



Stefanie Mack

British Antarctic Survey – High Cross, Madingley Road – Cambridge, UK
☎ 01223 272638 • ✉ steck@bas.ac.uk • 🌐 ohjustswimmingly.com

Research Experience

Marie Curie Fellow

British Antarctic Survey, Supervisor: Paul Holland

Cambridge, UK

2019-present

Postdoctoral Research Associate

Applied Physics Lab, Univ. of Washington, Supervisor: Ian Joughin
Future of Ice Fellowship

Seattle, WA, USA

2016-2019

Graduate Research Assistant

Old Dominion University, Advisor: John Klinck

Norfolk, VA, USA

2010-2016

Research Experiences for Undergraduates (REU) Student

College of William and Mary, Advisor: Silvina Pagola

Williamsburg, VA, USA

Summer 2009

Research Experiences for Undergraduates (REU) Student

University of Michigan, Advisor: Fred Becchetti

Ann Arbor, MI, USA

Summer 2008

Education

Old Dominion University

PhD, Physical Oceanography, GPA: 3.96/4.0

Norfolk, VA, USA

August 2017

Westminster College

BS Physics, Mathematics minor, magna cum laude

New Wilmington, PA, USA

2010

Peer-reviewed Publications

S. L. Mack, M.S. Dinniman, J.M. Klinck, D.J. McGillicuddy Jr., L. Padman, Modeling ocean eddies on Antarctica's cold water continental shelves and their effects on ice shelf basal melting. *J. Geophys. Res.*

S.L. Mack, M.S. Dinniman, D.J. McGillicuddy Jr., P.N. Sedwick, J.M. Klinck (2017), Dissolved iron transport pathways in the Ross Sea: Influence of tides and mesoscale eddies in a regional ocean model, *J. Mar. Syst.*, **166**, 73-86.

D.J. McGillicuddy, Jr., P.N. Sedwick, M.S. Dinniman, K.R. Arrigo, T.S. Bibby, B.J.W. Greenan, E.E. Hofmann, J.M. Klinck, W.O. Smith, Jr., **S.L. Mack**, C.M. Marsay, B.M. Sohst, G.L. van Dijken (2015), Iron supply and demand in an Antarctic shelf ecosystem, *Geophys. Res. Lett.*, **42**(19), 8088-8097.

A. Kustka, J.T. Kohut, A. White, P.J. Lam, A.J. Milligan, M.S. Dinniman, **S.L. Mack**, E. Hunter, M. Hiscock, W.O. Smith, Jr., C.I. Measures (2015), The role of Modified Circumpolar Deep Water as an iron source to productive mid-summer phytoplankton in the Ross Sea, *Deep Sea Res I*, **105**, 171-185.

F.D. Becchetti, **S. Mack**, W.R. Robinson, M. Ojaruega (2015), Colliding nuclei to colliding galaxies: Illustrations using a simple colliding liquid-drop apparatus, *Am. J. Phys.* **83**(10), 846-856.

C.M. Marsay, P.N. Sedwick, M.S. Dinniman, P.M. Barrett, **S.L. Mack**, D.J. McGillicuddy, Jr. (2014),

Estimating the benthic efflux of dissolved iron on the Ross Sea continental shelf, *Geophys. Res. Lett.* **41**(21), 7576-7583.

- S. Mack**, L. Padman, J. Klinck (2013), Extracting tidal variability of sea ice concentration from AMSR-E passive microwave single-swath data: A case study of the Ross Sea, *Geophys. Res. Lett.* **40**(3), 547-552.

Awards and Funding

Seal of Excellence <i>Recognition of Marie Curie Fellowship proposal quality</i>	EU Horizon2020 2018
Future of Ice Postdoctoral Fellowship <i>University of Washington</i>	Seattle, WA, USA 2016-2018
Dorothy Brown Smith travel award <i>Departmental award for conference travel</i>	Various Feb. 2016, June 2015, Apr. 2013
Graduate Travel Award <i>ODU Student Engagement & Enrollment Services</i>	Prague, Czech Republic June 2015
Best Student Poster <i>AMS Polar Meteorology and Oceanography Meeting</i>	Seattle, WA, USA April 2013
Student Travel Grant <i>US Department of Energy</i>	Ventura, CA, USA March 2013

Presentations (*Invited)

- S. Mack**, D. Shapero, Coupled ice sheet-ocean modeling: shareable and reproducible with containerization software, Forum for Research into Ice Shelf Processes (FRISP), Oxford, UK, September 15-18, 2019
- S. Mack**, D. Shapero, R. Gladstone, D. Gwyther, B. Galton-Fenzi, I. Joughin, S. Springer, P. Dutrieux, L. Padman, Developing a coupled ice sheet-ocean model: challenges and progress with terrain-following ocean coordinates, AGU Fall Meeting, Washington, D.C., December 10-14, 2018
- *S. Mack**, Modeling ocean eddies in the Ross Sea, Antarctica, Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (OGS), Trieste, Italy, November 14, 2018
- *S. Mack**, Resolving eddies in a regional ocean model: Implications for ice shelf cavity models, Rising Coastal Seas on a Warming Earth III (MISOMIP) Workshop, Abu Dhabi, UAE, May 7-9, 2018
- S. Mack**, M. Dinniman, J. Klinck, D. McGillicuddy, L. Padman, Resolving eddies in regional ocean models of Antarctic shelf seas, poster presentation, Ocean Sciences Meeting, Portland, OR, February 12-16, 2018
- S. Mack**, M. Dinniman, J. Klinck, How well do we resolve eddies in regional ocean models?, West Antarctic Ice Sheet (WAIS) Workshop, Camp Casey, WA, October 8-11, 2017
- S. Mack**, Iron Transport Pathways in the Ross Sea, Physical Oceanography Seminar Series, University of Washington, Seattle, WA, October 26, 2016
- S. Mack**, Influence of tides and eddies in the Ross Sea, oral presentation, Physical Oceanography Dissertation Symposium (PODS) IX, Honolulu, HI, October 9-13, 2016
- S. Mack**, M. Dinniman, J. Klinck, P. Sedwick, D. McGillicuddy, Iron transport pathways in the Ross

