

Louise C. Biddle

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RESEARCH INTERESTS

My research focusses on the interaction of glacial and sea-ice meltwater with the upper ocean. I am interested in how the addition of freshwater can affect submesoscale processes in the mixed layer and interaction of the upper ocean with the atmosphere. Part of this research involves improving our current identification of meltwater, using standard hydrographic measurements (temperature, salinity, dissolved oxygen) in addition to noble gas concentrations. In addition to ship-borne measurements, I use glider and seal-borne data, and complement these oceanic observations with the use of a one-dimensional ocean model.

EDUCATION

2012 – 2016 **PhD in Oceanography**, University of East Anglia
Identifying Glacial Meltwater in the Amundsen Sea, Antarctica

2008 – 2012 **Masters of Earth Sciences**, Oxford University, First Class
Icebridge Dissolution in Nares Strait, Canadian Arctic Archipelago

PROFESSIONAL EXPERIENCE

2017 – present **Postdoctoral Researcher**, University of Gothenburg
Investigating the effects of glacial and sea-ice meltwater on upper ocean processes, using seal and glider data.

Apr – Dec 2016 **Postdoctoral Researcher**, University of East Anglia
Identifying glacial meltwater with the use of noble gases.

Reviewer for *Journal of Geophysical Research: Oceans* (2015-2016).

Co-convener, “Ice-Ocean Interactions and Circulation around the Antarctic Margins”, Ocean Sciences Meeting 2018, Portland, USA.

Co-supervisor for one BSc project and one Masters project (2017).

PUBLICATIONS

Relevant peer-reviewed articles

Biddle, L. C., K. J. Heywood, J. Kaiser, and A. Jenkins (2017). Glacial meltwater identification in the Amundsen Sea. *Journal of Physical Oceanography*, doi: 10.1175/JPO-D-16-0221.1.

Heywood, K. J., **L. C. Biddle**, L. Boehme, P. Dutrieux, M. Fedak, R. W. Jones, H. Mallett, I. A. Renfrew, and B. G. M. Webber. Between the devil and the deep blue sea: the role of the Amundsen Sea continental shelf in exchanges between ocean and ice shelves (2017). *Oceanography*, **29** (4). pp. 118-129. ISSN 1042-8275

Naveira Garabato, A. C., A. Forryan, P. Dutrieux, L. Brannigan, **L. C. Biddle**, K. J. Heywood, A. Jenkins, Y. L. Firing and S. Kimura. Vigorous lateral export of the meltwater outflow from beneath an Antarctic ice shelf (2017). *Nature* **542**, 219–222, doi:10.1038/nature20825

Biddle, L. C., J. Kaiser, K. J. Heywood, A. F. Thompson, and A. Jenkins (2015), Ocean glider observations of iceberg-enhanced biological production in the northwestern Weddell Sea, *Geophys. Res. Lett.*, **42**, doi:10.1002/2014GL062850.

Relevant articles

Keck Institute for Space Studies (2015). *The Sleeping Giant: Measuring Ocean-Ice Interactions in Antarctica*. Andrew Thompson, Josh Willis, Anthony Payne, study co-leads. Keck Institute for Space Studies, California Institute of Technology, Pasadena CA. http://kiss.caltech.edu/new_website/programs.html#ocean_ice

GRANTS AWARDED

Antarctic Science Bursary, Awarded £5,545, May 2017.

Ocean Sciences Meeting Student Travel Grant, Awarded \$1000, November 2015.

Challenger Society for Marine Science Travel Award for attendance at Ocean Sciences conference, Awarded £500, November 2015.

Student bursary for attendance at Fluid Dynamics of Sustainability and the Environment summer school. Awarded €800, April 2015.

Challenger Society for Marine Science Travel Award for attendance at SCAR conference, Awarded £500, July 2014.

OSMOSIS Knowledge Exchange grant for exhibiting ‘Pinch of Salt’ at a regional Big Bang Fair. Awarded £1840, January 2014.

FIELDWORK EXPERIENCE

RRS James Clark Ross (JS17001), 4 weeks, November – December 2017. Drake Passage, Antarctic Peninsula. Deployment of ocean glider. Chief Scientist, Alex Brearley.

RRS James Clark Ross (JCR294), 7 weeks, January – March 2014. Amundsen Sea, Antarctica. I worked with CTD deployments and water sampling, oxygen Winkler titrations, shipboard ADCP (running and processing) and Seaglider deployments. Chief Scientist, Karen Heywood.

RRS James Cook (JC085), 3 weeks, May 2013. Porcupine Abyssal Plain, North Atlantic. Working on Seaglider deployments and recoveries, as well as CTD deployments and water sampling. Chief Scientist, Richard Lampitt.

RRS James Clark Ross (JCR280), 5 weeks, November – December 2012. Scotia Sea, Antarctica. Deployed XBTs, prepared Seagliders for deployment and processed CTD data. Chief Scientist, Jon Watkins.