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**DEVELOPMENT AND FULL-SCALE TESTING OF INTELLECTUAL SUPPORT SYSTEM FOR ROV OPERATORS**

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**ABSTRACT**

The article deals with the development of the intellectual support system for the ROV operators, as well as the practical implementation of this system for the ROV Comanche 18, which is based on the R/V "Akademik M.A. Lavrentiev". The proposed system implements the controlling algorithms for the coordinated movements of the ROV and its depressor-weight. These algorithms are designed for the simultaneous, accurate, and accident-free ROV movements along the long routes, even in the case when the supporting vessel has no a dynamic positioning system. Proposed system provides operators with visual recommendations and warnings, which are formed in real time on the basis of expert evaluation of the information obtained from various sensors and navigation systems. The abilities for the planning of routes for the ROV and its carrier vessel movements, the entering of target points, as well as the storing of maps, tracks and locations of the detected underwater objects are realized in the developed system. The article presents the results of successful tests performed in the deep-sea scientific research expedition of the National Scientific Center of Marine Biology FEB RAS in the Bering Sea in 2018. The created intellectual support system for the ROV operators significantly expanded the capabilities of ROV in the process of performing many unique works, significantly reducing the time for underwater operations.

**Key words:** remotely operated unmanned underwater vehicle, intelligent system, underwater operations, navigation system, software.

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