

# Multiparametric analysis of water masses across Drake Passage during ANT-XXIII/3

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Drake Passage plays a role of prime importance in the global ocean circulation since its opening between 49 to 17 million years ago. By this opening, the global climate of the Earth has changed significantly by a new circulation of the water masses, an increase of the biological productivity and a decline of atmospheric carbon dioxide. Million years after, the Southern Ocean still plays a pivotal role in global ocean circulation and is recognized as the ocean body most sensitive to climate change.

During 2006, a campaign onboard RV Polarstern (kick-off campaign of the Drake Project) was carried out to deploy 10 moorings (below ground track 104 of Jason satellite), and 105

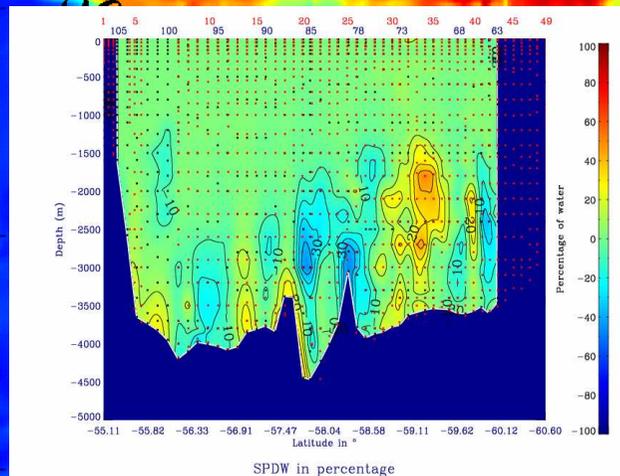
CTD/LADCP stations were performed with an average spacing of 12 nm to analyze water mass mixing and trajectories.

## Collaboration:

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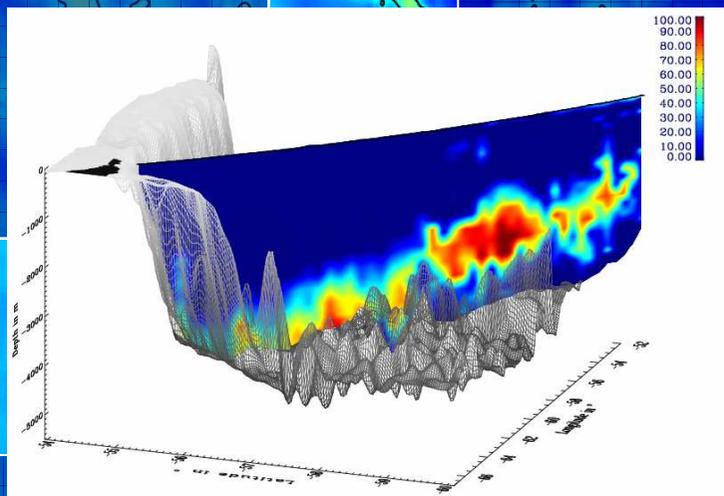
Oliver Huhn, Bremen University, Bremen, Germany

The wallpaper represents the location of the CTD stations of ANT XXIII/3 cruise.



mean solutions are the result of 100 numerical perturbation experiments to take into account the stability of each source water type in each water sample. Black dots indicate the northward journey stations whereas red ones the southward journey stations.

An effect of the SFZ crests is to clearly mark the lower delimitation of the SPDW on the main core layer. These crests also prevent the deeper part of SPDW to cross Drake Passage from the west. This 3D view of the bathymetry exhibits the effect of the SFZ crests leaving their topographic fingerprint on the SPDW (concentration in %, nominal solution) along the southward journey of ANT-XXIII/3.



Sudre, J., Garçon, V., Provost, C., Sennechael, N., Huhn, O., Lacombe, M., 2009. Multiparametric analysis of water masses across Drake Passage during ANT-XXIII/3, Deep Sea Research Part II: Topical Studies in Oceanography, submitted.