

Using a Pilot Laptop with the AIS pilot plug - observed errors and difficulties

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The following pages and images detail the errors found and experience in using his Pilot Laptop by a Australian Pilot. His Pilot Laptop is connected solely to the ship's AIS pilot plug on visiting vessels and the images illustrate that:

A.. Visiting vessels may have their main GNSS (usually GPS) receiver set to a different chart datum than that used in the Port. The main GNSS receiver is connected to the AIS transponder and so the error in position caused by using the wrong chart datum is fed through to the AIS pilot plug. Such errors in position are often not evident to either the vessel's navigators or the Pilot until the vessel closes with buoyed channels and navigational marks.

B.. Visiting vessels may also have incorrect true heading or other misleading data, being transmitted from their AIS transponders. It is well known that some of the interfaces fitted to vessels to convert Gyro compass output to the correct format for AIS input are liable to faults. Some also require a considerable degree of work to set them up again when all power has been removed from the systems (for example, after the vessel has been to drydock).

C.. Older GNSS (GPS) receivers on both visiting vessels and local Tugs etc may not have the performance which later models are required to have. GNSS antennas may also not be in the optimum places, due to construction constraints. This may show when vessels are in very close quarters situations.

D.. Care should be taken over the logging interval used when recording (and replaying) AIS tracks and data.

As with all navigational instruments, GNSS , AIS and Pilot Laptops are only aids to Navigation and positions and data derived from them should always be cross-checked with other systems , particularly the visual view from the bridge windows and Radar, and always used with traditional navigator's caution.

Image 1 - Checking for position errors before making the channel approach.

The screenshot below shows the potential difficulties encountered in checking for (comparatively small) errors in position from an offshore position before the approach is made. See Pilot's comments on the screenshot itself.

The screenshot displays a navigation software interface. On the left, a 'Check Settings' dialog box is open, showing a table of vessel parameters. The 'Values' section contains the following data:

Type	Current	AIS
Width	32.0 m	33.0 m
Length	200.0 m	183.0 m
Vessel draught	10.0 m	11.5 m
Antenna offset X	0.0 m	5.5 m
Antenna offset Y	180.0 m	144.0 m
Bridge Position	180.0 m	144.0 m

Below the table is a 'Copy to own vessel' button and a checkbox for 'Don't show this dialog again'. The main window shows a map of Port Phillip with a hatched area representing the Great Ship Channel. A heading of 043 deg is indicated. On the right, a dashboard displays navigation metrics: HDG (°) 26.0, ROT (°/min), DAT, COG (°) 26.0, SOG, and a speed of 5.2 kts. A 'Waypoint' section shows 'No route selected'. A system update notification is visible at the bottom.

Screen shot 1/5 showing Ships data entry screen with the correct ships data as supplied to the Pilot Plug in right hand column that is to be checked and copied onto Pilots laptop. All correct and entered for a deep draft tankers entry into Port Phillip. Pilot boarded in dense fog so no visual clues to check the AIS /GPS ships pilot plug positional data feed to the Pilots Laptop. Boarded 6 miles off Heads. Set up Radars for Parallel index entry. The vessel was a deep draft Tanker and confined to the deep water Great Ship Channel (hatched area on screen). Vessel waited off the Heads for the Fog to lift to enable a visual approach.

Image 3 – wrong datum being used in own vessel’s main GNSS receiver.

The screenshot below shows the effect of the wrong chart datum being used in the vessel’s main GNSS receiver. See Pilot’s comments on the screenshot itself.

