Avalon Offshore Education

Module 1: Initial Settings

Select your boat and your weather sources

Agenda

1. Weather sources

2. Boat

   – Library of pre-loaded boats

   – Customized polars with Avalon VPP

   – Loading an external polar (.pol) file

3. Sail set section and VPP tuning

1 - Weather Sources

- Avalon routes are computed using automatic weather data sources. No need to load any old fashion and heavy grib files.

- Avalon integrates about 65 different weather sources, split in 4 categories:
  - Wind and gust
  - Current (tidal and oceanic)
  - Wind waves and swell
  - General weather

- The weather sources are refreshed between 1 and 8 times a day on our servers, according to the update frequency of each source.

- Only necessary weather data is automatically downloaded on the tablet when a route calculation is requested.

- The downloaded data depends on:
  - Start, arrival and waypoints defining the cruise.
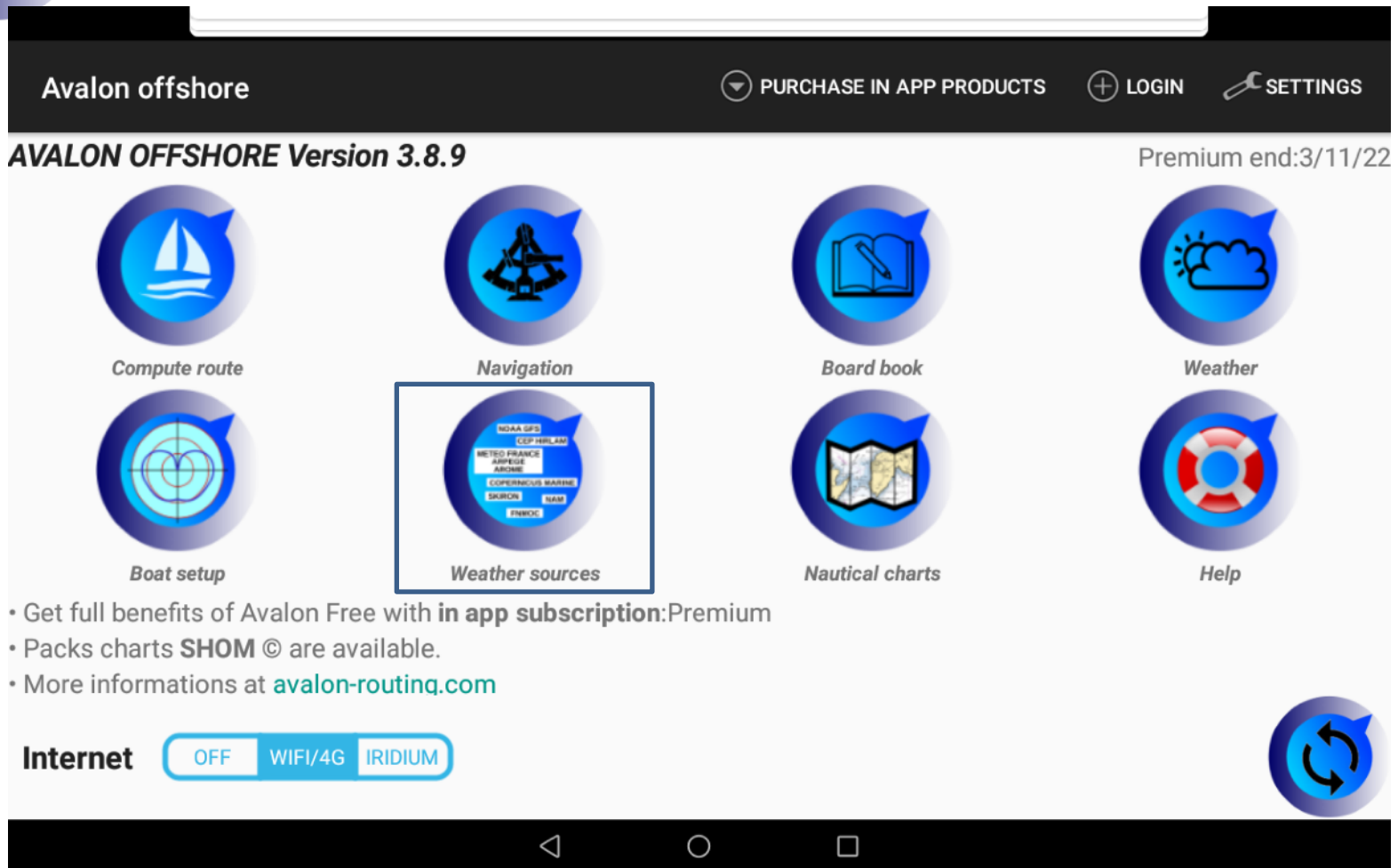 - Approximate duration of the planned cruise
  - Planned start date

1 - Weather Sources

• To select/modify weather sources, go to the « Sources setup » module.

