



## **Spatial-temporal variation of warm circumpolar deep water in central Amundsen Sea**

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The widespread thinning of ice sheets in the coast around the Amundsen Sea that has been recorded in recent decades has recently been attributed to intrusions of warm circumpolar deep water (CDW) onto the continental shelf. An intensive oceanographic survey was conducted in December 2010 and January 2011 using the new Korean IBRV Araon to reveal the spatial distribution of CDW on the Amundsen shelf. Offshore of the Amundsen Shelf the CDW was observed to be warmer than 2 °C, and the salinity was 34.7 psu. As the CDW enters onto the shelf region, it becomes colder and fresher as it interacts with Antarctic surface water (AASW) and glacier ice. Next to the coast there is an open polynya where the observed maximum temperature and salinity of modified CDW was 0.6 °C and 34.5 psu, respectively. In order to understand the temporal variation of the flow of CDW, the shipborn measurements were combined with a mooring measuring temperature, salinity and velocity every hour during 2010. During the observation period, the average water and heat transport were 2.5 m<sup>2</sup>/s and 26 MW/m along the western channel, respectively. The velocity of the CDW along the western channel showed a good correlation with the variation of eastward wind speed.