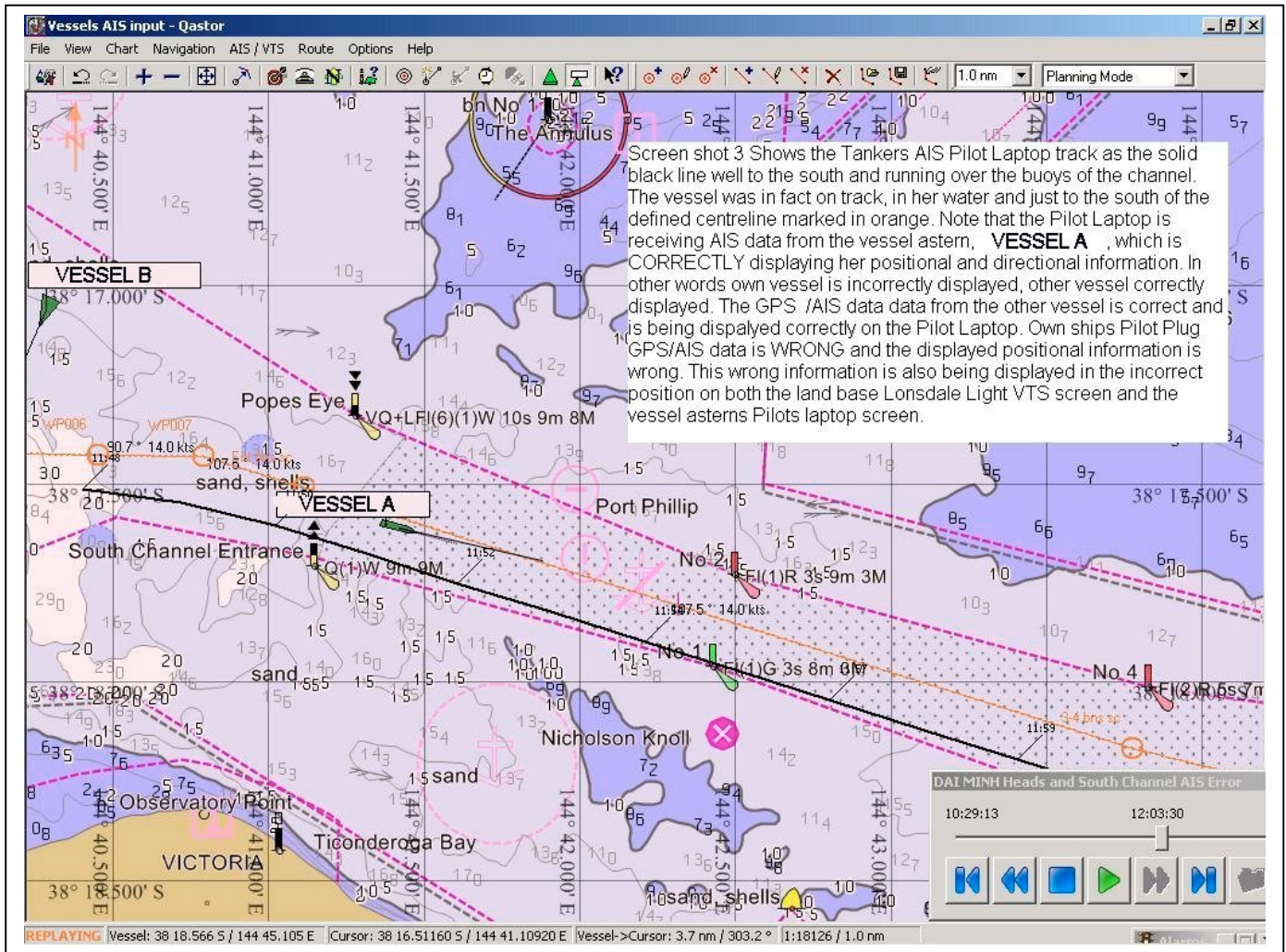


Image 4 – wrong datum being used in own vessel’s main GNSS receiver (shown on shore display).

The screenshot below shows the effect of the wrong chart datum being used in the vessel’s main GNSS receiver. The incorrect position is also being displayed on the shore based AIS traffic display. See Pilot’s comments on the screenshot itself.

