



OpenCPN

Chartplotter and GPS Navigation Software

Chart Plotter and Navigational software program for use underway or as a planning tool.

Developed by a team of active sailors using real world conditions for program testing and refinement.



- Verified Super Clean Code
- Open Source
- Developed by Boaters
- Real-world Tested
- Updated Regularly
- Loaded with Features
- Its Free Software

[Quick Start Guide](#)



About OpenCPN

OpenCPN is a cross platform electronic navigation system (ECS) supporting a variety of cartography standards and hardware interface protocols. Versions are available for Linux, Windows, Macintosh, and ARM computer architectures.

Since widespread introduction in 2008, OpenCPN has gained a solid reputation.

OpenCPN is running on hardware from tiny Raspberry Pis with 4" screens up to networked workstations. Specific user scenarios and needs are easily accommodated by using the Plug-in architecture and the wide scope of user settings. A responsive international user and developer community together with integrated documentation help make installation and use of OpenCPN a pleasure.

OpenCPN is released under the GPLv2 license. The executable program and its source code are available for immediate, free, and unlimited download from sourceforge.net, and several other sources.



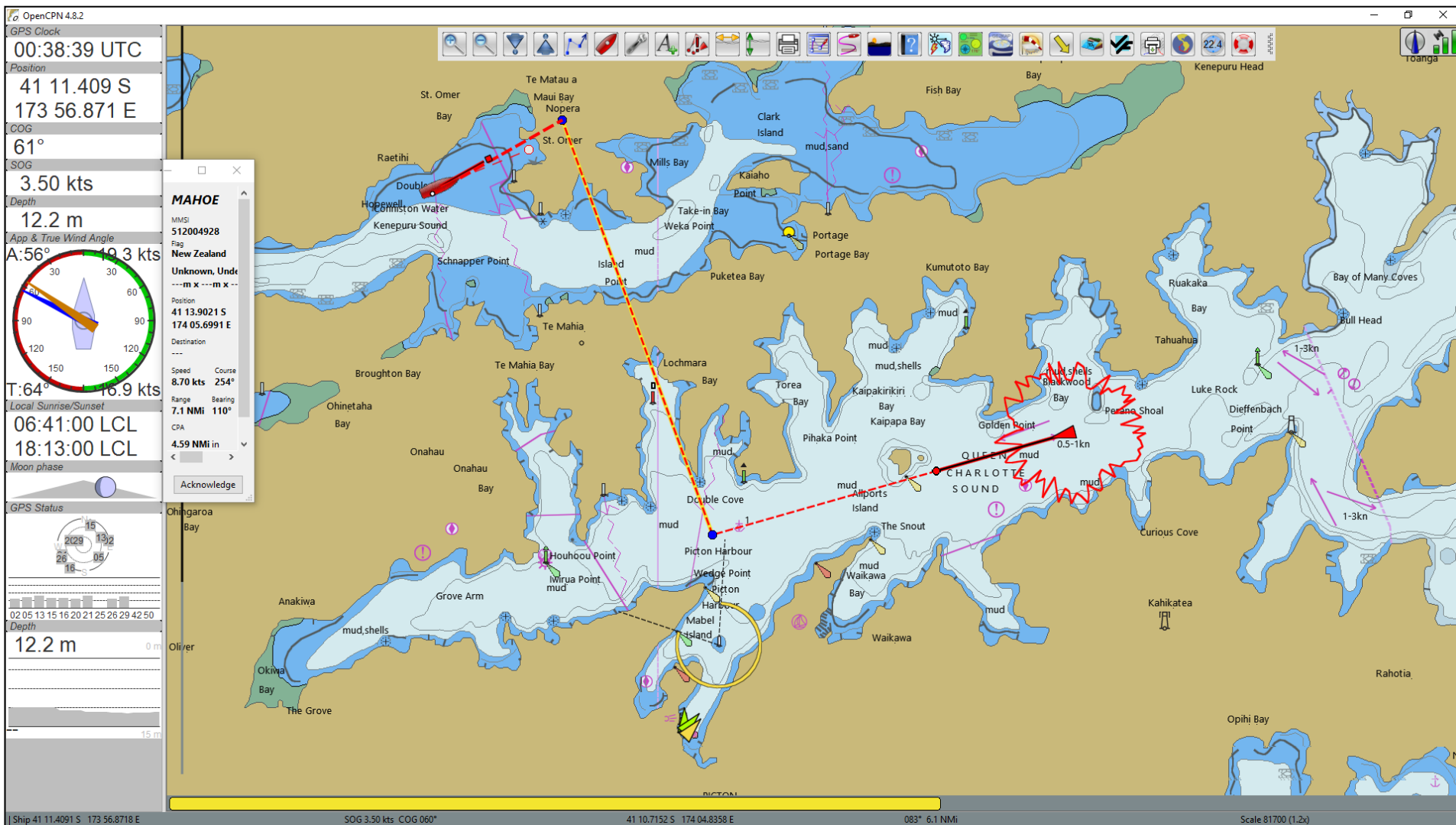
Features

Some of the features of OpenCPN include:

- Quilted Raster(RNC) and Vector(ENC) digital chart display.
- Full compliant support for official vector charts in S-57/S-63 format and Inland ENCs.
- Industry standard GPS receiver interfacing, with "moving map" on-screen vessel tracking.
- AIS receiver interfacing with configurable target safety monitoring.
- Integrated Route, Track, and Waypoint database, with industry standard Import/Export capabilities.
- Tide and Current prediction, with on-screen overlay of predicted data.
- Broad International Language support.
- Plug-in architecture allowing on-going third-party functional enhancements.
- Ability to share charts, tracks, routes and waypoints with other users thanks to support of KAP chart format and GPX files.

