

- This presentation
 - Background
 - Brief description of
 - Hardware as used
 - Charting and other software
 - Examples from last season
 - Voyage and weather planning
 - Race planning and outcomes
 - 3-D capabilities

Basic Aims

- To develop a portable navigation system that works for a wide variety of yachts and scenarios
- Acknowledge that in the past up to 90% of the Navigator's job was figuring out where the boat was.

Now, unless something has gone seriously wrong, we always know where we are and the Navigator has become more of an 'Information Manager'

Basic Requirements for the Itinerant Navigator's 'Bag of Tricks' (1)

- Must be
 - Up to date
 - It is self evident that charts and tidal data should be current but the temptation is often to leave the updates on the basis that 'not much has not changed'!
 - Useable
 - All the main functions such as chart plotting, chart information, tidal and current data, weather data and AIS targets should be accessible and understandable by everyone who needs to know, e.g. watch leaders

Basic Requirements for the Itinerant Navigator's 'Bag of Tricks' (2)

— Have a planning capability

- For an offshore race of say 4 or 5 days duration then probably 70% of the navigation is done before leaving the dock.

The capability to plan the route and race plan, download the weather files, run through a number of alternative scenarios and get all the information likely to be required is conveniently done on a portable machine (with paper based backup of course!).

— Portable

- Being portable means all the kit can be carried aboard and fit into the on-board environment including the yacht's main instrument outputs.

Basic Requirements for the Itinerant Navigator's 'Bag of Tricks' (3)

— Robust

- Items of electronics aboard yachts are subject to environmental conditions that will, at some point in their lifetime, include solid water, dampness, salt corrosion, violent movements with consequent shock loading, contact with foreign objects and varying power supplies.
- IP68 is the standard for being dust tight and waterproof, IP67 dust tight and water resistant to 1m.
- There are various enclosures available from custom boxes to poly bags. These can work but may compromise the function of the kit.

This is why the electronics need to be water proof



Hardware - Laptop



DELL 7404 Rugged Extreme i7 Laptop, 16Gb
main memory

IP68 (fully water, dust and drop proof)

512Gb Solid State Disc

14" touch screen

Various battery charging regimes – 230v and 12v,
spare battery.

Lots of USB ports, DVD, WiFi and WiFi hotspot,
Bluetooth

Windows 10

Hardware – PDA and Others



Sony Xperia Z3
5.2" screen. 16Gb memory, 64Gb card
IP 67 dust and waterproof rating
Additional glass screen and shock
polymer hard casing.
Fos Power waterproof charging bank



GPS trackers with bluetooth.
(Used as independent recording devices
but also transmit their position and
other NMEA sentences which are picked
up by the laptop based charting
programs). No wiring required.

AIS

(and what to do about it)

- Options
 - Receive only
 - I use a μ AIS receiver from Digital Yacht
 - Receive and transmit (transponder)
 - If the yacht has one use a Vesper XB-8000



Class B AIS with built-in WiFi and NMEA gateways converting navigation instrument data plus AIS and GPS so it can be viewed on most any tablet, smartphone, PC or Mac.

Vesper XB-8000; PDA screen shots

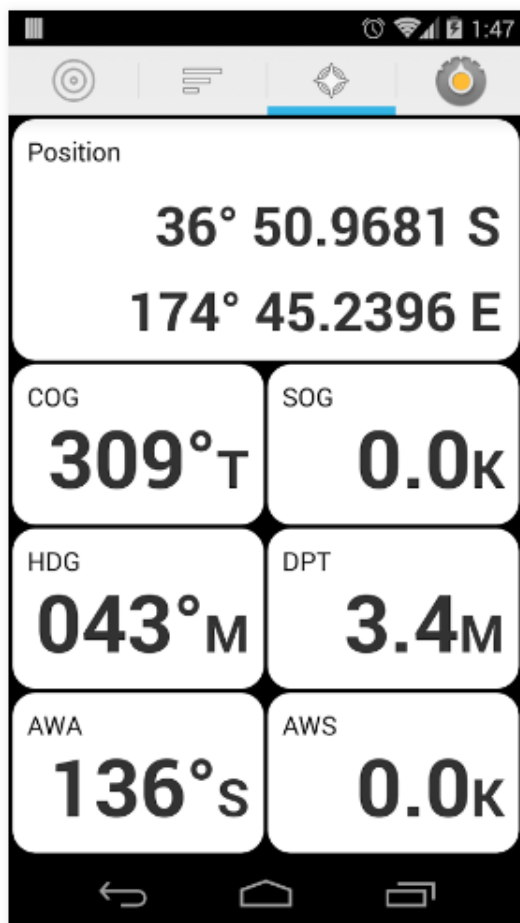


Chart Plotter Software (1)

