



Technical Bulletin

Uses of electronic navigational aids

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Are you putting too much reliance on electronic navigational aids?

The Club is aware of an incident where a ship was using a Japanese datum in the Mediterranean (WGS 84), seven years after build. As a result, the GPS was providing navigational information with a near 5 cable inaccuracy, resulting in a half mile error on all the vessel's waypoints transposed from GPS onto the ships ARPA radar. Had the ship been relying on GPS to navigate (rather than visual fixing) or had been using electronic charts, the inaccuracy of the positions shown on the screen would have been highly dangerous.

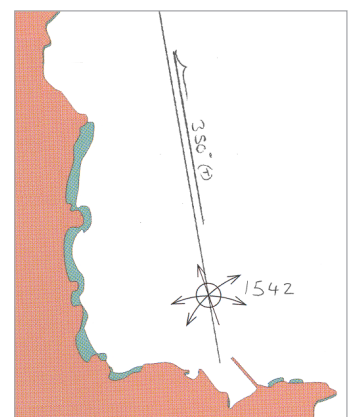
GPS

The global positioning system has been an important and usually reliable addition to ships' navigational equipment, however a passenger vessel ran aground in US waters because of a faulty GPS.

The shield wire of the antenna had separated from its connection causing the unit to send inaccurate position data to the integrated bridge system resulting in the ship being 17 miles off course, eventually running aground 10 miles east of Nantucket Island, Massachusetts. The vessel had been navigated solely by GPS for more than 30 hours prior to the stranding and although only 10 miles from shore when she stranded the officers had not attempted to fix the ship's position.

Traditional backup

The trust placed on electronic aids to navigation is not only during ocean passages but also in confined waters passages and under pilotage. When navigating in confined waters it is important to check the position of the vessel by visual means whenever possible. Electronic navigational aids are not foolproof and traditional navigational techniques should, whenever possible be practiced. It must also be remembered that the master remains in command of the vessel when under pilotage (except in the Panama Canal) and is therefore totally responsible for the safe navigation of the vessel even in these waters. Failure to navigate safely can result in severe consequences for the master. There is no substitute for good passage planning and execution, nor is there any excuse for poor record keeping during the passage from berth to berth.



RADAR

Similarly, ARPA is a tool, but can give false information if it is not set up and used correctly. Small targets may not be visible to radar and therefore a very good visual lookout is still required on all Bridges at sea today. Total reliance on ARPA must be avoided.

Plotting facilities for vessels without ARPA should be in the form of plotting sheets. Frequently a radar fitted with a reflection plotter is the only means available. This is insufficient, watch keeping officers should be encouraged to plot and plan manoeuvres during clear weather thereby building up the necessary experience. It is too late to discover during reduced visibility that the officer of the watch does not have the required skills.

The single most useful tool for collision avoidance is the compass bearing of the target. If a ship is on a steady, or nearly steady bearing then risk of collision should be deemed to exist. There are still far too many 'radar assisted' collisions at sea.