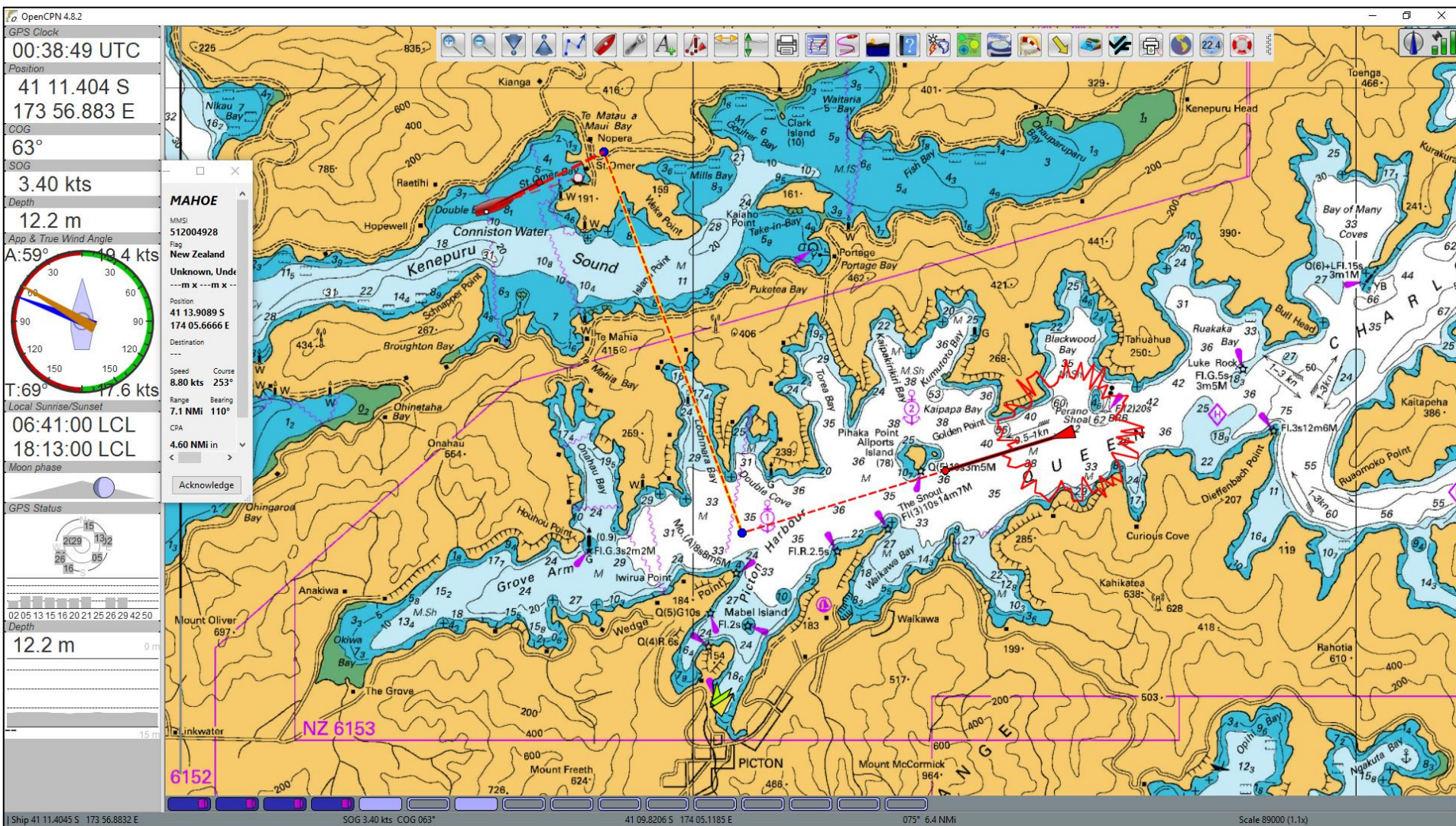


The Interface



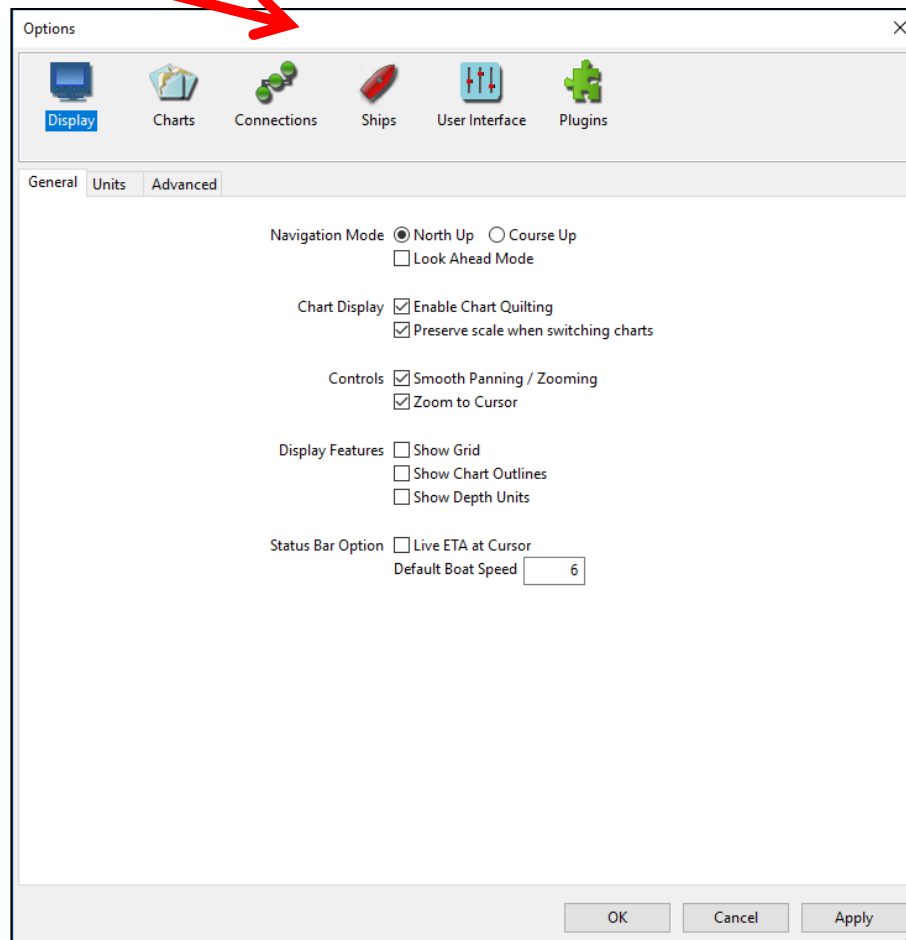


The Interface





Configuration





Charts

Free Nautical Charts

The Chart Downloader feature, included with OpenCPN 4.2 and above, will help you to download, update and organize almost all free chart sources.

New Zealand publishes free BSB3 raster charts.

The version of the New Zealand charts compiled by Marco Certelli, includes a better coverage of the Tonga/Samoa area.

The East Asia Hydrographic Commission provides free offshore S57 vector charts for the [South China Sea area](#).

Satellite images – A plugin VFKaps allows satellite images to be downloaded directly into the OpenCPN chart database. [GE2KAP](#) is a free windows-only program that semi-automatically creates KAP charts from Google Earth and other sources. It supports SASPlanet.

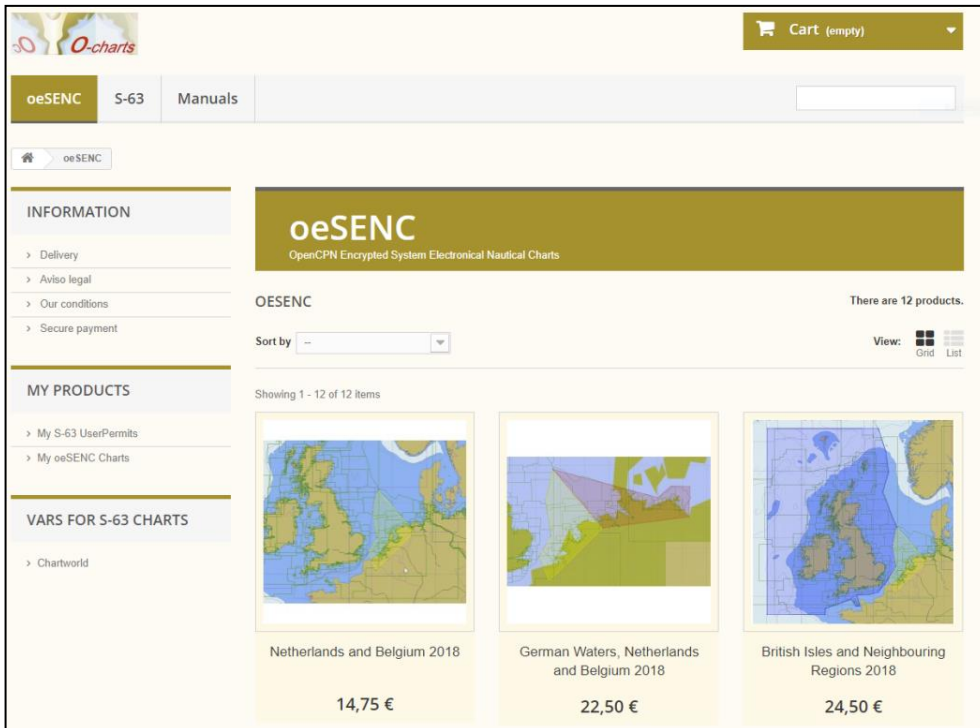
Commercial Chart Sources

[O-charts.org](#)

[NV-Charts](#) & [Chartworld.com](#) have worldwide coverage between them.

