

## **Dr Eric Larour**

Scientist V and Group Supervisor of the Sea-Level and Ice Group  
Earth Science Section, Science Division  
Jet Propulsion Laboratory  
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### **PROFESSIONAL EXPERIENCE:**

**2018–present:** Group Supervisor, Sea-Level and Ice Group, Research Scientist V. Project lead for ISSM.

**2012–2017:** Research Scientist III -> IV– Project lead and co-developer for ISSM (Ice Sheet System Model),

**2008–2011:** Software Engineer III – Project lead and first author for ISSM, Mechanical Division, Thermal and Cryogenics Section, JPL.

**2005–2007:** Software Engineer I-II – Lead parallel developer of Cielo.  
(Mechanical/Thermal/Optical finite element software for Large Aperture Telescopes), Mechanical Division, Thermal and Cryogenics, JPL.

### **EDUCATION:**

- Ph. D. (2001-2005) Department of Mechanical Engineering, Ecole Centrale Paris, France, hosted by the Radar Science and Engineering Section, Jet Propulsion Laboratory, USA.  
Dissertation title: Numerical modeling of the behavior of ice shelves, validated by remote sensing.
- M. Sc., Mechanical Engineering, Ecole Centrale Paris, France, 1998-2001.
- Intensive 3-year University Foundation Course preparing for the competitive entrance examinations to the French Engineering Schools, Math Major, Lycee Pasteur, Neuilly sur Seine, France, 1995-1998

### **RESEARCH INTERESTS**

- Ice sheet contribution to sea level rise.
- Ice/Ocean and Ice/Atmosphere interactions.
- Ice sheet modeling.
- Data assimilation of satellite and in situ data into ice sheet models.
- Uncertainty quantification of mass balance projections.
- Inverse modeling for ice sheet models.

### **PROFESSIONAL ACTIVITIES**

- **Editor The Cryosphere** (2011-Present)
- Member of **Operation IceBridge Science Team**

- Member of **NASA Sea Level Rise Science Team**
- **Member of the JPL CIO Technology Advisory Board (CTAB)**, standing board for IT expertise to the Office of the CIO (OCIO).
- **Co-Chair for WCRP ISMIP6** (Ice Sheet Model Intercomparison Project) modeling and intercomparison project for inclusion of ice sheet models in the next CMIP6 climate runs.
- Member of Steering Committee for **The Polar Research Coordination Network** (which aims to connect the Polar Science, Data and High-Performance and Distributed Computing (HPDC) polar sciences communities).
- Co-organizer of the annual Ice Sheet System Model (ISSM) workshop.
- Associate Project Scientist (II) at the Joint Institute for Regional Earth System Science and Engineering (JIFRESSE) at UCLA.
- Voluntary Research Associate Professor University of Buffalo, NY, 2011-2014
- Journal review: Nature Geoscience, Geophysical Research Letters, Journal of Geophysical Research, Journal of Glaciology, The Cryosphere, Proceedings of the National Academy of Sciences.
- Proposal review: NASA Earth and Space Science Fellowship.
- Member, American Geophysical Union, European Geophysical Union

## AWARDS

- 2015 – **NASA Early Career Achievement Medal** for developing the Ice Sheet System Model.
- 2015 – **JPL Ed Stone Award** for Outstanding Research Publication.
- 2014 – JPL Team Award for Earth Ventures Proposal.
- 2013 – JPL Research Poster Conference Award Winner for “a prototype coastal sea-level rise projection system for the next century.”
- 2012 – **NASA Cryospheric Sciences Most Valuable Player**
- 2012 – **JPL Lew Allen Award for Excellence** for “outstanding accomplishment in developing the Ice Sheet system Model that significantly contributes to our knowledge of Global Change.”
- 2011 – **NASA Honor Group Achievement Award** to Ice sheet System Model Team for “outstanding accomplishment in the development of the Ice Sheet System Model that models and simulates ice sheet systems flowing and melting in our warming environment”.
- 2011 – **NASA Honor Group Achievement Award** to IceBridge for “exceptional achievement in support of NASA’s IceBridge campaign.”

## REFEREED PUBLICATIONS

L. Caron., E.R. Ivins, **E. Larour**, S. Adhikari, J. Nilsson and G. Blewitt, GIA model statistics for GRACE hydrology, cryosphere and ocean science, Geophys. Res. Lett., 45, doi:10.1002/2017GL076644.

