

# Sophie Nowicki

Empire Innovation Professor

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## RESEARCH INTERESTS

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My research interests focus on the studies of ice sheet dynamics, and their connections to the global climate and future sea level. Through applied mathematics, remote sensing observations and numerical modeling, my work spans the spectrum of local processes, such as understanding the physics of ice sheet grounding lines, or the impact of our poor knowledge of bedrock topography on ice dynamics, to that of large-scale continental ice sheet models and their use in projections of sea level change. I co-lead the SeaRISE effort (Sea-level Response to Ice Sheet Evolution) and lead its follow on effort ISMIP6 (Ice Sheet Model Intercomparison Project for CMIP6), which seek to estimate the upper bound of sea-level contribution from the Greenland and Antarctic ice sheets in the next 200 yrs and the associated uncertainties in projections from continental ice sheet models for the International Panel on Climate Change 5<sup>th</sup> and 6<sup>th</sup> Assessment Reports (IPCC AR5 and AR6). I am currently a member of the NASA Sea Level Change Team, an executive committee member for the Ice Sheet Mass Balance Intercomparison Exercise, phase 2 (IMBIE2), I serve on the Land Ice Action Team (LIAT) of the Study of Environmental Arctic Change (SEARCH), the Scientific Steering Committee (SSC) for the Community Earth System Model (CESM) and a member of the Interagency Arctic Research Policy Committee (IARPC) Glaciers and Sea Level Modeling. I am the Division Head for Ice Sheets for the International Association of Cryospheric Sciences. (IACS) and a member of the World Climate Research Programme (WCRP) Sea Level Change and Coastal Impacts Chand Challenge. I was invited to be a lead author on the IPCC AR6 Chapter 9 “Ocean, cryosphere, and sea level change”.

## EDUCATION

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- 2003-2007 Centre for Polar Observation and Modelling, University College London, UK  
*PhD in Theoretical Glaciology. Principal Advisor: Prof Duncan Wingham*
- 2001-2002 The University of Edinburgh, UK  
*MSc in Remote Sensing and Image Processing (with Distinction)*
- 1997-2001 The University of Edinburgh, UK  
*BSc (Hons) Geophysics*

## SELECTED EMPLOYMENT

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Aug 2020-present Department of Geology, University at Buffalo, USA  
*Empire Innovation Professor*

Aug 2009-Aug 2020 NASA GSFC, Cryospheric Sciences Lab, USA  
*Physical Scientist and Assistant Lab Chief since August 2016*

Sept 2007-July 2009 Centre for Polar Observation and Modelling, University College London, UK  
*Research Fellow*

Oct 2004-Dec 2004 Earth Sciences, University College London, UK  
*Teaching Assistant to 2<sup>nd</sup> year undergraduate courses*

Oct 2002-June 2003 The Institute for Meteorology, The University of Edinburgh, UK  
*Research Assistant*

## MAJOR GRANTS & AWARDS

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Aug 2017-Aug 2020 PI on NASA ROSES 2016 award “Understanding current and projected sea level change with multi-satellite observations, modeling and climate system” (\$ 1,830,118)

Jan 2017-Dec 2021 PI on NASA ROSES 2016 award “Improving the representation of ice sheet-ocean interactions in global climate models” (\$ 1,045,219)

June 2016-June 2019 PI on NASA ROSES 2015 award “Leading the next generation of ice sheet modeling for sea level (ISMIP6)” (\$ 700,000)

Dec 2015-Dec 2019 Co-PI on NASA ROSES 2015 award “Recent sea ice and ice sheet changes and their relation to the coupled ocean-atmosphere system” PI D. Menemenlis JPL (GSFC amount \$ 100,000)

Nov 2013-Oct 2016 PI on NASA ROSES 2013 award “Feedback, processes and impacts of contemporary changes in the Arctic” (\$ 1,076,687)

Jan 2013-Dec 2016 Co-PI on NASA ROSES 2012 award “Informing 100 year sea level rise projections using a coupled ISSM-CISM-ModelE capability” PI E. Larour JPL (GSFC amount \$114,100)

Dec 2010-Nov 2015 PI on NASA ROSES 2010 award “Climate impact of improved ice-sheet ice-shelf ocean atmosphere interactions” (\$ 2,126,746)

Dec 2010-Nov 2015 Co-PI on NASA ROSES 2010 award “Estimating the Circulation and Climate of the Ocean, Phase III (ECCO3): improved representation of ocean-ice interactions in earth system models” PI D. Menemenlis JPL (GSFC amount \$100,000)

Nov 2010-Oct 2013 PI on NASA ROSES 2010 award “Estimating ice sheet contributions to sea level” (\$ 632,006)

June 2010-May 2013 PI on NASA ROSES 2009 award “Investigation of optimal flight lines for bedrock sampling” (\$ 106,921)

Jan 2010-Oct 2010 PI on NASA ROSES 2009 “CryoSat2 and ICESat Programs” (\$ 59,049)

2003-2007 NERC funding for tuition fees and living cost during my PhD

**Total amount from NASA ROSES since Oct 2010: \$ 7,576,746 as PI & \$ 314,100 as Co-PI. Since Oct 2010, I have continuously covered 100% of my salary through competitive awards and provided support to post-doctoral fellows, contractors, and researchers, both at NASA GSFC, JPL and at universities.**

## **LEADERSHIP AND COMMISSIONS OF TRUST**

- 2020-present* Member of the World Climate Research Programme Sea Level Change and Coastal Impacts Chand Challenge
- 2019-present* International Association of Cryospheric Sciences (IACS) Division Head for Ice Sheets
- 2019-present* Lead author for the IPCC AR6 Chapter 9 “Ocean, cryosphere, and sea level change”
- 2018-2020* Member of the Scientific Steering Committee (SSC) for the Community Earth System Model (CESM)
- 2016-present* Executive Steering Committee Member for the Ice Sheet Mass Balance Intercomparison Exercise phase 2 (IMBIE-2)
- 2016-present* Member of the SEARCH Land Ice Action Team (LIAT)
- 2016-present* Member of the IARPC Glaciers and Sea Level Modeling
- 2014-present* Lead chair of the Ice Sheet Model Intercomparison Project for CMIP6 (ISMIP6)
- 2014-present* Member of NASA Sea Level Change Team
- 2010-2013* Member of NASA Operation IceBridge Science Team
- 2009-2013* Co Lead of the Sea Level Response to Ice Sheet Evolution (SeaRISE)

## **INSTITUTIONAL SCIENCE TASK GROUPS AND COMMITTEES**

- 2019-2020* Member of GSFC Code 610 Science Advisory Group, NASA GSFC, USA
- 2014-2016* Member of GSFC Code 600 Science Director’s Committee, NASA GSFC, USA
- 2014-2016* Member of Changes in the Arctic and Boreal System Science Task Group, NASA GSFC, USA
- 2015-2016* Member of Comparative Cryosphere Science Task Group, NASA GSFC, USA
- 2015-2016* Member of Complementing Swarm with Cubesat Constellation and Sub-orbital Magnetic Mission Science Task Group, NASA GSFC, USA
- 2015-present* Served on the hiring panel for 5 NASA civil service positions, NASA GSFC and NASA GISS, USA

## **SUPERVISION OF GRADUATE STUDENTS AND RESEARCH FELLOWS**

**NPP: NASA Postdoctoral Program, ESSIC: Earth System Science Interdisciplinary Center, USRA: Universities Space Research Association, GISS: Goddard Institute for Space Studies.**

- 2019-2020* Mentor for ESSIC post-doc Chelsea Parker
- 2018-2020.* Mentor for NPP fellowship of Denis Felixson
- 2018-2020* Mentor for ESSIC post-doc Isabel Nias (Isabel has now started a Tenure Track position at Liverpool University, UK, in March 2020)
- 2016-2018* Mentor for NPP fellowship of Kristin Poinar (Kristin has now started a Tenure Track position at the University at Buffalo)
- 2014-2016* Mentor for NPP fellowship of Christine Dow (Christine is now an Assistant Professor at the University of Waterloo, Canada)
- 2014-2020* Sponsor for USRA scientist Ludovic Brucker

