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

2nd November 2008

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.

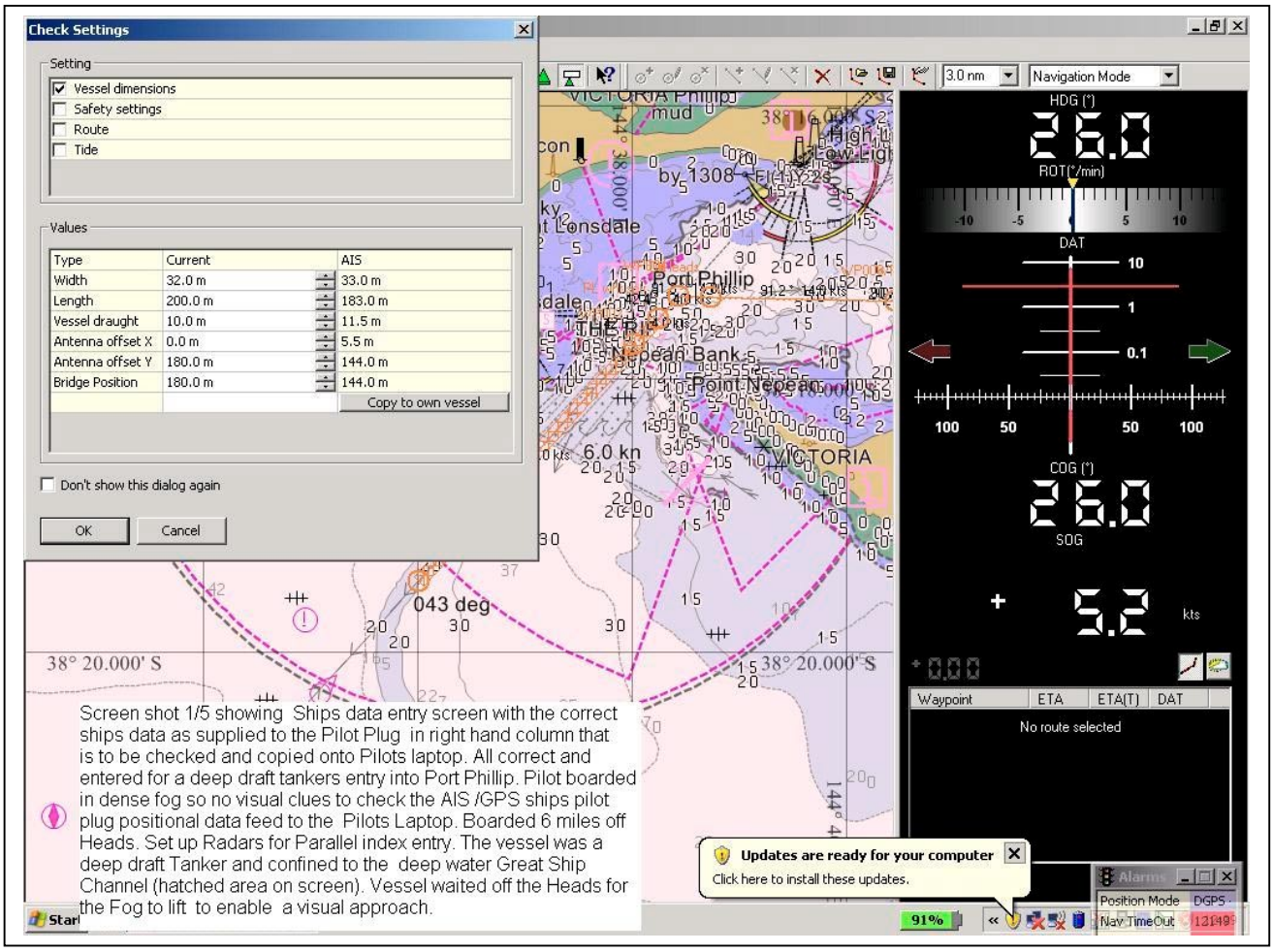

Image 2 – wrong datum being used in own vessel's main GNSS receiver.

