mun.ca/~lev/pubs.html>

Ryan Love, Glenn A. Milne, Lev Tarasov, Simon E. Engelhart, Marc P. Hijma, Konstantin Latychev, Benjamin P. Horton, Torborn E. Tornqvist. The Contribution of Glacial Isostatic Adjustment to Projections of Sea Level Change Along the Atlantic and Gulf Coasts of North America, *Earth's Future*, in press.

Ivanovic, R. F., Gregoire, L. J., Kageyama, M., Roche, D. M., Valdes, P. J., Burke, A., Drummond, R., Peltier, W. R., and Tarasov, L.: Transient climate simulations of the deglaciation 219 thousand years before present; PMIP4 Core experiment design and boundary conditions, *Geosci. Model Dev.*, doi:10.5194/gmd-9-2563-2016, 2016.

Dusterhus, A.; Rovere, A.; Carlson, A. E.; Horton, B. P.; Klemann, V.; Tarasov, L.; Barlow, N. L. M.; Bradwell, T.; Clark, J.; Dutton, A.; Gehrels, W. R.; Hibbert, F. D.; Hijma, M. P.; Khan, N.; Kopp, R. E.; Sivan, D.; Tornqvist, T. E.: Palaeo-sea-level and palaeo-ice-sheet databases: problems, strategies, and perspectives, *Climate of the Past*, 12, 911921, doi:10.5194/cp-12-911-2016.

Chris Stokes, Martin Margold, Chris D. Clark, and Lev Tarasov. Ice stream activity scaled to ice sheet volume during Laurentide Ice Sheet deglaciation. *Nature*, vol 530, doi:10.1038/nature16947, 2016.

Abe-Ouchi, A., Saito, F., Kageyama, M., Braconnot, P., Harrison, S. P., Lambeck, K., Otto-Bliesner, B. L., Peltier, W. R., Tarasov, L., Peterschmitt, J.-Y., and Takahashi, K.: Ice-sheet configuration in the CMIP5/PMIP3 Last Glacial Maximum experiments, *Geosci. Model Dev.*, 8, 3621-3637, 2015.

Chris R Stokes; Lev Tarasov; Robin Blomdin; Thomas M Cronin; Timothy G Fisher; Richard Gyllencreutz; Clas Hattestrand; Jakob Heyman; Richard Hindmarsh; Anna Hughes; Martin Jakobsson; Nina Kirchner; Stephen J Livingstone; Martin Margold; Julian Murton; Riko Noormets; Richard W Peltier; Dorothy M Peteet; David Piper; Frank Preusser; Hans Renssen; Dave H Roberts; Didier Roche; Francky Saint-Ange; Arjen P Stroeven; James T Teller. On the Reconstruction of Palaeo-Ice Sheets: Recent Advances and Future Challenges. *Quaternary Science Reviews*, vol 125, p 15-49, 2015.

Bart Root, Lev Tarasov, and Wouter van der Wal. GRACE gravity observations constrain Weichselian ice thickness in the Barents Sea, *GRL*, DOI: 10.1002/2015GL063769, 2015.

Maaria Nordman, Glenn Milne, Lev Tarasov. Reappraisal of the Angerman River decay time estimate and its application to determine uncertainty in Earth viscosity structure, *Geophysical J. Int.*, 201, 811822, doi: 10.1093/gji/ggv051, 2015.

Peter U. Clark and Lev Tarasov. Closing the sea level budget at the Last Glacial Maximum. *PNAS Commentary*, 111(45), 15861-15862; doi:10.1073/pnas.1418970111, 2014.

Robert Briggs, David Pollard, and Lev Tarasov. A data constrained large ensemble analysis of Antarctic evolution since the Eemian, *Quaternary Science Reviews*, 103, 91-115, 2014.

Benoit S. Lecavalier, Glenn A. Milne, Matthew J.R. Simpson, Leanne Wake, Philippe Huybrechts, Lev Tarasov, Kristian K. Kjeldsen, Svend Funder, Antony J. Long, Sarah Woodroffe, Arthur S. Dyke Nicolaj K. Larsen. A model of Greenland ice sheet deglaciation constrained by observations of relative sea level and ice extent, *Quaternary Science Reviews*, 102, 54-84, 2014.