- 2013-2015 Mentor for NPP fellowship of Brooke Medley (Brooke is now a civil servant at NASA GSFC)
- 2012-2019 Sponsor for ESSIC assistant research scientist Ryan Walker
- 2012 Mentor for summer student internship of M. Austerberry
- 2011-2020 Mentor for GISS post-doc Robert Fischer

### **EDITORIAL AND REVIEW SERVICE**

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- 2018-2020 Associate Editor for AGU Journal of Advances in Modeling Earth Systems (JAMES), USA
- 2012 Reviewed ice2sea project status for the European Commission
- 2009-present Review panel member for grant applications with NSF and NASA, USA
- 2007-present Reviewer for The Cryosphere, Annals of Glaciology, Earth and Planetary Science Letters, Journal of Geophysical Research, Nature

### **ORGANISATION OF SCIENTIFIC MEETINGS AND WORKSHOPS**

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- 2019 Main organiser for ISMIP6 analysis workshop, 20 participants, Canada
- 2018 Main organiser for ISMIP6 planning workshop, 30 participants, USA
- 2018 Main organiser for ISMIP6 standalone ice sheet modeling workshop, 60 participants, The Netherlands
- 2017 Main organiser for ISMIP6 logistic and roadmap for ice sheet forcing workshop, 30 participants, USA
- 2016 Main organiser for ISMIP6 initMIP and ice-ocean interaction workshop, 30 participants, USA
- 2015 Steering Committee for GRIOOS workshop, 50 participants, USA
- 2015 Main organiser for ISMIP6 initMIP workshop, 30 participants, USA
- 2014 Main organiser for Ice Sheet for CMIP6 workshop, 50 participants, USA
- 2013 Co-convener of EGU Session, Projections of the cryospheric contribution to sea-level rise over the next century: progress in modelling and related observations
- 2012 Co-convener of EGU Session, State of the cryosphere: Observation and Modeling
- 2012 Co-convener of SCAR-OSC Session, Glaciers and Ice Sheet Mass Balance and their relation to sea level
- 2012-present Co-convener and chair of AGU Session, Modeling of the Cryosphere: Glacier and Ice Sheets, USA
- 2011 Main organiser for SeaRISE workshop, 50 participants, USA

### **AWARDS**

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- 2019 NASA Hydrospheric and Biospheric Sciences Annual Award for Outstanding Publication, received from NASA GSFC, USA
- 2018 Robert Goddard Honor Award for Science, received from NASA GSFC, USA
- 2018 NASA Hydrospheric and Biospheric Sciences Annual Award for Scientific Achievement, received from NASA GSFC, USA
- 2017 NASA Cryospheric Sciences Most Valuable Player for 2016, received from NASA Headquarter, USA

- 2014 NASA Hydrospheric and Biospheric Sciences Annual Award for Outstanding Publication, received from NASA GSFC, USA
- 2013 Robert Goddard Honor Award for Mentoring, received from NASA GSFC, USA
- 2011 NASA Group Achievement Award for Operation IceBridge Science Team, received from NASA GSFC, USA
- 2010 NASA Group Achievement Award for Summer of Innovation Middle School, received from NASA GSFC, USA

### **SCHOOLS, MEETINGS AND WORKSHOPS PARTICIPATION**

- Nov 2018 Keck Center workshop on the Future of Earth System Modeling: Polar Climates, Caltech, CA, USA (invited speaker)
- Nov 2018 WCRP workshop on the Earth energy imbalance and its implication, Toulouse, FR (Keynote speaker)
- March 2018 NCAR workshop on Arctic System Change, Boulder, CO, USA (Keynote speaker & travel funded)
- Oct 2017 #GreatAntarcticClimateHack workshop, La Jolla, CA, USA (invited participant)
- Sept 2017 Workshop on High end sea level, Hamburg, DE (invitation only)
- Sept 2017 NSF workshop on Greenland and Ice Sheet Stability, Buffalo, NY, USA (Keynote speaker & travel funded)
- Jan 2017 CliC-ISMAS workshop on Ice sheets in a 1.5C world, Brussels, BE (invitation only & travel funded)
- March 2016 Workshop on West Antarctica and future sea level rise, Royal Society, London, UK (invitation only & travel funded)
- July 2016 WCRP workshop on Climate Science: Thinking out of the box, Paris, FR (invitation only & travel funded)
- Jan 2014 NASA workshop on Greenland Surface Mass Balance, GSFC, Greenbelt, MD, USA (invitation only)
- Oct 2014 CliC-WAGOM workshop on Rising Coastal Seas on a Warming Earth, Abu Dhabi, UAE (invitation only & travel funded)
- Apr 2014 Obs4MIP workshop, NASA HQ, Washington DC, USA (invitation only)
- Dec 2013 Keck Institute for Space Studies Workshop on The Sleeping Giant: Measuring Ocean Ice Interaction in Antarctica- Part II, Caltech, CA, USA (invitation only)
- Sept 2013 Keck Institute for Space Studies Workshop on The Sleeping Giant: Measuring Ocean Ice Interaction in Antarctica- Part I, Caltech, CA, USA (invitation only)
- Oct 2012 NASA workshop on Surface Mass balance and snow on sea ice working group, GSFC, Greenbelt, MD, USA
- Oct 2012 Ice2sea workshop on Ice Sheet Expert Solicitation, Windsor, UK (invitation only)
- July 2010 NSF Workshop on Research Program for Projecting Future Sea-Level Rise from Land-Ice Loss, Sterling, VA, USA

- July 2008 SCAR Workshop on Improving ice sheet models, St Petersburg, RU (travel funded)
- Feb 2008 Course on Elmer – Ice, a finite element model, Grenoble, FR
- Sept 2006 Workshop on Marine ice sheets grounding lines, Oxford, UK (invitation only)
- Sept 2005 School on Ice sheets and glaciers in the climate system, Karthaus, IT
- Sept 2004 School on Geophysical & environmental fluid dynamics, Cambridge, UK

### **PUBLICATIONS: in Press**

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N. Jourdain, X. Asay-Davis, T. Hattermann, F. Straneo, H. Seroussi, C. Little, and **S. Nowicki** (in press). A protocol for calculating basal melt rates in the ISMIP6 Antarctic ice sheet projections, *The Cryosphere*, <https://doi.org/10.5194/tc-2019-277>.

H. Seroussi, **S. Nowicki**, A. Payne, H. Goelzer, W. Lipscomb, A. Abe Ouchi, C. Agosta, T. Albrecht, X. Asay-Davis, A. Barthel, R. Calov, R. Cullather, C. Dumas, R. Gladstone, N. Golledge, J. Gregory, R. Greve, T. Hatterman, M. Hoffman, A. Humbert, P. Huybrechts, N. Jourdain, T. Kleiner, E. Larour, G. Leguy, D. Lowry, C. Little, M. Morlighem, F. Pattyn, T. Pelle, S. Price, A. Quiquet, R. Reese, N. Schlegel, A. Shepherd, E. Simon, R. Smith, F. Straneo, S. Sun, L. Trusel, J. Van Breedam, R. van de Wal, R. Winkelmann, C. Zhao, T. Zhang, and T. Zwinger (in press). ISMIP6 Antarctica: a multi-model ensemble of the Antarctic ice sheet evolution over the 21<sup>st</sup> century, *The Cryosphere*, <https://doi.org/10.5194/tc-2019-324>.

H. Goelzer, **S. Nowicki**, A. Payne, E. Larour, H. Seroussi, W. Lipscomb, J. Gregory, A. Abe-Ouchi, A. Shepherd, E. Simon, C. Agosta, P. Alexander, A. Aschwanden, A. Barthel, R. Calov, C. Chambers, Y. Choi, J. Cuzzone, C. Dumas, T. Edwards, D. Felikson, X. Fettweis, N. Golledge, R. Greve, A. Humbert, P. Huybrechts, S. Le clec'h, V. Lee, G. Leguy, C. Little, D. Lowry, M. Morlighem, I. Nias, A. Quiquet, M. Rückamp, N. Schlegel, D. Slater, R. Smith, F. Straneo, L. Tarasov, R. van de Wal, and M. van den Broeke (in press): The future sea-level contribution of the Greenland ice sheet: a multi-model ensemble study of ISMIP6, *The Cryosphere*, <https://doi.org/10.5194/tc-2019-319>.

