



Variability of interleaving structure of Atlantic Water during its propagation along the Eurasian basin (Arctic Ocean) continental margin

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In order to give detailed description of the interleaving structure in the Eurasian basin results of observations carried out during NABOS 2008 and Polarstern cruise in 1996 were analyzed. The study was focused on interleaving parameters (structure and vertical scale of intrusions) variability in the upper (150–300 meters) and intermediate (300–700 meters) layers of the ocean. Based on $\theta, S/\theta, \sigma$ -diagrams (θ , S and σ are the potential temperature, salinity and potential density, correspondingly) analysis two main results were obtained. First of all it was shown that intrusive layers carried by the mean current along the Eurasian Basin continental margin become deeper relatively isopycnals and thus stimulate ventilation of pycnocline. Second, the area in Eurasian Basin thermocline was found where intrusive layers of large and small scale were absent. This distinctive feature can be explained by intensive mixing between two branches of Atlantic Water, one of which propagates along Eurasian basin continental margin and the other spreads across the basin due to large scale interleaving processes. Among others, one of the possible methods of integral estimation of Atlantic water masses heat and salt contents variations during their expansion along basin continental margin was proposed. Thus it is reasonable to assess variation of square under the $\theta(S)$ -diagrams, which illustrate the data obtained from two CTD-stations located on diametrically opposite sides of Eurasian Basin, taking 0.5°C isotherm as a reference value. For verification of the introduced approach the estimates of heat and salt contents variations were made by different methods. Detailed discussion of the results is presented.

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