H. Beltrami G. S. Matharoo, L. Tarasov, V. Rath and J. E. Smerdon. Numerical studies on the Impact of the Last Glacial Cycle on recent borehole temperature profiles: implications for terrestrial energy balance, *Climate of the Past*, 10, 16931706, 2014. doi:10.5194/cp-10-1693-2014

Robert Briggs and Lev Tarasov. Evaluating model-derived deglaciation chronologies for Antarctica. *Quaternary Science Reviews*, 2013. <http://dx.doi.org/10.1016/j.quascirev.2012.11.021>

Chris Stokes, Lev Tarasov, and A.S. Dyke; Dynamics of the North American Ice Sheet Complex during its inception and build-up to the Last Glacial Maximum, *Quaternary Science Reviews*, 2012.

Lev Tarasov; Arthur S. Dyke, Radford M. Neal, and W.R. Peltier; A data-calibrated distribution of deglacial chronologies for the North American ice complex from glaciological modelling, *Earth and Plan. Sci. Let.*, 2012.

Tristan Hauser, Andrew Keats, and Lev Tarasov; Artificial neural network assisted Bayesian calibration of climate models, *Clim. Dyn.*, 2011.

K. Westley; T. Bell; M. Renouf; and L. Tarasov, Impact assessment of current and future sea-level change on coastal archaeological resources illustrated examples from northern Newfoundland, *J. of Island and Coastal Archaeology*, 2010.

J.-M. Lemieux, E. A. Sudicky, W.R. Peltier, L. Tarasov, Dynamics of groundwater recharge and seep-

age over the Canadian landscape during the Wisconsinian glaciation, *J. Geophys. Res.*, 113, F01011, doi:10.1029/2007JF000838, 2008.

L. Tarasov and W. R. Peltier, The co-evolution of continental ice cover and permafrost extent over the last glacial-interglacial cycle in North America. *J. Geophys. Res.* vol. 112, F02S08, doi:10.1029/2006JF000661, 2007.

L. Tarasov and W. R. Peltier, Arctic freshwater forcing of the Younger Dryas cold reversal, *Nature*, vol 435, 662-665, 2005.

L. Tarasov and W. R. Peltier, Greenland glacial history, borehole constraints and Eemian extent, *J. Geophys. Res.* vol. 108(B3), 2124-2143, 2003.

L. Tarasov and W. R. Peltier, Greenland glacial history and local geodynamic consequences, *Geophys. J. Int.*, vol 150, 198-229, 2002.

L. Tarasov and W.R. Peltier, Terminating the 100 kyr Ice Age cycle, *J. Geophys. Res.*, vol. 102, 21665-21693, 1997.

Invited Presentations, 2013-2015

2015 May, GFZ German Research Centre for Geosciences, Potsdam, Germany.

Glacial data/model integration, uncertainties, some examples from the global GLAC distribution of ice sheet chronologies, and the challenge of missing ice.

2015 May, Keynote speaker, PAST Gateways Biennial conference, Potsdam, Germany.

The last Northern hemispheric deglaciation: missing ice, data/model challenges, and opportunities.

2015 May, EISCLIM project kickoff meeting, Herdla, Norway.

Glacial data/model integration, uncertainties, and some ice sheet examples

2015 January, Ice2ice project kickoff meeting, Norheimsund, Norway.

Glacial data/model integration, uncertainties, and the challenge of missing ice

2014 September, Palsea workshop: Methodologies used to document palaeo sea level and ice-sheet extent and build sea level / ice sheet databases, Lochinver, Scotland.

Using paleo data to constrain glaciological ice sheet reconstructions

2014 March, NRCAN, Ottawa

Quantify and reducing uncertainty in deglacial ice evolution

2014 January, Antarctic Research Institute, Wellington, N.Z.

Gaia, where did you hide the ice? Figuring out the uncertainty (taking ARC beyond Antarctica :)

2013 October, Victoria University, Wellington, N.Z.

Grappling with Uncertainty: probing our glacial past and warm musings on science in society

2013 May, IAG Symposium on 'Reconciling Observations and Models of Elastic and Viscoelastic Deformation due to Ice Mass Change', Ilulissat, Greenland

Quantifying and reducing uncertainty in deglacial ice sheet evolution

2013 May, Niels Bohr Institute, Copenhagen, Denmark

Gaia, where did you hide the ice?

