



Ventilation, formation, and export rates of North Atlantic Deep Water

Reiner Steinfeldt, Monika Rhein, and Dagmar Kieke

Universität Bremen, Institute of Environmental Physics, Bremen, Germany (rsteinf@physik.uni-bremen.de, +49 421 218-7018)

The formation and transport of North Atlantic Deep Water (NADW) is subject to natural variability but may also be influenced by climate change. To investigate ventilation and southward export of NADW, the concept from Bolin and Rhode (1973) of transit time distributions (TTDs) for reservoirs is applied here. The TTDs for the different components of NADW (Labrador Sea Water and overflow waters) are computed as volume integral of pointwise TTDs, which are inferred from CFC data collected in the North Atlantic between 1994 and 2009. It will be discussed, in how far ventilation and formation of Labrador Sea Water, the import of overflow waters and the southward export of NADW can be derived from this method.

Bolin, B., and H. Rohde, A note on the concepts of age distribution and transit time in natural reservoirs, *Tellus XXV*, 1, 1973.