Fiammetta Straneo
Senior Scientist
Department of Physical Oceanography
Woods Hole Oceanographic Institution
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Education
Laurea Cum Laude (with honors), University of Milan, Italy (Physics), 1992
Ph.D. University of Washington (Physical Oceanography), 1999

Professional Experience
Research Assistant, IMGA-CNR (National Research Institute, Modena, Italy), 1992–1993
Teaching Assistant, (with C. Bretherton), University of Washington, 1996
Teaching Assistant, (with K. Aagaard), University of Washington, 1997
Research Assistant, University of Washington, 1993–1999
Postdoctoral Scholar, Woods Hole Oceanographic Institution, 1999–2002
Assistant Scientist, Woods Hole Oceanographic Institution, 2002–2006
Associate Scientist without tenure, Woods Hole Oceanographic Institution, 2006-2009
Associate Scientist with tenure, Woods Hole Oceanographic Institution, 2009–2015
Senior Scientist, Woods Hole Oceanographic Institution, 2015-present

Awards and Fellowships
Leopold Leadership Fellow, Woods Institute for the Environment, Stanford University, 2013
Bjerknes Visiting Scientist Fellowship, 2006.
Best Poster by a Scientist, Bjerknes Centenary Conference, *Climate Change in High Latitudes*, Bergen, Norway, 2004.
Bjerknes Fellow, Bjerknes Center for Climate Research, Bergen Norway, 2002, 2003, 2004, 2005, and 2006.
Ferruccio Mosetti Prize for the best physical oceanography work by a young scientist, University of Trieste, Italy, 2002.
Awarded a Fellowship to attend the Colloquium on Decadal and Centennial Climate Variability, NCAR, Boulder, CO, 2000.
Woods Hole Oceanographic Institution and Cooperative Institute for Climate and Ocean Research Postdoctoral Scholarship, 1999–2001.
Best Student Paper: Honorable Mention, 11th Conference on Atmospheric and Oceanic Fluid Dynamics (AMS), Tacoma, WA, 1997.
WHOI Fellowship for the Geophysical Fluid Dynamics Summer Program on *Rotating Convection*, 1995.

Research Interests
Dense water formation and convection, poleward heat transport, overturning circulation, freshwater fluxes, climate variability, arctic and sub-arctic regions, air-sea interaction, eddy dynamics, straits, western boundary currents and ice.

Publications
Straneo, F., and M. Kawase, 1999. Comparisons of localized convection due to localized forcing and preconditioning. *Journal of Physical Oceanography*, **29**, 55–68, doi: http://dx.doi.org/10.1175/1520-0485(1999)029<0055:COLCDT>2.0.CO;2

Straneo, F., M. Kawase, and R. S. Pickart, 2002. The effects of wind on convection in strongly and weakly baroclinic flows with application to the Labrador Sea. *Journal of Physical Oceanography*, **32**(9), 2603–2618, doi: http://dx.doi.org/10.1175/1520-0485-32.9.2603

Straneo, F., M. Kawase, and S. Riser, 2002. Idealized models of slantwise convection in a baroclinic flow. *Journal of Physical Oceanography*, **32**(2), 558–572, doi: http://dx.doi.org/10.1175/1520-0485(2002)032<0558:IMOSCI>2.0.CO;2.

Pickart, R. S., F. Straneo, and G. W. K. Moore, 2003. Is Labrador Sea Water formed in the Irminger Basin? *Deep-Sea Research I*, **50**, 23–52, doi:10.1016/S0967-0637(02)00134-6

Straneo, F., R. S. Pickart, and K. Lavender, 2003. Spreading of Labrador Sea Water: An advective-diffusive study based on Lagrangian data. *Deep-Sea Research I*, **50**(6), 701–719, doi:10.1016/S0967-0637(03)00057-8

Eldevik, T., F. Straneo, A. Sando, and T. Furevik, 2005. Ventilation and spreading of Greenland Sea Water. *The Nordic Seas: An integrated perspective*, Geophysical Monograph Series, AGU, 158, 89-104, Eds. Drange, Dokken, Furevik, Gerdes and Berger.

