

# Nicholas L. Beaird

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## EDUCATION

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<b>University of Washington</b> Ph.D. Oceanography Dissertation: “Meridional Exchanges and Mixing at the Iceland-Faroe Ridge”	Nov. 2013
<b>University of Washington</b> M.Sc. Oceanography	Jan. 2010
<b>Colby College</b> B.A. Physics, Mathematical Sciences – <i>cum laude</i>	May 2006

## RESEARCH POSITIONS

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<b>Postdoctoral Research Associate</b> Oregon State University Turbulence & biophysical interactions in the Arctic, with Emily Shroyer.	Dec. 2017 – present
<b>Postdoctoral Scholar, Investigator</b> WHOI Glacier-driven water mass transformation in Greenland’s proglacial fjords, with Fiamma Straneo.	Dec. 2013 – Dec. 2017
<b>Graduate Research Assistant</b> University of Washington Dense overflows and water mass transformation on the Iceland-Faroe Ridge, with Peter Rhines and Charlie Eriksen.	2006 – 2013
<b>Guest Researcher</b> Geophysical Institute, University of Bergen Inferring turbulent dissipation from glider fine scale vertical velocity, with Ilker Fer.	Fall 2010
<b>Undergraduate Research Assistant</b> Colby College Time-domain spectroscopy to measure tensor polarizabilities of Sodium Rydberg states.	2005

## PUBLICATIONS

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- [\*] M. Cape, F. Straneo, **Beaird, N.L.**, R. Bundy, M. Charette, *\*under review Nature Geoscience*: Upwelling at Greenland tidewaters glaciers as a significant source of nutrients to the ocean
- [7] **Beaird, N.L.**, F. Straneo, W. Jenkins, 2018: Export of strongly diluted Greenland meltwater from a major glacial fjord. *Geophysical Research Letters*, doi: 10.1029/2018GL077000
- [6] **Beaird, N.L.**, F. Straneo, W. Jenkins, 2017: Characteristics of meltwater export from Jakobshavn Isbræ and Ilulissat Icefjord. *Annals of Glaciology* <https://doi.org/10.1017/aog.2017.19>
- [5] **Beaird, N.L.**, P.B. Rhines, C.C. Eriksen, 2016: Observations of Seasonal Subduction at the Iceland-Faroe Front. *Journal of Geophysical Research: Oceans*, 121, doi:10.1002/2015JC011501
- [4] **Beaird, N.L.**, F. Straneo, W. Jenkins, 2015: Spreading of Greenland meltwaters in the ocean revealed by noble gases. *Geophysical Research Letters*, 42, doi: 10.1002/2015GL065003
- [3] Ullgren, J.E., I. Fer, E. Darelius, **N.L. Beaird**, 2014: Interaction of the Faroe Bank Channel overflow with Iceland Basin intermediate waters. *Journal of Geophysical Research: Oceans*, 119, doi:10.1002/2013JC009437

- [2] **Beaird, N.L.**, P.B. Rhines, C.C. Eriksen, 2013: Overflow waters at the Iceland-Faroe Ridge observed in multi-year Seaglider surveys. *Journal of Physical Oceanography*, 43, doi: 0.1175/JPO-D-13-029.1
- [1] **Beaird, N.L.**, I. Fer, P.B. Rhines, C.C. Eriksen, 2012: Dissipation of Turbulent Kinetic Energy inferred from Seagliders: An application to the eastern Nordic Seas overflows. *Journal of Physical Oceanography*, 42, doi: 10.1175/JPO-D-12-094.1

## GRANTS

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- NSF OPP-1734777, (09/01/2017 - 09/01/2019). Physical Impacts on late Season Productivity in Changing Arctic. Co-PIs: Emily Shroyer, **N.L. Beaird**.
- NSF OCE-1536856, (12/01/2015 - 11/30/2018). Tracking Greenland Melt in the Ocean Using Noble Gas Fingerprints. Co-PIs: Fiamma Straneo, **N.L. Beaird**.
- WHOI Ocean and Climate Change Institute, (7/01/2014 - 7/01/2016). Using Noble Gases to Distinguish Glacial Freshwater Sources from Greenland. Co-PIs: **N.L. Beaird**, F. Straneo, W. Jenkins.

## FELLOWSHIPS & AWARDS

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| Ocean Outlook Fellowship, University of Bergen                         | 2017 |
| Doherty Postdoctoral Scholarship, Woods Hole Oceanographic Institution | 2013 |
| S.S. & I.M.F. Marsden Prize in Earth Sciences, Colby College           | 2006 |
| National Physics Honor Society   | 2006 |