**E. Larour**, D. Cheng, G. Perez, J. Quinn, M. Morlighem, B. Duong, L. Nguyen, K. Petrie, S. Harounian, D. Halkides, and W. Hayes, A JavaScript API for the Ice Sheet System Model (ISSM) 4.11: towards an online interactive model for the cryosphere community, Geosci. Model Dev., 10, 4393-4403, doi:10.5194/gmd-10-4393-2017..

**E. Larour**, E. Ivins, S. Adhikari, Should coastal planners have concern over where land ice is melting?, *Sci. Adv.*, 3(11), doi:10.1126/sciadv.1700537.

A. Hück, C. Bischof, M. Sagebaum, N. Gauger, B. Jurgelucks, **E. Larour** and G. Perez, A Usability Case Study of Algorithmic Differentiation Tools on the ISSM Ice Sheet Model, *Optim. Methods Softw.*, doi:10.1080/10556788.2017.1396602.

S. Adhikari, E.R. Ivins, **E. Larour**, 2017, Mass transport waves amplified by intense Greenland melt and detected in solid Earth deformation, *Geophys. Res. Lett.*, 44, doi:10.1002/2016GL070552

J.H. Bondzio, M. Morlighem, H. Seroussi, T. Kleiner, M. Rückamp, J. Mouginot, T. Moon, **E. Y. Larour**, and A. Humbert, The mechanisms behind Jakobshavn Isbræ's acceleration and mass loss: A 3-D thermomechanical model study, *Geophys. Res. Lett.*, 44, doi:10.1002/2017GL073309.

H. Seroussi, Y. Nakayama, **E. Larour**, D. Menemenlis, M. Morlighem, E. Rignot, and A. Khazendar, Continued retreat of Thwaites Glacier, West Antarctica, controlled by bed topography and ocean circulation, *Geophys. Res. Lett.*, 44, doi:10.1002/2017GL072910.

F. Habbal, **E. Larour**, M. Morlighem, H. Seroussi, C.P. Borstad and E. Rignot, Optimal numerical solvers for transient simulations of ice flow using the Ice Sheet System Model (ISSM versions 4.2.5 and 4.11), *Geosci. Model Dev.*, 10, 155-168, doi:10.5194/gmd-10-155-2017.

**E. Larour**, J. Utke, A. Bovin, M. Morlighem, and G. Perez, An approach to computing discrete adjoints for MPI-parallelized models applied to Ice Sheet System Model 4.11, *Geosci. Model Dev.*, 9, 3907-3918, doi:10.5194/gmd-9-3907-2016.

N.-J. Schlegel, D.N. Wiese, **E.Y. Larour**, M.M. Watkins, J.E. Box, X. Fettweis, and M.R. van den Broeke, Application of GRACE to the assessment of model-based estimates of monthly Greenland Ice Sheet mass balance (2003–2012), *The Cryosphere*, 10, 1965-1989, doi:10.5194/tc-10-1965-2016.

**E. Larour** and N. Schlegel, On ISSM and leveraging the Cloud towards faster quantification of the uncertainty in ice-sheet mass balance projections, *Computers and Geosciences.*, 96, <http://dx.doi.org/10.1016/j.cageo.2016.08.007>.

P. M. Alexander, M. Tedesco, N.-J. Schlegel, S. B. Luthcke, X. Fettweis, and **E. Larour**, Greenland Ice Sheet seasonal and spatial mass variability from model simulations and GRACE (2003–2012), *The Cryosphere*, 10, 1259-1277, doi:10.5194/tc-10-1259-2016.

M. Morlighem, J. Bondzio, H. Seroussi, E. Rignot, **E. Larour**, A. Humbert and S. Rebuffi, Modeling of Store Gletscher's calving dynamics, West Greenland, in response to ocean thermal forcing, *Geophys. Res. Lett.*, 43, doi:10.1002/2016GL067695.

S. Adhikari, E.R. Ivins, and **E. Larour**, ISSM-SESAW v1.0: mesh-based computation of gravitationally consistent sea-level and geodetic signatures caused by cryosphere and climate driven mass change, *Geosci. Model Dev.*, 9, 1087-1109, doi:10.5194/gmd-9-1087-2016.