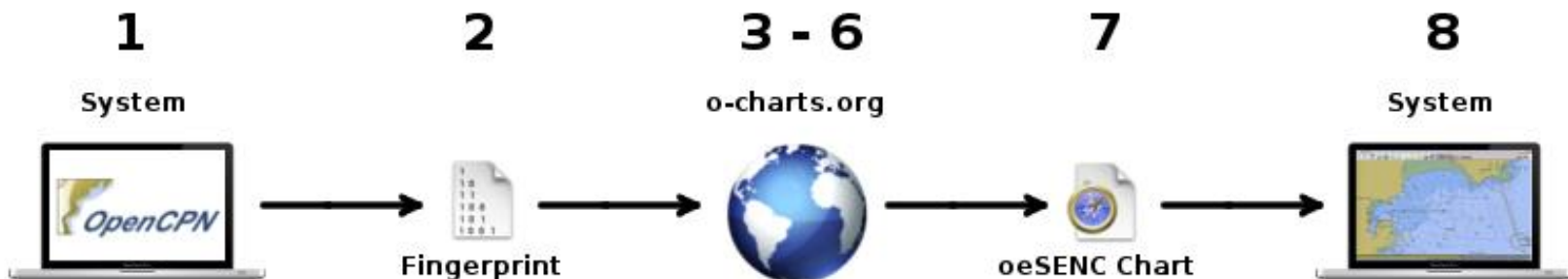


Charts - Commercial



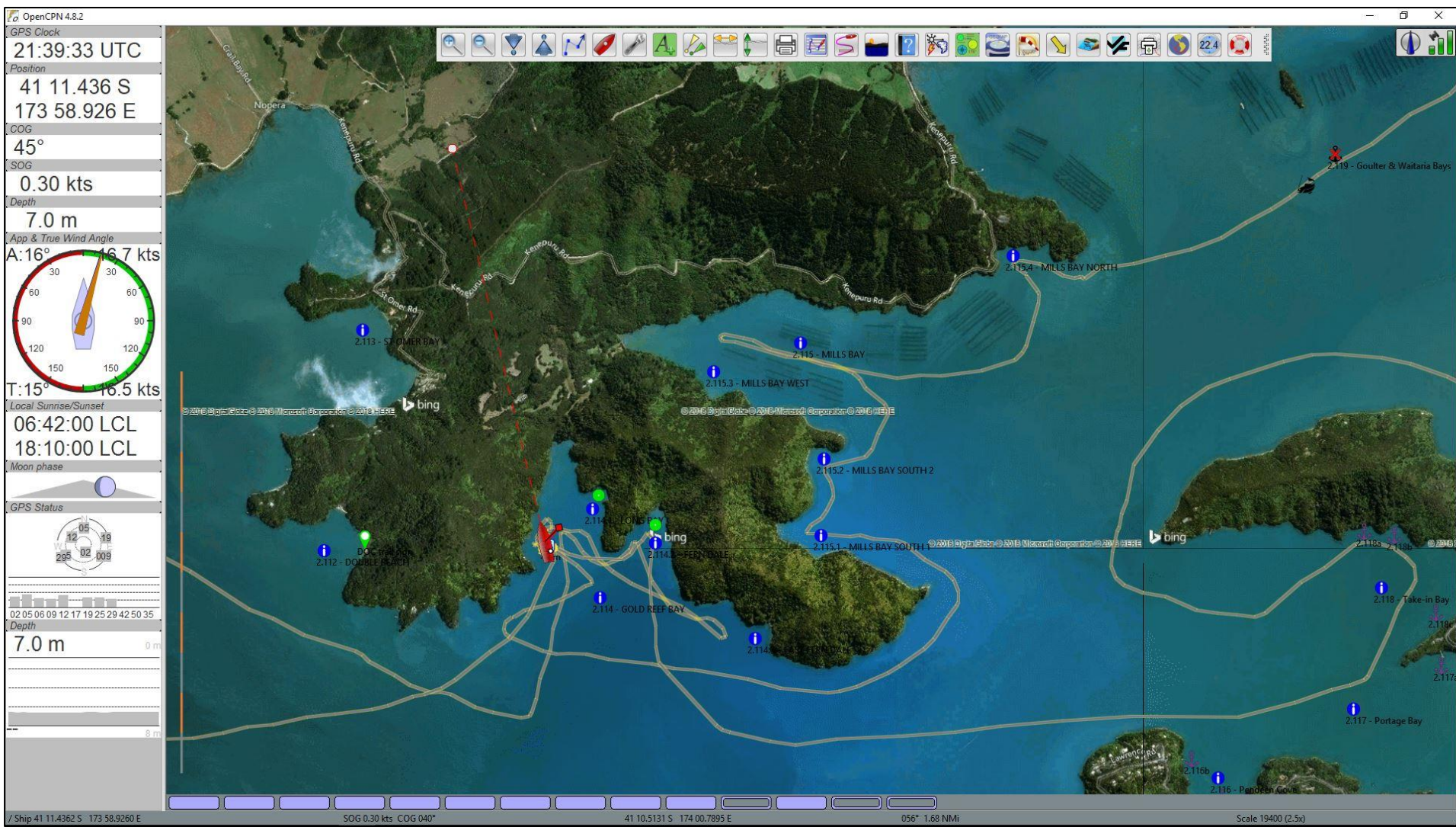
OpenCPN supports commercial S63 format vector charts. Available from sources such as Chartworld & NVCharts.

OpenCPN via O-Charts has their own brand of vector charts known as oeSENC charts. These are available in limited coverage (mostly Europe so far) from <http://o-charts.org/>



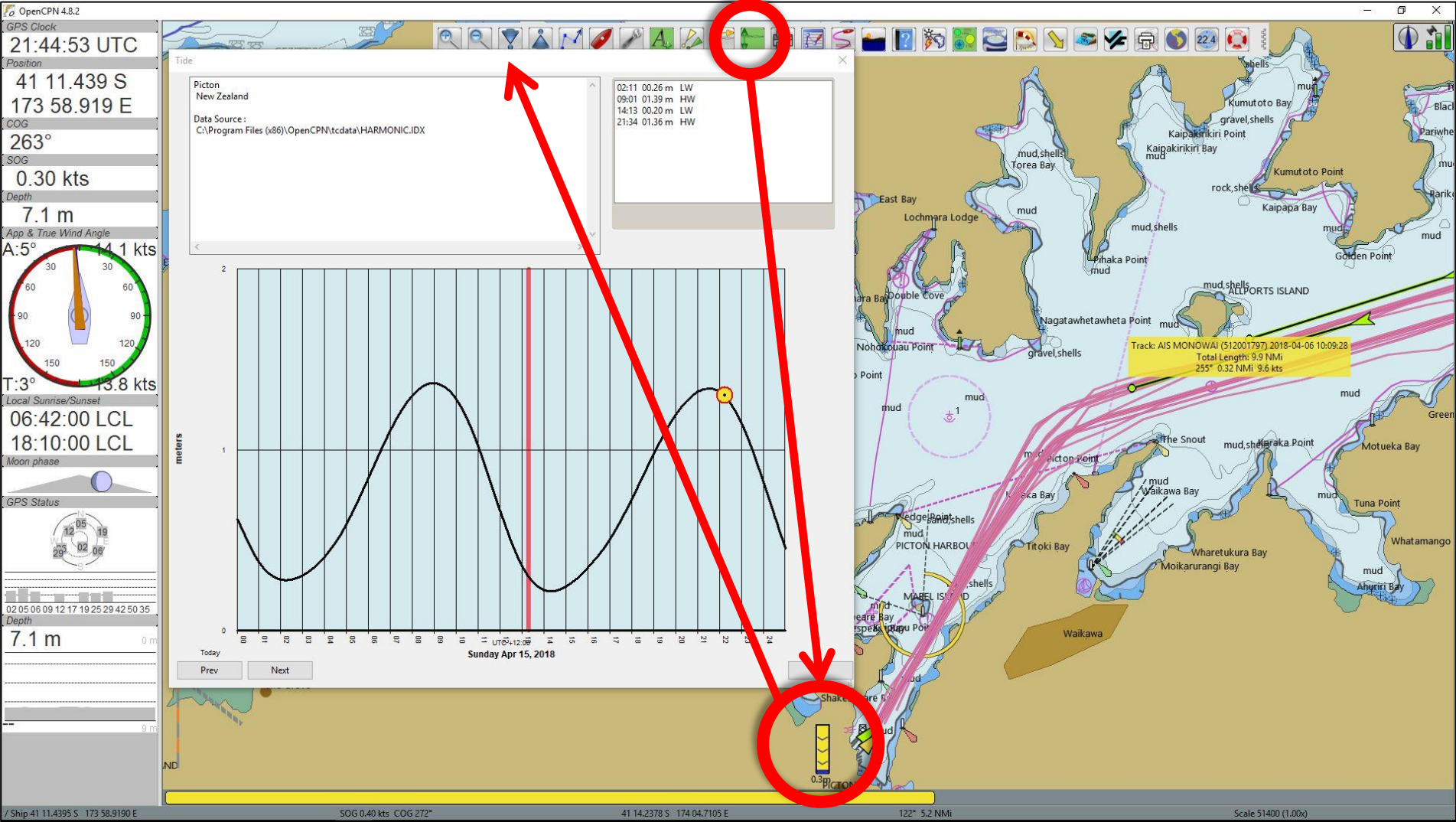


Charts – Satellite





Passage Planning





Routes, Track, Waypoints

OpenCPN 4.8.2

GPS Clock

22:05:37 UTC

Position

41 11.438 S

173 58.918 E

COG

247°

SOG

0.40 kts

Depth

7.2 m

App & True Wind Angle

A:18° 13.6 kts

T:20° 13.6 kts

Local Sunrise/Sunset

06:42:00 LCL

18:10:00 LCL

Moon phase

GPS Status

02 05 06 09 12 19 25 29 42 50 35 48

Depth

7.2 m

Route & Mark Manager

Routes Tracks Waypoints Layers

Show Route Name From <-> To

Sounds Long - Havelock

Properties

Center View

Reverse

Delete

Route Properties

Properties

Name

Sounds

Depart From

Long

Destination

Havelock

Total distance

12.50 NMi

Plan speed

5.00

Time enroute

02 Hours 29 Minutes

Departure Time (m/d/y h:m)