## CONFERENCE PRESENTATIONS

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- Beaird, N.L., F. Straneo (2018), Seasonal Cycle of Greenland Meltwater Influence on Sermilik Fjord, Greenland. **Poster Presentation**, Ocean Sciences Meeting, Portland, OR.
- Beaird, N.L., F. Straneo (2017), Tracking Greenland's Meltwater. **Oral Presentation**, Ocean Outlook, Bergen, Norway.
- Beaird, N.L., F. Straneo, W. Jenkins (**invited** 2016), Meltwater Influence and Pathways in Coastal Greenland **Oral Presentation**, AGU Fall Meeting, San Francisco, CA.
- Beaird, N.L., F. Straneo (2016), Seasonality of glacier-driven water mass transformation in Greenland's fjords **Oral Presentation**, International Glaciology Society Symposium, La Jolla, CA.
- Beaird, N.L., F. Straneo, W. Jenkins (2016), Noble Gases Reveal Ocean-Glacier Interaction in Shallow and Deep-Silled Greenland Fjords. **Oral Presentation**, Ocean Sciences Meeting, New Orleans, LA.
- Beaird, N.L., F. Straneo, W. Jenkins (2015), Noble gases quantify meltwater distribution in a West Greenland fjord. **Oral Presentation**, International Glaciology Society Meeting, Cambridge, UK.
- Beaird, N.L., F. Straneo (2015), Signature of ice sheet melt in the waters around Greenland. **Oral Presentation**, Ocean Outlook, Bergen, Norway.
- Beaird, N.L., F. Straneo (2014), Greenland Freshwater Input to the North Atlantic. **Poster**, AGU Fall meeting, San Francisco, USA.
- Beaird, N.L., F. Straneo, R.H. Jackson (2014), Glacier driven water mass transformation in an East Greenland fjord: Implications for ocean shelf properties and boundary currents. **Oral Presentation**, International Forum for Research into Ice Shelf Processes, Köln, Germany.
- Beaird, N.L., C.C. Eriksen, P.B. Rhines (2014), Evidence of Direct Exchange of Low Salinity Intermediate Waters Across the Iceland-Faroe Ridge in Winter. **Oral Presentation**, Ocean Sciences Meeting, Honolulu, USA.

- Beaird, N.L., I. Fer, P.B. Rhines, C.C. Eriksen (2013). Vertical Velocity and turbulent dissipation in the Nordic Seas overflows. **Poster**, CNLS-LANL Ocean Turbulence, Sante Fe, USA.
- Beaird, N.L., I. Fer, P.B. Rhines, C.C. Eriksen (2012). Dissipation Rate and Vertical Mixing Inferred from Seagliders: An Application to the Nordic Seas Overflows. **Poster**, Ocean Sciences Meeting, Salt Lake City, USA.
- Beaird, N.L., I. Fer, P.B. Rhines (2011). Dissipation rate and vertical mixing inferred from Seagliders. **Oral presentation**, delivered by I. Fer, European Geophysical Union General Assembly, Vienna, Austria.
- Beaird, N.L., C.C. Eriksen, P.B. Rhines (2010), Vertical Velocity Inferred from Seaglider. **Oral presentation**, BIAC-POCAHONTAS Symposium, Rosendal, Norway.
- Beaird, N.L., C.C. Eriksen, P.B. Rhines (2010), Overflow Waters at the Iceland-Faroe Ridge from Seaglider Repeat Surveys. **Poster**, AOSTA Alpine Summer School: Buoyancy Driven Flows. Valsavarenche, Italy.
- Beaird, N.L., C.C. Eriksen, P.B. Rhines (2010), Overflow and Entrainment Along the Iceland-Faroe Ridge Observed in Seaglider Repeat Surveys. **Oral Presentation**, Ocean Sciences Meeting, Portland, USA.

## SEMINARS

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University of North Carolina Wilmington, Physics & Physical Oceanography Seminar	2018
Scripps Institution of Oceanography, PO seminar	2017
Woods Hole Oceanographic Institution, PO seminar	2017
Woods Hole Oceanographic Institution, PO seminar	2016
University of Washington, PO seminar	2016
Oregon State University, POA Seminar	2015
Colby College, Physics Seminar	2014
Woods Hole Oceanographic Institution, PO seminar	2014
University of Rhode Island, GSO PO seminar	2014
Bjerknes Center-GFI Colloquium, Bergen, Norway	2010
University of East Anglia Atmosphere, Ocean & Climate Seminar, Norwich, UK	2010
National Oceanography Center Seminar, Southampton, UK	2010

## WORKSHOPS & INVITED SHORT COURSES

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Geophysical Fluid Dynamics Program at WHOI - invited staff	2017
UNOLS Chief Scientist Training Cruise	2016
Physical Oceanography Dissertation Symposium (PODS VIII), Hawaii, USA	2014
Advanced Climate Dynamics Course: Dynamics of the Greenland Ice Sheet, Greenland	2014
International Forum for Research into Ice Shelf Processes (FRISP), Köln, Germany	2014
Coordination of Irminger Sea Region Science, Boston, USA	2013
BIAC-POCAHONTAS Symposium, Rosendal, Norway	2010
Alpine Summer School: Buoyancy Driven Flows, Valsavarenche, Italy	2010

