



The main moisture sources over Barents/Kara Sea and sea ice loss due to the moisture transport in winter

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This work examines the main sources of moisture and the poleward transport water vapor over Barents/Kara Sea (BKS) during boreal winter of 1979~2015 in the ERA-Interim reanalysis product through a revised dynamic recycling model during boreal winter. The methodology computes the water vapor contributions from sources along 15-day time-reverse trajectories. The large-scale circulation patterns associated with the moisture transport process. The results suggested that water vapor from Northern Atlantic play crucial role in regulating the sea ice loss in Barents Sea and Kara Sea. It seems that positive NAO events tend to transport the Atlantic moisture to the Eastern Europe, and then Ural blocking flow further transports the moisture northward to BKS. The Atlantic moisture approximately takes 3-6 days to BKS through the moisture pathway regulated by NAO and Ural blocking.