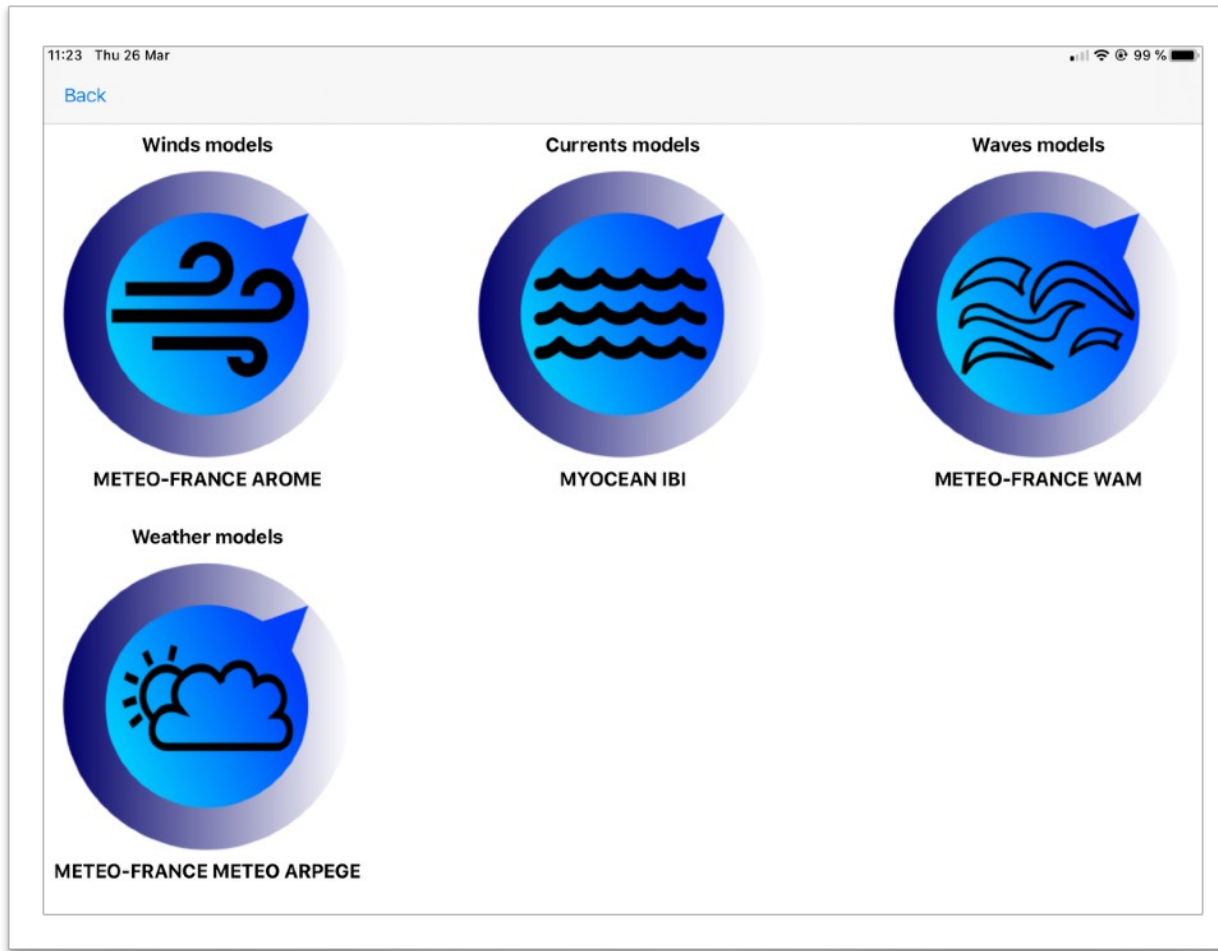iPad screenshot. See Android on next page
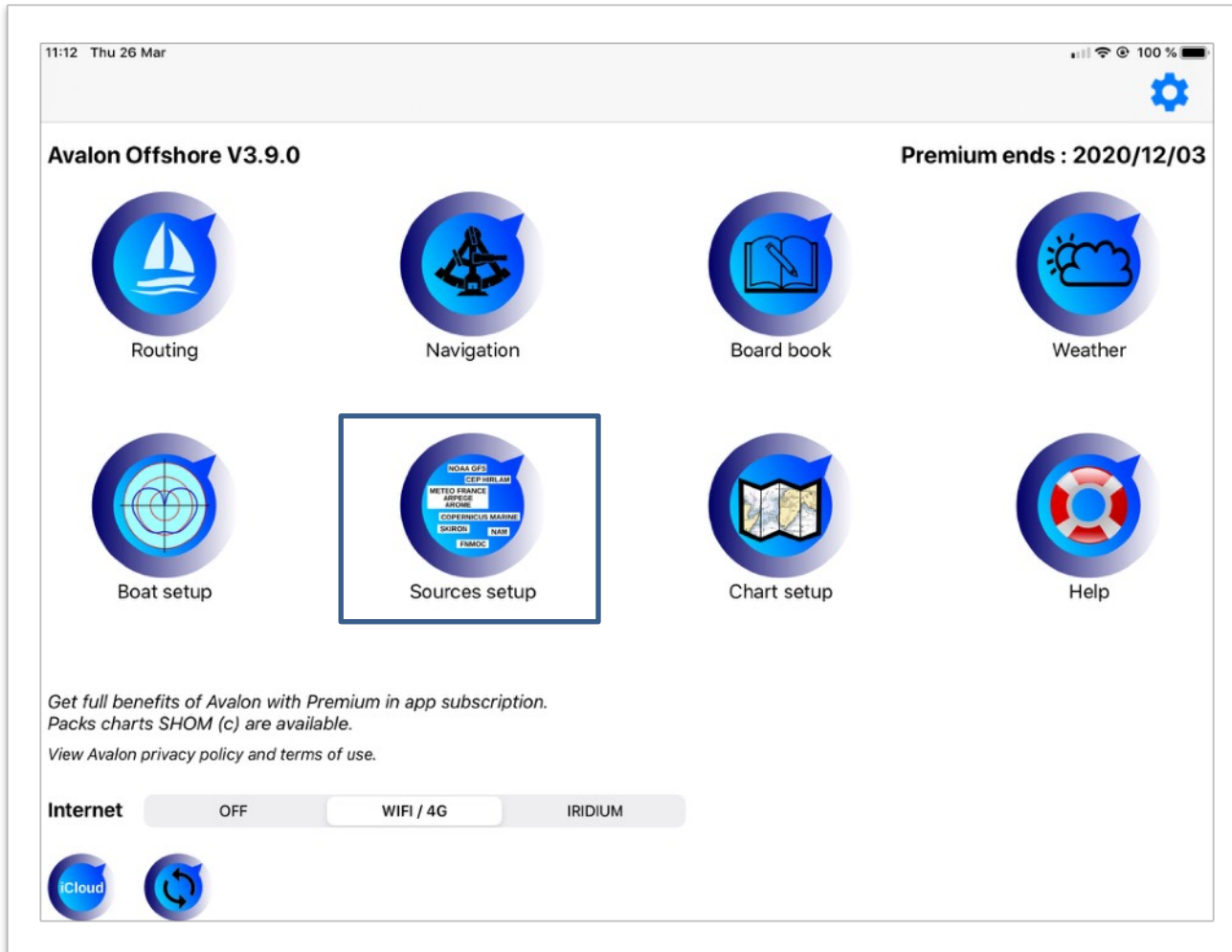
1 - Weather Sources

