

STUDY OF PULSE SIGNAL PROPAGATION IN VITYAZ BAY OF SEA OF JAPAN BASED ON EXPERIMENTAL AND MODEL DATA

D.S. Manul'chev, A.N. Rutenko

The work presents the results of field studies of a low-frequency acoustic pulse signal propagation in Vityaz Bay (Posiet Bay, Sea of Japan). Measurements were conducted with an autonomous acoustic bottom station, digital radio hydroacoustic buoys, and a pulsed pneumoemitter moored from a drifting vessel. It is shown that on an acoustic path of 2.2 km long with an average depth of 34 m in Vityaz Bay, a received signal has the form of two pulses with comparable amplitudes and a delay of 0.2 s. Water modes form the first pulse. Apparently, the nature of the second pulse is associated with the presence of sedimentary soil in the bay, accumulated over bedrocks due to currents and streams flowing into the bay. This assumption is confirmed by numerical simulation by introducing a sandy-silty substrate into the model waveguide as a pulse energy signal propagation channel. For an acoustic path of the same length and bottom profile but directed on the shore, the "double pulse" effect is not observed. In this case, protracted tails are recorded behind the water pulse due to the reflection of the water pulse from the rocky shores and the Tarantsev Islands.

Keywords: shelf, seismoacoustic pulse, sound energy propagation, inhomogeneous geoacoustic waveguide.

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About the authors

MANUL'CHEV Denis Sergeevich

Institute of Marine Technology Problems Far East Branch of RAS

Address: 690091, Vladivostok, Sukhanova str., 5A.

Research interests: Ocean acoustics, acoustic wave propagation, numerical simulation, programming

Phone: +7 (950) 298 82 14

E-mail: manulchevds@gmail.com

ORCID ID: 0000-0002-3744-5308

RUTENKO Alexander Nikolaevich, Doctor of Physical and Mathematical Sciences

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