Straneo, F., 2006. On the connection between dense water formation, overturning, and poleward heat transport in a convective basin. *Journal of Physical Oceanography*, **36**(9), 1822–1840, doi: http://dx.doi.org/10.1175/JPO2932.1

Straneo, F., 2006. Heat and freshwater transport through the central Labrador Sea. *Journal of Physical Oceanography*, **36**(4), 606–628, doi: http://dx.doi.org/10.1175/JPO2875.1

White, D., L. Hinzman, L. Alessa, J. Cassano, M. Chambers, K. Falkner, J. Francis, W. Gutowski, M. Holland, R. M. Holmes, H. Huntington, D. Kane, A. Kliskey, C. Lee, J. McClelland, B. Peterson, T. S. Rupp, M. Steele, F. Straneo, R. Woodgate, D. Yang, K. Yoshikawa, and T. Zhang, 2007. The arctic freshwater system: Changes and impacts. *Journal of Geophysical. Research – Biogeosciences,* **112**, G04S54, doi:10.1029/2006JG000353.

Straneo, F., and F. Saucier, 2008. The outflow from Hudson Strait and its contribution to the Labrador Current. *Deep-Sea Research I*, **55**, 926-946, doi:10.1016/j.dsr.2008.03.012

Iovino, D., F. Straneo, and M. Spall, 2008. On the effect of a sill on dense water formation in a marginal sea. *Journal of Marine Research*, **66,** 325-345, http://dx.doi.org/10.1357/002224008786176016

Straneo, F., and F. Saucier, 2008. The Arctic-Sub Arctic exchange through Hudson Strait. Arctic-Subarctic Ocean Fluxes: Defining the role of the Northern Seas in Climate: Eds. R. Dickson, J. Meincke, P. Rhines, Springer Verlag, NY, pp740.

Rykova, T., F. Straneo, J. Lilly, and I. Yashayaev, 2009. Irminger Current anticyclones in the Labrador Sea observed in the hydrographic record, 1990-2004. *Journal of Marine Research*, **67**(3), 361-384, http://dx.doi.org/10.1357/002224009789954739

Deshayes, J., F. Straneo, and M. Spall, 2009. Mechanisms of variability in a convective basin. *Journal of Marine Research*, **67**(3), 273-303, http://dx.doi.org/10.1357/002224009789954757

Marshall, J. A. Anderson, W. Dewar, S. Doney, J. Edson, R. Ferrari, G. Forget, E. Skyllingstad, F. Straneo, L. Talley, L. Thomas, J. Toole and R. Weller, 2009. The CLIMODE field campaign: Observing the cycle of convection and restratification over the Gulf Stream. *Bulletin of the American Meteorological Society.*, **90**, 1337-1350 DOI:10:1175/2009BAMS2706.

Straneo, F., G. Hamilton, D.A. Sutherland, L.A. Stearns, F. Davidson, M.O. Hammill, G.B. Stenson, and A. Rosing-Asvid, 2010. Rapid circulation of warm subtropical waters in a major glacial fjord off East Greenland. *Nature Geoscienc*e, **3**, 182-186, doi:10.1038/ngeo764

St. Laurent, P. F. Straneo, J.-F. Dumais, and D.G. Barber, 2011. What is the fate of the river waters of Hudson Bay? *Journal of Marine Systems,* **88**, 352-361, doi:10.1016/j.jmarsys.2011.02.004

Sutherland, D.A., F. Straneo, S. Lentz, and P. St. Laurent, 2011. Observations of fresh, anticyclonic eddies in the Hudson Strait outflow. *Journal of Marine Systems,* **88**, 375-384, doi:10.1016/j.jmarsys.2010.12.004

Déry, S.J., T.J. Mlynowski, M.A. Hernández-Henriquez, and F. Straneo, 2011. Variability in trends and streamflow input to Hudson Bay. *Journal of Marine Systems,* **88**, 341-351, doi:10.1016/j.jmarsys.2010.12.002

Straneo, F., R. Curry, D. A. Sutherland, G. Hamilton, C. Cenedese, K. Vage, and L.A. Stearns, 2011. Impact of fjord dynamics and subglacial discharge on the circulation near Helheim Glacier in Greenland. *Nature Geoscience,* doi: 10.1037/ngeo1109.