B. Minchew, M. Simons, H. Bjornsson, F. Palsson, M. Morlighem, H. Seroussi, **E. Larour**, and S. Hensley, Plastic bed beneath Hofsjökull Ice Cap, central Iceland, and the sensitivity of ice flow to surface meltwater flux, *J. Glaciol.*, doi:10.1017/jog.2016.26

J.H. Bondzio, H. Seroussi, M. Morlighem, T. Kleiner, M. Rückamp, A. Humbert and **E. Larour**, Modelling calving front dynamics using a level-set method: application to Jakobshavn Isbræ, West Greenland, *The Cryosphere*, 10, 497-510, doi:10.5194/tc-10-497-2016.

C. Borstad, A. Khazendar, B. Scheuchl, M. Morlighem, **E. Larour**, and E. Rignot, A constitutive frame-work for predicting weakening and reduced buttressing of ice shelves based on observations of the progressive deterioration of the remnant Larsen B Ice Shelf, *Geophys. Res. Lett.*, 43, doi:10.1002/2015GL067365.

T.J. Bracegirdle, N. Bertler, A.M. Carleton, Q. Ding, C.J. Fogwill, J.C. Fyfe, H.H. Hellmer, A. Y. Karpechko, K. Kusahara, **E. Larour**, P.A. Mayewski, W.N. Meier, L.M. Polvani, J.L. Russell, S.L. Stevenson, J. Turner, J.M. van Wessem, W.J. van de Berg, I. Wainer, A multi-disciplinary perspective on climate model evaluation for Antarctica, *Bull. Amer. Meteor. Soc.*, doi: 10.1175/BAMS-D-15-00108.1.

N.-J. Schlegel, **E. Larour**, H. Seroussi, M. Morlighem and J.E. Box, Ice discharge uncertainties in Northeast Greenland from boundary conditions and climate forcing of an ice flow model, *J. Geophys. Res.*, 120, 29-54, doi:10.1002/2014JF003359.

**Larour, E.**, J. Utke, B. Csatho, A. Schenk, H. Seroussi, M. Morlighem, E. Rignot, N. Schlegel, and A. Khazendar, Inferred basal friction and surface mass balance of North East Greenland Ice Stream using data assimilation of ICESat surface altimetry and ISSM., *The Cryosphere*, 8, 2335-2351, doi: 10.5194/tc-8-2335-2014.

**Larour, E.**, N. Schlegel and M. Morlighem, Modeling the Evolution of Polar Ice Sheets, *Eos Trans. AGU*, 95(45), 411, doi:10.1002/2014EO450005.

H. Seroussi, M. Morlighem, **E. Larour**, E. Rignot and A. Khazendar, Hydrostatic grounding line parameterization in ice sheet models, *The Cryosphere*, 8, 2075-2087, doi:10.5194/tc-8-2075-2014.

**Larour, E.**, A. Khazendar, C. P. Borstad, H. Seroussi, M. Morlighem, and E. Rignot, Representation of sharp rifts and faults mechanics in modeling ice shelf flow dynamics: Application to Brunt/Stancomb-Wills Ice Shelf, Antarctica, *J. Geophys. Res.*, 119, doi:10.1002/2014JF003157.

H. Seroussi, M. Morlighem, E. Rignot, J. Mouginot, **E. Larour**, M. Schodlok, and A. Khazendar, Sensitivity of the dynamics of Pine Island Glacier, West Antarctica, to climate forcing for the next 50 years, *The Cryosphere*, 8, 1699-1710, doi:10.5194/tc-8-1-2014.

M. Morlighem, E. Rignot, J. Mouginot, H. Seroussi, and **E. Larour**, Deeply incised submarine glacial valleys beneath the Greenland Ice Sheet. *Nat. Geosci.*, 7, 418–422, doi:10.1038/ngeo2167.

S. Adhikari, E. Ivins, **E. Larour**, H. Seroussi, M. Morlighem and S. Nowicki, Future Antarctic bed topography and its implications for ice sheet dynamics, *Solid Earth*, 5, 569-584, doi:10.5194/se-5-569-2014

M. Morlighem, E. Rignot, J. Mouginot, H. Seroussi and **E. Larour**, High resolution ice thickness mapping in South Greenland, *Ann. Glaciol.*, 55(67), doi: 10.3189/2014AoG67A088.

