



## **Wintertime oceanographic data from the southern Weddell Sea using tagged Weddell seals**

**K. Nicholls** (1), L. Boehme (2), M. Biuw (2,3) and M. Fedak (2)

(1) British Antarctic Survey, Cambridge, UK, (2) Sea Mammal Research Unit, University of St. Andrews, UK, (3) Now at the Norwegian Polar Institute, Tromsø, Norway  
(kwni@bas.ac.uk / Fax: +44 1223 221226 / Phone: +44 1223 221490)

The central region of the southern Weddell Sea continental shelf is an important area for the production of high salinity shelf water, the key precursor for the Antarctic Bottom Water that has its origins in the Weddell Sea. Despite its importance it is a region with very few summertime observations, and none from winter. The reason for the lack of data is the year-round heavy sea ice. Even if moorings could be deployed during summer to give winter observations, they would be highly vulnerable to dredging by icebergs.

As part of a project to study the mechanisms that control the flow of source waters on to the continental shelf, a cruise was undertaken in the northeast corner of the continental shelf, near Brunt Ice Shelf. During the cruise, four Weddell seals were equipped with tags that consisted of miniature CTD instruments and Argos transmitters. The hope was that one or more of the seals would forage over the central part of the southern continental shelf to provide evidence for any inflows on to the shelf.

Here we describe data from one of the seals that did indeed travel into the area of interest, from where it obtained over 500 profiles, 250 of which were to depths greater than 300 m, with over 100 extending to the sea floor. The data show an apparently strong, full depth inflow entering the shelf regime along the eastern flank of a depression that, at the shelfbreak, is centred at around 44 degrees west.

Simple calculations based on the data suggest that this inflow could account for between 50 and 90% of the total on-shelf transport required to balance the off-shelf flow.