


HE34E-2062 - Four decades of dense water formation in the Iceland Sea

 Wednesday, 19 February 2020

 16:00 - 18:00

 SDCC - Poster Hall C-D

Abstract

Dense water masses formed in the Nordic Seas flow across the Greenland-Scotland Ridge and provide a major contribution to the lower limb of the Atlantic Meridional Overturning Circulation. Originally considered an important source of dense water, the Iceland Sea regained focus when the North Icelandic Jet - a current transporting dense water from the Iceland Sea into Denmark Strait - was discovered in the early 2000s. Here we use recent hydrographic data to quantify water mass transformation in the Iceland Sea and contrast present conditions with measurements from hydrographic surveys conducted four decades earlier. We demonstrate that substantial changes in the large-scale hydrographic structure and in the properties of the locally formed dense waters have taken place over this period in concert with a retreating ice edge and diminished ocean-to-atmosphere heat fluxes. This development has impacted the properties of the dense water masses available to supply the North Icelandic Jet.

Authors

Kjetil Våge

University of Bergen and the Bjerknes Centre for Climate Research

Stefanie Semper

Geophysical Institute, University of Bergen and Bjerknes Centre for Climate Research

Hedinn Valdimarsson

Marine Research Institute

Steingrímur Jonsson

Univ Akureyri

Kent Moore

Univ Toronto

Robert S Pickart

Woods Hole Oceanographic Institution

View Related

[HE34E - Variability of High-Latitude Ocean/Sea Ice/Atmosphere Interactions and Associated Convection in a Changing Climate III Posters](#) >

[High Latitude Environments](#) >



CONTACT US

2000 Florida Ave. NW,
Washington, DC 20009
Phone: +1 202 462 6900
Toll Free: 800 966 2481
(North America only)

© 2019. American Geophysical Union | All rights reserved | [Privacy Policy](#)

***Ailin Brakstad**, Geophysical Institute, University of Bergen, Bergen, Norway; Bjerknes Centre for Climate Research, Bergen, Norway, Kjetil Våge, University of Bergen, Bergen, Norway, Geoffrey Gebbie, Woods Hole Oceanographic Institute, Woods Hole, United States and Emil Jeansson, NORCE Norwegian Research Centre, Bjerknes Centre for Climate Research, Bergen, Norway*

PATHWAYS OF THE WATER MASSES EXITING THE LABRADOR SEA: THE IMPORTANCE OF BOUNDARY-INTERIOR EXCHANGES

*Sotiria Georgiou¹, Stefanie Leonore Ypma¹, Nils Brueggemann², Juan Manuel Manuel Sayol¹, Julie Pietrzak¹ and **Caroline A Katsman¹**, (1)Delft University of Technology, Environmental Fluid Mechanics, Delft, Netherlands, (2)Universitaet Hamburg, Faculty of Mathematics, Informatics and Natural Sciences, Hamburg, Germany*