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.

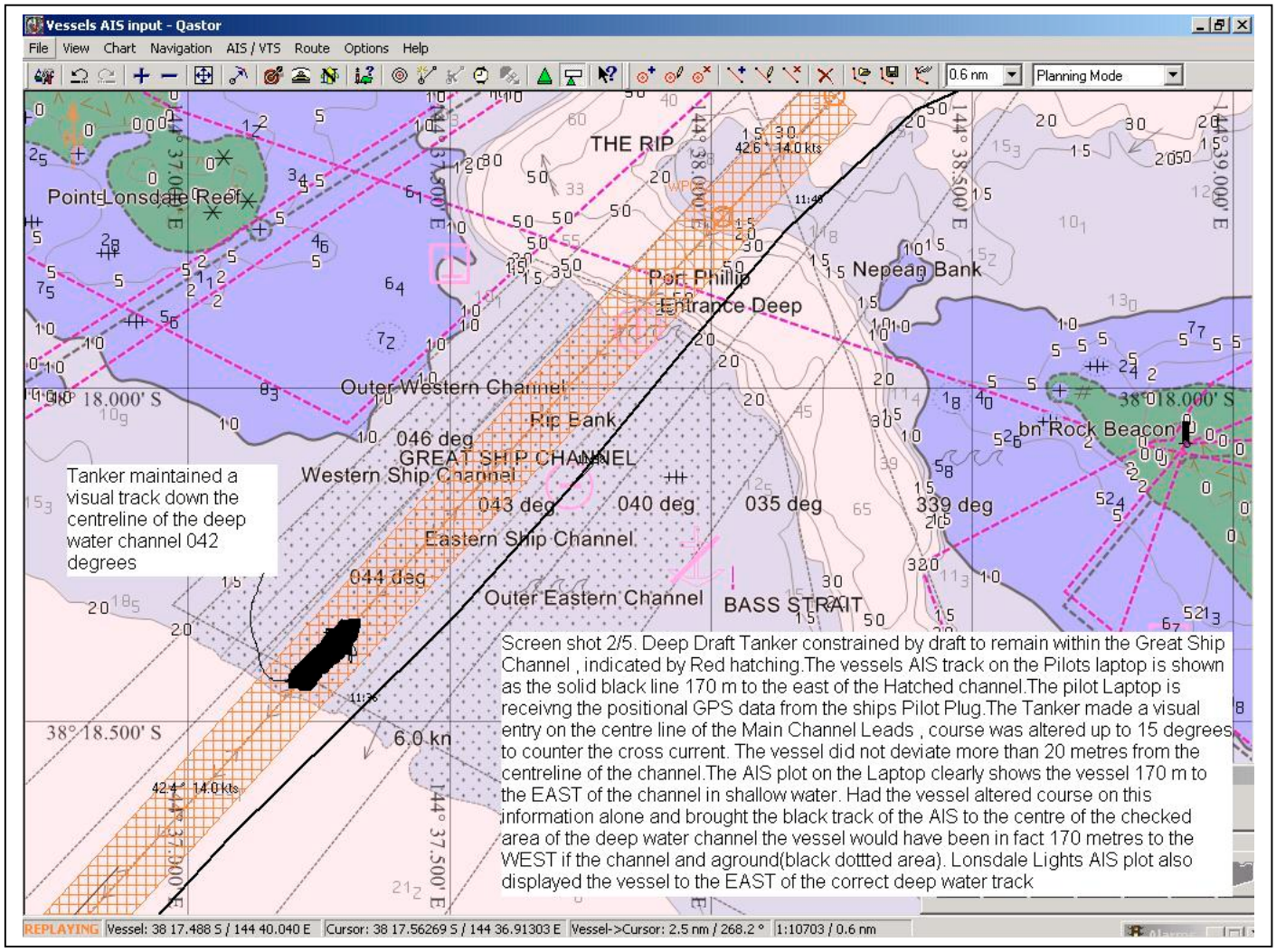

Image 3 – wrong datum being used in own vessel's main GNSS receiver.

