



## **Inflow of warm water towards the Filchner Ice Shelf through the Filchner Depression: What do we know and what do we do?**

Elin Darelius (1), Kjersti Daae (1), Ilker Fer (1), Tore Hattermann (2), Hartmut Hellmer (2), Keith Makinson (3), Keith Nicholls (3), Svenja Ryan (2), Michael Schröder (2), and Svein Østerhus (1)

(1) Bjerknes Centre for Climate Research, Bergen, Norway, (2) Alfred Wegener Institute, Bremerhafen, Germany, (3) British Antarctic Survey, Cambridge, UK

The Filchner-Ronne ice shelf (FRIS) is one of the largest ice shelves in Antarctica, located in the southwestern Weddell Sea and shielded from the warm deep ocean waters by a wide and cold continental shelf. Until recently FRIS was associated with the outflow of cold and dense Ice Shelf Water and which contributes to the formation of dense Antarctic bottom water. Recent modelling efforts, however, have highlighted the potential of a future, warm inflow along the Filchner Depression towards the FRIS cavity that drastically would increase the basal melt rates below FRIS and have consequences for ice shelf stability.

This scenario has sparked a number of research programs focusing on the Filchner Depression and the Filchner Ice Shelf. Here we review our current knowledge of the ice shelf-ocean system and present the latest findings from the region.