Time shown as

☐ UTC ☒ Local @ PC ☐ LMT @ Location

Color: Default color

Style: Default

Width: 4 pixels

Waypoints

L	To Waypoint	Distance	Bearing	Latitude	Longitude	ETE	Speed	Next tide e...	Description
---	001	0.01 N...	318 Deg. T	41 11.4 S	173 58.9 E	Start	0.20		
1	002	0.54 N...	195 Deg. T	41 12.0 S	173 58.7 E	00 H 06 M	5.00		
2	003	1.60 N...	275 Deg. T	41 11.8 S	173 56.6 E	00 H 25 M	5.00		
3	004	2.64 N...	255 Deg. T	41 12.5 S	173 53.3 E	00 H 57 M	5.00		
4	005	0.36 N...	219 Deg. T	41 12.8 S	173 53.0 E	01 H 01 M	5.00		
5	006	1.05 N...	263 Deg. T	41 12.9 S	173 51.6 E	01 H 14 M	5.00		
6	007	1.67 N...	194 Deg. T	41 14.5 S	173 51.1 E	01 H 34 M	5.00		
7	008	0.88 N...	218 Deg. T	41 15.2 S	173 50.3 E	01 H 44 M	5.00		
8	009	0.96 N...	250 Deg. T	41 15.5 S	173 49.1 E	01 H 56 M	5.00		
9	010	0.36 N...	271 Deg. T	41 15.5 S	173 48.7 E	02 H 00 M	5.00		
10	011	0.64 N...	265 Deg. T	41 15.6 S	173 47.8 E	02 H 08 M	5.00		
11	012	0.41 N...	246 Deg. T	41 15.8 S	173 47.3 E	02 H 13 M	5.00		

Print Route Extend Route Split Route

Cancel OK

Map

Map showing a route (blue line) and waypoints (red dots) in the Havelock region. The route starts at Long and ends at Havelock. The map includes labels for various locations such as Te Mara, St. Omer, Double Bay, and Broughton Bay.

Ship: 41 11.438 S 173 58.918 E

SOG 0.40 kts COG 237°

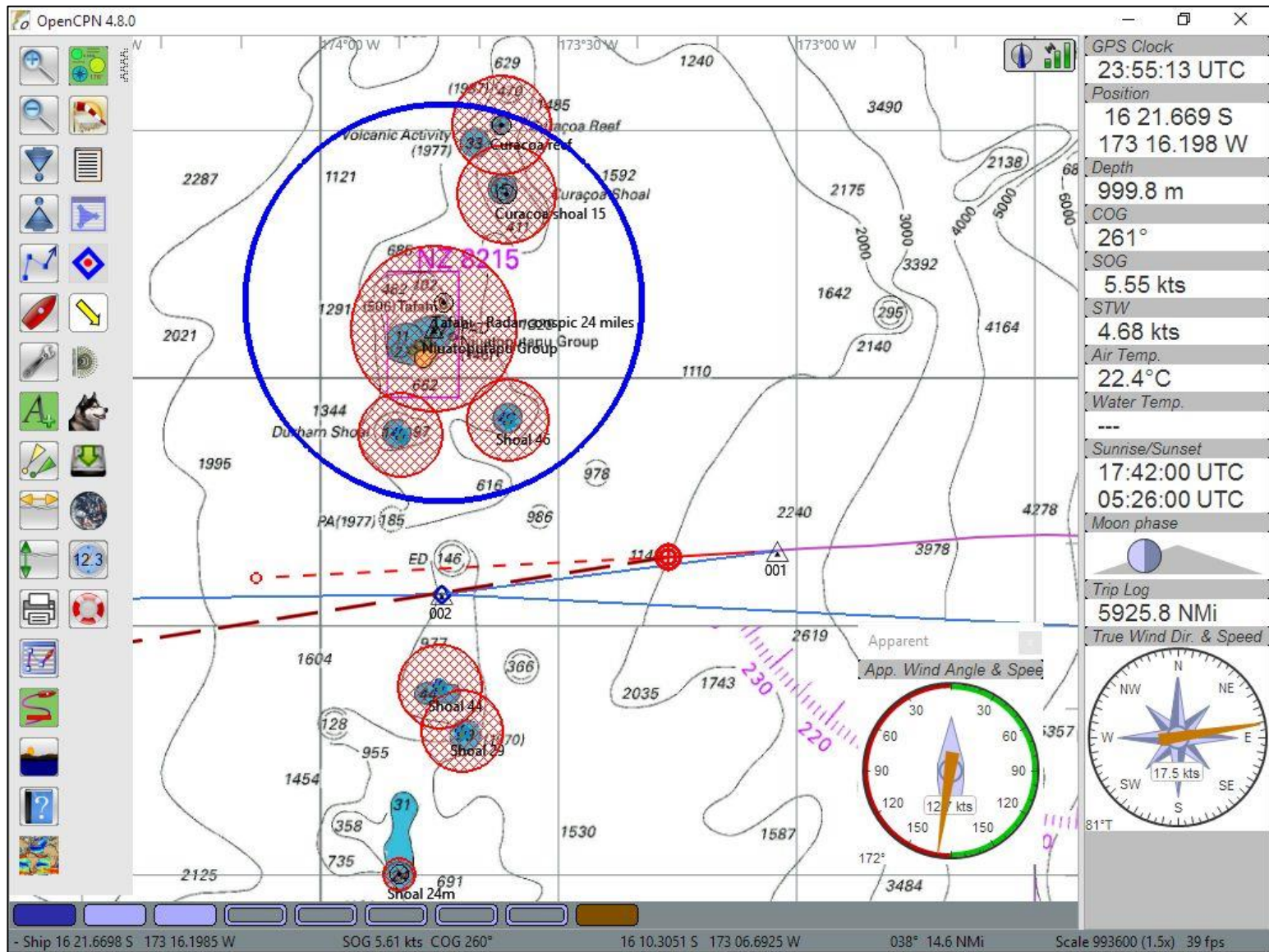
41 10.0801 S 173 57.3059 E

318° 1.82 NMi

Scale 52300 (1.00x)



Passage planning





Weather Forecasts

The screenshot shows the OpenCPN 4.8.2 interface with a map of the North Atlantic. A red arrow points from the top toolbar (1) to the 'Write and send eMail request' dialog box (2). The dialog box has a 'Continue...' button circled in red (3). Another red arrow points from the 'Continue...' button to the 'Send' button in the email client window (4). The email client window shows the following details:

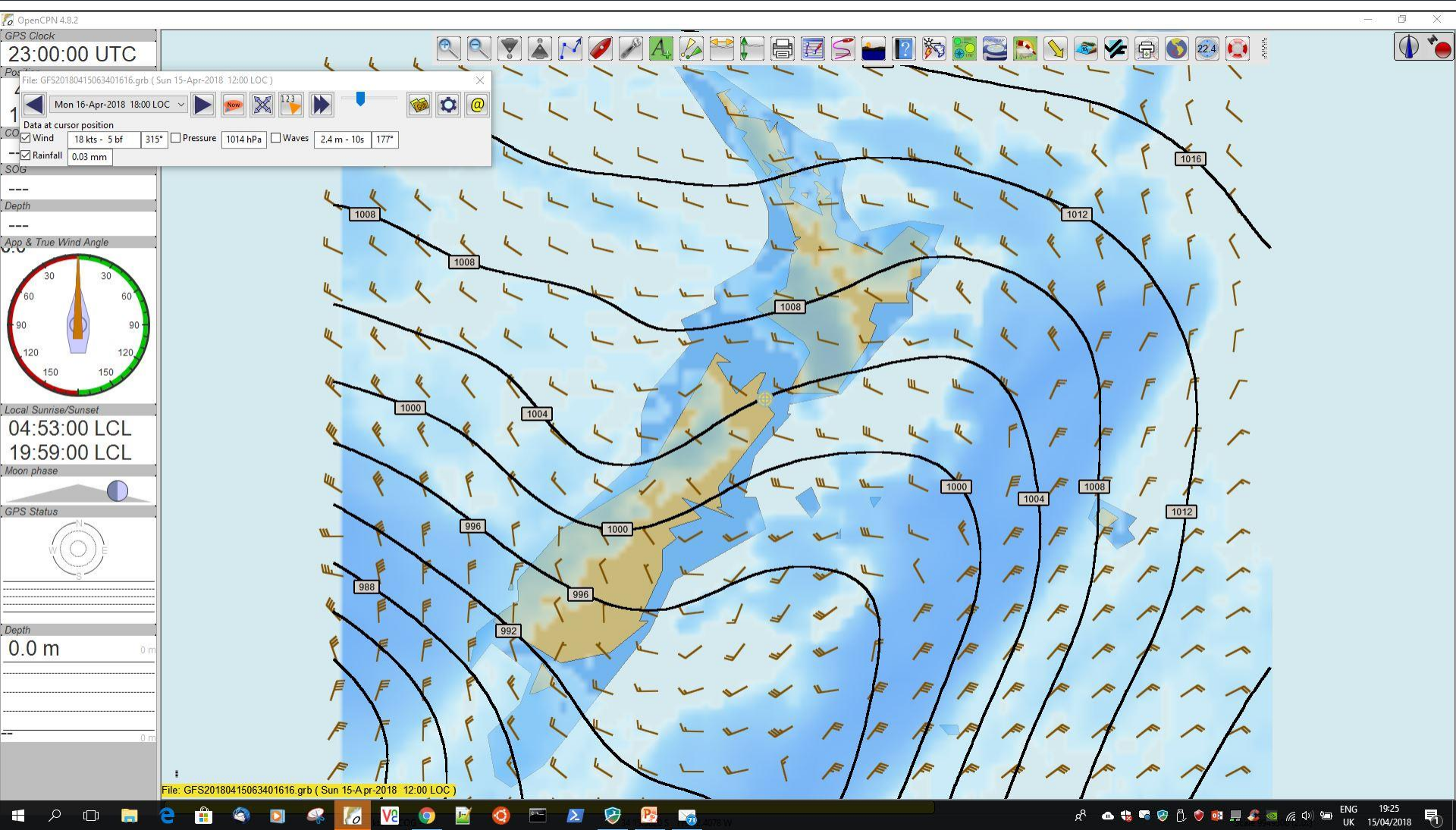
From: Christopher Harris <christopherjamesharris@gmail.com>
To: query@saildocs.com
Subject: gribauto
Body: send GFS:31S,50S,162E,172W/0.25,0.25/0.3,6..96|WIND,PRESS,APCP,HTSGW,WVPER,WVDIR