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.

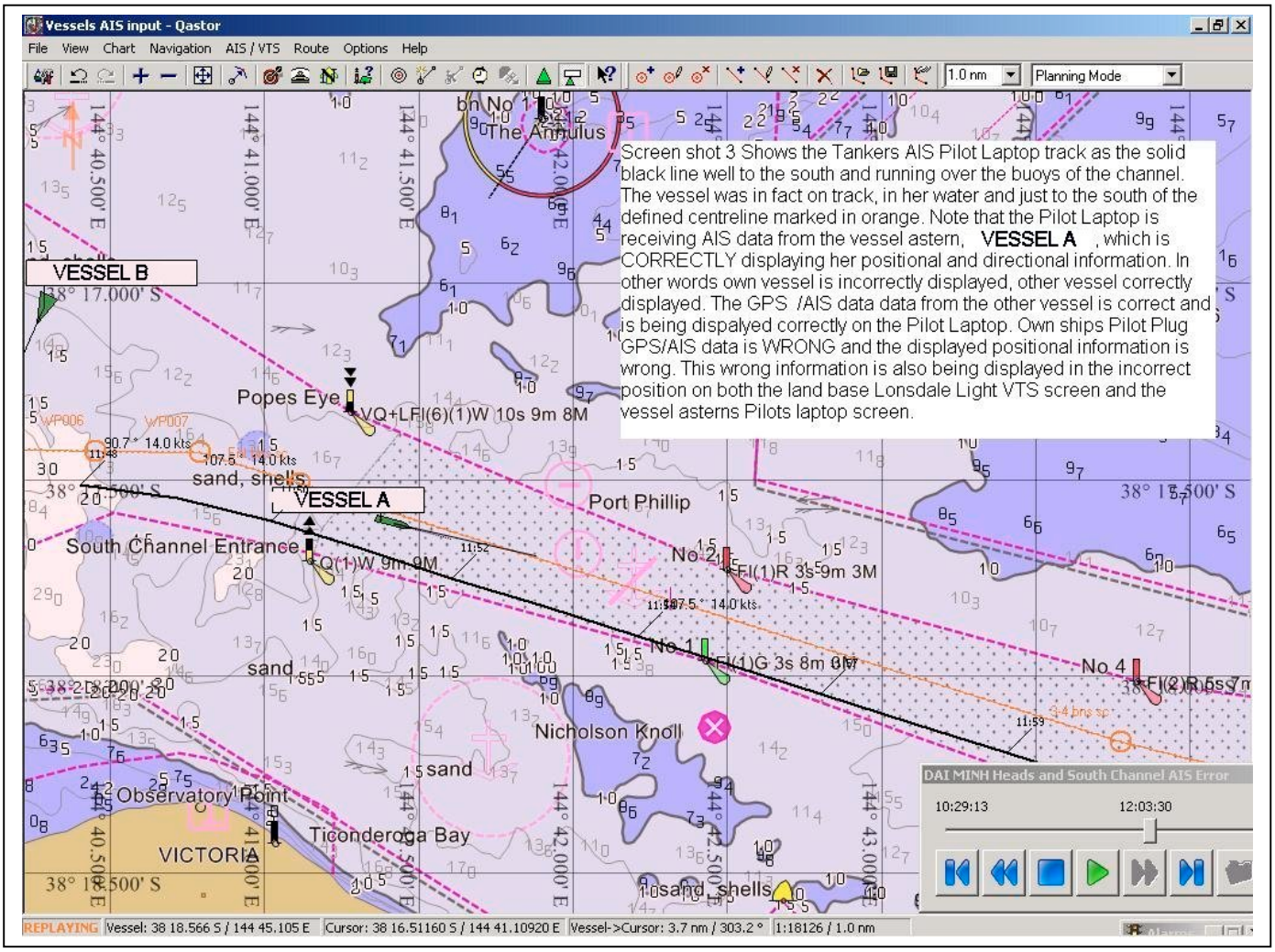

Image 4 – wrong datum being used in own vessel's main GNSS receiver (shown on shore display).

