



Air-Sea Interaction in the Irminger Sea : New Insights from the OOI Mooring

Simon Josey (1) and Robert Weller (2)

(1) National Oceanography Centre, Marine Systems Modelling Group, Southampton, United Kingdom (simon.josey@noc.soton.ac.uk), (2) Woods Hole Oceanographic Institution, Woods Hole, MA 02543, USA (rweller@whoi.edu)

The Irminger Sea is a potentially significant location for dense water formation in the high latitude North Atlantic. It is influenced by both large and small scale atmospheric variability, from the North Atlantic Oscillation to Greenland Tip Jets. However, until recently reliable observations of the air-sea interaction in this key region have not been available. Repeated deployments of the Ocean Observatories Initiative Irminger Sea mooring since summer 2014 are now providing the first long term high quality air-sea heat, momentum and freshwater flux measurements from this basin. Results from analysis of the four mooring deployments to date will be presented. They reveal a rich spectrum of variability from timescales of days to interannual, with daily turbulent (latent + sensible) heat loss extremes approaching 500 Wm^{-2} . The OOI mooring results will be compared with longer term air-sea interaction variability for the region based on the Arctic System Reanalysis as well as output from a new $1/12$ deg NEMO ocean – N512 atmosphere coupled model run undertaken at the National Oceanography Centre. The relationship between extreme heat loss events as measured by the mooring and orographic forcing of the region via Greenland Tip Jets will also be explored. Finally, the OOI measurements will be placed in the context of the 2015 North Atlantic Ocean subpolar gyre cold anomaly and its subsequent development.