The 'Write and send eMail request' dialog box contains the following settings:

- Profile: Mail To: Saildocs, Forecast Model: GFS, Resolution: 0.25, Interval: 3, Hours: 4, Time Range: 4 Days
- Area Selection: ☒ Manual Selection, Max Lat: -31, Max Long: -172, Min Lat: -50, Min Long: 162
- Data Selection: ☒ Wind, ☒ Rainfall, ☒ Waves, ☒ Pressure, ☒ Cloud Cover, ☒ Sea Temperature(surf.), ☒ Current, ☒ Geopotential Height, ☐ Wind Gust, ☐ Air Temperature(2m), ☐ CAPE
- Mail: Your request is ready. An email is prepared for your email environment. You have just to verify and send it... Save or Cancel to finish...or Continue...
- Estimated File Size: 1.78 MB

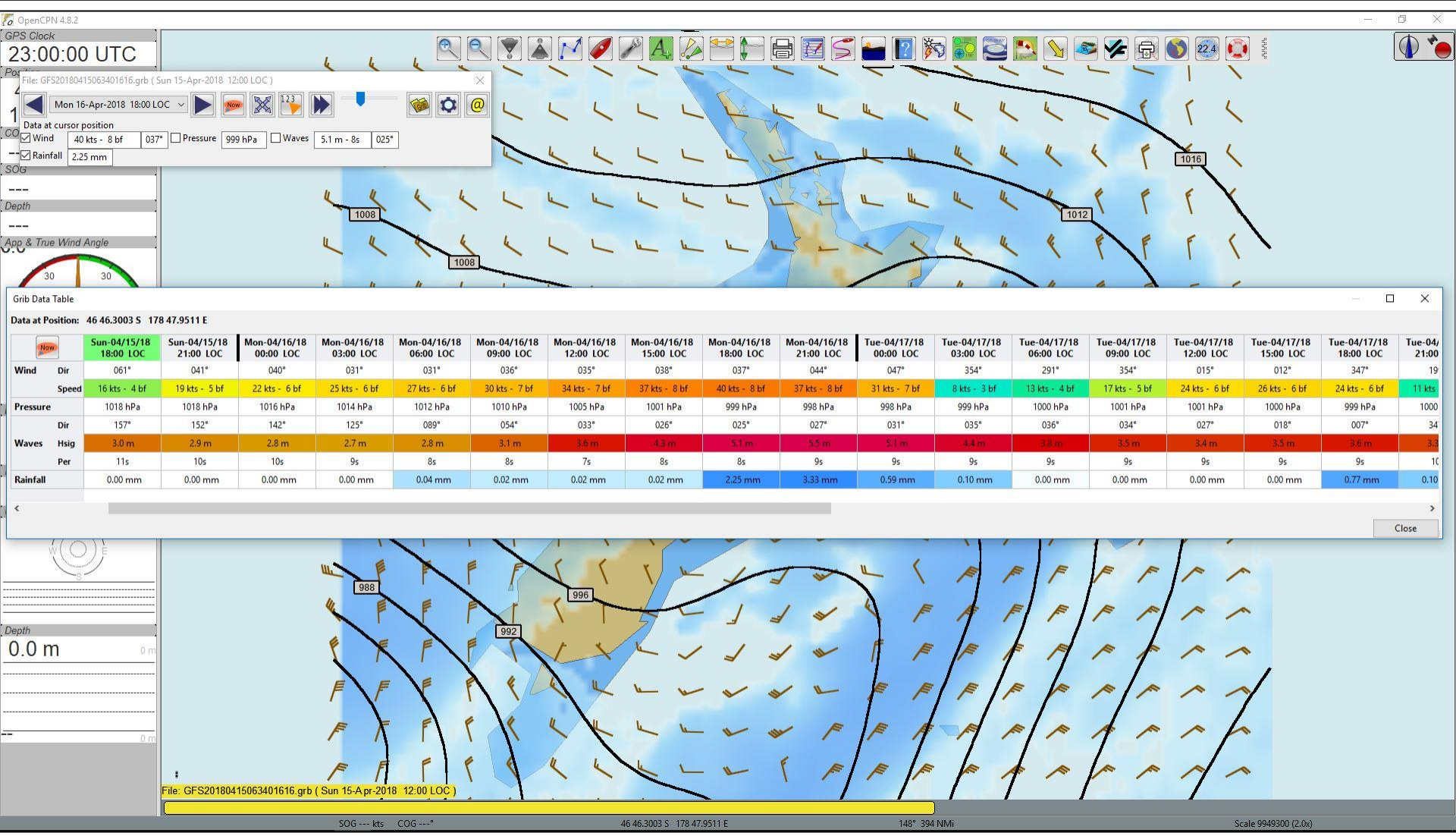


Weather Forecasts



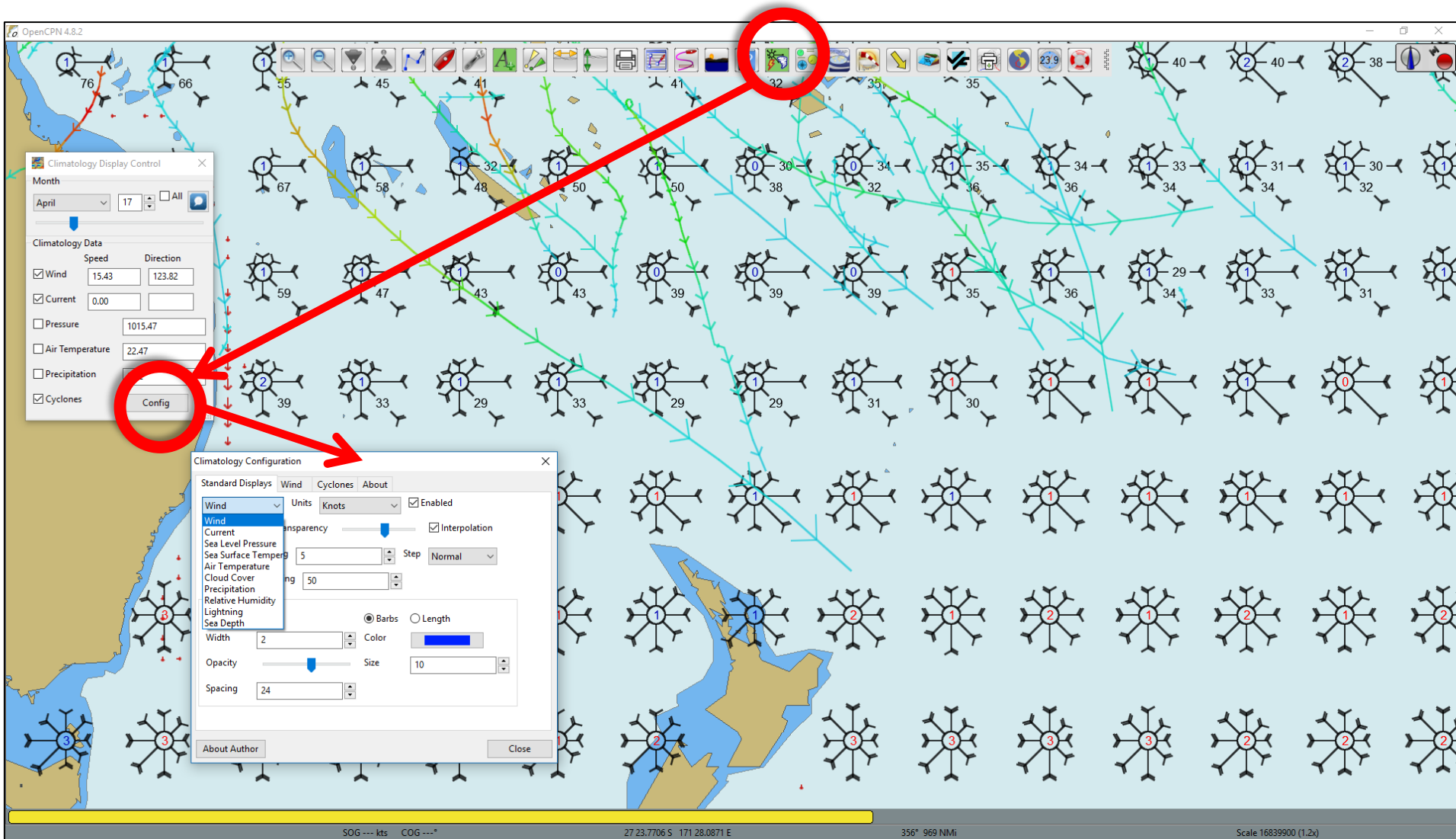


Weather Forecasts





Digital Pilot Charts





Going Live

OpenCPN has a versatile suite of communications interface tools built-in.

It can communicate via:

- Serial ports (DB9 or USB connections)
- Network connections; wired (Ethernet) or WiFi

Navigation equipment can either be connected directly or via networked data streams. OpenCPN can receive data from several different sources and multiplex the data thereby acting as a gateway.

All data can be logged and played back via the VDR plugin.

Examples of connections:

- GPS – Data (routes or waypoints) can also be transferred to plotter or GPS
- Autopilot
- RADAR – Radar from some network capable radars can be displayed
- AIS transceiver
- VHF radio DSC messages
- Whatever is on the boat's NMEA 0183 or NMEA 2K network can be displayed in OpenCPN



Connecting a GPS

OpenCPN 4.8.2

GPS Clock

05:45:18 UTC

Position

43 30.872 S

172 37.125 E

COG

99°

SOG

0.38 kts

Depth

App & True Wind Angle

Local Sunrise/Sunset

07:02:00 LCL

17:55:00 LCL

Moon phase

GPS Status

32 10 31 12 01 11 18 24 14 22 25 03

Depth

0.0 m

0 m

0 m

NMEA Debug Window