Android screenshot
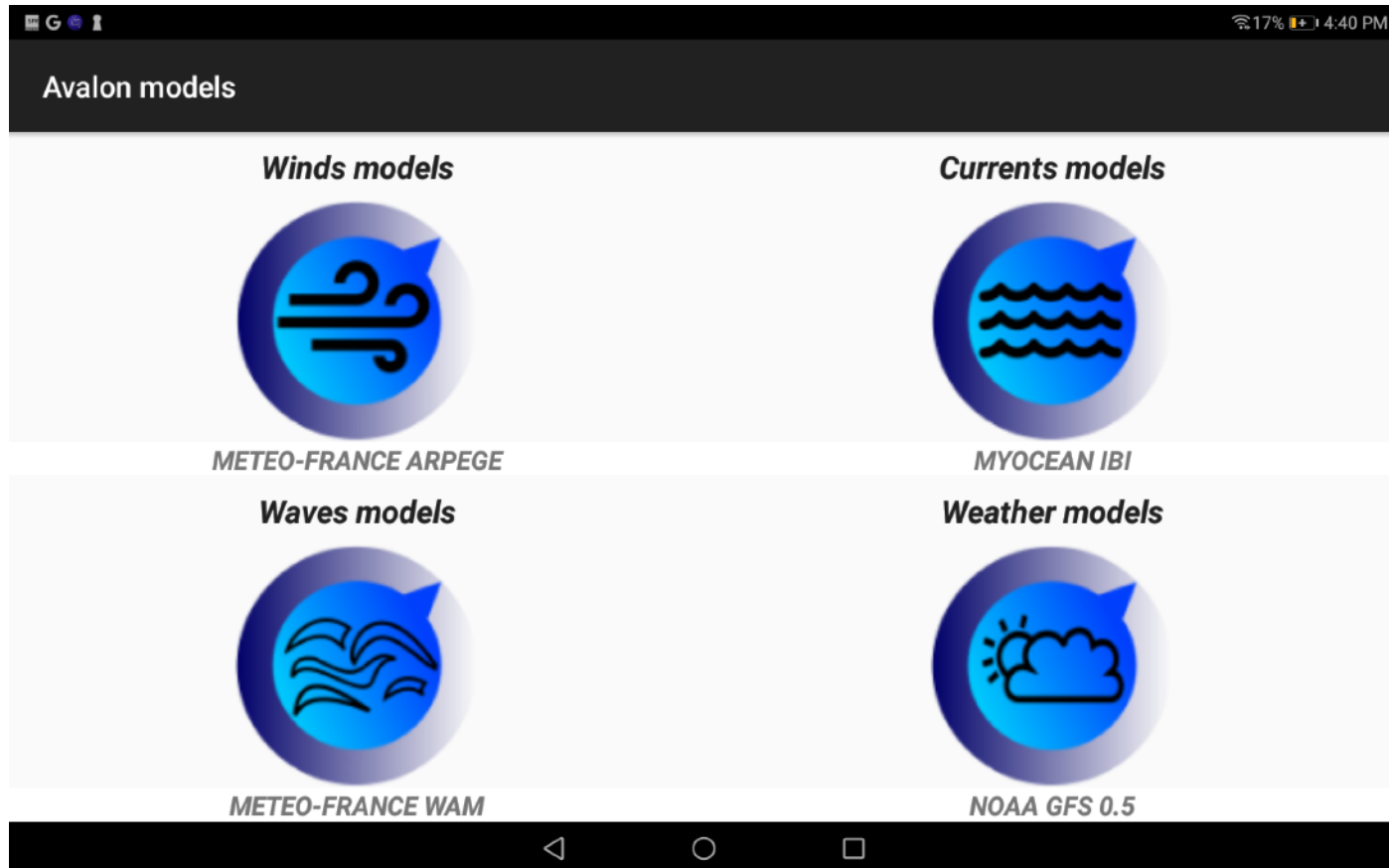
1 - Weather Sources

- You have to specify your preferred weather data source for each of the 4 categories: wind, current, waves and other weather data.

