

CURRICULUM VITAE

NATALYA GOMEZ

Earth and Planetary Sciences

McGill University

Montreal, QC, Canada

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EDUCATION

Ph.D. Harvard University (September 2009 - Present)

Department of Earth and Planetary Sciences

Advisor: Prof. Jerry X. Mitrovica

Topic: Coupled sea level – ice sheet interactions

M.Sc. University of Toronto (September 2008 - August 2009)

Collaborative degree in Geophysics and Environmental Studies

Thesis: Large scale sea-level change following polar ice-mass variations

B.Sc. University of Toronto (September 2002 - August 2006)

Physics Specialist, Math Minor

APPOINTMENTS

Canada Research Chair, Tier II (2015-present)

Assistant Professor McGill University (2015-present)

Earth and Planetary Sciences

Ed Lorenz Postdoctoral Fellow New York University (January 2014 – June 2015)

Center for Atmosphere and Ocean Science at the Courant Institute of Mathematical Sciences

Working with Prof. David Holland

AWARDS and HONOURS

Canada Research Chair, Tier II, 2015-2020

NSERC Discovery Grant Holder, 2016 – 2021

CFI Funding Holder, 2015-2020

PhD Level Post-Graduate Scholarship, NSERC, 2010 - 2013

Masters Level Post-Graduate Scholarship NSERC, 2009-2010

University of Toronto Fellowship, University of Toronto, 2008-2009

J.R.G. Smyth Scholarship in Physics, University of Toronto, 2008-2009

Grant for Collaborative Research, Canadian Institute for Advanced Research, 2006
Bryan Statt Award for Experimental Physics, University of Toronto, 2006
Ted Mossman Scholarship in Mathematics, University of Toronto, 2002-2003
Dean's List Scholar, University of Toronto, 2002-2006
University College Entrance Scholarship, University of Toronto, 2002

RESEARCH INTERESTS

- Sea level –ice sheet interactions
- Modern and paleo global sea level modeling
- Marine ice sheet stability and evolution
- Post glacial rebound and mantle viscosity
- Issues related to and strategies for dealing with climate change and energy issues

PUBLICATIONS

Hay, C., Lau, H., **Gomez, N.**, Austermann, J., Powell, E., Mitrovica, J. X., Latychev, K., and D. Wiens (2017). Sea-level fingerprints in a region of complex Earth structure: The case of WAIS, in press, *Journal of Climate*, in press.

Tsuji, L.J.S., Daradich, A., **Gomez, N.**, Hay, C., and Mitrovica, J.X.. (2016) Sea-Level Change in the Western James Bay Region of Sub-Arctic Ontario: Emergent Land and Implications for Treaty No. 9. *Arctic*, 69, 1, 99-107.

Gomez, N., Pollard, D. and Holland, D.. (2015) Sea level feedback lowers projections of future Antarctic Ice Sheet mass loss. *Nature Communications*, v. 6, no. 8798.

Gomez, N. (2015) Climate science: Small glacier has big effect on sea-level rise. *Nature*, vol. 526, pp. 510-512.

Gomez, N., Gregoire, L.J., Mitrovica, J.X., Payne, A.J.. (2015) Laurentide-Cordilleran Ice Sheet saddle collapse as a contribution to meltwater pulse 1A, *Geophys. Res. Lett.*, vol. 42, no. 10, pp. 3954-3962.

Hay, C., Mitrovica, J.X., **Gomez, N.**, Creveling, J.R., Austermann, J. and Kopp, R.. (2014) The sea-Level Fingerprint of Ice-Sheet Collapse During Interglacial Periods. *Quat. Sci. Rev.* 87: 60–69, doi.org/10.1016/j.quascirev.2013.12.022.

Gomez, N., Pollard, D., and Mitrovica, J.X.. (2013) A 3-D coupled ice sheet - sea level model applied to Antarctica through the last 40 ky. *Earth Planet. Sci. Lett.* 384, 88-99.

