



Formation of Antarctic Intermediate Water in the South Atlantic

Dagmar Kieke (1), Monika Rhein (1), Oliver Huhn (1), Reiner Steinfeldt (1), and Birgit Klein (2)

(1) Institut für Umwelphysik, Universität Bremen, Abt. Ozeanographie, Bremen, Germany (dkieke@physik.uni-bremen.de),

(2) Bundesamt für Seeschifffahrt und Hydrographie, Hamburg, Germany

Antarctic Intermediate Water (AAIW) is one of the most prominent intermediate water masses of the southern hemisphere where it can be identified by its low salinity and potential vorticity. Formed north of the Antarctic Polar Front Zone AAIW deepens to depths greater 1000m on its way northwards. The focus of the present study is on the AAIW portion formed in the South Atlantic sector. The aim is to calculate tracer inventories and formation rates of AAIW from historical data which encompass the time period till 2004, and to calculate inventories and formation rates representative for the time period 2005-2011. The considered data set includes hydrographic measurements from the past two decades, chlorofluorocarbon data, as well as T/S profiles stemming from Argo float program. By studying horizontal maps of water mass properties we present first results revealing the horizontal propagation of AAIW and associated variability. Argo profiles are included to get an improved estimate of the AAIW volume. Based on historical measurements first tracer inventories are presented for the South Atlantic.