



Calculation of the ship's position coordinates and the accuracy assessment in dead reckoning navigation

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Dead reckoning navigation is one of the oldest methods of ship's position determination in sea navigation. Its advantages are autonomy and possible integration with other position determination methods, in particular with the statistical model for working out measurements of navigational parameters. Dead reckoning makes use of basic navigational instruments that every ship is equipped with, i.e. the compass and the log. Basically, the method pertains to calculating ship's coordinates for a defined moment of time by means of the integration of ship's speed and speeding up in the case of analogue measurements, or by calculating the increment of the coordinates from differential equations in the case of discrete measurements of speed or acceleration. The present position is determined as a sum of the coordinates increments.