S. Sun, F. Pattyn, E. Simon, T. Albrecht, S. Cornford, R. Calov, C. Dumas, F. Gillet-Chaulet, H. Goelzer, N. Golledge, R. Greve, M. Hoffman, A. Humbert, E. Kazmierczak, T. Kleiner, G. Leguy, W. Lipscomb, D. Martin, M. Morlighem, **S. Nowicki**, D. Pollard, S. Price, A. Quiquet, H. Seroussi, T. Schlemm, J. Sutter, R. van de Wal, R. Winkelmann, and T. Zhang (in press). Antarctic ice sheet response to sudden and sustained ice shelf collapse (ABUMIP), *Journal of Glaciology*

### **PUBLICATIONS: Published**

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**S. Nowicki**, H. Goelzer, H. Seroussi, A. Payne, W., Lipscomb, A., Abe-Ouchi, C. Agosta, P. Alexander, X. Asay-Davis, A. Barthel, T. Bracegirdle, R. Cullather, D. Felikson, X. Fettweis, J. Gregory, T. Hattermann, N. Jourdain, P. Kuipers Munneke, E. Larour, C. Little, M. Morlighem, I. Nias, A. Shepherd, E. Simon, D. Slater, R. Smith, F. Straneo, L. Trusel, M. van den Broeke, and R. van de Wal, R., 2020: Experimental

protocol for sea level projections from ISMIP6 stand-alone ice sheet models, *The Cryosphere*, 14, 2331–2368, <https://doi.org/10.5194/tc-14-2331-2020>, 2020.

B. Hamlington, A. Gardner, E. Ivins, J. Lenaerts, J. Reager, D. Trossman, et al., 2020: Understanding of contemporary regional sea-level change and the implications for the future. *Reviews of Geophysics*, 58, e2019RG000672.  
<https://doi.org/10.1029/2019RG000672>

D. Slater, D. Felikson, F. Straneo, H. Goelzer, C. Little, M. Morlighem, X. Fettweis and **S. Nowicki**, 2020: Twenty-first century ocean forcing of the Greenland ice sheet for modelling of sea level contribution, *The Cryosphere*, 14, 985–1008,  
<https://doi.org/10.5194/tc-14-985-2020>

A. Barthel, C. Agosta, C. Little, T. Hattermann, N. Jourdain, H. Goelzer, **S. Nowicki**, H. Seroussi, F. Straneo, and T. Bracegirdle, 2020, CMIP5 model selection for ISMIP6 ice sheet model forcing: Greenland and Antarctica, *The Cryosphere*, 14, 855–879,  
<https://doi.org/10.5194/tc-14-855-2020>

A. Levermann, R. Winkelmann, T. Albrecht, H. Goelzer, N. Golledge, R. Greve, P. Huybrechts, J. Jordan, G. Leguy, D. Martin, M. Morlighem, F. Pattyn, D. Pollard, A. Quiquet, C. Rodehacke, H. Seroussi, J. Sutter, T. Zhang, J. Van Breedam, R. DeConto, C. Dumas, J. Garbe, G. Gudmundsson, M. Hoffman, A. Humbert, T. Kleiner, W. Lipscomb, M. Meinshausen, E. Ng, M. Perego, S. Price, F. Saito, N. Schlegel, S. Sun, R. van de Wal, and **S. Nowicki**: Projecting Antarctica's contribution to future sea level rise from basal ice-shelf melt using linear response functions of 16 ice sheet models (LARMIP-2), 2020, *Earth Syst. Dynam.*, 11, 35-76, <https://doi.org/10.5194/esd-11-35-2020>.

A. Shepherd, E., Ivins, E., Rignot, *et al.* Mass balance of the Greenland Ice Sheet from 1992 to 2018. *Nature* (2019) doi:10.1038/s41586-019-1855-2.

S. Seroussi, **S. Nowicki**, E. Simon, A. Abe Ouchi, T. Albrecht, J. Brondex, S. Cornford, C. Dumas, F. Gillet-Chaulet, H. Goelzer, N. Golledge, J. Gregory, R. Greve, M. Hoffman, A. Humbert, P. Huybrechts, T. Kleiner, E. Larour, G. Leguy, W. Lipscomb, D. Lowry, M. Mengel, M. Morlighem, F. Pattyn, A. Payne, D. Pollard, S. Price, A. Quiquet, T. Reerink, R. Reese, C. Rodehacke, N. Schlegel, A. Shepherd, S. Sun, J. Sutter, J. Van Breedam, R. van de Wal, R. Winkelmann and T. Zhang, 2019. initMIP-Antarctica: An ice sheet model initialization experiment of ISMIP6, *The Cryosphere*, 13(5):1441-1471, doi:10.5194/tc-13-1441-2019.

P. Alexander, A. LeGrande, E. Fischer, M. Tedesco, X. Fettweis, M. Kelley, **S. Nowicki**, and G. Schmidt, 2019. Simulated Greenland Surface Mass Balance in the GISS ModelE2 GCM: Role of the Ice Sheet Surface, *Journal of Geophysical Research: Earth Surface*, 124, doi:10.1029/2018JF004772.

Y.-K. Lim, R. Cullather, **S. Nowicki**, and K.-M. Kim, 2019. Inter-relationship between subtropical Pacific sea surface temperature, Arctic sea ice concentration, and North Atlantic Oscillation in recent summers, *Scientific Reports*, 9:3481, doi:10.1038/s41598-019-39896-7.

F. Pattyn, C. Ritz, E. Hanna, X. Asay-Davis, R. DeConto, G. Durand, L. Favier, X. Fettweis, H. Goelzer, N. Golledge, P. Kuipers Munneke, J. Lenaerts, **S. Nowicki**, A. Payne, A. Robinson, H. Seroussi, L. Trusel, and M. van den Broeke, 2018. The Greenland and Antarctic ice sheets under 1.5°C global warming. *Nature Climate Change*, doi:10.1038/s41558-018-0305-8.

**S. Nowicki** and H. Seroussi, 2018. Projections of future sea level contributions from the Greenland and Antarctic Ice Sheets: Challenges beyond dynamical ice sheet modeling. *Oceanography*. 31(2), 84-93.

A. Shepherd, E. Ivins, E. Rignot, et al., 2018. Mass Balance of the Antarctic Ice Sheet from 1992 to 2017. *Nature*, 558,219-222, doi:10.1038/s41586-018-0179-y.

T. Moon, A. Ahlstrom, H. Goelzer, W. Lipscomb, and **S. Nowicki**, 2018. Rising oceans Guaranteed: Antarctic Land Ice Loss and Sea Level Rise. *Current Climate Change Reports*, doi:10.1007/s40641-018-0107-0.

H. Goelzer, **S. Nowicki**, T. Edwards, M. Beckley, A. Abe-Ouchi, A. Aschwanden, R. Calov, O. Gagliardini, F. Gillet-Chaulet, N. Golledge, J. Gregory, R. Greve, A. Humbert, P. Huybrechts, J. Kennedy, E. Larour, W. Lipscomb, S. Le clec'h, V. Lee, M. Morlighem, F. Pattyn, A. Payne, C. Rodehacke, M. Rückamp, F. Saito, N. Schlegel, H. Seroussi, A. Shepherd, S. Sun, R. van de Wal, and F. Ziemen, 2018. Design and results of the ice sheet model initialisation experiments initMIP-Greenland: an ISMIP6 intercomparison, *The Cryosphere*, 12,1433-1460, doi:10.5194/tc-12-1433-2018.

C.F. Dow, M.A. Werder, G. Babonis, **S. Nowicki**, R.T. Walker, B. Csatho, and M. Morlighem, 2018. Dynamics of active subglacial lakes in Recovery Ice Stream. *Journal of Geophysical Research: Earth Surface*, doi:10.1002/2017JF004409.

R. Cullather, and **S. Nowicki**, 2018. Greenland ice sheet surface melt and its relation to daily atmospheric conditions. *Journal of Climate*, 31(5),1897-1919, doi:10.1175/jcli-d-17-0447.1.

T.J. Hearty, J.N. Lee, D.L. Wu, R. Cullather, J.M. Blaisdell, J. Susskind, and **S. Nowicki**, 2018. Intercomparison of surface temperatures from AIRS, MERRA, MERRA2, with NOAA and GC-Net weather stations at Summit, Greenland. *Journal of Applied Meteorology and Climatology*, doi:10.1175/JAMC-D-12-0216.1.