M. Morlighem, E. Rignot, J. Mouginot, X. Wu, H. Seroussi, **E. Larour** and J. Paden, High-resolution bed topography mapping of Russell Glacier, Greenland, inferred from Operation IceBridge data, *J. Glaciol.*, 59(218), doi:10.3189/2013JoG12J235

H. Seroussi, M. Morlighem, E. Rignot, A. Khazendar, **E. Larour**, and J. Mouginot, Dependence of greenland ice sheet projections on its thermal regime, *J. Glaciol.*, 59(218), doi:10.3189/2013JoG13J054

M. Morlighem, H. Seroussi, **E. Larour** and E. Rignot, Inversion of basal friction in Antarctica using exact and incomplete adjoints of a higher-order model, *J. Geophys. Res.*, 118, doi:10.1002/jgrf.20125.

S. Nowicki, R.A. Bindschadler, A. Abe-Ouchi, A. Aschwanden, E. Bueler, H. Choi, J. Fastook, G. Granzow, R. Greve, G. Gutowski, U. Herzfeld, C. Jackson, J. Johnson, C. Khroulev, **E. Larour**, A. Levermann, W.H. Lipscomb, M.A. Martin, M. Morlighem, B.R. Parizek, D. Pollard, S.F. Price, D. Ren, E. Rignot, F. Saito, T. Sato, H. Seddik, H. Seroussi, K. Takahashi, R. Walker, and W.L. Wang, Insights into spatial sensitivities of ice mass response to environmental change from the SeaRISE ice sheet modeling project II: Greenland. *J. Geophys. Res.*, 118, doi:10.1002/jgrf.20076.

S. Nowicki, R.A. Bindschadler, A. Abe-Ouchi, A. Aschwanden, E. Bueler, H. Choi, J. Fastook, G. Granzow, R. Greve, G. Gutowski, U. Herzfeld, C. Jackson, J. Johnson, C. Khroulev, **E. Larour**, A. Levermann, W.H. Lipscomb, M.A. Martin, M. Morlighem, B.R. Parizek, D. Pollard, S.F. Price, D. Ren, E. Rignot, F. Saito, T. Sato, H. Seddik, H. Seroussi, K. Takahashi, R. Walker, and W.L. Wang, Insights into spatial sensitivities of ice mass response to environmental change from the SeaRISE ice sheet modeling project I: Antarctica. *J. Geophys. Res.*, 118, doi:10.1002/jgrf.20081.

N-J. Schlegel, **E. Larour**, H. Seroussi, M. Morlighem, and J. E. Box, Decadal-scale sensitivity of northeast Greenland ice flow to errors in surface mass balance using ISSM *J. Geophys. Res. - Earth Surface*, 118, doi: 10.1002/jgrf.20062.

F. Pattyn, L. Perichon, G. Durand, L. Favier, O. Gagliardini, R. C. A. Hindmarsh, T. Zwinger, T. Albrecht, S. Cornford, D. Docquier, J. Fuerst, D. Goldberg, H. Gudmundsson, A. Humbert, M. Hutten, P. Huybrecht, G. Jouvét, T. Kleiner, **E. Larour**, D. Martin, M. Morlighem, A. Payne, D. Pollard, M. Ruckamp, O. Rybak, H. Seroussi, M. Thoma, and N. Wilkens. Grounding-line migration in plan-view marine ice-sheet models: results of the ice2sea MISMP3d intercomparison. *J. Glaciol.*, 59(215):410-422, doi:10.3189/2013JoG12J129.

**E. Larour**, M. Morlighem, H. Seroussi, J. Schiermeier and E. Rignot (2012), Ice flow sensitivity to geothermal heat flux of Pine Island Glacier, Antarctica, *J. Geophys. Res.*, 117, F04023, doi:10.1029/2012JF002371.

C. P. Borstad, A. Khazendar, **E. Y. Larour**, M. Morlighem, E. Rignot, M. P. Schodlok, and H. Seroussi (2012), A damage mechanics assessment of the Larsen B ice shelf prior to collapse: toward a physically-based calving law, *Geophys. Res. Lett.*, 39, L18502, doi:10.1029/2012GL053317.

**E. Larour**, J. Schiermeier, E. Rignot, H. Seroussi, and M. Morlighem, Sensitivity Analysis of Pine Island Glacier ice flow using ISSM and DAKOTA, *J. Geophys. Res.*, 117, F02009, doi:10.1029/2011JF002146.

H. Seroussi, H. Ben Dhia, M. Morlighem, **E. Larour**, E. Rignot, and D. Aubry, Coupling ice flow models of varying orders of complexity with the Tiling method, *J. Glaciol.*, 58(210), doi:10.3189/2012JoG11J195.