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.

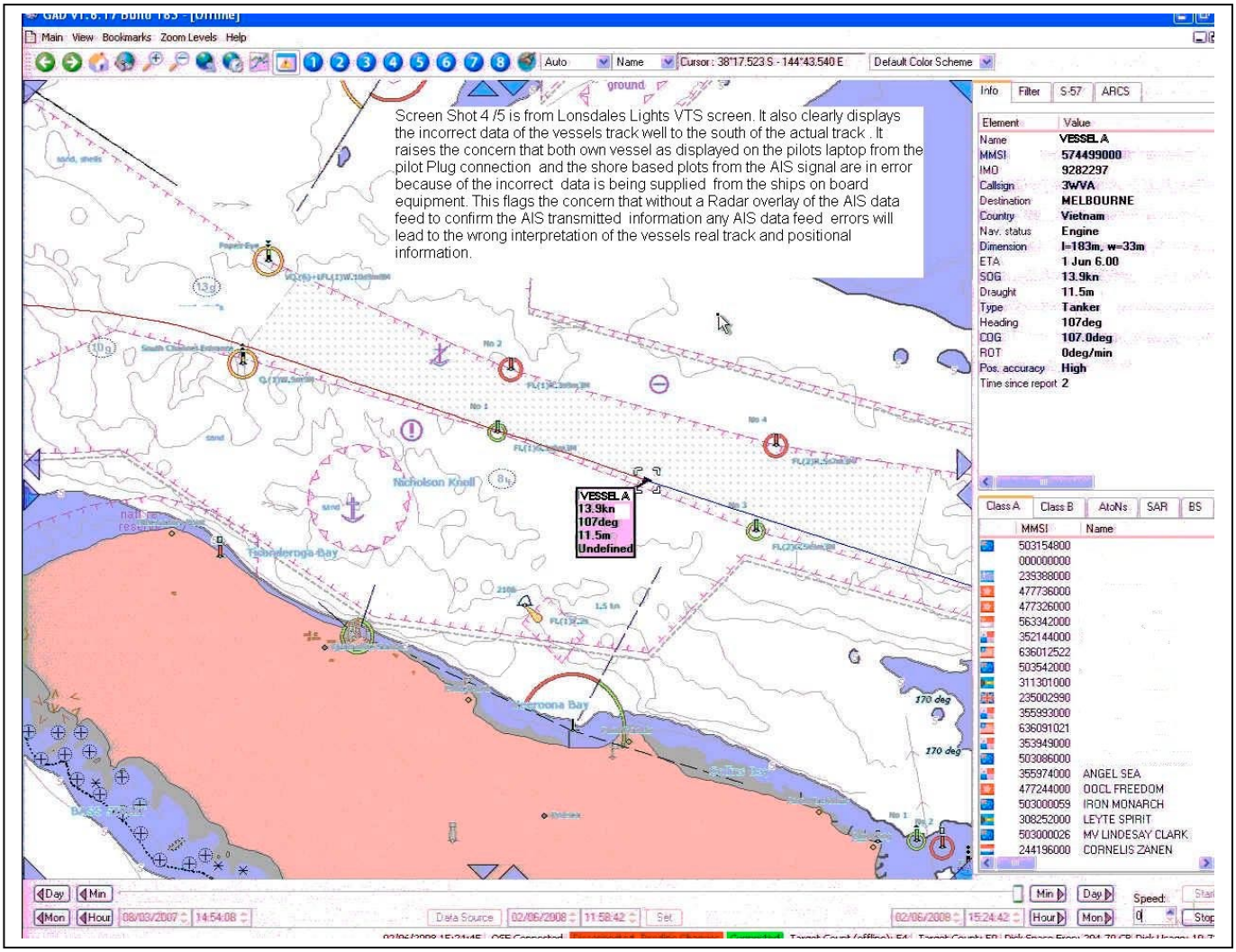

Image 5 – wrong datum being used in own vessel's main GNSS receiver (shown on other displays).

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.