D.K. Hall, R. Cullather, N. DiGirolamo, J. Comiso, B. Medley and **S. Nowicki**, 2018. A multilayer surface temperature, surface albedo, and water vapor product of Greenland from MODIS, *Remote Sensing*, 10(4), 555, doi:10.3390/rs10040555.

R.T. Walker, M.A. Werder, C.F. Dow and **S. Nowicki**, 2017. Determining ice sheet uplift surrounding subglacial lakes with a viscous plate model. *Frontiers in Earth Science*, 5, doi:10.3389/feart.2017.00103.

A. Shepherd, and **S. Nowicki**, 2017. Improvements in ice sheet sea level projections *Nature Climate Change*, 7, 672-674, doi:10.1038/nclimate3400.

- J. Marotzke, C. Jakob, S. Bony, P. Dirmeyer, P O’Gormab, E. Hwakins, S. Perkins-Kirkpatrick, C. Le Quere, **S. Nowicki**, K. Paulavets, S. Seneviratne, B. Stevens, and M. Tuma, 2017. Climate research must sharpen its view. *Nature Climate Change*, 7, 89-91 doi:10.1038/nclimate3206.
- S. Price, M. Hoffman, J. Bonin, I. Howat, T. Neumann, J. Saba, I. Tezaur, J. Guerber, D. Chambers, K. Evans, J. Kennedy, J. Lenaerts, W. Lipscomb, M. Perego, A. Salinger, R. Tuminaro, M. van den Broeke, and **S. Nowicki**, 2017. An ice sheet model validation framework for the Greenland ice sheet, *Geoscientific Model Development*, 10 (1), 255-270 doi:10.5194/gmd-10-255-2017.
- K. Poinar, I. Joughin, D. Lilien, L. Brucker, L. Kehrl and **S. Nowicki**, 2017. Drainage of Southeast Greenland firn aquifer water through crevasses to the bed. *Frontiers in Earth Science*, 5 doi:10.3389/feart.2017.00005.
- S. Nowicki**, A. Payne, E. Larour, H. Seroussi, H. Goelzer, W. Lipscomb, J. Gregory, A. Abe Ouchi, and A. Shepherd, 2016. Ice sheet modeling intercomparison project (ISMIP6) contribution to CMIP6. *Geoscientific Model Development*, 9, 4521-4545, doi:10.5194/gmd-9-4521-2016.
- C. Dow, M Werder, **S. Nowicki** and R Walker, 2016. Modeling Antarctic subglacial lake filing and drainage cycles. *The Cryosphere*, 10, 1381-1393, doi:10.5194/tc-10-1381-2016.
- R. Cullather, **S. Nowicki**, B. Zhao, and L. Koenig, 2016. A characterization of recent Greenland Ice Sheet surface melt and runoff in contemporary reanalyses and a regional climate model. *Frontiers in Earth Science*, 4 (10) doi:10.3389/feart.2016.00010.
- Y-K Lim, S. D. Schubert, **S. Nowicki**, et al. 2016. Atmospheric summer teleconnections and Greenland ice sheet surface mass variations: insights from MERRA-2. *Environmental Research Letters*, 11 (2), doi:10.1088/1748-9326/11/2/024002.
- J.A. MacGregor, M. A. Fahnestock, G. A. Catania, A. Aschwanden, G. Clow, W. Colgan, S. Gogineni, M. Morlinghem, **S. Nowicki**, J. Paden, S. Price and H. Seroussi, 2016. A synthesis of the basal thermal state of the Greenland Ice Sheet. *Journal of Geophysical Research - Earth Surface*, 121, doi:10.1002/2015jgf003803.
- K. Briggs, A. Shepherd, A. Hogg, E. Ivins, N. Schlegel, I. Joughin, B. Smith, G. Krinner, G. Moyano, **S. Nowicki**, T. Payne, E. Rignot, I. Velocogna, T. Scambos, M. van den Broeke and P. Whitehouse, 2016. Charting ice sheet contributions to global sea level rise. *Eos*, 97, doi:10.1029/2016eo055719.
- R. Cullather, Y.-K. Lim, L. N. Boisvert, L. Brucker, J. Lee and **S. Nowicki**, 2016. Analysis of the warmest Arctic winter, 2015-2016. *Geophysical Research Letters*, doi:10.1002/2016GL071228.
- R.T. Walker, B. R. Parizek, R. B. Alley, and **S. Nowicki**, 2016. A viscoelastic model of ice stream flow with application to stick-slip motion. *Frontiers in Earth Science*, 4, doi:10.3389/feart.2016.00002.

- B. Medley, S. Ligtenberg, I. Joughin, M.R Van den Broeke, S. Gogineni and **S. Nowicki**, 2015. Antarctic firn compaction rates from repeat-track airborne radar data: I. Methods. *Annals of Glaciology*, 56(70), 155-166, doi:10.3189/2015aog70a203.
- A. Levermann, R. Winkelmann, **S. Nowicki**, J. Fastook, K. Frieler, R. Greve, H. Hellmer, M. Martin, M. Meinshausen, M. Mengel, A. Payne, D. Pollard, T. Sato, R. Timmermann, W. Wang and R. Bindshadler, 2014. Projecting Antarctic ice discharge using response functions from SeaRISE ice-sheet models. *Earth System Dynamics*, 5, 271-293, doi:10.5194/esd-5-271-2014.
- R. Fischer, **S. Nowicki**, M. Kelley and G. Schmidt, 2014. A system of conservative regridding for ice/atmosphere coupling in a GCM. *Geoscientific Model Development*, 7, 883-907, doi:10.5194/gmd-7-883-2014.
- S. Adhikari, E. Ivins, E. Larour, H. Seroussi, M. Morlighem, and **S. Nowicki**, 2014. Future Antarctic bed topography and its implications for ice sheet dynamics. *Solid Earth*, 5(1), 569-584, doi:10.5194/se-5-569-2014.
- R. Cullather, **S. Nowicki**, B. Zhao, and M. Suarez, 2014. Evaluation of the surface representation of the Greenland ice sheet in a general circulation model. *Journal of Climate*, 27, 4835-4856, doi:10.1175/JCLI-D-13-00635.1.
- S. Nowicki**, and 31 others, 2013. Insights into spatial sensitivities of ice mass response to environmental change from the SeaRISE ice sheet modeling project I: Antarctica. *Journal of Geophysical Research- Earth Surface*, 118, 1-23, doi:10.1002/jgrf.20081.
- S. Nowicki**, and 31 others, 2013. Insights into spatial sensitivities of ice mass response to environmental change from the SeaRISE ice sheet modeling project II: Greenland. *Journal of Geophysical Research- Earth Surface*, 118, 1025-1044, doi:10.1002/jgrf.20076.
- R. Walker, D. Holland, B. Parizek, R. Alley, **S. Nowicki**, and A. Jenkins, 2013. Efficient flowline simulations of ice-shelf/ocean interactions: Sensitivity studies with a fully coupled model. *Journal of Physical Oceanography*, 43, 2200-2210, doi:10.1175/JPO-D-13-037.1
- B. Parizek, K. Christianson, S. Anandakrishnan, R. Alley, R. Walker, R. Edwards, D. Wolfe, G. Bertini, S. Rinehart, R. Bindshadler, and **S. Nowicki**, 2013. Dynamic (in)stability of Thwaites Glacier, West Antarctica, *Journal of Geophysical Research- Earth Surface*, 118, 1-18, doi:10.1002/jgrf.20044.
- R. Bindshadler, **S. Nowicki** and 26 others, 2013. Ice-sheet model sensitivity to environmental forcing and their use in projecting future sea-levels (The SeaRISE Project), *Journal of Glaciology*, 59,214, doi:10.3189/2013JoG12J125.
- S. Nowicki** and D. Wingham, 2008. Conditions for a steady ice sheet – ice shelf junction, *Earth and Planetary Science Letters*, doi:10.1016/j.epsl.2007.10.018.
- S. Nowicki** and C. Merchant, 2004. Observations of diurnal and spatial variability of radiative forcing by equatorial deep convective clouds, *Geophysical Research Letters*, doi:10.1029/2003JD004176.