- Expedition – Full function high end racing

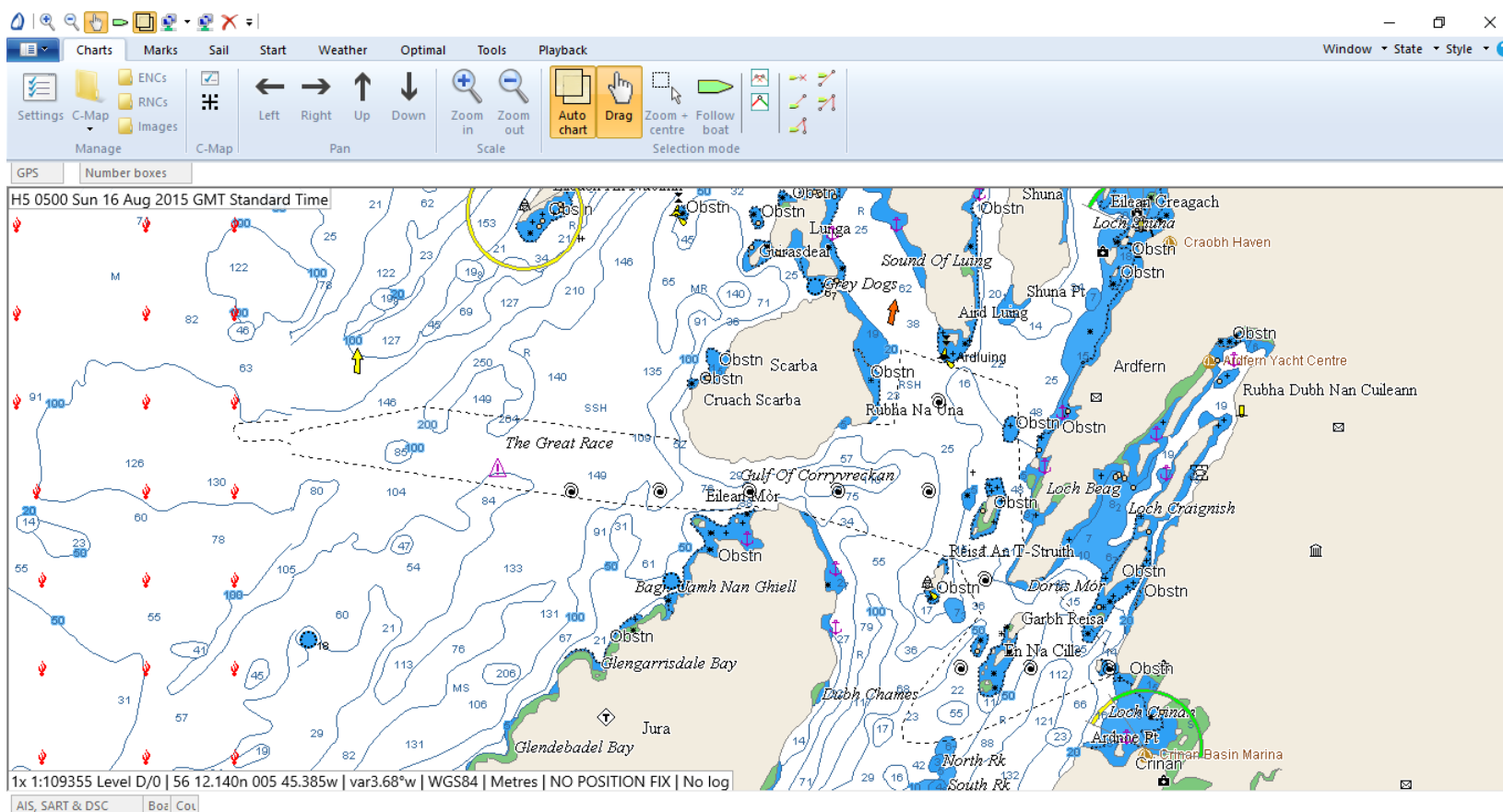