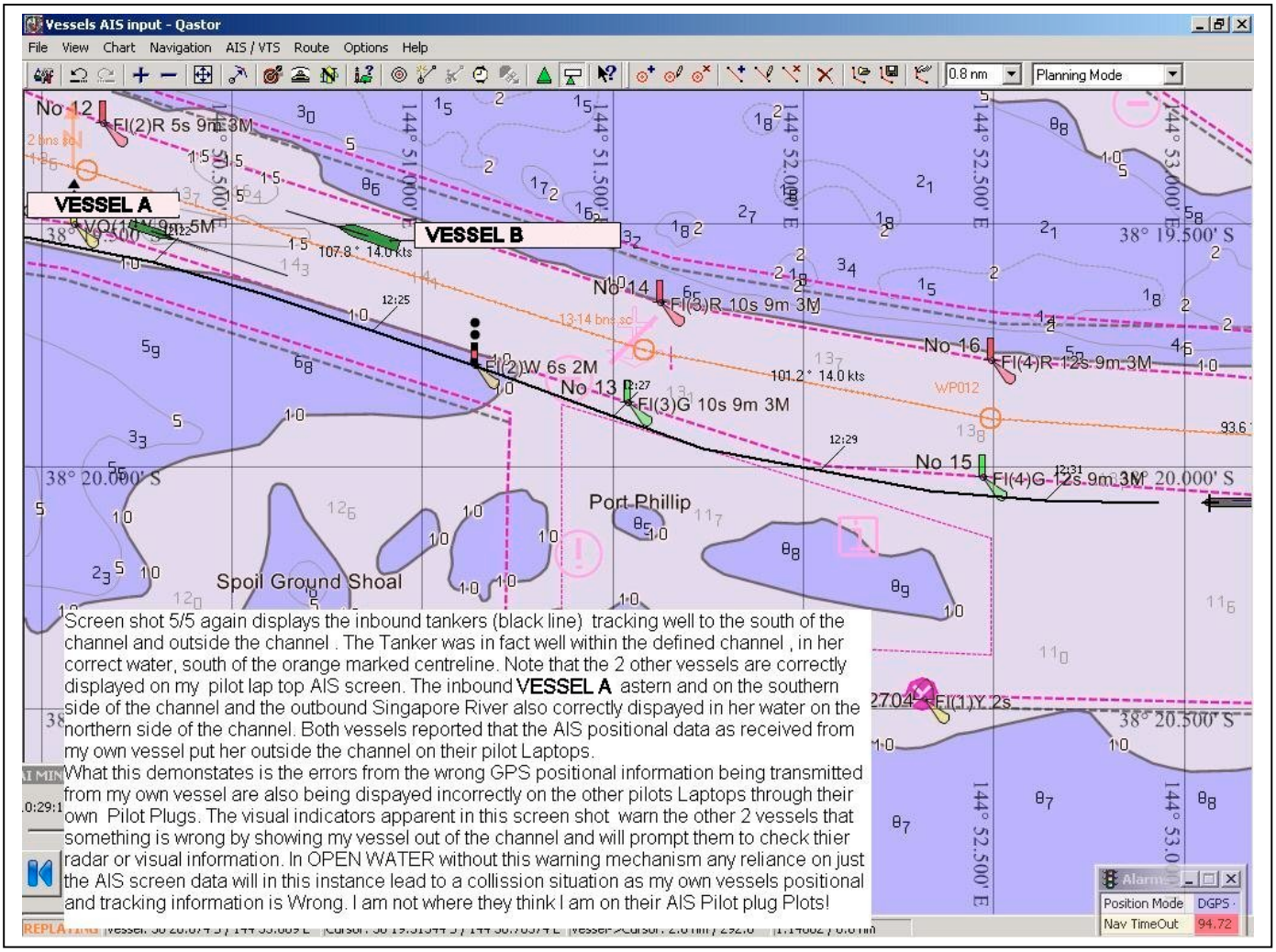

Image 6 – wrong true heading being transmitted by nearby vessel's AIS transponder..