## **THESIS & DISERTATION**

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**S. Nowicki**, 2007, Modelling the transition zone of marine ice sheets, *PhD Disertation*, University College London.

**S. Nowicki**, 2002, The effect of tropical cumulonimbus on the earth radiation balance, *MSc Thesis*, University of Edinburgh.

## **INVITED PRESENTATIONS**

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- June 2019 AntClim21 workshop, British Antarctic Survey, Cambridge, UK  
Invited talk: The Ice Sheet Model Intercomparison Project for CMIP6: overview, accomplishments and challenges.
- March 2019 Interagency Arctic Research Policy Committee, Glaciers & Sea Level and Modeling Collaboration teams, USA.  
Invited talk: An overview of the Ice Sheet Intercomparison Project for CMIP6 (ISMIP6).
- Nov 2018 Keck Center workshop on the Future of Earth System Modeling: Polar Climates, Caltech, CA, USA.  
Invited talk: Lessons learned from coupling ice sheet models to global climate models.
- Nov 2018 WCRP workshop on the Earth energy imbalance and its implication, Toulouse, FR.  
Invited keynote: Ice sheets and their coupling to Earth System Models: a little energy goes a long way.
- Apr 2018 NSF workshop: Arctic System Change Workshop, National Center for Atmospheric Research, Boulder, CO, USA.  
Invited talk: Simulated Land Ice Change.
- Sept 2017 NSF workshop: How Stable is the Greenland Ice Sheet? Buffalo, NY, USA.  
Invited keynote: Stability of the Greenland ice sheet: insights from ice sheet model intercomparison projects.
- Aug 2017 International Glaciology Symposium, Boulder, CO, USA.  
Invited keynote: For ice sheets and sea level: to rise or not to rise, that is no longer the questions.
- March 2017 IARPC Glacier and Fjord CT and Modeling CT, webinar.  
Invited talk: Ice Sheet Model Intercomparison Project for CMIP6: a programmatic and participants point of view.
- Feb 2016 Steering Team meeting of the WCRP Grand Challenge on Sea Level, Courant Center of New York University, NYC, USA.  
Talk entitled: Status of the Ice Sheet Model Intercomparison Project for CMIP6.
- March 2016 Royal Society, London, UK.  
Invited talk: Whither Ice Sheet Models.
- Sept 2016 NASA-SLCT meeting, Norfolk, VA, USA.  
Invited talk: Characterizing interannual to decadal variability in the Cryosphere.
- Nov 2015 NASA-SLCT meeting, Lake Arrowhead, CA, USA.

- Invited talk: Overview of understanding and projecting ice sheet mass loss.
- March 2015 Center for Coastal Physical Oceanography and Mitigation and Adaptation Research Institute, Old Dominion University, Norfolk, VA, USA.  
Invited seminar: Why is projecting the sea level contribution from ice sheets so tricky?
- Feb 2015 NCAR seminar, Boulder, CO, USA.  
Invited Talk: ISMIP6: Ice Sheet Model Intercomparison Project for CMIP6, a scientific perspective.
- Feb 2015 CliC SSG, Boulder, CO, USA.  
Invited Talk: ISMIP6: Ice Sheet Model Intercomparison Project for CMIP6, a programmatic perspective.
- Nov 2014 IARPC Glacier and Fjord CT and Modeling CT, webinar.  
Invited talk: ISMIP6: Ice Sheet Model Intercomparison Project for CMIP6.
- Nov 2013 Goddard-ESTO Strategic Planning and Information Exchange Forum, NASA GSFC, Greenbelt, MD, USA.  
Invited talk: All for one, one for all: data and ice sheet models.
- Sept 2013 Keck Institute for Space Studies, Caltech, Pasadena, CA USA.  
Invited talk: Brief introduction to the SeaRISE effort.
- Feb 2012 Ice2sea Open Forum, Amsterdam, NL.  
Invited talk: A summary of the SeaRISE effort.
- Aug 2011 SED Director Seminar, NASA GSFC, Greenbelt, MD, USA.  
Invited talk: Projections of sea-level from the SeaRISE effort.
- March 2010 Ice2sea Open Forum, Krakov, PL.  
Invited talk: SeaRISE: an update.
- Aug 2009 Ice Sheet Models for the 21st Century Summer School, Portland, OR, USA.  
Invited talk: A brief history of grounding line treatments.
- May 2009 Department of Mathematics and Statistics, University of Limerick, IE.  
Invited talk: The location of grounding lines, a marine ice sheet dilemma.
- Oct 2008 Department of Earth Sciences, University College London, UK.  
Invited talk: Does a marine ice sheet behave like a giant ice cube?
- May 2008 School of the Environment and Society, Swansea University, UK.  
Invited talk: To float or not to float: a marine ice sheet dilemma.
- Aug 2006 Geophysical Fluid Dynamics Summer School, Woods Hall, USA.  
Invited talk: The West Antarctic Ice Sheet: a grand glaciological problem?
- Sept 2005 CPOM Science Management Audit, Oxford, UK.  
Invited talk: The transition zone of marine ice sheets.

### **SELECTED PEER REVIEWED CONFERENCE PRESENTATIONS**

(\*denotes speaker)

\*S. Nowicki and ISMIP6 team (Dec 2019) Invited Talk: Projections of 21<sup>st</sup> century sea level change from the Ice Sheet Model Intercomparison for CMIP6, American Geophysical Union Fall Meeting, San Francisco, CA, USA.

\***S. Nowicki** and ISMIP6 team (Dec 2019) Poster: Experimental design for the Ice Sheet Model Intercomparison for CMIP6, American Geophysical Union Fall Meeting, San Francisco, CA, USA.

\*D. Felikson, **S. Nowicki**, I. Nias, H. Seroussi and M. Morlighem (Dec 2019) Poster: Response of Greenland outlet glacier to temporal variability in terminus motion over centennial time scales, American Geophysical Union Fall Meeting, San Francisco, CA, USA.

\*I. Nias, **S. Nowicki**, D. Felikson, (Dec 2019) Talk: Modeling the Greenland Ice Sheet's committed contribution to Sea Level Rise During the 21<sup>st</sup> Century, American Geophysical Union Fall Meeting, San Francisco, CA, USA.

\*J. Briner, J. Cuzzone, J. Badgeley, E. Allan, O. Bennike, A. Cluett, B. Csatho, A. de Vernal, J. Downs, G. Hakim, J. Johnson, E. Larour, A. Lesnek, M. Morlighem, **S. Nowicki**, J. Schaefer, N. Schlegel, E. Steig, E. Thomas and N. Young (Dec 2019) Talk: Greenland Ice Sheet mass loss rate will exceed Holocene values this century, American Geophysical Union Fall Meeting, San Francisco, CA, USA.

\*P. Alexander, M. Tedesco, A. LeGrande, E. Fischer, S. Wang, X. Fettweis, M. Flanner, M. Kelley, **S. Nowicki** and G. Schmidt (Dec 2019) Poster: Impact of varying bare ice extent and albedo on Greenland ice sheet SMB in the NASA GISS ModelE GCM, American Geophysical Union Fall Meeting, San Francisco, CA, USA.

\*B. Csatho, A. Schenk, P. Shekhar, I. Parmuzin, A. Patra, **S. Nowicki**, B. Medley, B. Smith, T. Neumann, T. Markus and J. Sonntag(Dec 2019) Talk: NASA's Uninterrupted Ice Sheet Laser Altimetry record: First Results from Combined ICESat, IceBridge and ICESat-2 Observations to investigate Greenland Ice Sheet changes American Geophysical Union Fall Meeting, San Francisco, CA, USA.

\*H. Goelzer and ISMIP6 team (Dec 2019) Poster: Results of the ISMIP6 Standalone Greenland Ice Sheet Projections, American Geophysical Union Fall Meeting, San Francisco, CA, USA.

\*H. Seroussi and ISMIP6 team (Dec 2019) Poster: Projections of Antarctic ice sheet evolution over the 21<sup>st</sup> century from the Ice Sheet Model Intercomparison for CMIP6, American Geophysical Union Fall Meeting, San Francisco, CA, USA.