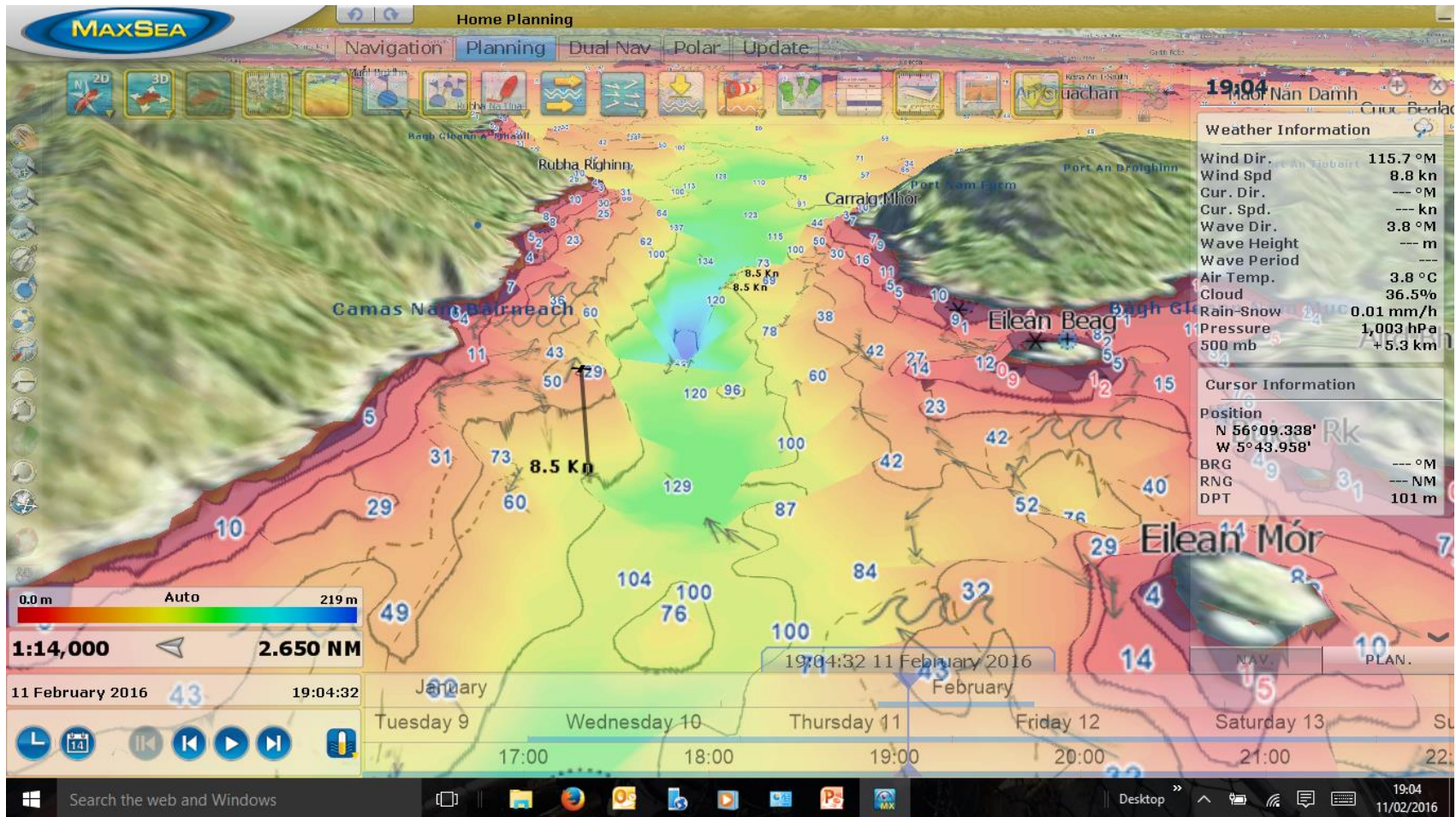
Chart Plotter Software (2)