17:45:17 (Serial:COM3) \$GPRMC,054517.000,A,4330.8793,S,17237.1098,E,0.0,159.65,160418.0,A*74<0x0D><0x0D>

17:45:18 (Serial:COM3) \$GPGGA,054518.000,4330.8793,S,17237.1098,E,1.04,2.7,4.1,M,11.4,M,0.000,4.0D<0x0D><0x0D>

17:45:18 (Serial:COM3) \$GPGSA,A,3,32,10,31,12,0.0,4.0,2.7,2.9,39<0x0D><0x0D>

17:45:18 (Serial:COM3) \$GPRMC,054518.000,A,4330.8793,S,17237.1098,E,0.0,159.65,160418.0,A*74<0x0D><0x0D>

17:45:19 (Serial:COM3) \$GPGGA,054519.000,4330.8793,S,17237.1098,E,1.04,2.7,4.1,M,11.4,M,0.000,4.0D<0x0D><0x0D>

17:45:19 (Serial:COM3) \$GPGSA,A,3,32,10,31,12,0.0,4.0,2.7,2.9,39<0x0D><0x0D>

17:45:19 (Serial:COM3) \$GPRMC,054519.000,A,4330.8793,S,17237.1098,E,0.0,159.65,160418.0,A*74<0x0D><0x0D>

Filter

Legend

Message accepted

Input message filtered, output message filtered and dropped

Input Message filtered and dropped

Output Message

Information Message or Message with errors

Pause

Options

Display

Charts

Connections

Ships

User Interface

Plugins

☐ Filter NMEA Course and Speed data Filter period (sec) 1

☒ Show NMEA Debug Window

☐ Force uploads for Furuno GP3X

☐ Use Garmin GRMN (Host) mode for uploads

☐ Use magnetic bearings in output sentence ECAPB

Data Connections

Enable	Type	DataPort	Priority	Parameters	Connection	Filters
<input type="checkbox"/>	Network	0.0.0.0:20175	1	UDP	Input	In: None, Out: None
<input checked="" type="checkbox"/>	Serial	COM3	1	4800	Input	In: None, Out: None

Add Connection

Remove Connection

Properties

☒ Serial ☐ Network

DataPort

Baudrate 4800

Protocol COM3 Prolific USB-to-Serial Comm Port

Garmin-USB

☐ Control checksum

☐ Use Garmin (GRMN) mode for input

☒ Receive input

Talker ID (blank = default ID)

EC

APB bearing precision

OK

Cancel

Apply

Ship 43 30.8793 S 172 37.1098 E

SOG 0.17 kts COG 159°

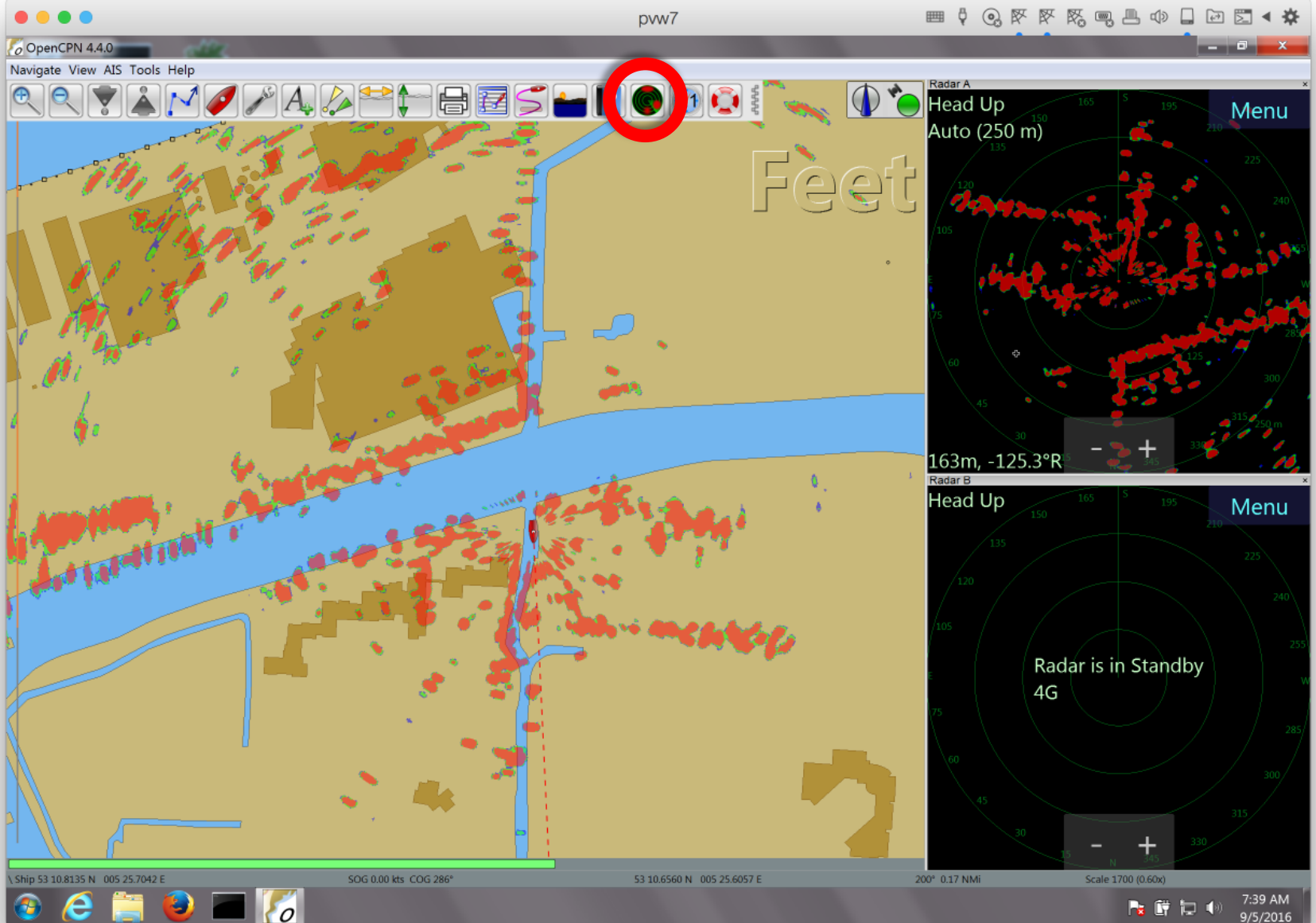
33 49.5777 S 170 12.9226 E

349° 592 NMI

Scale 9946300 (2.0x)