2013 April, European Geophysical Union Congress, Vienna, Austria

Quantifying past ice sheet evolution uncertainty through Bayesian calibration of glacial models

- 2013** March, University of Ottawa
Grappling with uncertainty: probing our glacial past and some warm musings on science in society
- 2013** February, University of Waterloo
Flowing ice, meltwater floods, and climate: Some current issues in Glacial Earth system dynamics and associated research opportunities for applied mathematicians and statisticians

sample of student Conference Presentations, 2009-2016

authorship only shown for student presentations

- 2016** Sep, Palsea, Mount Hood, USA
What Should Be Expected Of Glaciological Modeling? Case Study: Antarctic Glacial Cycle, **Benoit S. Lecavalier**, Rob Briggs, and Lev Tarasov
- 2015** Dec, AGU congress, San Fran, USA
Sensitivity of Ice and Climate Evolution Patterns to Modelling Uncertainties During the Last Glacial-Interglacial Transitions, **Taimaz Bahadory** and Lev Tarasov.
- 2014** May, IGS International Symposium on Observations, Modelling and Prediction of the Cryospheric Contribution to Sea Level Change, Chamonix, France
Development towards a full Bayesian calibration of a 3D glacial systems model of the Antarctic Ice Sheet over the last glacial cycle **Benoit S. Lecavalier**, Rob Briggs, and Lev Tarasov
- 2013** Dec, AGU congress, San Fran, USA
A new sub-grid surface mass balance model for continental-scale ice-sheet modelling: validation and glacial inception, **Kevin LeMorzadec** and Lev Tarasov.
- 2012** April, EGU congress, Vienna, Austria
1) Numerical modeling of subglacial erosion and sediment transport beneath the Laurentide Ice Sheet, **Alexandre Melanson**, Trevor Bell, and Lev Tarasov.
2) A fast sub-glacial hydrology solver for continental scale modelling; **Mark Kavanagh** and Lev Tarasov.
- July, 11th Int. Symposium on Antarctic Earth Sciences, Edinburgh, Scotland
Past evolution of the Antarctic Ice Sheet: a Bayesian calibrated 3D Glacial System modelling study; **Robert Briggs**, David Pollard, and Lev Tarasov
- April, Geol. constraints for Antarctic ice sheet models workshop, Lamont-Doherty Earth Obs., N.Y.:
Use of observations to constrain a large ensemble glacial systems model analysis for Antarctic deglaciation; **Robert Briggs**, David Pollard, and Lev Tarasov

Other evidence of impact and contributions

I am part (with funding) of the ambitious PalMod <https://www.palmod.de/> project funded by the German Federal Ministry of Education and Science.

My calibrated global deglacial chronology is part of the boundary conditions for the upcoming CMIP6 and PaleoModel Intercomparison Project (PMIP) 4 Last Glacial Maximum experiments in which all major climate model groups around the world will participate in (results of which will be part of the IPCC AR6).

My Eurasian deglacial calibration has been adopted as an interim GIA standard by the Nordic Geodetic Commission.

I am a Fellow of the Institute of Advanced Study at Durham University (UK).

I organized the MOCA Joint Model-data workshop for the Late Pleistocene evolution, Grenoble, May, 2014 <http://www.physics.mun.ca/MOCA/IceSheetModelandData2014.html>

Co-organized the joint MOCA-APEX (Arctic Palaeoclimate and its Extremes) workshop in Iceland, spring 2010. Convenor for MOCA session at the 2011 INQUA Congress in Bern, Switzerland.

Lecturer and site organizer: ACDC 2016: Role of High Latitudes in Centennial to Millennial Scale Climate Variability, Bonne Bay, Newfoundland, Canada.

Lecturer: ACDC 2013: Dynamics of the Last Deglaciation summer school, Nyksund, Norway

Lecturer at ESF Research Training Network “Network for Ice sheet and Climate Evolution (NICE)” spring 2010 summer school, France.

Grant review: CRC, NSERC, NSF (Nat. Sci. Foundation, U.S.A.), NERC (UK), Swiss Nat. Sci. Foundation, The French National Research Agency

Manuscript review, (6-10 articles/year) for: Ann. of Glaciology, Climate Dynamics., Climate of the Past, Earth and Plan. Sci. Lett., Geology, Geophys. Res. Lett., Geosci. Model Devel., Global and Plan. Change, J. of Climate, J. of Geophys. Res., Nature, Nature Geosci., Quat. Int., and Quat. Sci. Reviews.

Provision of ice-sheet chronologies to documentary projects and to individual researchers.

I spear-headed the Memorial University Earth and Human Systems Sustainability Initiative and coordinated the high-profile Memorial Dialogue on Global Sustainability.

Supervision of graduate students and post-doctoral fellows

Refer to

<http://www.physics.mun.ca/~lev/>