

Jeremy Kasper
Postdoctoral Investigator
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Department of Physical Oceanography
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Education

Bachelor of Arts, Physics
Reed College, 1999

Ph.D., Oceanography
University of Alaska Fairbanks, 2010

Current Position

June 2011-Present, Postdoctoral Investigator, Woods Hole Oceanographic Institution

Previous Positions

- Nov. 2010-June 2011 Postdoctoral Fellow, UAF Institute of Marine Science
- June 2010-June 2011 Guest Investigator, WHOI
- Sept. 2001-Nov. 2010 Graduate Research Assistant, UAF
- Aug. 2000-Aug. 2001 Hydrologic Research Technician, UAF Institute of Northern Engineering, Water and Environmental Research Center

Affiliations

- Member, American Geophysical Union
- Member, American Meteorological Society

Refereed Publications

Kasper, J., and T.J. Weingartner, 2012, Modeling winter circulation under landfast ice: The interaction of winds with landfast ice, *J. of Geophys. Res.* 117, C04006, pp 14, doi:10.1029/2011JC007649

Kasper, J., and T.J. Weingartner, 2012, The effect of landfast ice on a lateral inflow to a shelf sea, *Ocean Modeling*, *submitted*.

Papers in Preparation

Kasper, J., and T.J. Weingartner, The spreading of a buoyant river plume beneath a landfast ice cover, *in prep*.

Kasper, J., R. Pickart, T.J. Weingartner and A. Plueddemann, Cross-shelf exchange in the Alaskan Beaufort Sea, *in prep*.

Research Strategy

My research strategy is to employ a combination of models and observations to improve the understanding of Arctic ocean circulation

- Interests span from the nearshore to larger scale interactions of shelf boundary currents with the deep basin, including
 - Nearshore circulation beneath landfast ice
 - Ice-ocean-atmosphere interactions
 - Relationships between geological, biological, physical processes and climate
 - Fate of Arctic coastlines in a changing climate
- Interested in the application of both mature and emerging technologies to study these processes using remote and in-situ techniques such as
 - HF RADAR, Moorings with arctic winches and profiling CTDs, AUVs, Ice Tethered Profilers, LIDAR and Electromagnetic Induction

Current Funding

National Ocean Partnership Program: Circulation, Cross-shelf exchange, Sea ice, and Marine mammal habitats on the Alaskan Beaufort Shelf

Arctic Region Supercomputing Center (ARSC)

Submitted Proposals

Kasper, J., O. Marchal and J. Whitehead, The Spreading of a Buoyant Plume Under an Immobile Ice Cover in a Rotating Basin, *Woods Hole Oceanographic Institution Coastal Ocean Institute*

Kasper J. and S. Lentz, The Influence of Upwelling Winds, Sea Ice Melt, Suspended Sediment and Solar Insolation on a Buoyant River Plume, *Woods Hole Oceanographic Institution Ocean and Climate Change Institute*

Kasper, J. Ice covered coastal ocean dynamics, *Office of Naval Research planning letter*

Kasper, J. and R. Pickart, The effect of sea ice mobility on shelf basin exchange in the Alaskan Beaufort Sea, *North Pacific Research Board*

Previous Funding and Awards

- 2003-2010 ARSC
- 2006-2010 UA Coastal Marine Institute
- 2009 & 2003 Teaching Assistant, Introduction to Physical Oceanography
- 2009 Graduate Program in Marine Science and Limnology Travel Grant
- 2004-2006 UAF Graduate Research Fellow
- 2006 UAF Graduate School Travel Grant
- 2003-2004 Oil Spill Recovery Institute Graduate Research Fellow
- 2003 & 2004 Center for Global Change student research award (in cooperation with UAF Sea Grant)

Non-refereed Papers and Abstracts

Kasper, J., Pickart, R., Weingartner, T., 2012 Impact of ice cover on wind-forced exchange in the Alaskan Beaufort Sea, Ocean Sciences Meeting Abstracts.