Gomez, N., Pollard, D., Mitrovica, J.X., Huybers, P. and Clark, P.U. (2012). Evolution of a Coupled Marine Ice Sheet - Sea Level Model. *J. Geophys. Res.* 117, 9 pp.

Mitrovica, J.X., **Gomez, N.**, Morrow, E., Hay, C., Latychev, K. and Tamisiea, M.E. (2011). On the robustness of predictions of sea level fingerprints. *Geophys. J. Int.* 187, 729-742.

Karagatzides, J.D., Kozlovic, D.R., De Iuliis, G., Liberda, E.N., General, Z., Liedtke, J., McCarthy, D.D., **Gomez, N.**, Metatawabin, D. & Tsuji, L. (2011). Youth Environmental Science Outreach in the Mushkegowuk Territory of Subarctic Ontario, Canada, *Applied Environmental Education & Communication*, 10, 201-210.

Gomez, N., Mitrovica, J.X., Huybers, P. and Clark, P.U. (2010). Sea Level Change As a Stabilizing Influence on Marine Ice Sheets. *Nature Geosci.* 3, 850-853. DOI: 10.1038/ngeo1012.

Gomez, N., Mitrovica, J.X., Tamisiea, M. and Clark, P.U. (2009). A New Projection of Sea-Level Change in Response to a Collapse of the Antarctic Ice Sheet. *Geophys. J. Int.* 180, 623-634.

Mitrovica, J.X., **Gomez, N.**, Clark, P.U. (2009). The Sea-Level Fingerprint of West Antarctic Collapse. *Science.* 323, 753. DOI: 10.1126/science.1166510.

Matsuyama, I., Mitrovica, J.X., Daradich, A. and **Gomez, N.** (2009). The Rotational Stability of Triaxial Ice-Age Earth. *J. Geophys. Res.* 115, B05401. DOI: 10.1029/2009JB006564.

Tsuji, L., **Gomez, N.**, Mitrovica, J. (2009). Post-Glacial Adjustment and Global Warming in Sub-Arctic Canada: Implications for Islands of the James Bay Region. *Arctic.* 64, 24 pages.

Non-Refereed Publications:

WCRP Grand Challenge: Regional Sea Level Change and Coastal Impacts Science and Implementation Plan (Version 2.1). Co-authored by the GC Sea Level Steering Team. Working document published online: <https://www.wcrp-climate.org/grand-challenges/gc-sea-level>. I lead and wrote the implementation plan for Work Package 1 (WP1) of the GC with Mark Tamisiea and Roderik Van de Wal.

Future Geophysical Facilities Required to Address Grand Challenges in Earth Sciences: A community report to the National Science Foundation, Published online. (September 2015) (https://www.unavco.org/highlights/2015/futures_report.pdf).

Report Writing Committee: Rick Aster, Mark Simons, Roland Burgmann, **Natalya Gomez**, Bill Hammond, Steve Holbrook, Estelle Chaussard, Leigh Sterns, Gary Egbert, John Hole, Thorne Lay, Steve McNutt, Michael Oskin, Brandon Schmandt, John Vidale, Lara Wagner, Paul Winberry.

Meredith Langstaff, **Natalya Gomez.** (2012). Intermittent Renewable Electricity: Incentivizing Load Management Technologies in Aruba. 55. Aruban Government, Carbon War Room, Harvard University

MEETINGS AND PRESENTATIONS

Quebec-Ocean Seminar, Laval University, Quebec, (March, 2017)
“Past and Future Ice Sheet – Sea Level – Solid Earth Interactions”
(invited)

Seminar at Lehigh University, Pennsylvania, USA (March, 2017)

(invited)

Colloquium at Washington University in Seattle, Washington (February, 2017)

“Ice Sheet – Sea Level - Solid Earth Interactions in Antarctica”

(invited)

Oral Presentation at the American Geophysical Union (AGU) Fall Meeting in San Francisco, USA,
(December 2017)