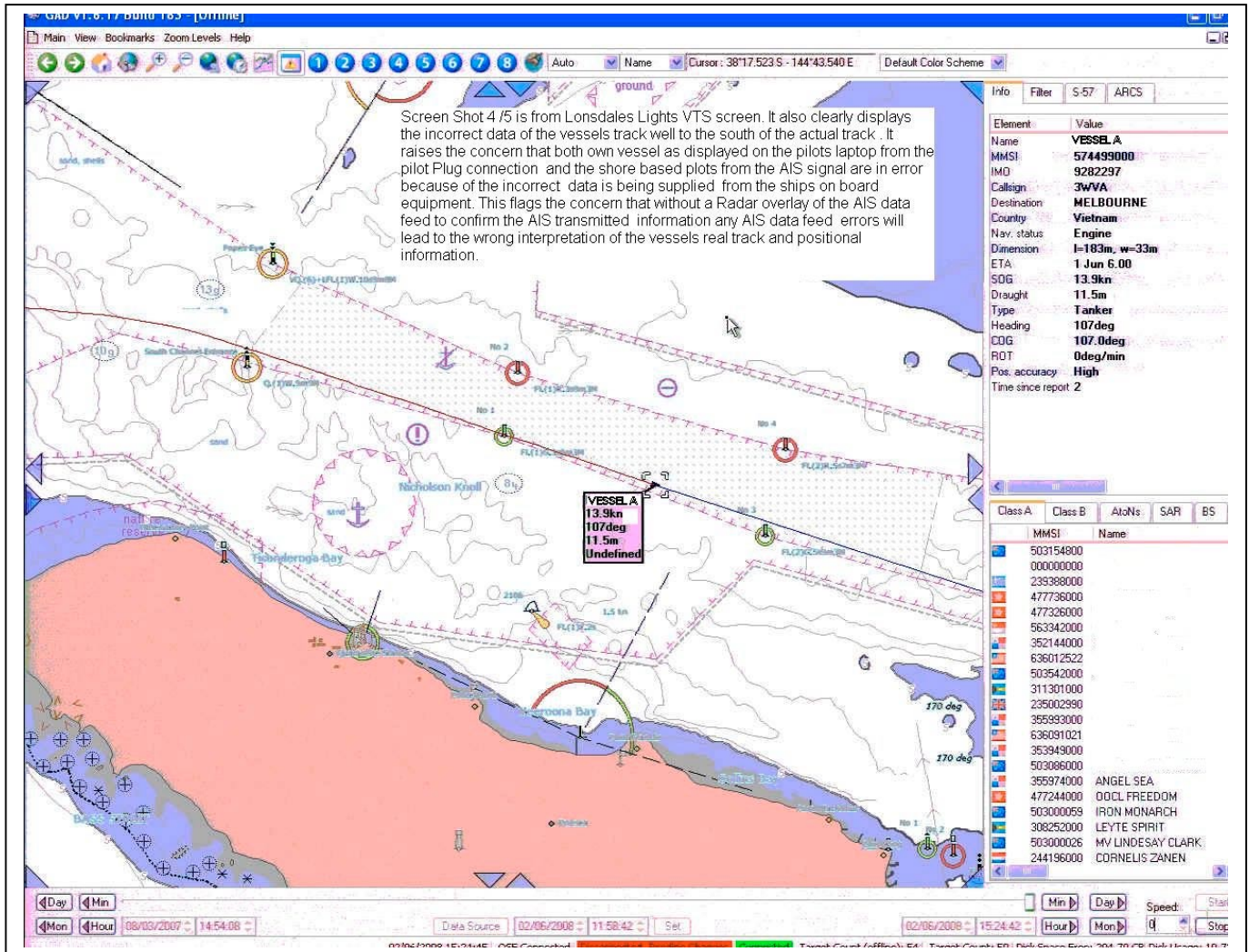


Image 5 – wrong datum being used in own vessel’s main GNSS receiver (shown on other displays).

The screenshot below shows the effect of the wrong chart datum being used in the vessel’s main GNSS receiver. The incorrect position is also being displayed on the other vessels’ Pilots’ Laptops. See Pilot’s comments on the screenshot itself.