## FIELDWORK

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- PS109: Greenland Ice Sheet- Ocean Interactions** 2017  
Northeast Greenland Shelf, 79N Glacier  
Planned deployment of Ice Tethered Profiler, hydrographic work.
- The Dynamic Arctic** 2017  
Region: Chukchi Sea, Alaska, 15 days  
Led turbulence data acquisition using towed platforms and CTDs.
- OSNAP** 2016  
Southern Greenland, Irminger & Labrador Seas  
Collected noble gas and Tritium measurements to trace glacial meltwater.
- Atâ Sund** 2016  
West Greenland  
Led the oceanographic component of a joint glaciology-oceanography field campaign: hydrographic survey; mooring recovery.
- California Borderlands/Cherry Bank** 2016  
Southern California Bight  
Participated in Chief Scientist training cruise held by UNOLS. Deployed autonomous glider to investigate vertical kinetic energy over steep topography and its relation to enhanced biological production.
- Sermilik Fjord** 2015  
East Greenland  
Hydrographic survey; mooring deployments. Collected noble gas tracer measurements.
- Atâ Sund** 2015  
West Greenland  
Led the oceanographic component of a joint glaciology-oceanography field campaign: hydrographic survey; mooring deployments.
- Disko Bay** 2014  
West Greenland  
Hydrographic survey; helicopter XCTDs. Obtained the first noble gas measurements of glacial meltwater in Greenland.
- Sermilik Fjord** 2013  
East Greenland  
Hydrographic survey; mooring deployments; helicopter XCTDs.
- Salish Sea Seaglider deployments** 2006–2013  
Puget Sound, WA / WA Coast / British Columbia  
Numerous deployments, tests, and searches involving Seagliders in Puget Sound, off the Washington continental shelf, and off the central British Columbia coast.
- Faroe Seaglider Project** 2006–2009  
Faroe Islands / Seattle, WA  
Piloted, deployed, and helped plan a nearly continuous Seaglider survey (31 gliders total) in the North Atlantic.
- CLIVAR P18 South** 2008  
South Pacific-Southern Ocean  
Collected and analyzed the tracers CFC11/12 and SF6 using a gas chromatograph.

## TEACHING & OUTREACH

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- OMSI Science communication Fellowship** 2018  
Fellowship with the Oregon Museum of Science and Industry to learn best practices in informal science education. Developed hands-on activity at the museum to convey work on biophysical interaction in the Arctic.
- Media:**
- Dynamic Arctic blog:** Follow the Flow: Turbulence and biology in the Chukchi  
<https://thedynamicarctic.com/2017/08/20/follow-the-flow/>
  - PRI's The World:** Looking small for big answers in Greenland  
<http://www.pri.org/stories/2016-01-19/looking-small-big-answers-greenland>
  - Vermont Standard:** Scientists Explore Why Greenland's Glaciers Are Melting  
<http://www.thevermontstandard.com/2015/11/scientists-explore-why-greenlands-glaciers-are-melting/>
  - NOVA:** Waging Science on the High Seas  
<http://www.pbs.org/wgbh/nova/earth/waging-science-at-sea.html>
- Norman Williams Public Library** 2015  
Lecture: Ocean-Glacier Interactions in a Warming World  
Available via Woodstock Community Television: <https://vimeo.com/146278778>
- Waquoit Bay National Estuarine Research Reserve** 2014  
Chasing Ice film discussion leader.
- PolarDispatches Blog**  
Blog describing fieldwork in Greenland: <http://polardispatches.org/airborne-oceanography/>
- Falmouth Academy Science Fair** 2014  
Judge
- Ocean Inquiry Project** 2012  
Volunteer instructor on educational citizen science cruises in the Puget Sound for high school, college students and community groups.
- Teaching Assistant, Introduction to Oceanography**, University of Washington 2008  
Conducted weekly review sessions for a section of students, and created and graded exams and out-of-class assignments.
- Seaglider Laboratory Tours**, University of Washington 2006 – 2013  
Led semi-regular tours of the Seaglider engineering laboratory and give presentations on oceanographic field work to visiting student groups ranging from primary school students to undergraduates.
- Teaching Assistant, 'Math After Hours'**, Colby College 2005 – 2006  
Assisted running weekly problem solving sessions for undergraduate students in lower level Math courses, typically Calculus and Linear Algebra.
- Teaching Assistant, Linear Algebra**, Colby College 2005  
Graded assignments and led review sessions for an undergraduate Linear Algebra course.

## SCIENTIFIC SERVICE

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- Reviewer**
- Nature Geoscience
  - Journal of Physical Oceanography
  - Geophysical Research Letters
  - Journal of Atmospheric and Oceanic Technology
  - Ocean Science

Oceanography Magazine

National Science Foundation OCE & OPP proposals

**Committee Membership**

WHOI Postdoctoral Association Representative (Treasurer): 2014-2015

WHOI Educational Council: 2014-2015

**PROFESSIONAL SOCIETY MEMBERSHIP**

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American Geophysical Union

International Glaciological Society

American Association for the Advancement of Science