“The influence of 3-D Earth Structure on a Coupled Antarctic Ice Sheet – Sea Model”

Physics Department Colloquium, McGill University (September 2016)

“The physics of ice sheets, sea level and the solid Earth”

(Invited)

PALSEA2 2016 Workshop: Sea-level budgets at decadal to millennial time scales to bridge the paleo and instrumental records. Timberline Lodge, Mount Hood, Oregon. (September, 2017)

“Influence of Earth structure on the contribution of the Antarctic ice sheet to sea level change”

Seminar, Earth Observatory of Singapore, Singapore (August 2016)

“Ice Sheet, Sea Level and Solid Earth interactions in Antarctica”

(Invited)

SCAR Open Science Conference, Kuala Lumpur, Malaysia (August 2016)

“The Influence of Earth structure on a coupled ice sheet-sea level model of the Antarctic Ice Sheet”

(invited)

Invited Seminar, Earth Observatory of Singapore, Singapore (August 2016)

“Ice Sheet, Sea Level and Solid Earth interactions in Antarctica”

WCRP GC Steering Team Meeting on Regional Sea Level Change and Coastal Impacts, Paris, France
(June, 2016)

On the Podium Speaker Series at the Canada Wide Science Festival, Montreal, Canada (May 2016)

“The Physics of Ice Sheets, Sea Level and the Solid Earth”

(invited public lecture)

Cutting Edge Lectures in Science, McGill University Redpath Museum, Montreal, Canada (February,
2016)

“Sea Level Change, Ice Sheets and the Solid Earth”

(invited public lecture)

WCRP GC Steering Team Meeting on Regional Sea Level Change and Coastal Impacts, New York
University, New York, NY (February, 2016)

“An Integrated Approach to paleo timescale sea level estimates”

2nd Annual PLIOMAX Meeting, Harvard University, Cambridge, MA (January, 2016)

“Coupled Ice Sheet – Sea Level Modeling, Applied to Model Antarctic Ice Sheet Retreat”

Earth, Environmental and Planetary Sciences Colloquium, Brown University, Providence, Rhode Island, USA (November, 2015)

“Sea level – Ice Sheet – Solid Earth Interactions”
(invited talk)

Atmosphere Ocean Sciences Seminar, McGill University, Montreal, Canada (November, 2015)

“Sea level – Ice Sheet – Solid Earth Interactions”
(invited talk)

Geophysics Department Seminar Series, Stanford University, California, USA (October, 2015)

“Sea level – Ice Sheet – Solid Earth Interactions”
(invited talk)

McGill Faculty of Sciences Meeting (October, 2015)

“Ice Sheets and Sea Level Change”
(invited talk)

McGill Soup and Science (September, 2015)

“Ice Sheets and Sea Level Change”
(invited talk)

McGill Space Institute Jamboree (September, 2015)

“Sea Level, Ice and the Solid Earth”

NSF Future Seismic and Geodetic Facility Needs in the Geosciences Workshop, Washington, DC (May, 2015)

“Glacial isostatic adjustment and sea level problems and the types of geodetic and seismological data that will be needed”
(invited talk)

WCRP GC Steering Team Meeting on Regional Sea Level Change and Coastal Impacts, Utrecht, Netherlands (March, 2015)

“Paleo timescale sea level change”

IMAU / Utrecht University Colloquium (March 18, 2015)

“Ice Sheet – Sea Level Interactions in Antarctica”
(invited talk)

American Geophysical Union Fall Meeting (15-19 December, 2014)
San Francisco, California

“The Influence of Earth structure on a coupled ice sheet-sea level model of the Antarctic Ice Sheet”

West Antarctic Ice Sheet Initiative (WAIS) Workshop (September, 2014)
Julian, CA

"The influence of sea-level changes on ice-sheet evolution in Antarctica"

Mathematics and Climate Research Network Annual Meeting (September, 2014)
Chapel Hill, NC
"Sea level - ice sheet interactions"
(invited talk)