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

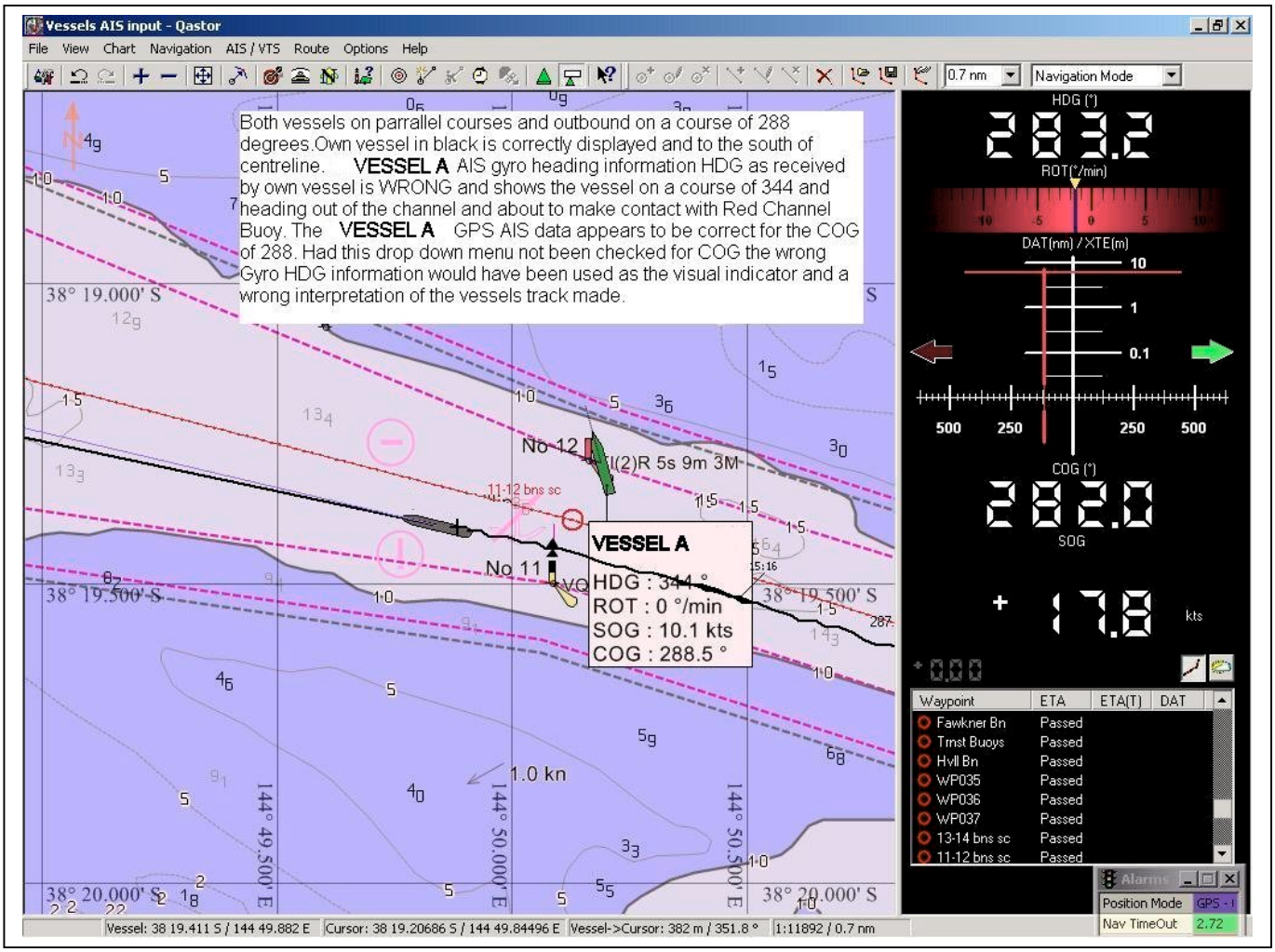

Image 7 – track replay and tug AIS positions display on Pilot Laptop.

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.