Kasper, J., Weingartner, T., 2011, The spreading of a buoyant river plume beneath a landfast ice cover, American Meteorological Society 11th Conference on Polar Meteorology and Oceanography Abstract, <http://ams.confex.com/ams/11Polar/webprogram/Paper189246.html>

Kasper, J., Weingartner, T., 2011, The spreading of a buoyant river plume beneath a landfast ice cover, Alaska Marine Science Symposium Abstract, page 115.

Kasper, J., Dec. 2010, Idealized Modeling of Circulation Under Landfast Ice, Ph.D. Thesis, University of Alaska Fairbanks.

Kasper, J., Weingartner, T., 2010, Idealized Process Model Studies of Circulation in the Landfast Ice Zone of the Alaskan Beaufort Sea, Final Report, University of Alaska Coastal Marine Institute Final Report, CMI Contract 1435-01-02-CA-85294.

Weingartner, T., Danielson, S., Kasper, J., Okkonen, S., 2010, Circulation and water property variations in the nearshore Alaskan Beaufort Sea (1999-2007), Final Report, Minerals Management Service Contract M03PC00015.

Kasper, J., Weingartner, T., 2010. Modeling the effects of buoyancy and winds on circulation under landfast ice, Ocean Sciences Meeting Abstracts.

Kasper, J., Weingartner, T., 2009, Modeling Circulation in the Landfast Ice Zone, Alaska Marine Science Symposium Abstract, page 210.

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Weingartner, T., Kasper, J., 2008, Idealized process model studies of circulation in the landfast ice zone of the Alaskan Beaufort Sea, University of Alaska Coastal Marine Institute Annual Report No. 15.

Kasper, J., Weingartner, T., 2008, Modeling circulation in the landfast ice zone, Ocean Sciences Meeting Abstracts, page 201.

Weingartner, T., Kasper, J., 2007, Idealized process model studies of circulation in the landfast ice zone of the Alaskan Beaufort Sea, University of Alaska Coastal Marine Institute Annual Report No. 14., pages 90-98.

Kasper, J., Weingartner, T., Danielson, S., 2007, Modeling circulation in the landfast ice zone, Alaska Marine Science Symposium Abstract Book, page 29.

Kasper, J., Weingartner, T., 2006, Modeling circulation in the landfast ice zone, *Eos Trans. AGU*, Fall Meet. Suppl., Abstract C33B-1269.

Recent Professional Presentations

“Impact of the ice cover on wind-forced exchange in the Alaskan Beaufort Sea” Invited Speaker, University of Alaska, Institute of Northern Engineering and International Arctic Research Center, March 2012.

“Impact of ice cover on wind-forced exchange in the Alaskan Beaufort Sea” Oral Presentation, Ocean Sciences Meeting, Feb. 2012

“Impact of the ice cover on wind-forced exchange in the Alaskan Beaufort Sea” Poster Presentation, 15th Annual Arctic Ocean Model Inter-comparison Workshop, Woods Hole Oceanographic Institution, Nov. 2011

“Reanalysis Data Set for the Western Arctic & Labrador Sea”, Oral Presentation, WHOI Western Arctic Working Group, May 2011

“The spreading of a buoyant river plume beneath a landfast ice cover”, Poster, American Meteorological Society 11th Conference on Polar Meteorology and Oceanography, May 2011.

“Circulation, Cross-shelf Exchange, Sea Ice, and Marine Mammal Habitat on the Alaskan Beaufort Sea Shelf”, Oral Presentation, WHOI Western Arctic Working Group, March 2011

“Idealized Modeling of Circulation Under Landfast Ice”, Physical Oceanography Seminar, Woods Hole Oceanographic Institution, January 2011

“The Spreading of a Buoyant River Plume Beneath a Landfast Ice Cover”, Poster, Alaska Marine Science Symposium, January 2011

“Physical Oceanographic Studies of An Arctic Shelf Sea”, Oral Presentation, Woods Hole Oceanographic Institution, Post Doctoral Research Symposium, November 2010

“Idealized Modeling of Circulation Under Landfast Ice”, Ph.D. Defense, University of Alaska Fairbanks, November 2010

“Modeling the Effects of a Landfast Ice Cover on Arctic Shelf Circulation”, Oral Presentation, Ocean Sciences Meeting, February 2010