Wood, R., C. R. Mechoso, C. S. Bretherton, R. A. Weller, B. Huebert, F. Straneo, B. A. Albrecht, H. Coe, G. Allen, G. Vaughan, P. Daum, C. Fairall, D. Chand, L. Gallardo Klenner, R. Garreaud, C. Grados, D. S. Covert, T. S. Bates, R. Krejci, L. M. Russell, S. de Szoeke, A. Brewer, S. E. Yuter, S. R. Springston, A. Chaigneau, T. Toniazzo, P. Minnis, R. Palikonda, S. J. Abel, W. O. J. Brown, S. Williams, J. Fochesatto, J. Brioude, and K. N. Bower, 2011. The VAMOS Ocean-Cloud-Atmosphere-Land Study Regional Experiment (VOCALS-REx): goals, platforms, and field operations. *Atmospheric Chemistry and Physics,* **11**, 627-654, doi:10.5194/acp-11-627-2011.

Andresen, C.S., F. Straneo, M.H. Ribergaard, A.A. Bjørk, T.J. Andersen, A. Kuijpers, N. Nørgaard-Pedersen, K.H. Kjær, F.Schjøth, K.Weckström, and A. P. Ahlstrøm, 2012. Rapid response of Helheim Glacier in Greenland to climate variability over the past century. *Nature Geoscience,* **5**, pp 37-41, doi:10.1038/ngeo1349.

Straneo, F., R. Curry, D.A. Sutherland, G. Hamilton, C. Cenedese, K. Väge, and L.A. Stearns, 2011. Impact of ocean stratification on submarine melting of a major Greenland outlet glacier. *Nature Proceedings:* hdl:10101/npre.2011.5670.1.

Schjoth, F., C.S. Andresen, F. Straneo, T. Murray, K. Scharrer, and A. Korbalev, 2012. Campaign to map the bathymetry of a major Greenland fjord, *EOS Transactions*, *American Geophyical. Union* (Brief Report), **93**, (14), p. 1, doi: 10.1029/2012EO140001

Estrada, R., M. Harvey, M. Gosselin, M. Starr, P.S. Galbraith, F. Straneo, 2012. Late-summer zooplankton community structure, abundance, and distribution in the Hudson Bay System (Canada) and their relationships with environmental conditions, 2003-2006. *Progress in Oceanography,* **101**, 121-145, doi:10.1016/j.pocean.2012.02.003

Sutherland, D.A., and F. Straneo, 2012. Estimating ocean heat transport and submarine melt rate in Sermilik Fjord, Greenland, using lowered ADCP velocity profiles. *Annals of Glaciology*, **53**(60), 50-58, doi: http://dx.doi.org/10.3189/2012AoG60A050

Straneo, F., O. Sergienko, and P. Heimbach (lead authors), and the US CLIVAR GRISO WG members 2012. Understanding the dynamic response of Greenland's Marine Terminating Glaciers to Oceanic and Atmospheric Forcing. *A whitepaper by the U.S. CLIVAR WORKING GROUP on Greenland Ice Sheet Ocean Interactions.* Report 2012-2 U.S. CLIVAR Project Office, Washington, DC 20006, 22p.

Davis, X.J., F. Straneo, Y.-O. Kwon, K.A. Kelly, and J.M. Toole, 2011. Evolution and formation of North Atlantic eighteen degree water in the Sargasso Sea from moored data. *Deep Sea Research, Part II, Topical Studies,* **91**, 11-24, doi:10.1016/j.dsr2.2013.02.024.

St. Laurent, P., F. Straneo, and D. Barber, 2011. A conceptual model of an Arctic sea. *Journal of Geophysical* Research, **117**, C06010, doi:10/1029/2011JC007652.

Gelderloos, R., F. Straneo, and C. Katsman, 2011. Mechanisms behind the temporary shutdown of deep convection in the Labrador Sea: Lessons from the Great Salinity Anomaly years 1968-1971. *Journal of Climate*, **25**, 6745-6755, doi: http://dx.doi.org/10.1175/JCLI-D-11-00549.1

Straneo, F., D.A. Sutherland, D. Holland, C. Gladish, G. Hamilton, E. Rignot, Y. Xu, M. Koppes, and H. Johnson, 2012. Submarine melting of Greenland's glaciers by Atlantic waters. *Annals of Glaciology*, **53**(60), 202-210, doi:10.3189/2012AoG60A059

Holte, J., F. Straneo, C. Moffat, R. Weller, and T. Farrar, 2013. Structure and surface properties of eddies in the southeast Pacific Ocean. *Journal of Geophysical Research, Oceans*, **118**, 2295-2309, doi: 10.1002/jgrc.20175

Sutherland, D., F. Straneo, G. B. Stenson, J. M. Davidson, M. O. Hammill, A. Rosing-Asvid, 2013. Atlantic water variability on the SE Greenland continental shelf and its relationship to SST. *Journal of Geophysical. Research, Oceans,* **118**, 1-9, doi:10.1029/2012JC008354.

