



On the influence of ocean dynamics on volume sound scattering variability in the deep ocean

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Combined analysis of oceanic experiments made in different parts of the North Atlantic, Arctic seas of Russia and in the Pacific sector of the Antarctic showed the existence of significant mesoscale and finestructure variability of volume sound scattering at depth of 0–2500 m in the frequency band of 10–150 kHz. Acoustic measurements were combined with data of satellite observations in the IR and visible spectral ranges (NOAA satellites). In addition, data of hydrologic measurements from a board of research vessels were also used for the analysis. As a result of the numerous subsatellite field experiments it was revealed that the main mechanisms which dominantly influenced on the volume sound scattering variability were the peculiarities of ocean dynamics at depths of acoustic measurements. The influence of oceanic fronts dynamics connected with the oceanic currents and streams as well as open ocean eddies and near shore upwellings were investigated. A role of topographic factors in the region of North Polar Frontal Zone and an influence of Intermediate Atlantic Waters on the field of volume sound scattering were also revealed. Finally the influence of thermal vents at the ocean bottom on the local space and time structure of acoustic scattering in the near bottom layer was investigated.