\*D. Felikson, **S. Nowicki**, I. Nias, H. Seroussi, and M. Morlighem (July 2019) Poster: Sensitivity of sea-level rise projections to the temporal evolution of Greenland outlet glacier terminus position. IUGG, Montreal, CAN.

\***S. Nowicki**, and ISMIP6 team (July 2019) Poster: Overview and experimental design for the Ice Sheet Model Intercomparison Project for CMIP6 (ISMIP6), IUGG, Montreal, CAN.

\*D. Felikson, **S. Nowicki** and I. Nias (Apr 2019) Talk: Ice sheet sensitivity to the timing of outlet glacier terminus position. European Geophysical Union General Assembly, Vienna, AT.

\*I. Nias, **S. Nowicki** and D. Felikson (Apr 2019) Poster: Sea-level rise from the Greenland ice sheet in response to observed changes. European Geophysical Union General Assembly, Vienna, AT.

\*R. Cullather and **S. Nowicki**, (Dec 2018) Invited Talk: Recent Greenland and Antarctic Ice Sheet accumulation in global atmospheric reanalysis, American Geophysical Union Fall Meeting, Washington DC, USA.

\***S. Nowicki**, H. Seroussi, A. Payne, E. Larour, A. Abe-Ouchi, H. Goelzer, J. Gregory, W. Lipscomb and A. Shepherd (Dec 2018) Poster: Overview of the experimental design for the Ice Sheet Model Intercomparison Project for CMIP6 (ISMIP6), American Geophysical Union Fall Meeting, Washington DC, USA.

\*E. Simon, **S. Nowicki**, T. Neumann, L. Tyahla, B. Loomis, J. Saba, J. Bonin, M. Croteau, J. DiMarzio and C. Johnson (Dec 2018) Poster: The Cryosphere Model Comparison Tool (CmCt): The Ice Sheet Model Comparison Tool for Greenland and Antarctica using various Altimetry, and GRACE Satellite Data, American Geophysical Union Fall Meeting, Washington DC, USA.

\*H. Seroussi, **S. Nowicki**, and 19 co-authors (Dec 2018) Poster: initMIP-Antarctica: An ice sheet model initialization experiment of ISMIP6, American Geophysical Union Fall Meeting, Washington DC, USA.

\*P. Alexander, M. Tesdesco, E. Fischer, A. LeGrande, X. Fettweis, M. Flanner, **S. Nowicki** and G. Schmidt (Dec 2018) Poster: Effect of an improved physically-based simulation of land ice albedo on Greenland ice sheet surface mass balance and arctic regional climate in the ModelE GCM, American Geophysical Union Fall Meeting, Washington DC, USA.

\*I. Nias, **S. Nowicki**, B. Csatho, and P. Shekhar (Dec 2018) Poster: Modeling the 21st Century Committed Dynamical Response of the Greenland Ice Sheet, American Geophysical Union Fall Meeting, Washington DC, USA.

\*X. Pan, P. Colarco, **S. Nowicki**, M. Chin, and R. Cullather (Dec 2018) Poster: Investigating the Potential Contribution of Forest Fires to Widespread Melt of Greenland Ice Sheet in 2012, American Geophysical Union Fall Meeting, Washington DC, USA.

\*E. Simon, **S. Nowicki**, T. Neumann, L. Tyahla, J. Guerber, J. Bonin, J. DiMarzio (Dec 2017) Poster: The Cryosphere Model Comparison Tool (CmCt): Ice sheet model validation and comparison tool for Greenland and Antarctica, American Geophysical Union Fall Meeting, New Orleans, USA.

\*R. Cullather, B. Zhao, C. Shuman, and **S. Nowicki**, (Dec 2017) Poster: Understanding Arctic surface temperature differences in reanalyses, American Geophysical Union Fall Meeting, New Orleans, USA.

\*S. Koellner, B. Parizek, R. Alley, A. Muto, N. Holschuh and **S. Nowicki**, (Dec 2017) Poster: Impact of basal conditions on grounding line retreat, American Geophysical Union Fall Meeting, New Orleans, USA.

\*L. Andrews, C. Dow, K. Poinar and **S. Nowicki**, (Dec 2017) Talk: Subglacial efficiency and storage modified by the temporal pattern of high-elevation meltwater input, American

Geophysical Union Fall Meeting, New Orleans, USA.

\*T. Hearty, B. Vollmer, J. Wei, P. Huwe, A. Albayrak, D. Wu, R. Cullather, D. Meyer, J. Lee, J. Blaisdell, J. Susskind and **S. Nowicki**, (Dec 2017) Talk: Comparing AIRS/AMSU-A Satellite and MERRA/MERRA2 reanalysis products with in situ station observations at Summit, Greenland, American Geophysical Union Fall Meeting, New Orleans, USA.

\*Y. Lim, R. Cullather, and **S. Nowicki**, (Dec 2017) Poster: Inter-relationship between subtropical pacific SST, arctic sea ice concentration and north atlantic oscillation in recent summer and winter, American Geophysical Union Fall Meeting, New Orleans, USA.

\***S. Nowicki**, E. Simon, R. Cullather (Dec 2017) Poster: Quantifying the sea level contribution of the Greenland ice sheet due to uncertainty in atmospheric conditions, American Geophysical Union Fall Meeting, New Orleans, USA.

\*A. Shepherd, E. Ivins, B. Smith, I. Velocogna, P. Whitehouse, E., Rignot, M. van den Broeke, K. Briggs, A. Hogg, G. Krinner, I. Joughin, **S. Nowicki**, A. Payne, T. Scambos, N. Schlegel, G. Moyano, H. Konrad, and the IMBIE-2 Participants (Dec 2017) Talk: Trends in ice sheet mass balance, 1992 to 2017, American Geophysical Union Fall Meeting, New Orleans, USA.

\*H. Seroussi, **S. Nowicki**, and 28 others (Dec 2017) Poster: initMIP-Antarctica: an ice sheet model initialization experiment of ISMIP6, American Geophysical Union Fall Meeting, New Orleans, USA.

\*K. Poinar, L. Andrews, T. Moon, and **S. Nowicki**, (Dec 2017) Poster: Challenges in understanding and predicting Greenland lake drainage events, American Geophysical Union Fall Meeting, New Orleans, USA.

\*R. Cullather and **S. Nowicki**, (August 2017) Talk: Polar ice-sheet precipitation and its contribution to the sea level budget: 20 years of reanalysis evolution, International Glaciology Society, Boulder, CO, USA.

\*D. Hall, J. Comiso, N. DiGirolamo, R. Cullather, **S. Nowicki** and B. Medley (July 2017) Poster: Analysis of surface melt of the Greenland ice sheet using a new multi-layer MODIS surface temperature-albedo product, International WCRP/IOC Conference on Regional Sea Level Changes and Coastal Impacts, New York City, NY, USA.

C. Ritz, \*F. Pattyn, X. Asay-Davis, M. van den Broeke, R. DeConto, G. Durand, L. Favier, X. Fettweis, H. Goelzer, N. Golledge, J. Gregory, E. Hanna, **S. Nowicki**, T. Payne, A. Robinson, and H. Seroussi (July 2017) Poster: Impact of 1.5C global warming on the Greenland and Antarctic ice sheets, International WCRP/IOC Conference on Regional Sea Level Changes and Coastal Impacts, New York City, NY, USA.

H. Seroussi, \***S. Nowicki**, and 19 co-authors (July 2017) Poster: initMIP-Antarctica: An ice sheet model initialization experiment of ISMIP6, International WCRP/IOC Conference on Regional Sea Level Changes and Coastal Impacts, New York City, NY, USA.

\*R. Cullather and **S. Nowicki**, (July 2017) Poster: Ice sheet surface mass balance contributions to global sea level from contemporary atmospheric reanalyses, International WCRP/IOC Conference on Regional Sea Level Changes and Coastal Impacts, New York

City, NY, USA.

\***S. Nowicki**, H. Seroussi, A. Payne, E. Larour, A. Abe-Ouchi, H. Goelzer, J. Gregory, W. Lipscomb and A. Shepherd (July 2017) Talk: Overview of the Ice Sheet Model Intercomparison Project for CMIP6 (ISMIP6), International WCRP/IOC Conference on Regional Sea Level Changes and Coastal Impacts, New York City, NY, USA.

