

TO THE EVALUATION OF THE DYNAMIC CHARACTERISTICS OF AUV MMT-3500 ON THE BASIS OF MODEL AND EXPERIMENTAL DATA

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The autonomous underwater vehicle (AUV) «MMT-3500», created at the IMTP FEB RAS, was intended for deep-sea research in the Antarctic associated with participation in the AMK-87 complex expedition in 2022. The functionality of the AUV allows it to be used for solving a number of other scientific and applied problems. In this regard, it is important to outline the problems related to the assessment and optimization of the tactical, technical and operational characteristics of the device when performing a wide class of working missions in a complex environment. The work is devoted to the evaluation of the dynamic characteristics of the AUV, which largely determine its effectiveness when performing sonar, geophysical and hydrographic measurements in the surveyed marine areas. The estimates obtained are based on the use of model and experimental data and their comparison to refine the parameters of the model used and optimize algorithms and control parameters. The hydrodynamic characteristics of the AUV, which performs spatial motions in the water column and near the bottom, are investigated. For motion control, a propulsion-steering complex (PSC) is used, its parameters were obtained in the basin and open tests on the traction characteristics of propulsors. The analysis of the dynamic processes obtained with the help of the developed simulation model relies on the experimental data of the operation of the MMT-3500 AUV during its testing and trial operation.

Keywords: AUV, MMT-3500, propulsion-steering, hydrodynamic, experimental, algorithms, motion control.

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