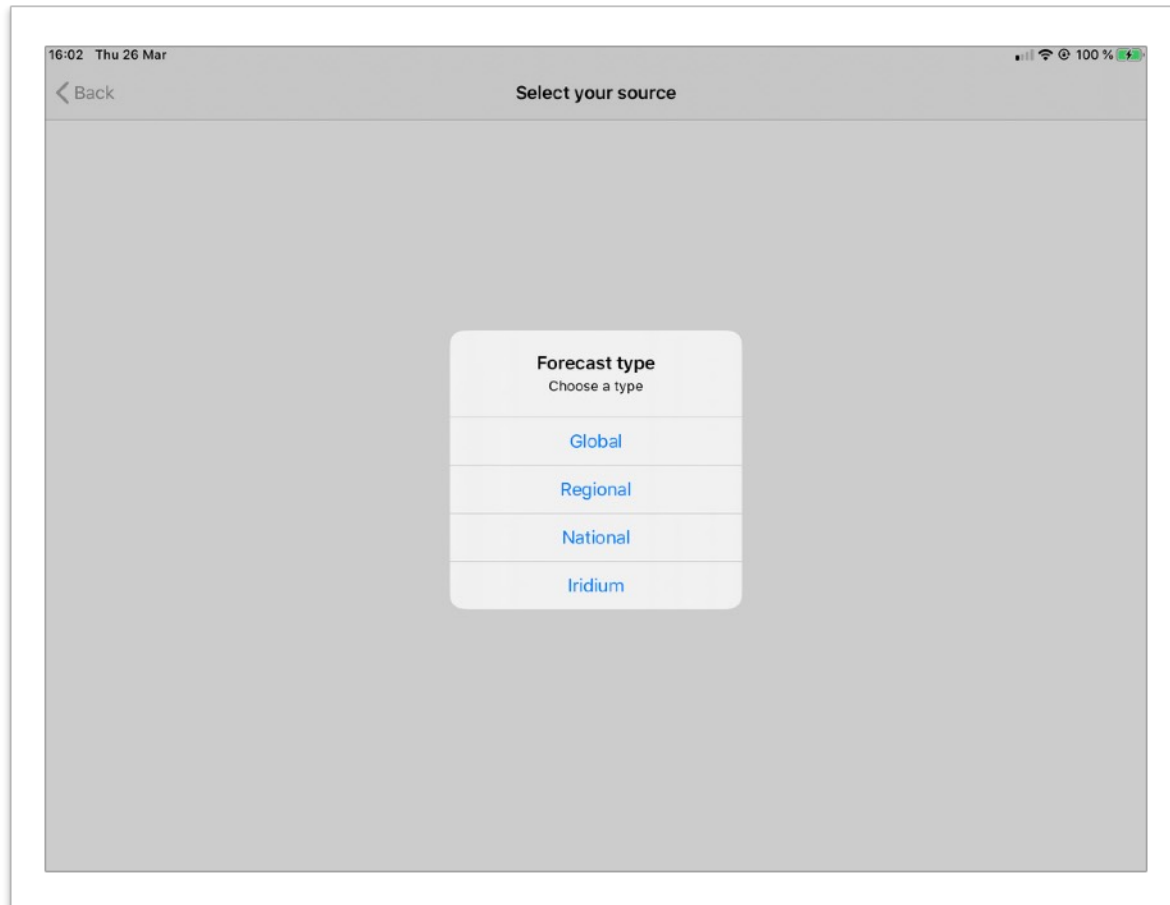iPad screenshot. See Android on next page

1 - Weather Sources

Android screenshot

1 - Weather Sources

Let's start with « Wind Models » ans choose between:

- Global for worldwide sources
- Regional e.g. Europe, USA, Carribean, etc.
- Country
- Iridium, to select an highly compressed data sources, very efficient for satellite data transmission.
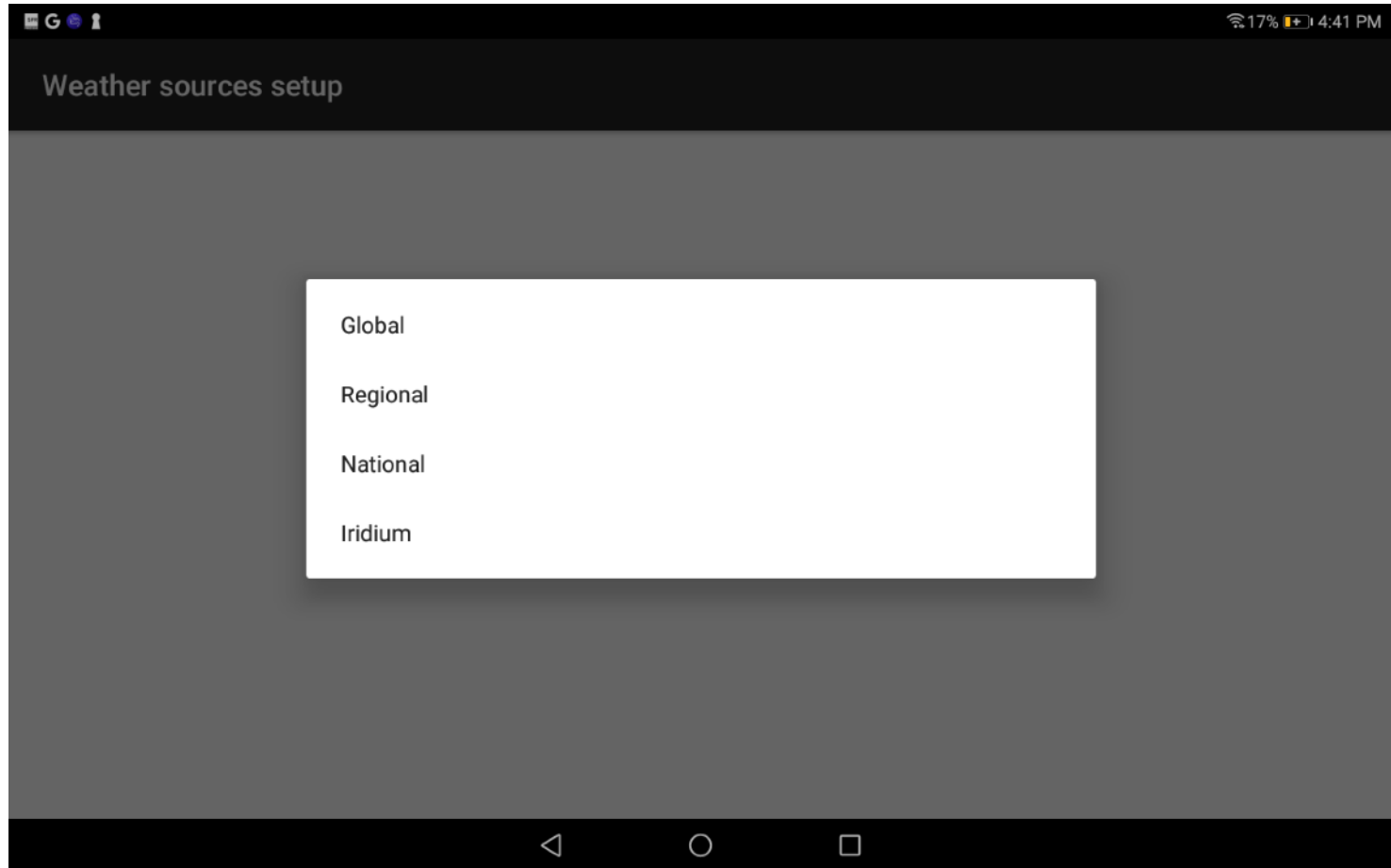