Sciascia, R., F. Straneo, C. Cenedese, P. Heimbach, 2013. Seasonal variability of submarine melt rate and circulation in an East Greenland Fjord. *Journal of Geophysical Research, Oceans,* **118**, 2492-2506, doi: 10.1002/jgrc.20142

Straneo, F., P. Heimbach, O. Sergienko, G. Hamilton, G. Catania, S. Griffies, R. Halberg, A. Jenkins, I. Joughin, R. Motyka, L. Padman, W. T. Pfeffer, S. F. Price, E. Rignot, T. Scambos, M. Truffer, A. Vieli, 2013. Understanding the dynamic response of Greenland's Marine Terminating Glaciers to Oceanic and Atmospheric Forcing. *Bulletin of the American Meteorological Society*, doi:10.1175/BAMS-D-12-00100.1.

Andresen, C.S., M.A. Sicre, F. Straneo, D.A. Sutherland, T. Schmith, M.H. Ribergaard, A. Kuijpers, J.M. Lloyd, 2013. A 100-year long record of alkenone-derived SST changes by Southeast Greenland. *Continental Shelf Research*, **71**, 45-51, doi:10.1016/j.csr.2013.10.003

Oltmanns, M., F. Straneo, G.W.K. Moore, and S.H. Mernild, 2014. Strong downslope wind events in Ammassalik, SE Greenland. *Journal of Climate,* **27,** 977-993, doi: http://dx.doi.org/10.1175/JCLI-D-13-00067.1

Jackson, R., F. Straneo, and D. Sutherland, 2014. Externally forced fluctuations in ocean temperature at Greenland glaciers in non-summer months, *Nature Geoscience,* **7**, 503-508, doi:10.1038/ngeo2186

Sciascia, R., C. Cenedese, D. Nicoli, P. Heimbach, and F. Straneo, 2014. Impact of periodic intermediary flows on submarine melting of a Greenland glacier. *Journal of Geophysical Research*, **119**(10), 7078-7098, doi: 10.1002/2014JC009953

Sutherland, D., F. Straneo, and R. S. Pickart, 2014. Characteristics and dynamics of two major Greenland glacial fjords, *Journal of Geophysical Research*, **119**, 3767-3791, doi: 10.1002/2013JC009786

Harden, B., F. Straneo, and D. Sutherland, 2014. Moored observations of synoptic and seasonal variability in the East Greenland Coastal Current. *Journal of Geophysical Research,* doi: 10.1002/2014JC010134

Straneo, F. and C. Cenedese, 2015. The dynamics of Greenland's glacial fjords and their role in climate. *Annual Review of Marine Science*, **7**, 89-112, doi: 10.1146/annurev-marine-010213-135133

Holte, J., F. Straneo, T. Farrar, and R. Weller, 2014. Heat and salinity budgets at the Stratus mooring in the southeast Pacific. *Journal of Geophysical Research* **119** (11), 8162-8176, doi:10.1002/2014JC010256

Moore, G.W.K., F. Straneo, and M. Oltmanns, 2014. Trend and inter-annual variability in SE Greenland sea ice: Impacts on coastal Greenland climate variability. *Geophysical Research Letters,* **41** (23), 8619-8626, doi: 10.1002/2014GL062107

Oltmanns, M., F. Straneo, H. Seo, and G.W.K. Moore. The role of wave dynamics and small-scale topography for downslope wind events in SE Greenland. *Journal of Atmospheric Science,* accepted.

Non-refereed Publications

Straneo, F., N. Pinardi, 1992. Ring-stream interaction in the Gulf Stream region. *CNR Technical Report* 9-92.

Straneo, F., 1995. Circulation in a 2D convective chimney. *WHOI Technical Report*, WHOI-96-09.

Straneo, F., and R. S. Pickart, 2001. Interannual variability in Labrador Sea water formation and export: How does it correlate with the atmospheric forcing? *U.S. CLIVAR Atlantic Meeting,* Extended Abstract Volume, 125–127.

Lippsett, L. and F. Straneo, 2005. A sentry at the Atlantic gateway. *Oceanus*, **44**(3), p. 30-31.

