



## **Calculating vectors of the ship's speed and acceleration by means of GPS/DGPS measurements**

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In navigation position coordinates are measured: points on the trajectory, and trajectory derivatives: the speed vector and the acceleration vector. Due to the occurrence of systematic errors and random errors both in a mathematical model of the navigational process as well as in single measurement models, there is no full congruence of the results of the measurements carried out by means of various navigational instruments and systems. In the above paper an attempt has been made to compare trajectory, speed and acceleration determined by means of various navigational devices and systems. The results can be used in an analysis of measurement reliability and accuracy of work of a navigational device or system. Besides, a comparison of different sources of information makes it possible to find and identify systematic errors which can result in verifying mathematical models of various phenomena and processes.