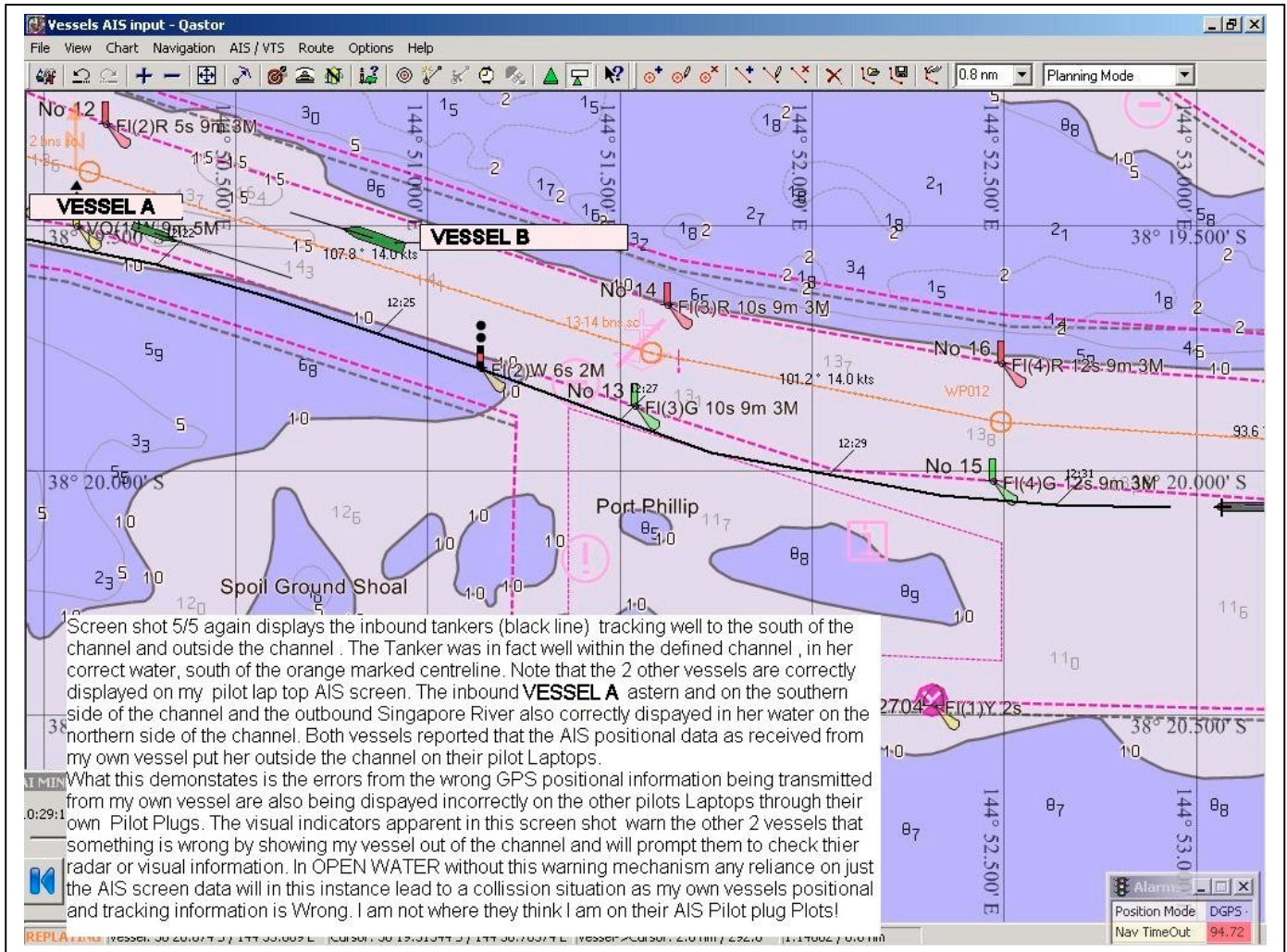


Image 6 – wrong true heading being transmitted by nearby vessel’s AIS transponder..

A The screenshot below shows the effect of the wrong heading true heading being transmitted by a nearby vessel’s transponder. See Pilot’s comments on the screenshot itself.