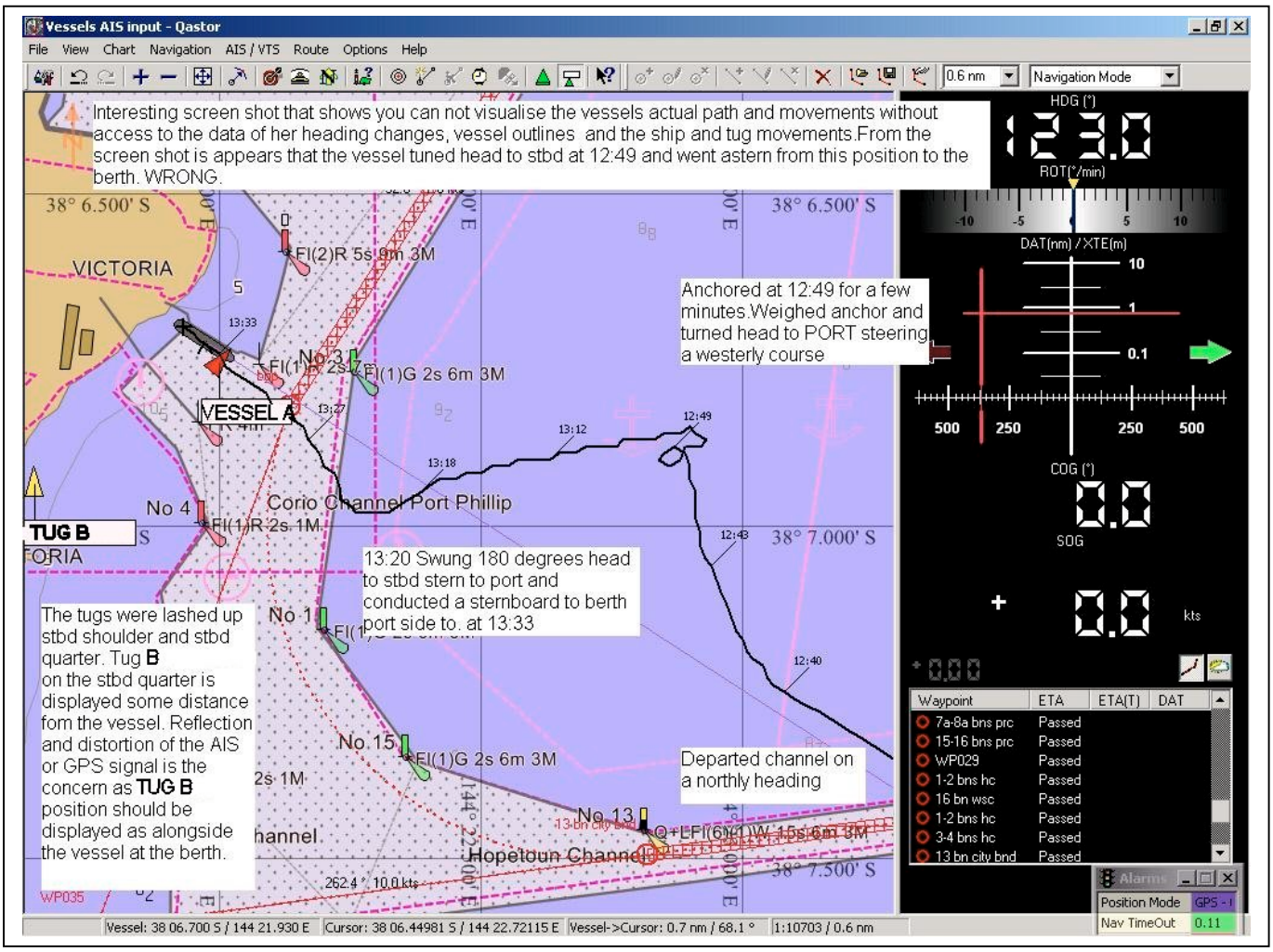

Image 8 – wrong datum being used in own vessel's main GNSS receiver (shown on other displays).

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.