Princeton University AOS/GFDL Workshop (September, 2014)
Princeton, NY
Tutorials and departmental talk on climate, sea level and ice sheets
(invited instructor and plenary speaker)

National Center for Atmospheric Research (NCAR) (June, 2014)
Boulder, CO
"Sea level - ice sheet interactions"
(invited talk)

Princeton University, Department of Geosciences Colloquium (March, 2014)
"sea level - ice sheet interactions"
Princeton, NJ
(invited talk)

Center for Sea-Level Change (CSLC) 3rd Annual Workshop, NYU Abu Dhabi (May, 2014)
Abu Dhabi, UAE
"Sea level change and ice sheet - sea level interactions"

American Geophysical Union Fall Meeting (9-13 December, 2013)
San Francisco, California
"The Impact of Gravitationally Self-Consistent Ice Age Sea-Level Variations on the Evolution of the Antarctic Ice Sheet"
(invited talk)

IAG International Symposium: Reconciling Observations and Models of (30 May – 2 June, 2013)
Elastic and Viscoelastic Deformation due to Ice Mass Change
Ilulissat, Greenland
"Coupled Ice Sheet – Sea Level Model, Applied to Antarctica Through the last 40 ky"

CLIVAR WGOMD – SOP Workshop on Sea Level Rise, Ocean/Ice Sheet (15 – 22 February, 2013)
Interactions and Ice Sheets
Hobart, Australia
"Coupled Ice Sheet – Sea Level Model, Applied to Antarctica Through the last 40 ky"
(invited talk)

American Geophysical Union Fall Meeting (3 - 7 December, 2012)
San Francisco, California
"Sea Level Predictions of the SeaRISE Ice Sheet Model Simulations"

European Geosciences Union Spring Meeting (22-27 April, 2012)

Vienna, Austria

“Evolution of a Coupled Ice Sheet - Sea Level Model.”

American Geophysical Union Fall Meeting (5-9 December, 2011)

San Francisco, California

“Evolution of a Coupled Ice Sheet – Sea Level Model.”

Visit to the Center for Nonlinear Studies at Alamos National Laboratory (October, 2011)

Los Alamos, NM

“The Influence of Sea Level Changes on the Stability & Evolution of a Marine Ice Sheet.”

(invited talk)

PALSEA workshop on Past, Rapid Changes in Sea Level (25-27th August, 2011)

Harvard University, Cambridge MA

“Stability and Evolution of a Coupled Ice Sheet - Sea Level Model.”

(invited talk)

WCRP Workshop on Regional Sea Level Change (7-9 February, 2011)

UNESCO Headquarters in Paris, France

“Sea Level as a Stabilizing Factor for Marine Ice Sheets.”

(invited talk)

American Geophysical Union Fall Meeting (13-17 December, 2010)

San Francisco, California

“Sea Level as a Stabilizing Factor for Marine Ice Sheets.”

ACDC Summer School on Ice Sheet Ocean Interactions (8-19 June, 2010)

MIT FabLab in Lyngen, Norway

“Sea Level Change and the Stability of Marine Ice Sheets.”

American Geophysical Union Fall Meeting (14-18 December, 2009)

San Francisco, California

“The Sensitivity of Sea-Level Fingerprints to the Geometry of Ice Sheet Mass Balance.”

RESEARCH SUPPORT

- Canada Research Chair Tier II (2015-2020)
- NSERC Discovery Grant Holder (2016-2021)
- Canadian Foundation for Innovation Grant Holder (2015-2020)
- McGill Startup Grant (2015-2020)
- CIHR Grant (2015-2016)
- Recipient of Ph.D. Level and Masters Level Post-Graduate National Science and Engineering Research Council (NSERC) Scholarships.