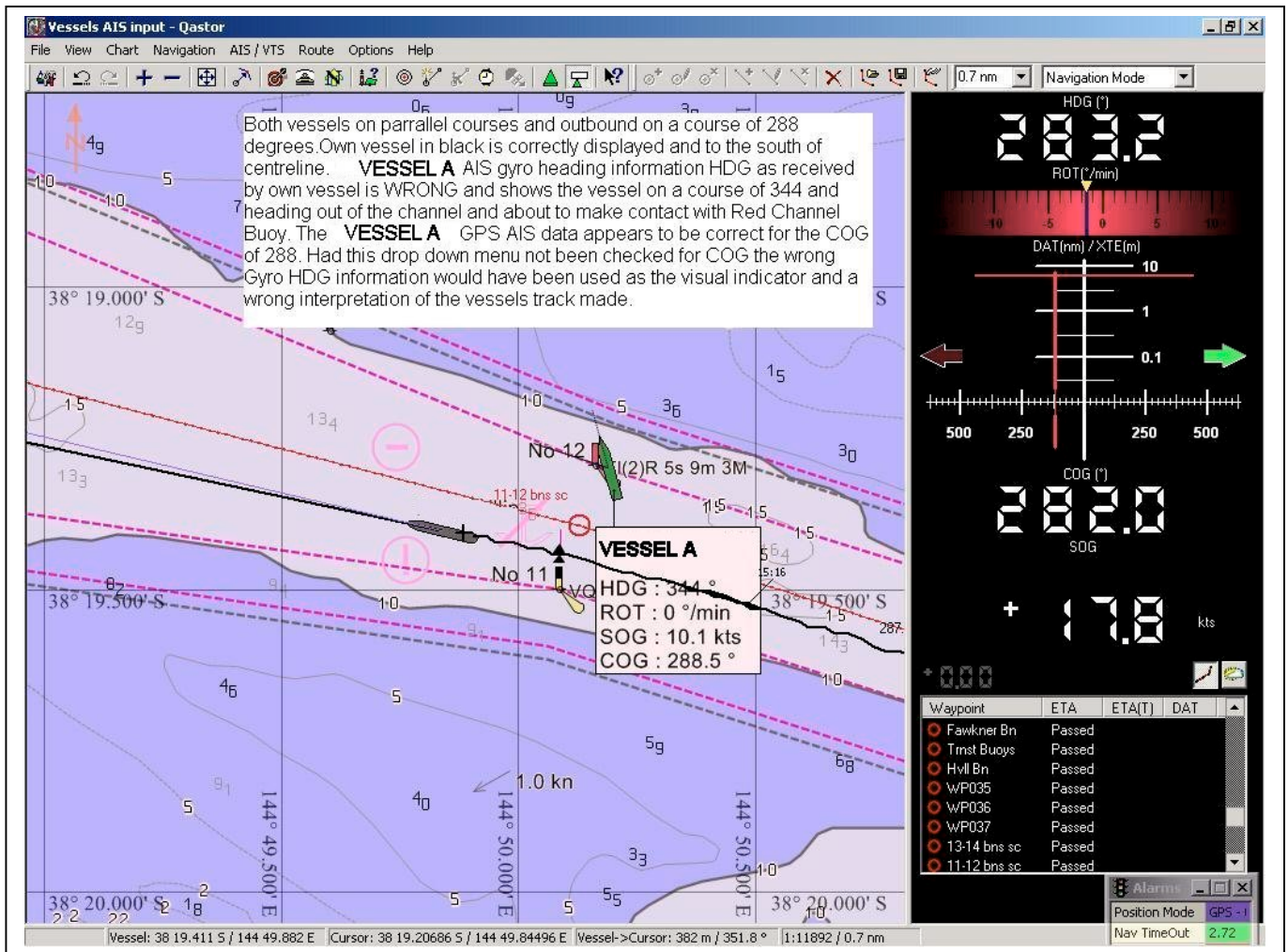


Image 7 – track replay and tug AIS positions display on Pilot Laptop.

A The screenshot below shows the effect of what was possibly a low logging interval set on the Pilot Laptop and also the effect of the Tug not receiving a good GNSS (GPS) fix. A newer GNSS receiver and/or improved positioning of antennas on the Tug might be able to improve this situation. See Pilot’s comments on the screenshot itself.