iPad screenshot. See Android on next page
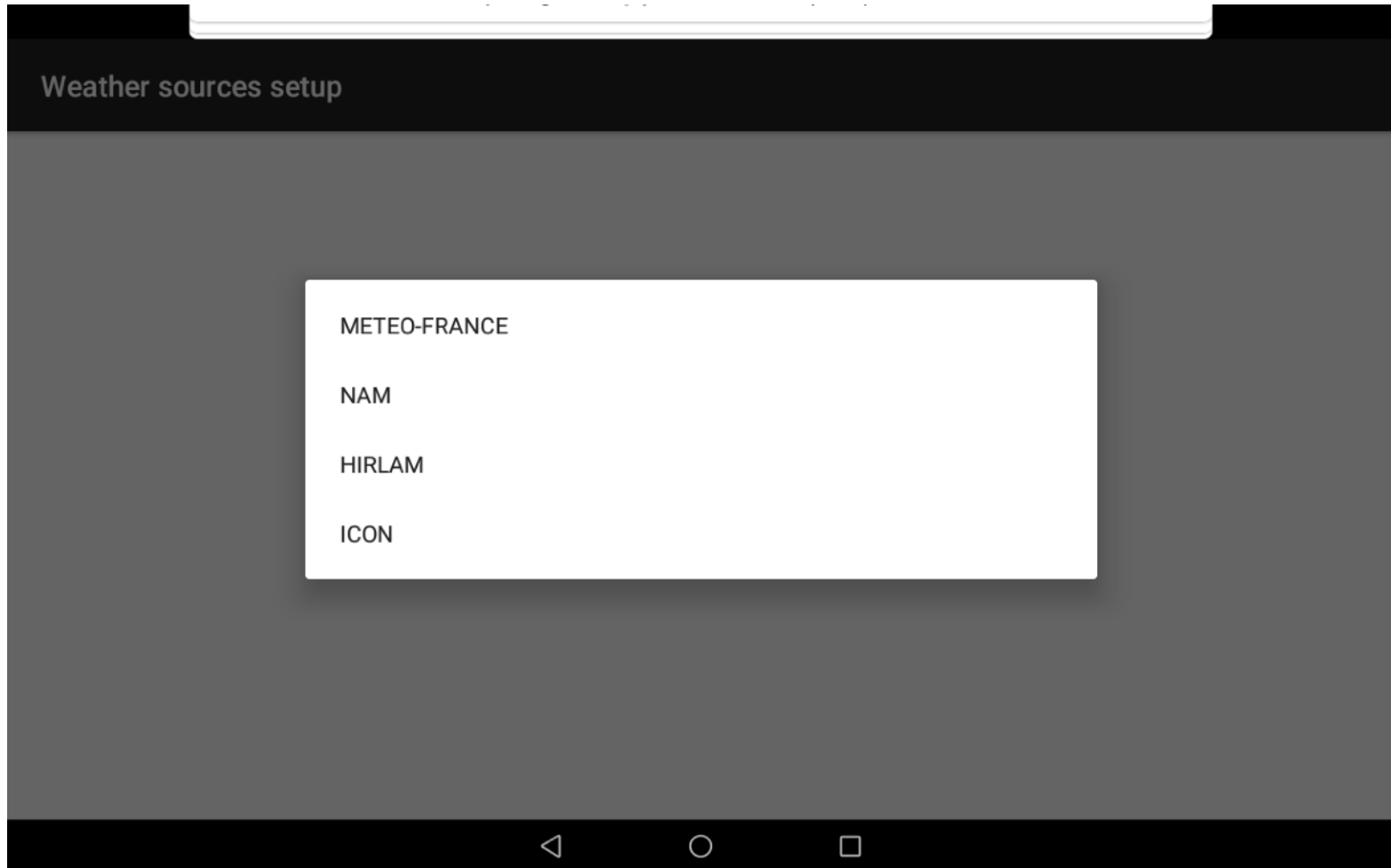
1 - Weather Sources

Android screenshot

1 - Weather Sources

- If you select « regional you will see weather data providers producing high definition weather data at a regional level e.g. Arpege, Icon for Europe or NAM for the USA/Carribean.