Radar Plugin



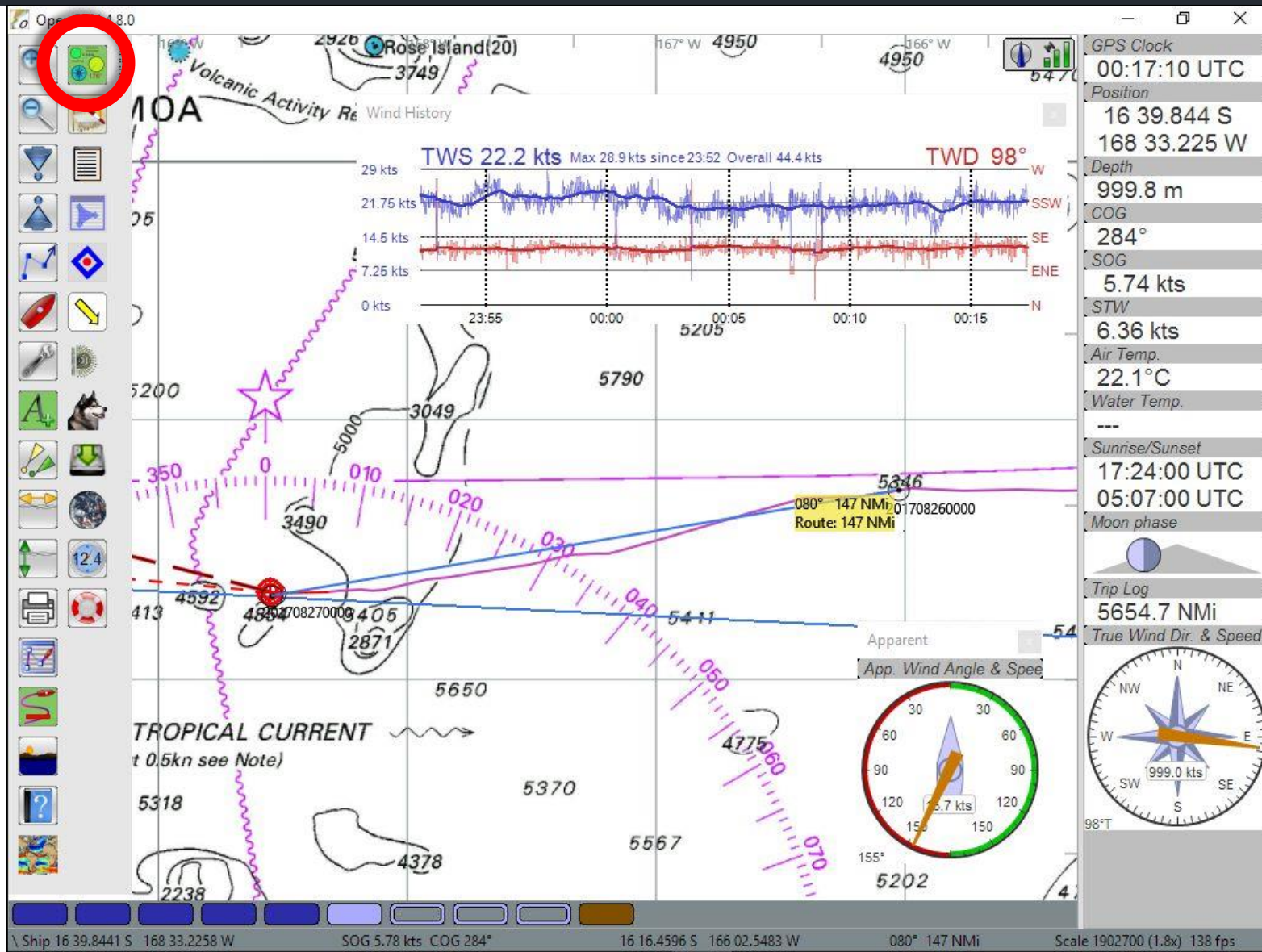


OpenCPN Underway

- Position and situational awareness
- Data display – Navigation, Environment, Vessel function
- Recording track – and other data
- AIS
- RADAR
- Anchor alarm
- Routes & Waypoints
- Search & Rescue
- Log keeping
- Maintenance logs

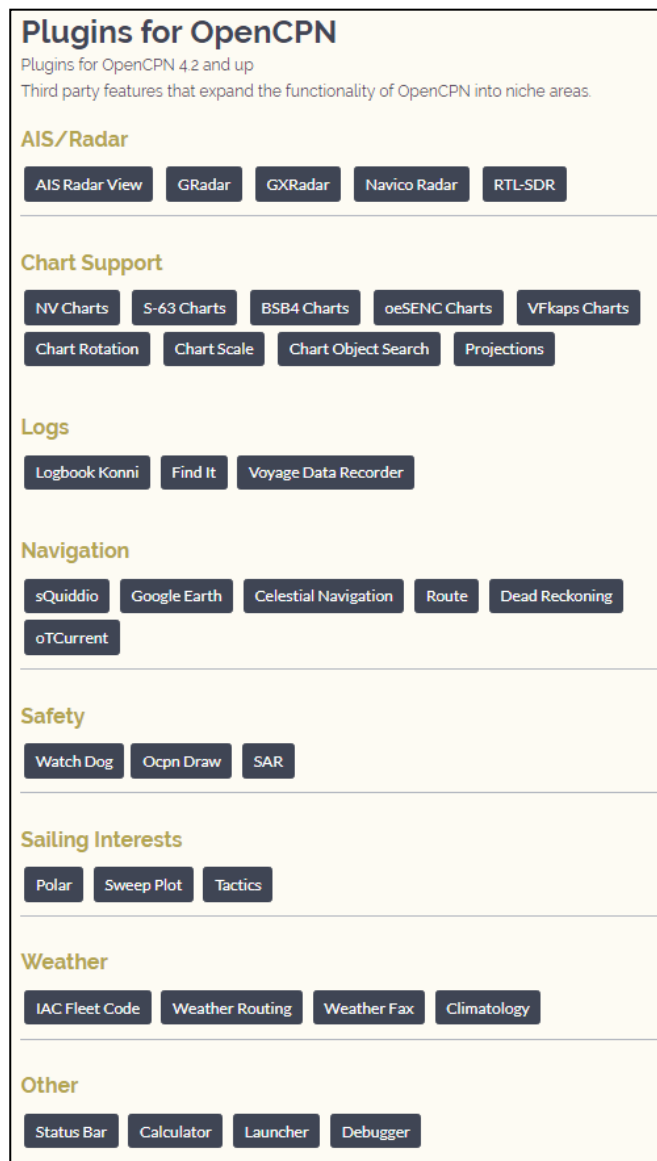
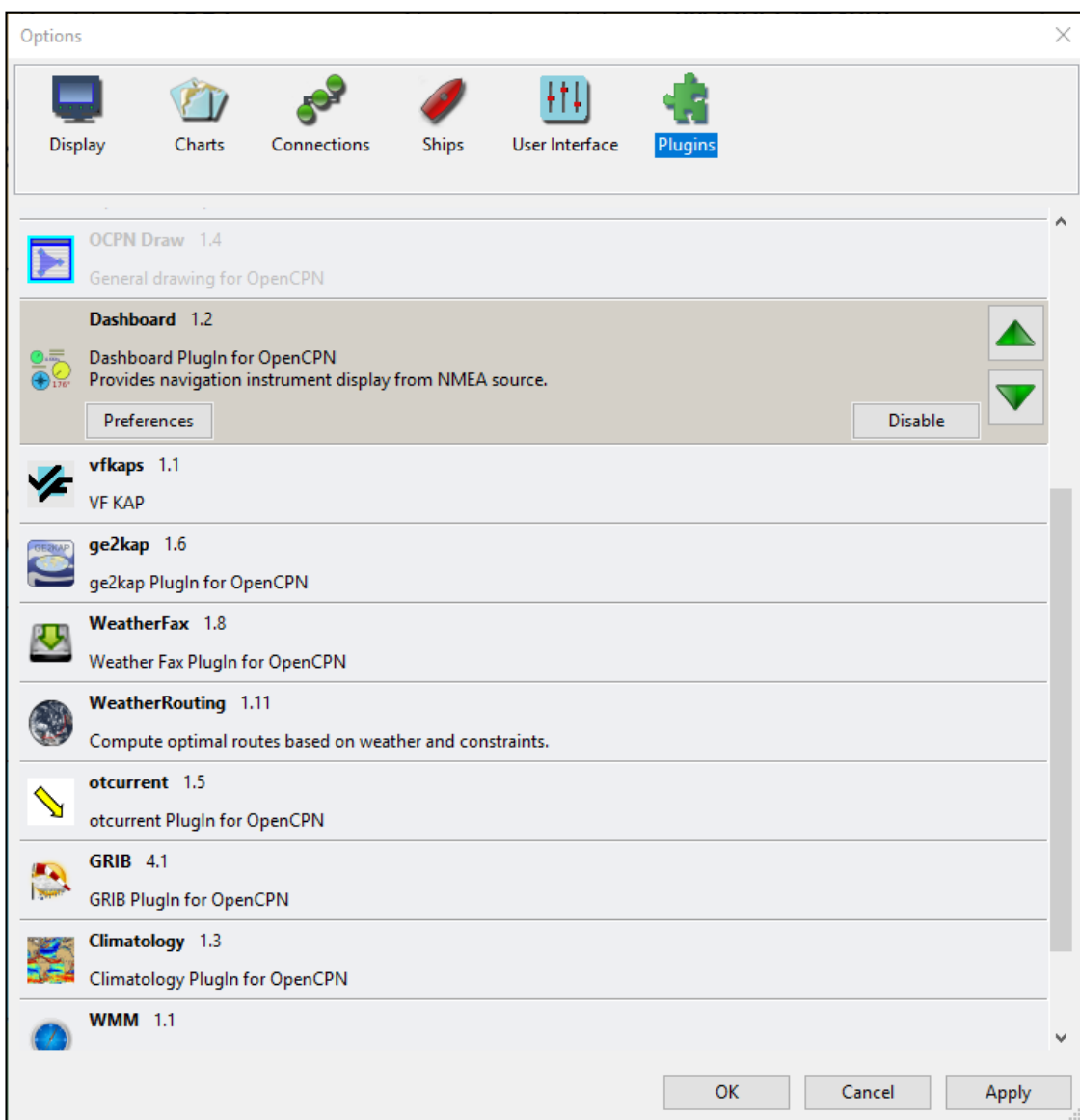