**E. Larour**, H. Seroussi, M. Morlighem, and E. Rignot (2012), Continental scale, high order, high spatial resolution, ice sheet modeling using the Ice Sheet System Model, *J. Geophys. Res.*, 117, F01022, doi:10.1029/2011JF002140.

M. Morlighem, E. Rignot, H. Seroussi, **E. Larour**, H. Ben Dhia, and D. Aubry (2011), A mass conservation approach for mapping glacier ice thickness, *Geophys. Res. Lett.*, 38, L19503, doi:10.1029/2011GL048659.

Seroussi, H., M. Morlighem, E. Rignot, **E. Larour**, D. Aubry, H. Ben Dhia, and S. S. Kristensen (2011), Ice flux divergence anomalies on 79north Glacier, Greenland, *Geophys. Res. Lett.*, 38, L09501, doi:10.1029/2011GL047338.

Khazendar, A., E. Rignot, and **E. Larour** (2011), Acceleration and spatial rheology of Larsen C Ice Shelf, Antarctic Peninsula, *Geophys. Res. Lett.*, 38, L09502, doi:10.1029/2011GL046775.

Morlighem, M., E. Rignot, H. Seroussi, **E. Larour**, H. Ben Dhia, and D. Aubry (2010) Spatial patterns of basal drag inferred using control methods from a full-Stokes and simpler models for Pine Island Glacier, West Antarctica *Geophys. Res. Lett.*, 37, L14502, doi:10.1029/2010GL043853.

Khazendar, A., E. Rignot, and **E. Larour** (2009), Roles of marine ice, rheology, and fracture in the flow and stability of the Brunt/Stancomb-Wills Ice Shelf, *J. Geophys. Res.*, 114, F04007, doi:10.1029/2008JF001124.

Khazendar, A., E. Rignot, and **E. Larour** (2007), Larsen B Ice Shelf rheology preceding its disintegration inferred by a control method, *J. Geophys. Res.*, 34, L19503, doi:10.1029/2008JF001124.

**Larour, E.**, E. Rignot, I. Joughin and D. Aubry (2005) Rheology of the Ronne Ice Shelf, Antarctica, inferred from satellite radar interferometry data using an inverse control method., *Geophys. Res. Lett.*, 32, L05503, doi: 10.1029/2004GL021693.

**Larour, E.**, E. Rignot and D. Aubry (2004) Processes involved in the propagation of rifts near Hemmen Ice Rise, Ronne Ice Shelf, Antarctica, *J. Glaciol.*, 50, 0022-1430.

**Larour, E.**, E. Rignot and D. Aubry (2004) Modelling of rift propagation on Ronne Ice Shelf, Antarctica, and sensitivity to climate change . *Geophys. Res. Lett.*, 31, 0094-8276, doi: 10.1029/2004GL020077

**GRANTS (Selected, Principal Investigator Eric Larour)**

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Year	Grant Title	Program	Funding
2015/18	“A peek at the past of the Greenland ice sheet using radar layers and modeling”	NASA Cryosphere Research	\$330K/ 3 yrs
2015/18	“Assimilation of altimetry data in North-East Greenland using ISSM”.	NASA IceBridge Research	\$300K/ 3 yrs
2013/17	“Informing 100-year sea level rise projections using a coupled ModelE-ISSM”	NASA Modeling and Analysis	\$912K/ 4 yrs
2014/17	“Modeling the dynamic evolution of the Greenland Ice Sheet”.	NASA Cryosphere Science	\$300K/ 3 yrs
2014/16	Towards improving IceBridge data collection using ISSM and FLAIM.	NASA IceBridge Science Team	\$150K/ 3 yrs
2013/16	“Identifying key processes controlling ice flow dynamics in West Antarctica using IceBridge data.”	NASA Cryosphere Science	\$300K/ 3 yrs
2011/13	Scientific Guidance for IceBridge using ISSM	NASA IceBridge Science Team	\$370K/ 3 yrs
2011/13	“Improving ice flow models in Antarctica and Greenland using ISSM and new IceBridge datasets”	NASA Cryosphere Science	\$462K/ 3 yrs
2011/12	“Coupling ISSM and MITgcm ocean model to study sensitivity of Pine Island Glacier ice flow to ocean warming.”	JPL R&D	\$200K/ 2 yrs
2012/14	“A prototype coastal sea level rise projection system for the next century.”	JPL R&D	\$600K/ 3 yrs
2010/12	“Using ISSM and CASPER to generate flight requirements for ‘ice’ related missions. “	JPL R&D	\$600K/ 3 yrs
2008/09	“Sensitivity analysis of ice flow models using ISSM and DAKOTA “	JPL R&D	\$600K/ 3 yrs

