

PECULIARITIES OF HYDROACOUSTIC RANGING ON ULTRA-LONG PATHS CROSSING VORTEX STRUCTURES

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The article discusses the results of experimental and numerical studies of the features of acoustic ranging measurements on long paths when crossing a vortex system. Hydroacoustic and hydrological measurements were carried out along a 1073 km track in the northern part of the Sea of Japan, which made it possible to reveal the presence of an anticyclonic eddy and determine its characteristics according to the NEMO ocean circulation hydrodynamic model. For the physical interpretation of the processes of propagation of impulse broadband signals in complex hydrological and bathymetric conditions, numerical studies were done using the RAY computer program. Thus, it becomes possible to refine the standard methods for carrying out such measurements and improve the accuracy of measuring the distance between the emitter and the receiving system.

Keywords: hydroacoustic, speed of sound, pseudorandom signals, ocean circulation models, underwater, anticyclonic eddy

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