OpenCPN Underway





Extending OpenCPN





Getting OpenCPN

<https://opencpn.org/OpenCPN/info/downloads.html>

[Home](#) [Downloads](#)

Download Directory

CDN for faster and more reliable OpenCPN downloads
generously provided by  **StackPath**

OpenCPN Latest Release

OpenCPN is free, open source software for marine navigation. It is available for Mac OSX, Microsoft Windows, GNU/Linux, BSDs and Solaris.

[\[Current Version\]](#)

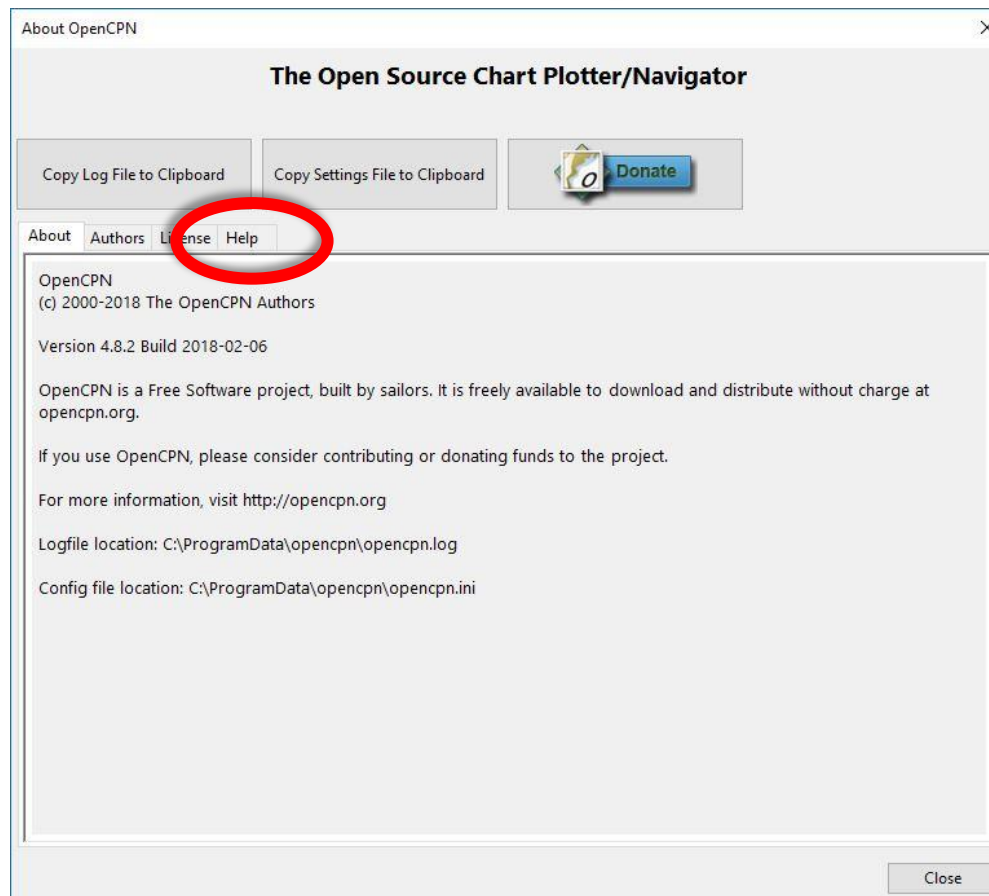
Plugins for OpenCPN 4.2 & up

Plugins for OpenCPN are third party feature additions that expand the functionality of OpenCPN into those niche areas. Here you will find available Plugins to download.

[\[Latest Plugins\]](#)



The Built-in Manual





The Online Manual



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opencpn:opencpn_user_manual

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OpenCPN User Manual

Cell Phones use the "Sidebar" Dropdown Menu above.

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Organization



Note about organization of the Pages or Namespaces.

1. [Getting Started](#) Help for new users and direction to key sections.
2. [Getting Around](#) Controls, charts and significant features.
3. [TOOLBAR Buttons](#) Each page represents a Toolbar button organization.



Other Online Resources

[Home](#) [Resources](#)

Resources

Chart Sources

[Chart Sources](#) Where to find the charts you need.

OpenCPN Forum

Visit our active [Forum](#). Discuss, Learn, Ask

[Facebook](#) is social, but the Team and Mods generally stick to the forum.

Translation Project

[OpenCPN Translation Project](#). Thanks to volunteer interpreters, like you, OpenCPN Supports 20+ languages. If your native language isn't supported yet, a tiny bit of your time can make it happen. No coding knowledge is needed. Its free and fun.

Trusted International Sites



Español



Français



Netherlands



OpenCPN Norge

Blog

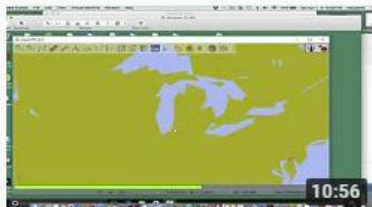
[All Things OpenCPN](#) Highlighting & curating relevant items.



You Tube



The new minor light symbols and new wind barb symbols are discussed. Note: it is an improvement to have arrowheads removed



OpenCPN, How to load hi-res base map, Mac and PC

David Burch • 2.5K views • 1 year ago

Base map is discussed, when hi-res might be needed, and how to do it for mac and pc. Note: GSHHS =Global Self-consistent



OpenCPN 4.4.0 with BR24radar_pi 2.1

Merrimac2 • 1.3K views • 1 year ago

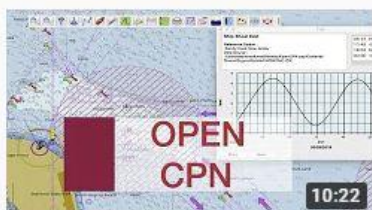
Navico 4G broadband radar displayed on two laptops over 5 GHz WiFi network. Additionally NMEA 0183 data streamed to those



OpenCPN 3.1 New Features

OpenCPN • 37K views • 5 years ago

What's new in <http://opencpn.org> since release 3.0.2.



Open CPN Tutorial

SV Souls the sailing channel • 230 views • 1 week ago

Sailing around the world. 100 Technical videos, sailing for beginners, sailing for dummies the full video here for the patrons : <https://>



OpenCPN Basic Plotting Tools



Behind the Scenes





More OpenCPN?

Thank You!

You can download a copy of this presentation at:

<http://www.tweedsworld.com/notebooks/introtoopencpn.html>

OpenCPN in depth – if there is any interest I would be willing to host a few evening sessions helping, coaching, mentoring or just discussing OpenCPN. Contact me on 021 02727292 or at chris@tweedsmarine.nz if you are interested.