iPad screenshot. See Android on next page

1 - Weather Sources

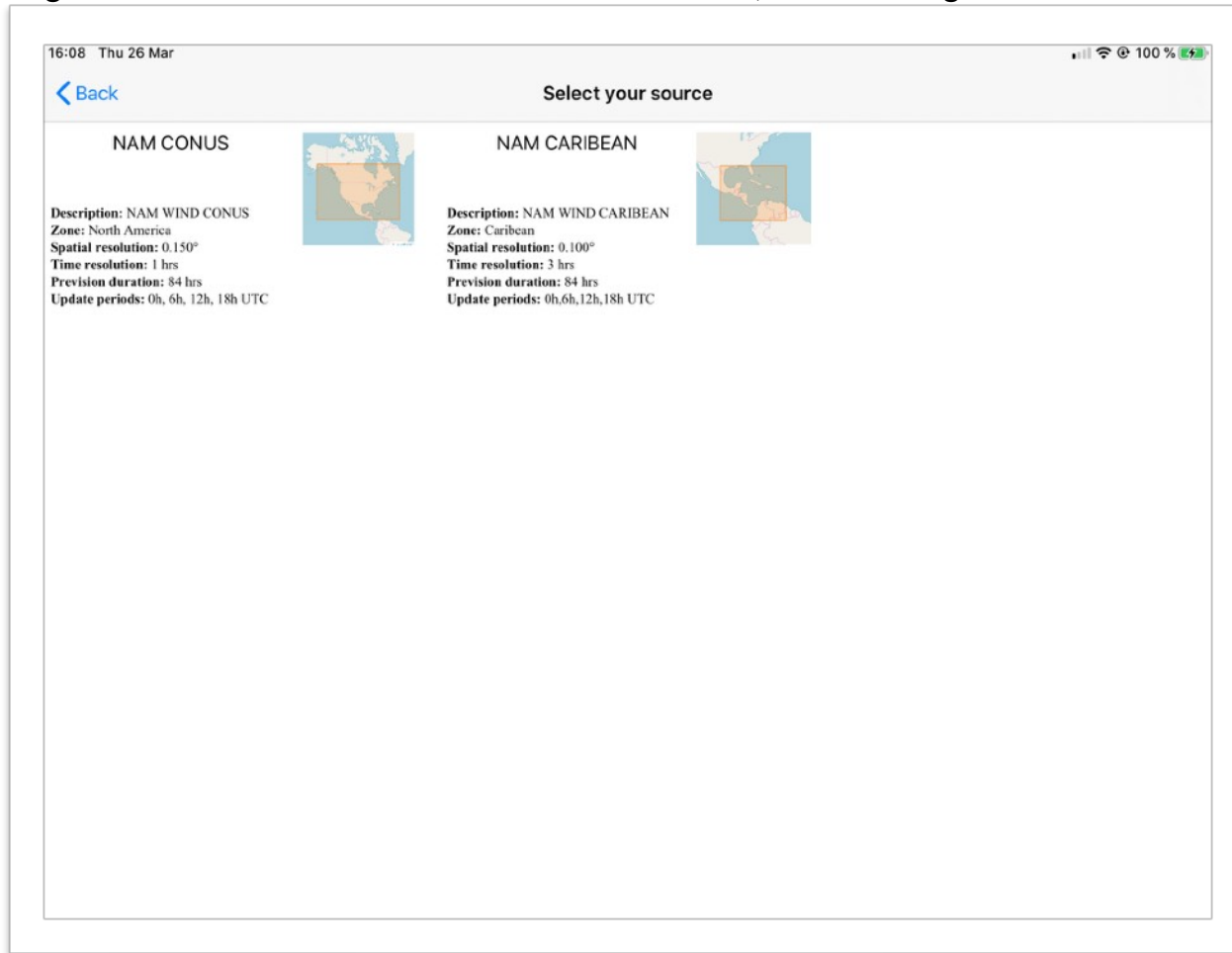Weather sources setup

METEO-FRANCE

NAM

HIRLAM

ICON
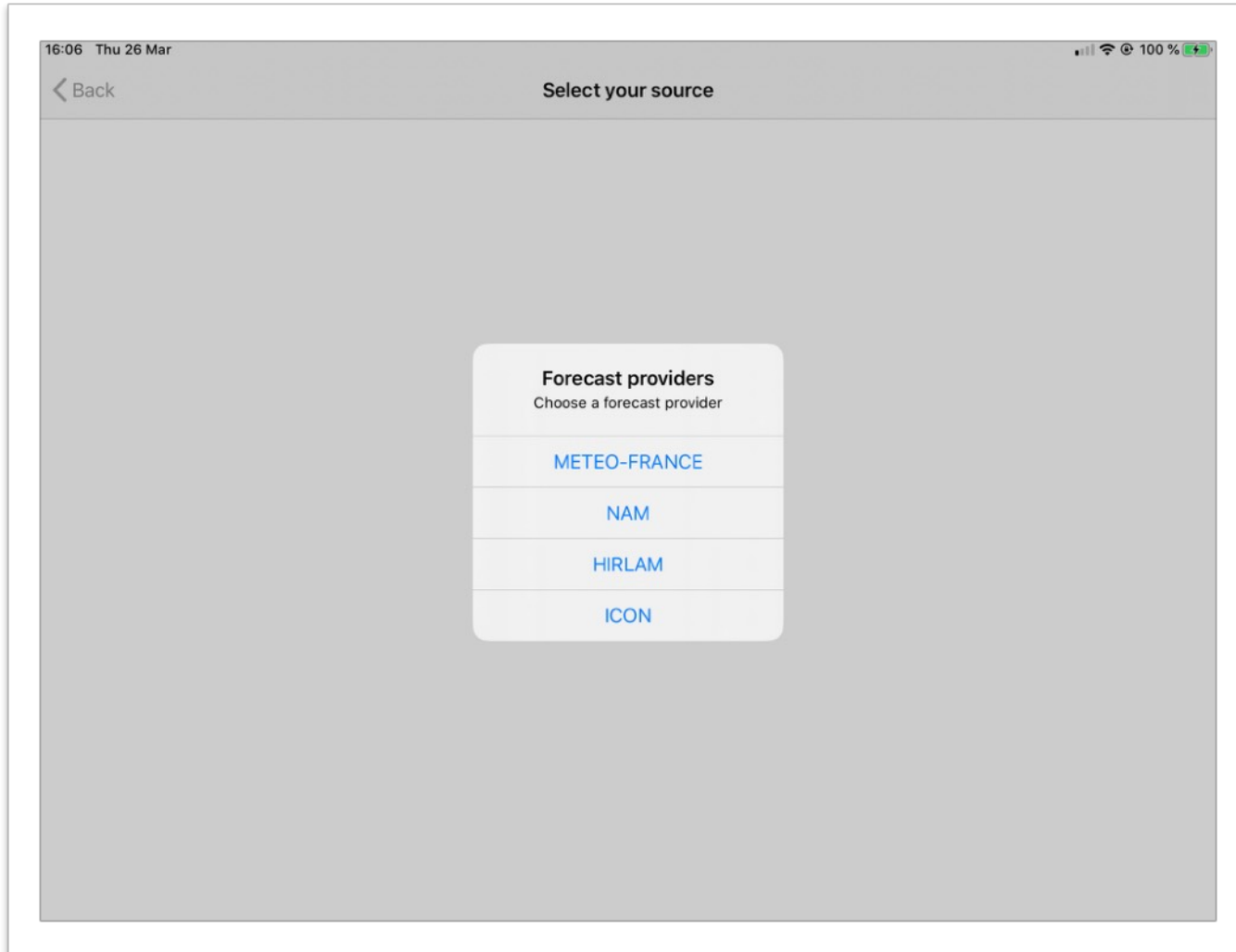
Android screenshot
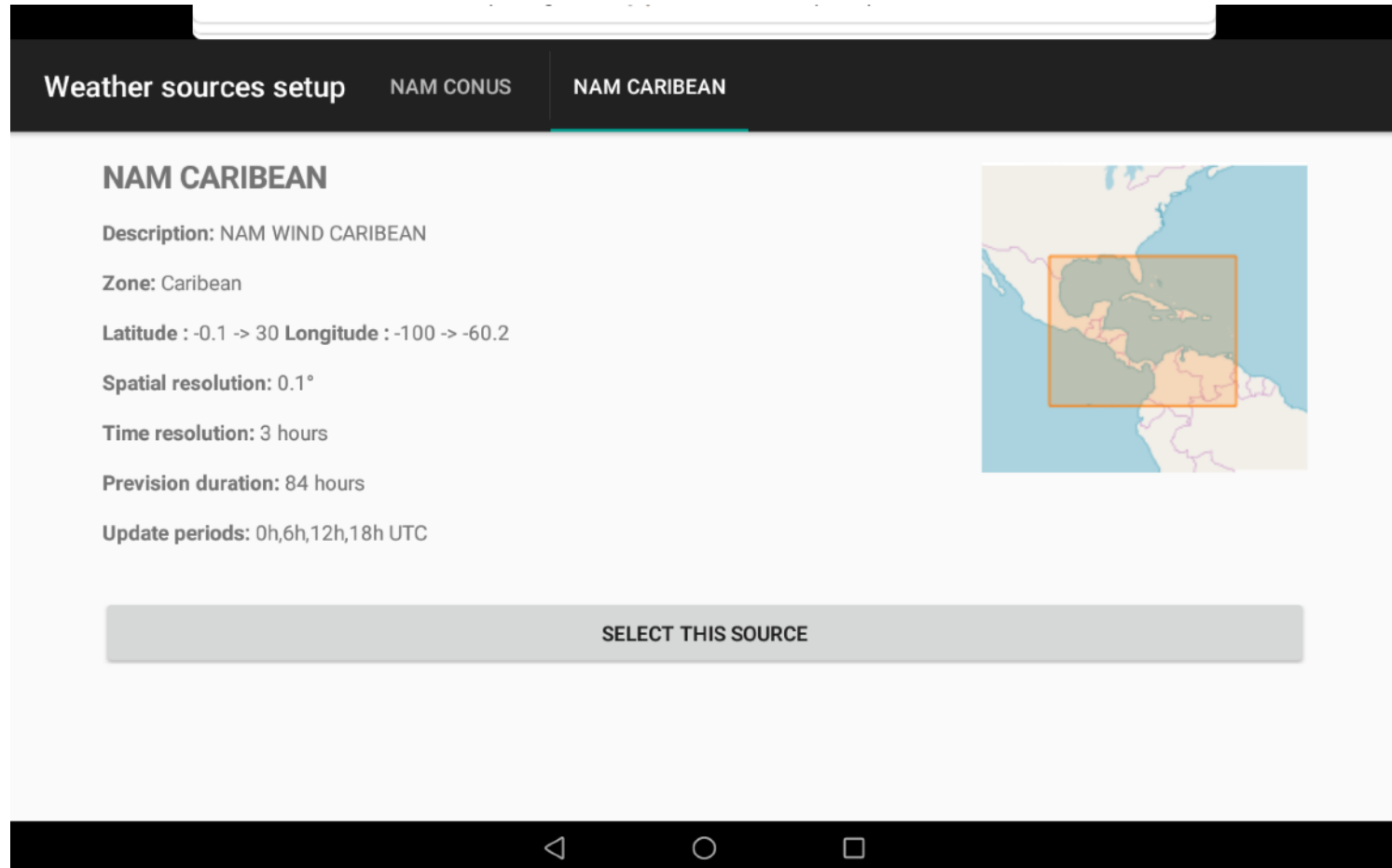
1 - Weather Sources

... for example NAM for the USA.

- Tap on the chosen source and return to validate your choice.
- Do not forget to do the same kind of selection for Current, Waves and general Weather.

iPad screenshot. See Android on next page

1 - Weather Sources

Android screenshot

1 - Weather Sources

- To select the most appropriate weather data source for your navigation area, we have published a guide that can be found on our web site here: http://www.avalon-routing.com/en/users-guide/
- This document details the geographic as well as the time coverage provided by our different providers. We also indicate production time for each of our 65 automatic sources.

Regional models

Tableau 1-1