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**INVITED PRESENTATIONS:**

12/2009: **NICE Winter School**, Aussois, France. Presentation title: “Constraining a large scale ice flow model of Antarctica using lower and higher order finite elements and InSAR data. “

12/2009: **AGU Fall Meeting**, San Francisco, USA. Session C12: Constraining and Improving Models of Glacier Dynamics Using Observations. Presentation title: “Thermal-mechanical constraining of large scale ice flow models in Antarctica. “

5/2010: **European Geophysical Union**, Vienna, Austria, Session CR5.1: Modeling Glaciers and Ice Sheets. Presentation title: “Higher order data assimilation of bedrock friction and ice rheology in Antarctica using ISSM.”

4/2011: **Dix Seismo Laboratory Weekly Seminar, CalTech**, USA. Presentation title: “Data assimilation of ice flow models in Antarctica and Greenland”.

6/2011: **Sea Level Rise Workshop, Jet Propulsion Laboratory**. Session 3, Sea Level and the Cryosphere. Presentation title: “Toward decadal ice sheet mass balance projections with ISSM”.

11/2011: **UCI Computer Science Department Weekly Seminar**, UCI, Irvine, USA. Presentation title: “Ice Sheet System Model: towards improving projections of future sea level rise.”

12/2011: **AGU Fall Meeting**, San Francisco, USA. Session C21: Monitoring Changes in Polar Ice Sheets and Sea Ice Using Airborne and Satellite Remote Sensing. Presentation title: “Sensitivity analysis of Pine Island Glacier ice flow to increased melting rates, computed from the ECCO2 project and new IceBridge bathymetry data.”

12/2012: **AGU Fall Meeting**, San Francisco, USA. Session CC014, Geological Controls on ice dynamics. Presentation title: “The ice flow sensitivity to geothermal heat flux of Pine Island Glacier, Antarctica.”

2/2013: **WCRP CLIC Scientific Steering Group Meeting**, Potsdam, Germany. Presentation title: “Towards an Intercomparison framework for Ice Sheet Models.”

2/2013: **Center for Computational Engineering, Seminar Series, MIT**, Boston, USA. Presentation title: “Uncertainty quantification of polar-ice sheets contribution to sea-level rise using Automatic Differentiation and Sampling Methods.”

4/2013: **Department of Earth and Space Sciences Colloquium, UCLA**, USA. Presentation title: “Towards modeling the contribution of polar ice sheets to sea level rise”

5/2013: **Seminar Day – Caltech Alumni Association, CalTech**, USA. Presentation title: “Towards modeling the contribution of polar ice sheets to sea level rise”

12/2013: **AGU Fall Meeting**, San Francisco, USA. Session C016, Modeling of the Cryosphere : Glaciers and Ice Sheets. Presentation title: “Assimilation of surface altimetry data on 79 North glacier using automatic differentiation and ISSM.”

2/2014: **WCRP Scientific Steering Group Meeting**, Geneva, Switzerland. Presentation title: “Ice Sheet Modeling.”

6/2014: **Bjerknes/GFI Weekly Seminar, Bjerknes Center for Climate Research** at the University of Bergen, Bergen, Norway. Presentation title: “Cryosphere science using the Ice Sheet System Model: capabilities, results and perspectives.”



5/2014: Uncertainty and Sensitivity in Surface Dynamics Modeling, **CSDMS 2014**, Colorado, Boulder, USA. Presentation title: “Towards better quantification of the uncertainty in polar ice-sheet projections using the open source framework ISSM.”

9/2014: **GNSS+R Colloquium, UCAR**, Boulder, CO, USA. Presentation title: “Data assimilation of altimetry signals in North-East Greenland.”

11/2014: Polar Seminar, **Scripps Institution of Oceanography**, La Jolla, California, USA. Presentation title: “Towards better projections of global mean sea level rise, challenges and perspectives.”

12/2014: **AGU Fall Meeting**, San Francisco, USA. Session C026, Linking Cryospheric Observations and Modeling. Presentation title: “Inferring unknown boundary conditions of the Greenland Ice Sheet by assimilating ICESat-1 and IceBridge altimetry into the Ice Sheet System Model.”