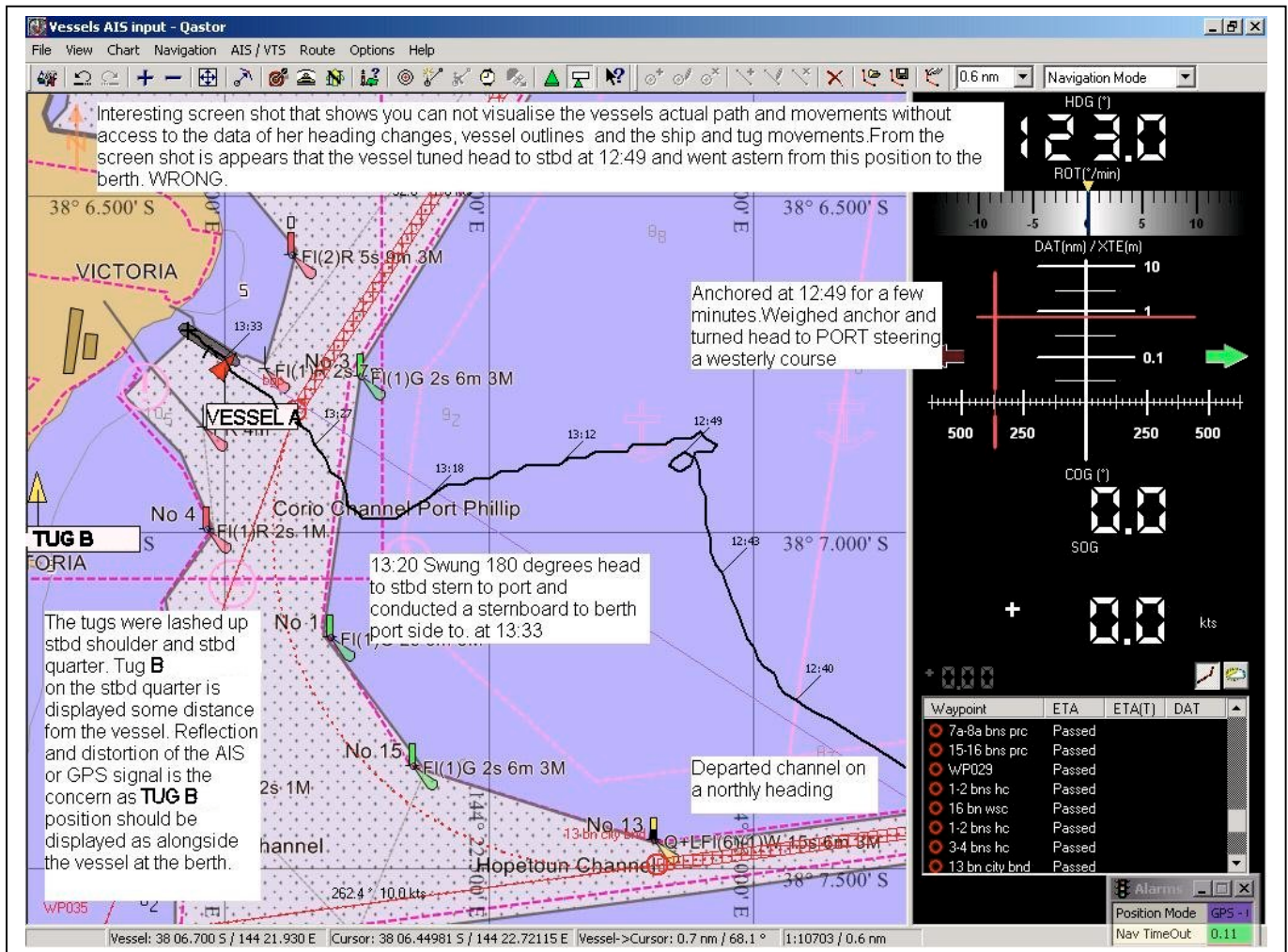


Image 8 – wrong datum being used in own vessel’s main GNSS receiver (shown on other displays).

The screenshot below shows the effect of the wrong chart datum being used in the vessel’s main GNSS receiver, later corrected. See Pilot’s comments on the screenshot itself.