\*H. Goelzer, **S. Nowicki**, and 28 co-authors (July 2017) Talk: Results of the Greenland ice sheet model initialization experiment ISMIP6 – initMIP-Greenland, International WCRP/IOC Conference on Regional Sea Level Changes and Coastal Impacts, New York City, NY, USA.

\*K. Poinar, L. Andrews, V. Chu, T. Moon and **S. Nowicki**, (April 2017) Poster: Temporal evolution of strain rates at western Greenland moulins, European Geophysical Union General Assembly, Vienna, AT.

\*H. Goelzer, **S. Nowicki**, and 28 co-authors (April 2017) Talk: Results of the Greenland ice sheet model initialization experiment ISMIP6 – initMIP-Greenland, European Geophysical Union General Assembly, Vienna, AT.

\*H. Seroussi, **S. Nowicki**, and 19 co-authors (April 2017) Poster: initMIP-Antarctica: An ice sheet model initialization experiment of ISMIP6, European Geophysical Union General Assembly, Vienna, AT.

\***S. Nowicki**, H. Seroussi, A. Payne, E. Larour, A. Abe-Ouchi, H. Goelzer, J. Gregory, W. Lipscomb and A. Shepherd (Dec 2016) Poster: initMIP-Antarctica: An ice sheet model initialization experiment of ISMIP6, American Geophysical Union Fall Meeting, San Francisco, USA.

\*H. Goelzer, **S. Nowicki**, and 28 co-authors (Dec 2016) Talk: Results of the Greenland ice sheet model initialization experiment ISMIP6 – initMIP-Greenland, American Geophysical Union Fall Meeting, San Francisco, USA.

\*C. Dow, M. Werder, F. Graham, J. Roberts, R. Walker and **S. Nowicki**, (Dec 2016) Talk: The impact of subglacial lakes on catchment-scale drainage dynamics in East Antarctica, American Geophysical Union Fall Meeting, San Francisco, USA.

\*R. Cullather, **S. Nowicki**, B. Zhao, and M. Suarez (Dec 2016) Poster: Evaluation of a 12-km satellite-era reanalysis of surface mass balance for the Greenland Ice Sheet, American Geophysical Union Fall Meeting, San Francisco, USA.

\*K. Poinar, I. Joughin, D. Lilien, L. Brucker, L. Kehrl and **S. Nowicki**, (Dec 2016) Talk: Evolution of crevasses fed by water from the east Greenland firn aquifer, American Geophysical Union Fall Meeting, San Francisco, USA.

\*C. Dow, M. Werder, **S. Nowicki**, R. Walker, G. Babonis, B. Csatho, and M. Morlighem (Apr 2016) Talk: A subglacial hydrological analysis of Recovery Ice Stream using GlaDS, European Geophysical Union, Vienna, AT.

\*H. Goelzer, **S. Nowicki**, T. Payne, E. Larour, A. Abe Ouchi, J. Gregory, W. Lipscomb, H. Seroussi, A. Shepherd, and T. Edwards (Apr 2016) Poster: ISMIP6 - initMIP:

Greenland ice sheet model initialisation experiments, European Geophysical Union, Vienna, AT.

\***S. Nowicki**, R. Cullather and B. Zhao (Dec 2015) Talk: Climatic forcing for contemporary greenland ice sheet change, American Geophysical Union Fall Meeting, San Francisco, USA.

\*S. Luthcke, B. Loomis, R. Cullather and **S. Nowicki** (Dec 2015) Poster: Ice sheet surface mass balance from models and GRACE, American Geophysical Union Fall Meeting, San Francisco, USA.

\*L. Koenig, A. Ivanoff, P. Alexander, J. MacGregor, R. Cullather and **S. Nowicki** (Dec 2015) Poster: Annual Greenland accumulation derived from airborne radar and comparisons to modeled and in situ data, American Geophysical Union Fall Meeting, San Francisco, USA.

\*R Fischer, I. Aleinov, M. Kelley, and **S. Nowicki** (Dec 2015) Poster: Coupling of dynamic ice to a new snow/firn layer in the GISS Climate Model, American Geophysical Union Fall Meeting, San Francisco, USA.

\*Y. Kim, S. Schubert, **S. Nowicki**, J. Lee, A. Molod, R. Cullather, B. Zhao, and I. Velicogna (Dec 2015) Poster: Summer climate responses to atmospheric teleconnection and greenland ice mass variations in the last four decades from the MERRA-2 reanalysis, American Geophysical Union Fall Meeting, San Francisco, USA.

\*R. Cullather, B. Zhao, **S. Nowicki**, M. Bosilovich, M. Suarez, W. Putman, and C. Shuman (Dec 2015) Invited Talk: Towards improving the representation of polar regions in global reanalyses at the NASA GMAO, American Geophysical Union Fall Meeting, San Francisco, USA.

\*T. Wagner, S. Starkweather, C. Webb, **S. Nowicki**, N. Kurtz, and G. Liston (Dec 2015) Invited Talk: The need for Arctic reanalyses: opportunities with federal agencies, American Geophysical Union Fall Meeting, San Francisco, USA.

**S. Nowicki**, A. Payne, E. Larour, A. Abe Ouchi, \*H. Goelzer, J. Gregory, W. Lipscomb, H. Seroussi and A. Shepherd (Apr 2015), Talk: ISMIP6: Ice Sheet Model Intercomparison Project for CMIP6, European Geophysical Union General Assembly, Vienna, AT.

\*C. Shuman, R. Cullather, **S. Nowicki**, and M. Schnaubelt (Apr 2015), Poster: Comparison of model temperatures to NOAA in situ data at the Greenland Summit, European Geophysical Union General Assembly, Vienna, AT.

\*B. Medley, S. Ligtenberg, M. van den Broeke, S. Gogineni, and **S. Nowicki** (Apr 2015), Talk: Simultaneous measurements of ice sheet elevation change, accumulation, and firn compaction using Operation IceBridge data. European Geophysical Union General Assembly, Vienna, AT.

\***S. Nowicki** (Dec 2014) Invited Talk: Fingerprints of the Greenland ice sheet, American Geophysical Union Fall Meeting, San Francisco, USA.

\*C. Dow, **S. Nowicki**, R. Walker, M. Werber, G. Babonis, B. Csatho (Dec 2014) Poster:

Analysis of sub-antarctic lakes using a coupled hydrology and ice flexure modeling approach, American Geophysical Union Fall Meeting, San Francisco, USA.

R. Fischer, \***S. Nowicki**, M. Kelley, G. Schmidt (Dec 2014) Poster: Requirements for energy conserving two-way coupling of a GCM and ice model, American Geophysical Union Fall Meeting, San Francisco, USA.

\*R. Cullather, **S. Nowicki**, B. Zhao, L. Koenig, and S. Moustafa (Dec 2014). Poster: Characterization of recent Greenland melt events in atmospheric analyses and satellite data, American Geophysical Union Fall Meeting, San Francisco, USA.

\*S. Price M. Hoffman, J. Bonin, I. Kalashnikova, T. Neumann, **S. Nowicki**, M. Perego, and A. Salinger (Dec 2014) Invited Talk: A historical forcing ice sheet model validation framework for Greenland, American Geophysical Union Fall Meeting, San Francisco, USA.

\*B. Medley, S. Ligtenberg, P. Kuipers Munneke, I. Joughin, M. Van den Broeke, S. Gogineni, and **S. Nowicki** (Dec 2014) Invited Talk: Determining firn compaction rates using repeat track radar surveys in West Antarctica and Greenland, American Geophysical Union Fall Meeting, San Francisco, USA.

\*J. Lee, J. Susskind, D. Wu, L. Iredell, **S. Nowicki**, D. Hall, and Y. Liu (Dec 2014). Poster: Diurnal, seasonal and interannual variations of surface temperature over Greenland as observed in AIRS, MODIS and in-situ measurements, American Geophysical Union Fall Meeting, San Francisco, USA.

B. Zhao, R. Cullather, \***S. Nowicki**, and M. Suarez (Dec 2014). Poster: A geometric downscaling method for coupling dynamical ice sheet models to GEOS-5, American Geophysical Union Fall Meeting, San Francisco, USA.