- MaxSea Timezero – Racing and cruising
 - Marine navigation software with a fast and [smooth full 3D chart engine](#)
 - Marine charts, 3D data and [satellites photo](#) mixed (photofusion)
 - Greenland to the Med. coverage with Jeppeson mm3d vector charts
 - [Free worldwide weather forecast service](#)
 - Worldwide tide database
 - High resolution current data for selected areas
 - Automatic vessel routing option
 - [AIS/ARPA function included](#)
 - Access to the user community (Active Captain)

Maxsea Timezero

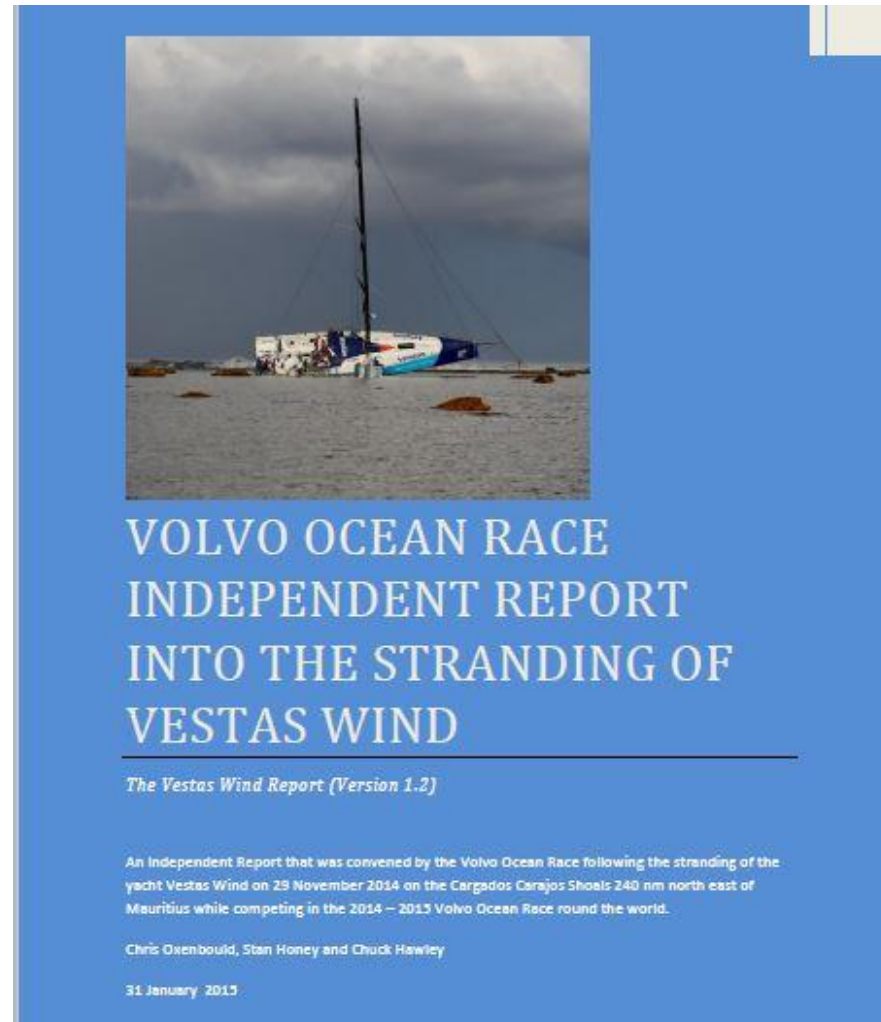
- Examples of use
 - SV Haabet, 100' Baltic Trader.
 - Assessment of weather window for North Sea transit
 - Use of 3-D capability
 - Shetland passage; Yell Sound to Lerwick
 - Exploration of Gulf of Corryvreckan between Jura and Scarba
 - Race Management
 - Cowes to St Malo 2014 and 2015

3-D Bathymetry of the Corryvreckan



Don't rely on the tech. absolutely!

(Recommended reading below if you're getting over confident)



http://www.volvoceanrace.com/static/assets/content_v2/media/files/m36616_team-vestas-wind-inquiry-report-released-on-9-march-2015.pdf