	Coverage	Forecast horizon	Granularity Degree	Granularity Hours	Freq. Prod.	Avail. Hour (UTC time)	Latitude	Longitude	Iridium Version
Meteo France									
Arpege	Europe	114 h	0.10	1h	4 / day	04h 30 11h 25 17h 15 23h 20	20N - 72N	32W - 42E	Yes
CEP									
Hirlam	Europe	48 h	0.10	1h	4 / day	03h 20 09h 20 15h 20 21h 20	35N - 70N	12W - 30E	
DWD									
Icon	Europe	120 h	0.0625	1h	4 / day	04h 10 10h 10 16h 10 22h 10	29.5N - 70.5N	23.5W - 43E	Yes
Icon 30h	Europe	30 h	0.0625	1h	8 / day	00h 10 03h 10 06h 10 09h 10 12h 10 15h 10 18h 10 21h 10	29.5N - 70.5N	23.5W - 43E	Yes
NAM									
Connected USA (excl Alaska)	USA	84 h	0.15	1h	4 / day	05h 35 10h 35 17h 35 22h 05	12N - 61.2N	153W - 49.6W	Yes
Carribean Central America	Carribean	84 h	0.10	3h	4 / day	05h 35 10h 35 17h 35 22h 05	0N - 30N	100W - 60.2W	Yes

1 - Weather Sources

The main factors to consider when selecting a weather data provider are:

- The whole navigation area, defined by start, arrival and waypoints should be covered by the data source.

