

Atmospheric conditions associated with oceanic convection in the south-east Labrador Sea

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Abstract

It has been speculated that low-level reverse tip-jets, caused by the interaction of synoptic-scale atmospheric flow and Greenland, are an important mechanism for forcing open ocean convection in the south-east Labrador Sea. Here float data and meteorological reanalysis fields from the winter of 1996/1997, in combination with a simple mixedlayer ocean model, are used to show that, although relatively deep ocean convection did occur during this winter, the primary forcing mechanism was cold-air outbreaks from the Labrador coast rather than the smaller scale reverse tip-jets. During this winter, the North Atlantic Oscillation (NAO) was in a weak positive phase. Similar treatments of the winters of 1994/1995 (strong, positive NAO) and 1995/1996 (strong, negative NAO) suggest that the result is robust regardless of the state of the NAO.

For further details please see:

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