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localizatiON of the stationary deep-sea underwater acoustic equipment using multilateration method

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**ABSTRACT**

During the solving of multiple problems in deep-sea conditions, it’s necessary to localize a stationary bottom-placed underwater acoustic equipment (beacons, bottom stations, etc.). The set of methods of such objects positioning may include the multilateration method. The research team of IMTP FEB RAS designed a software-hardware complex for automated localization of bottom-placed beacons and deep-sea underwater acoustic stations using multilateration method. The results of the complex field tests confirm working capacity, high efficiency, and accuracy of localization of bottom-placed stationary objects using multilateration method compared to ones utilizing the trilateration method. That can be explained by a larger number of range measurements and applying the probabilistic approach for estimation of the object position. The gathered test results allow giving an appraisal of the benefits and drawbacks of the proposed localization method.

**Key words:** acoustic navigation system, hydroacoustic beacon, hydroacoustic bottom station, towed underwater module, coordinated object, multilateration.

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