\*S. Adhikari, E. Ivins, E. Larour, H. Seroussi, M. Morlighem, and **S. Nowicki** (Apr 2014) Poster: Future Antarctic bed topography and its implications for ice sheet dynamics, European Geophysical Union General Assembly, Vienna, AT.

\*R. Walker, D. Holland, B. Parizek, R. Alley, **S. Nowicki**, A. Jenkins (Dec 2013) Invited Talk: Efficient flowline simulations of ice-shelf/ocean interactions: Sensitivity studies with a fully coupled model, American Geophysical Union Fall Meeting, San Francisco, USA.

\***S. Nowicki**, and the SeaRISE participants. (Dec 2013) Poster: Challenges faced by ice sheet projections: lessons from the SeaRISE effort, American Geophysical Union Fall Meeting, San Francisco, USA.

\*M. Purucker, J. Connerney, R. Blakely, R. Bracken, **S. Nowicki** and 10 others. (April 2013) Talk: IceBase: A suborbital survey to map geothermal heat flux under an ice sheet, European Geophysical Union General Assembly, Vienna, AT.

\***S. Nowicki**, and 31 others. (Dec 2012) Talk: Future response of the Greenland and Antarctic ice sheets: the SeaRISE experiments, American Geophysical Union Fall Meeting, San Francisco, USA.

\*J. Johnson, D. Brinkerhoff, and **S. Nowicki** (Dec 2012). Talk: A novel mass conserving bed algorithm to estimate errors in bed elevation associated with flight line spacing.

American Geophysical Union Fall Meeting, San Francisco, USA.

\*R. Cullather, **S. Nowicki**, B. Zhao, and M. Austerberry (Dec 2012). Poster: Sensitivity of a dynamical ice sheet model to the spatial resolution of boundary conditions, American Geophysical Union Fall Meeting, San Francisco, USA.

\*R. Fischer, M. Kelly, **S. Nowicki**, and G. Schmidt (Dec 2012). Poster: Downscaled surface fluxes for GCM/ice model coupling, American Geophysical Union Fall Meeting, San Francisco, USA.

\*N. Gomez, **S. Nowicki**, H. Choi, R. Bindshadler (Dec 2012). Poster: Global patterns of sea level change from the SeaRISE ice sheet model simulations, American Geophysical Union Fall Meeting, San Francisco, USA.

\*R. Cullather, B. Zhao, **S. Nowicki**, and M. Suarez. (April 2012) Talk: Greenland surface mass balance from a reanalysis-forced surface model, IPY2012 From Knowledge to Action Conference, Montréal, Canada.

\***S. Nowicki**, and 31 others. (Dec 2011) Talk: Sea level projections from the SeaRISE initiative, American Geophysical Union Fall Meeting, San Francisco, USA.

\***S. Nowicki**, and O. Sergienko (Dec 2010) Poster: The effect of temperature in contact problems, American Geophysical Union Fall Meeting, San Francisco, USA.

\*O. Sergienko, **S. Nowicki**, and D. MacAyeal (Dec 2009) Poster: Effect of abrupt changes in basal conditions on ice-streams: applications to sub-ice-stream lakes, American Geophysical Union Fall Meeting, San Francisco, USA.

\***S. Nowicki**, and D. Wingham (April, 2009) Talk: Multiple contacts in the vicinity of grounding line?, European Geophysical Union General Assembly, Vienna, AT.

\***S. Nowicki**, and D. Wingham (April, 2009) Talk: Hydrostatic equilibrium: a suitable condition for grounding lines?, European Geophysical Union General Assembly, Vienna, AT.

\***S. Nowicki**, and D. Wingham (April, 2008) Talk: To float or not to float: conditions for a steady grounding line, European Geophysical Union General Assembly, Vienna, AT.

\***S. Nowicki**, and D. Wingham (Dec 2007) Talk: Conditions for a steady grounding line, American Geophysical Union Fall Meeting, San Francisco, USA.

\***S. Nowicki**, and D. Wingham (April 2006) Talk: Modelling the transition zone of marine ice sheets, European Geophysical Union General Assembly, Vienna, AT.

\***S. Nowicki**, and D. Wingham (Oct 2005) Poster: The transition zone of marine ice sheets, Royal Society Discussion Meeting, London, UK.

## **PANNELS & INTERVIEWS ABOUT MY WORK**

2019: DOE Office of Science: Simulating Ice at the Bottom of the World: Modeling the Antarctic Ice Sheets (<https://www.energy.gov/science/articles/simulating-ice-bottom-world-modeling-antarctic-ice-sheets> )

2018: Participants in the NASA Explorer Series  
([https://www.youtube.com/playlist?list=PL2aBZuCeDwlQqXdZ\\_hXEX0OSI1vX\\_p9Cj](https://www.youtube.com/playlist?list=PL2aBZuCeDwlQqXdZ_hXEX0OSI1vX_p9Cj))

2018: SciLine Media Briefing Panelist on Understanding Sea Level Rise  
(<https://www.sciline.org/media-briefings-blog/sea-level-rise> )

2017: NASA Goddard People feature entitled Hot on Glaciology  
(<https://www.nasa.gov/feature/goddard/sophie-nowicki-hot-on-glaciology.html>)

2015: NASA Panel on Greenland Ice Sheet with T. Wagner, L. Smith, M. Bevis, and Josh Willis (<http://www.prnewswire.com/news-releases/nasa-holds-media-opportunities-to-discuss-rising-sea-levels-300131403.html>)

2014: Antarctic Riddle: How Much Will the South Pole Melt? By John Upton, Climate Central (<http://www.climatecentral.org/news/antarctic-riddle-south-pole-melt-17938>)

2013: NASA’s IceBridge Mission Contributes to New Map of Antarctica  
(<http://www.nasa.gov/topics/earth/features/antarctic-map.html>)

2013: NASA Google + Hangout “What’s up with Sea Level Rise? ” with M. Watkins, V. Burkett, J. Willis, A. Revkin, and P. Lynch  
([https://www.youtube.com/watch?feature=player\\_embedded&v=OvnuswLzWRo](https://www.youtube.com/watch?feature=player_embedded&v=OvnuswLzWRo))

2011: EarthSky (<http://earthsky.org/earth/sophie-nowicki-on-weak-underbelly-of-west-antarctic-ice-sheet>)

2011: NASA Earth Observatory: IceBridge: Building a Record of Earth’s Changing Ice, One Flight at a Time (<http://earthobservatory.nasa.gov/Features/IceBridge/>)

## **ADDITIONAL INFORMATION & SYNERGETIC ACTIVITIES**

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### **Selected Professional Development:**

- Third Planet from the Sun Media Training (2009).
- Leadership Development and Excellence in Management, Program B (2010).
- GSFC and the Civil Servant Scientist (2010).
- Project Scientist Training (2014).

### **Key contributor to website and wiki:**

- Sea level Response to Ice Sheet Evolution (SeaRISE) wiki:  
[http://websrv.cs.umt.edu/isis/index.php/SeaRISE\\_Assessment](http://websrv.cs.umt.edu/isis/index.php/SeaRISE_Assessment)
- Ice Sheet Model Intercomparison Project for CMIP6 (ISMIP6) wiki:  
[http://www.climate-cryosphere.org/wiki/index.php?title=ISMIP6\\_wiki\\_page](http://www.climate-cryosphere.org/wiki/index.php?title=ISMIP6_wiki_page)
- Ice Sheet Model Intercomparison Project for CMIP6 (ISMIP6) website:  
<http://www.climate-cryosphere.org/activities/targeted/ismip6>
- Cryosphere model Comparison tool (CmCt) website:  
<https://ggsghpcc.sgt-inc.com/cmct/>

**Other:**

- Judge and liaison of AGU Outstanding Student Poster Award for Modeling of the Cryosphere Session (2012-present). In the planning of the sessions, I always push for student oral presentations and invited abstracts.
- All SeaRISE and ISMIP6 workshops have a large representation of undergraduate, graduate and postgraduate students. During these workshops, I always ensure that students take a key role: by being chair of session, rapportors of discussions or giving presentations.
- Participant in the Summer of Innovation Middle School Event hosted in June 2010 at NASA GSFC. My role was to answer questions to middle school students about being a scientist, my career path, etc