“Modeling the Effects of a Landfast Ice Cover on Arctic Shelf Circulation”, Oral Presentation, Institute of Marine Science Seminar, February 2010

“Modeling circulation in the landfast ice zone”, Poster, Gordon Research Conference on Coastal Ocean Circulation, June 2009

“Modeling the Effects of Wind Stress and Sea Ice on Arctic Coastal Circulation”, Oral Presentation, UA Computational Science Symposium, February 2009

“Modeling Circulation in the Landfast Ice Zone”, Poster, Alaska Marine Science Symposium, January 2009

Professional Service

- Reviewer for the Journal of Geophysical Research Oceans
- Reviewer for University of Alaska Sea Grant's Alaska Seas and Rivers Curriculum for grades K-8
- Reviewer for Geophysical Research Letters
- Proposal Reviewer for North Pacific Research Board
- Proposal Reviewer for UAF Center for Global Change

Relevant Coursework

Graduate level coursework in physical, biological, chemical and geological oceanography, geophysical fluid dynamics, atmosphere and ocean waves, numerical simulation of geophysical fluid dynamics, continental shelf circulation, tides, ice ocean dynamics, polar climatology, time series analysis, mathematical physics, partial differential equations, numerical analysis and linear numerical modeling.

Undergraduate coursework in statistics and data analysis in the geological sciences, differential geometry, applied and real analysis, linear algebra, multivariate calculus, ordinary differential equations, statistics and probability, quantum mechanics, electrodynamics, classical mechanics, thermal physics, mathematical physics, modern physics as well as extensive microelectronics laboratory experience.

Observational Oceanographic Experience

Mooring Experience

- RUSALCA Bering Strait Cruises (July 2011 & October 2008)
 - Recovered and deployed moorings across Bering Strait aboard Russian Academy vessels the Khromov (2011) and Lavrentyev (2008)
- Prudhoe Bay Mooring Cruises (2004-2006, MMS R/V Launch 1273)
 - Initial cruise deployed three subsurface moorings along the Alaskan Beaufort Sea coast
 - Subsequent cruises turned moorings around for redeployment

HF RADAR Experience

- Attended CodarOS training, Spring 2008
- HF RADAR Field Work for National Ocean Partnership Program Project: Circulation, Cross-Shelf Exchange, Sea Ice, and Marine Mammal Habitats on the Alaskan Beaufort Sea Shelf (Fall 2007)
 - Located sites to deploy a long range CodarOS Seasonde near the Colville River Delta, Alaskan Beaufort Coast
 - Tested long range Seasonde on Harrison Bay, Alaskan Beaufort Coast
 - Assisted in removal and further testing of several Seasondes near Homer and Seward, Alaska

Hydrographic and Miscellaneous Experience

- NOAA RUSALCA Project (Bering Strait, July 2011)
 - Collected water samples for nutrient, productivity and DIC analysis
- NSF Western Arctic Shelf Basin Interactions Mooring cruise (Beaufort Sea, Fall 2003)
 - Duties included CTD watch, collecting water samples for nutrient and oxygen analysis, deploying and recovering lowered ADCP and assisting with recovery of oceanographic moorings
- Gulf of Alaska GLOBEC Mesoscale cruise (May 2003)
 - Seasoar watch (OSU R/V Wecoma)

Other Research Experience

Hydrologic Research Technician, Water and Environmental Research Center, University of Alaska Fairbanks (September 2000-August 2001)

- Organized and implemented field work in remote locations around Alaska for the NSF Project: Arctic Transitions in the Land-Atmosphere System. A study of Arctic and Subarctic hydrology
 - Duties included conducting snow depth, density and ablation measurements, gauging small stream flow and servicing remote meteorological stations. Trip length ranged from days to weeks.
- Responsible for data management and quality control

NSF REU Intern, St. Olaf College, Center for Geophysical Studies of Ice and Climate (Summer 1998)

- Employed HF RADAR to image glacial layers and topography
- Programmed Radar Operating System

Other Interests

Cross Country Skiing, Running, and Hiking