

³⁹Ar measurements in the polar oceans

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Between 1986 and 1991 ³⁹Ar samples were collected on three cruises of the German Research Icebreaker POLARSTERN to the Weddell Sea and the Arctic Ocean. The data were used to determine the initial ³⁹Ar concentration of the Southern Source Component and the mean residence times of the deep waters in the Eurasian Basin and the Makarov Basin of the Arctic Ocean. The Southern Source ³⁹Ar concentration is ca. 55 per cent modern. The mean residence times estimated from ³⁹Ar data for the Nansen, Amundsen, and Makarov Basins are ca. 270, 193, and 333 years, respectively.