- Sea: Physical processes affecting the supply of dFe in a regional ocean model, oral presentation, Ocean Sciences Meeting, New Orleans, LA, February 21-26, 2016
- S. Mack**, M. Dinniman, J. Klinck, Effect of tides and eddies on Ross Ice Shelf basal melt from a regional ocean model, poster presentation, 26th IUGG General Assembly, Prague, Czech Republic, June 22-July 2, 2015
- S. Mack**, M. Dinniman, B. Greenan, S. Springer, J. Klinck, Role of tidally-induced mixing in the Ross Sea, poster presentation, Ocean Sciences Meeting, Honolulu, HI, February 23-28, 2014
- S. Mack**, Tidally forced mesoscale variability in the Ross Sea, Antarctica, poster presentation, Graduate Climate Conference, Woods Hole, MA, November 1-3, 2013
- *S. Mack**, Tidal effects in the Ross Sea: A look at the mesoscale using satellite data and models, invited presentation, AOCD Seminar Series, Yale, New Haven, CT, October 31, 2013
- S. Mack**, L. Padman, S. Springer, M. Dinniman, J. Klinck, Sea ice variability in the Ross Sea forced by tides: Satellite observations and modeling, poster presentation, AMS Polar Meteorology and Oceanography, Seattle, WA, April 29-May 1, 2013
- S. Mack**, L. Padman, S. Springer, M. Dinniman, J. Klinck, Sea ice variability in the Ross Sea forced by tides: Satellite observations and modeling, poster presentation, Polar Marine Science Gordon Research Conference & Seminar, Ventura, CA, March 9-15, 2013
- *S. Mack**, Tides and sea ice in the Ross Sea: Investigations using satellite data and models, invited presentation, CCPO seminar series, ODU, Norfolk, VA, February 18, 2013
- S. Mack**, S. Springer, M. Dinniman, L. Padman, J. Klinck, Diurnal tidal effects on sea ice concentration in the Ross Sea from AMSR-E satellite data and a regional ocean model, oral presentation, SCAR, Portland, OR, July 16-19, 2012
- S. Mack**, J.M. Klinck, L. Padman, Observing a diurnal tidal effect on sea ice concentration in the Ross Sea using AMSR-E satellite data, poster presentation, Ocean Sciences Meeting, Salt Lake City, UT, February 20-24, 2012

Professional Experience

Peer Reviewer

Adv. Atmos. Sci., J. Geophys. Res., Geophys. Res. Lett., NSF, Remote Sensing 2017-present

Participant Ocean Modeler

MISOMIP III Workshop NYU Abu Dhabi, UAE May 2018

Participant

Physical Oceanography Dissertation Symposium (PODS) IX Honolulu, HI, USA October 2016

Participant

Patullo Conference (MPOWIR) Warrenton, VA, USA October 2015

Session Co-convenor

IUGG/IACS 2015 Meeting Prague, Czech Republic June 2015

Research cruise participant

R/V Hugh R. Sharp Lewes, DE, USA August 2014

Summer school participant

ResClim: Sea Ice in the Climate System UNIS, Svalbard Summer 2011

Technical Skills

Ocean Modeling: Regional Ocean Modelling System (ROMS); 7+ years experience, including setting up a new domain, changing resolution, adding tidal forcing, formulating Lagrangian tracer dyes, and coupling to an ice shelf model. Framework for Ice Shelf Ocean Coupling (FISOC); new user.

High Performance Computing: Experience as a user on multiple HPC systems, including local compute clusters, a university-wide system, and a national (NASA) system.

Software: Unix/Linux, Windows, Fortran, Matlab

Service, Teaching, and Outreach

- **Student Representative (elected; 3 year term)**
 - *The Oceanography Society (TOS) Council* 2016-2019
- **Cryo-Mentor**
 - *AGU Fall Meeting; Cryosphere Section* 2018
- **Science Blogger**
 - *ohjustswimmingly.com*
- **Volunteer Official**
 - *Blue Crab Bowl (National Ocean Sciences Bowl)* 2011, 2013-2016
- **Guest Lecturer**
 - *Timeseries in Oceanography (OEAS 704/804)* 2015
- **Volunteer Judge**
 - *Tidewater Science and Engineering Fair* 2014
- **Guest Lecturer**
 - *Data Collection and Analysis in Oceanography (OEAS 451/551)* 2012, 2014
- **Vice President**
 - *Dept. Ocean, Earth, and Atmospheric Sciences: Graduate Student Organization* 2011-2012
- **President**
 - *Society of Physics Students* 2009-2010
- **Treasurer**
 - *Society of Physics Students* 2008-2009