Straneo, F. 2007. Letter from Kangiqsujuaq. *Oceanus,* http://www.whoi.edu/oceanus/viewArticle.do?id=20906&sectionid=1000.

Straneo, F., C. Moffat, R. Weller, 2009: Eddies in the Southeast Pacific and their influence on the upper ocean. U.S. CLIVAR Variations Newsletter, **7**(3), 9-11.

Straneo, F., G. Hamilton, R. Curry, D. Sutherland, L. Sterns, 2009. Did changes in the subpolar North Atlantic trigger the recent mass loss from the Greenland Ice Sheet? U.S. CLIVAR Variations Newsletter, **7**(2), 1-4.

Ph.D. Thesis

Dynamics of Rotating Convection Including a Horizontal Stratification and Wind Ring Absorption in the Gulf Stream, Univ. of Washington, Seattle.

Educational Activities

MIT-WHOI Graduate Joint Program in Oceanography

Over the last ten years Straneo has served on the Physical Oceanography Program advisory committee, the graduate admissions committee, the Curriculum Revision committee and the JP Strategic Review Committee. She has taught an average of a course a year, including core and elective courses, developed a new interdisciplinary course on the Arctic System which she co-taught with a biological and a chemical oceanographer, a climatologist and a glaciologist and one on Climate Change.

Graduate Students Advised or co-Advised:

Nathaniel Wilson (PhD Candidate, MIT-WHOI JP); Rebecca Jackson (Ph.D. Candidate, MIT-WHOI Joint Program), Marilena Oltmanns (PhD Candidate, MIT-WHOI Joint Program); Roberta Sciascia (Ph.D. Candidate, Politecnico di Torino, co-advisor), Renske Gerderloos (Ph.D. candidate, Utrecht University, Netherlands – co-advisor); Tatiana Rykova (Ph.D. 2010, MIT-WHOI Joint Program); Pierre St. Laurent (Ph.D. 2010, Univ. of Quebec at Rimouski, Canada); Dorotea Iovino (Ph.D. 2007, University of Bergen, Norway – co-advisor).

Post-docs Advised

Mattias Cape (2014-present); Mattias Cape (2014-present); Ken Mankoff (2014-present); Nicholas Beaird (2014-present); Clark Richards (2013-2015); James Holte (2013, 2015-present), Xujing Davis (2009-2011); Dave Sutherland (2008-2009; now Assistant Professor, U. Oregon, OR, USA); Carlos Moffat (2008-2009; now Assistant Prof. at U. of Concepción, Chile), Julie Deshayes (2006-2008; now Researcher at Laboratoire des Physique des Oceans, CNRS, France)

Summer Schools:
2010 Advanced Course in Climate Dynamics, Lyngen, Norway. Topic: Ice-Sheet/Ocean Interactions, Principal Lecturer.
2011 Regional Climate Dynamics in the Mediterranean and beyond: An Earth System perspective, Valsavarenche, Italy, Principal Lecturer.

Synergistic Activities

National and International Committees
Co-Chair: SEARCH Land-Ice Action Team; GRISO Science Network (2014-present)
Ice-Sheet/Ocean Interactions in Greenland – U.S. CLIVAR Working Group (2011-2014)
Science Team: Science Team: U.S. CLIVAR Atlantic Meridional Overturning Circulation (AMOC)
International Steering Committee: Arctic-Subarctic Ocean Fluxes (ASOF)
Nominating Committee for the Ocean Sciences Section – American Geophysical Union, 2009.
Steering Committee MPOWIR (Mentoring Physical Oceanography Women to Increase Retention) (2008-present)

Reviewer: Science, Geophysical Research Letters, Nature, Nature Climate Change, Nature Geoscience, J. of Climate, J. Physical Oceanography, Atmosphere-Oceans, Deep-Sea Research, Journal of Geophysical Research, NSF, Journal of Marine Systems, Journal of Marine Research, NSERC (Canada), NERC (UK).

Outreach and Science Dissemination Activities
Over the last year Straneo has given talks about her Greenland work to numerous journalists, policy makers (Senate Visitor's Center), independent research organizations (Stockholm Environment Institute) and public outreach venues including several K-12 schools, the Museum of Science Boston, NECN cable network, the Weather Channel and WBZ Boston. Her Greenland research has been featured in numerous media including The New York Times, Der Spiegel, Liberation, The Guardian, German Public Radio and Television and Italian Public Television.