SYNERGISTIC ACTIVITIES

- Steering committee member for the World Climate Research Program (WCRP) “Grand Challenges: Sea Level Rise and Regional Impacts” Program (2015-present)
- Steering committee member of the “Solid Earth Response and influence on Cryosphere Evolution (SERCE)” Scientific Research Program of SCAR (2016-present)
- Research Action Team Member for Vision 2020 – McGill’s Sustainability Strategy (2016-present)
- *Workshop Session Chair*, International Association of Geodesy (IAG) 1st circular Workshop on Glacial Isostatic Adjustment and Elastic Deformation in Reykjavik, Iceland. (September 2017)
- Seminar Organizer, Earth and Planetary Sciences Department, McGill University (2015-present)
- Faculty hiring committee for Earth and Planetary Sciences Department, McGill University (2016-2017)
- Faculty hiring committee for Atmosphere Ocean Sciences Department, McGill University (2016)
- Proposal call writing committee member and workshop presenter at NSF Future Seismic and Geodetic Facilities Needs initiative (2014-2015)
- Invited instructor at the Princeton University Atmospheric and Oceanic Sciences workshop on Ice in the Climate System (2014)
- Served on a number of PhD and MSc students’ thesis committees in the EPS, AOS and Geography Departments at McGill University

TEACHING EXPERIENCE

Instructor, McGill University, Earth and Planetary Sciences January 2016 - present
EPSC 201 Understanding Planet Earth

An elective course providing an introduction to Earth Science. Enrollment of 200 students

EPSC 510 Geodynamics

Graduate/upper year undergraduate course covering the geodynamics of the Earth’s interior and surface at planetary and local scales.

EPSC 700 and 400 Level independent research and reading courses

Advised individual students in independent studies courses in geodynamical modelling, ice sheet modeling and sea level change.

Teaching Fellow, Harvard University, Earth and Planetary Sciences

E-PSCI 261 Sea Level Change

February 2013 - May 2013

Will hold sections and grade assignments for a graduate level course reviewing sea level theory and applications.

E-PSCI 205 Geophysics: A Primer

February 2012 - May 2012

Held office hours and created and graded assignments for a graduate level course reviewing a wide range of topics in geophysics.

SPU 12 Natural Disasters

September 2010 - December 2010

Taught sections and labs and graded assignments and exams for an undergraduate general education course analyzing the hazards associated with natural disasters.

Laboratory Teaching Assistant, University of Toronto, Physics

September 2008 – May 2009

Demonstrated experiments, graded labs, and taught students in a 2nd year undergraduate physics and engineering lab.

Science Outreach Teacher, University of Waterloo & Peetabeck Academy August 2008
Worked with a team of scientists, teaching young Native Canadians in Fort Albany, Ontario on basic geophysical processes and presented a talk on the impacts of sea-level change on their community and environment. An article about the program was published in the journal *Applied Environmental Education & Communication*.

RESEARCH EXPERIENCE

Member of the Harvard Graduate Consortium on Energy and the Environment January, 2012 – Dec 2014
Taking interdisciplinary courses and attending seminars to gain a broader perspective on issues, consequences and strategies related to the future of energy and the environment.

Energy Policy Analyst for the Government of Aruba February 2012 – August 2012
Worked with another graduate student to investigate incentivizing electricity load management technologies to deal with the intermittency issues associated with increased renewable wind and solar energy penetration on Aruba. Traveled to Aruba to conduct research and meet with many of the key players in the Energy and Government sectors. Wrote a report for the Aruban Government that will be referenced by the Carbon War Room in a Pathways Document outlining the steps for Aruba to follow to reduce their fossil fuel dependence.

Geophysical Consultant, University of Waterloo November 2007 – August 2008
Worked with the Department of Environment & Resource Studies to assess the impact of sea-level change on shoreline migration and native communities in Northern Canada.

Modeler and Field Assistant, Universitee de Rennes, France September 2006 - October 2006
Worked with Prof. Jean Braun in the Geosciences department modeling strain localization in tectonic processes and participated in geology fieldwork in Southern Spain.