12/2014: **AGU Fall Meeting**, San Francisco, USA. Session C025, Monitoring changes in polar ice sheets and sea ice using airborne and satellite remote sensing. Presentation title: “Coupled ice-flow/ocean circulation modeling in the Amundsen Sea Embayment using ISSM and MITgcm.”

12/2017: Keynote Speaker, **International Lidar Mapping Forum 2018**. “A New Tool from NASA for Coastal Planners: Anticipating Sea-Level Rise.”

#### **SESSION CHAIRING:**

**12/2009:** AGU Fall Meeting, San Francisco, CA, USA. **Co-convener** on C05 session “Outlet glaciers and ice shelf changes - observations and modeling”

**4/2011:** EGU Meeting, Vienna, Austria. **Primary-convener** on CR5.40 session “Quantification of uncertainties and sensitivities in ice sheet modeling.” Merged with CR5.10 session “Modeling ice sheets and glaciers.”

**4/2012:** EGU Meeting, Vienna, Austria. **Primary-convener** on CR5.21 session “Ice-flow model sensitivity and data assimilation studies.” Merged with CR5.20 session “Modeling ice sheets and glaciers.”

**4/2013:** EGU Meeting, Vienna, Austria. **Primary-convener** on CR7.2 session “Ice-flow model sensitivity and data assimilation studies.” Merged with CR7.1 session “Modeling ice sheets and glaciers.”

**4/2014:** EGU Meeting, Vienna, Austria. **Primary-convener** on CR7.1 session “Ice-flow model sensitivity and data assimilation studies.” Merged with CR7.2 session “Modeling ice sheets and glaciers.”

**12/2014:** AGU Fall Meeting, San Francisco, CA, USA. **Primary-convener** on C51A session “Improving Projections of Ice Sheet Change through Innovative Model Development and Ice Sheet Model/Climate Model Coupling”

**4/2015:** EGU Meeting, Vienna, Austria. **Primary-convener** on CR6.2 session “Experiment design and uncertainty in ice sheet modeling”

## **COLLABORATORS**

Eric Rignot, University of California Irvine  
Beatha Csatho, University of Buffalo, NY  
Helene Fricker, Scripps Institution of Oceanography  
Patrick Heimbach, Massachusetts Institute of Technology  
Byron Pariczek, PennState  
Derrick Lampkins, University of Maryland  
Helene Seroussi, Jet Propulsion Laboratory  
Mathieu Morlighem, University of California Irvine  
Dimitris Menemenlis, Jet Propulsion Laboratory  
Ala Khazendar, Jet Propulsion Laboratory  
Sophie Nowicki, Goddard Space Flight Center  
Michael Schodlok, University of California at Los Angeles  
Nicole Schlegel, University of California at Los Angeles  
Brent Minchew, California Institute of Technology  
Daria Halkides, Earth and Space Research, Washington

## **RESEARCH AND ACADEMIC ADVISING**

*Postdoctoral scholars supervised (Total=5):*

Josh Cuzzone, Jet Propulsion Laboratory – (Ongoing)  
Christopher Borstad, Jet Propulsion Laboratory  
Feras Habbal, University of California Irvine  
Nicole Schlegel, Jet Propulsion Laboratory  
Surendra Adhikari, Jet Propulsion Laboratory

*Graduate students supervised (Total=2):*

Helene Seroussi, Jet Propulsion Laboratory  
Mathieu Morlighem, University of California, Irvine  
Charlotte Lang, University of Liege

*Advancement committee (Total =2):*

Seneca Lindsey, University of California at Irvine  
Xin Li, University of California at Irvine

*Under-graduate students supervised (4 month to year long internships at JPL, Total=12):*

Daniel Cheng, University of California at Irvine  
Justin Quinn, University of California at Irvine  
Andy Feng, University of California at Irvine  
Gilberto Perez, University of Southern California  
Lan Nguyen, CalPoly Pomona  
Bao Duong, CalPoly Pomona  
Steve Nham, CalPoly Pomona  
Victor Romero, CalPoly Pomona  
John Faxas-Mendez, Santa Monica College  
Silva Harounian, CalPoly Pomona  
Kit Petrie, CalPoly Pomona  
Lam Nguyen, CalPoly Pomona

*High-School students supervised (summer internships at JPL)*  
Madeleine Maker, CalPoly Pomona