- The forecasting horizon should be compatible with the planned cruise duration and the starting date. Please also note that greater the geographic precision, shorter the horizon of the forecasts. Icon will give you a 0.06 degree precision hour by hour on 120 hours but the NOAA GFS will give you a 400h forecast with a 0.25 degree precision.

- Therefore, if you are planning a cruise in 10 days, start your first planning with NOAA GFS, then switch to Icon or NAM some days before departure and optionnel to Arome or Skiron the day before the start.

- In the routing parameters (see education module 2 and 3), please increase the planned cruise duration if necessary. Dans les paramètres de routage, pensez à adapter la durée prévue de la croisière si nécessaire. This is a key parameters as it indicates to Avalon the needed forecasting period to be downloaded to your device.

- When sailing offshore without Wifi/4G access, please use the special Iridium sources. Those sources will reduce by up to 95% to volume of data to be downloaded. Available Iridium sources are NOAA GFS 1 degree, Meteo France Arpege, NAM Caribbean, Icon 30 and 120 hours…. and more to come!

2 - Boat

VPP (Velocity Prediction Polars) aka « polars » represents the boat speed as a function of:
- Sailset
- Wind Speed (TWS)
- Wind Angle (TWA) - angle between boat heading and wind direction e l'angle du bateau par rapport au vent.
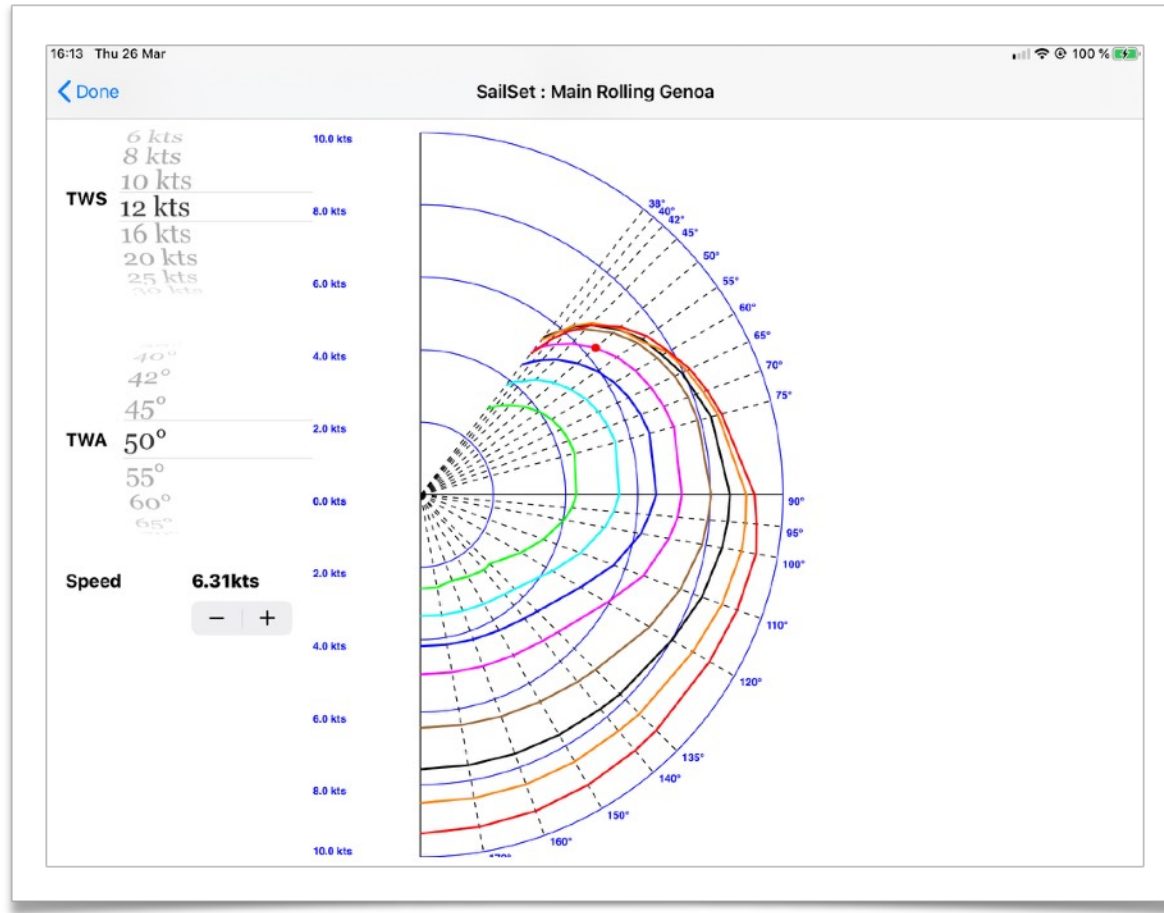
Polars accuracy is key to compute a precise route, associated of course to sound weather forecast.

2 - Boat

Avalon is currently the most complete weather routing system on the market as it enables to use polars from 3 different ways:.

1. By loading of your personal VPP files in Avalon on the tablet.
2. By selecting your boat in a selection of 450 pre-loaded boats.
3. By computing your customized VPPs using our free naval architecture software: Avalon VPP.

2 - Boat

Alternative 1: Load your own VPP files in Avalon.

- Create a file « my boat.xlsx ». You can create one file per sail set.
- This format of this file should be like:

TWA/TWS	4	8	12	16	20	...	...
30							
35							
40							
45							
50							
60							
...							

- You can create as many columns and lines as needed for your TWS and TWA values
- This file, created with Excel, should the be exported as txt file (i.e. with tabs as delimiters.)
- You get a file named « myboat.txt ».
- Rename this file from Renommer ce fichier de « monbateau.txt » en « monbateau.pol »
- Send the file to the tablet as described in the document « Load an external file (polar, grib, map) in Avalon ».

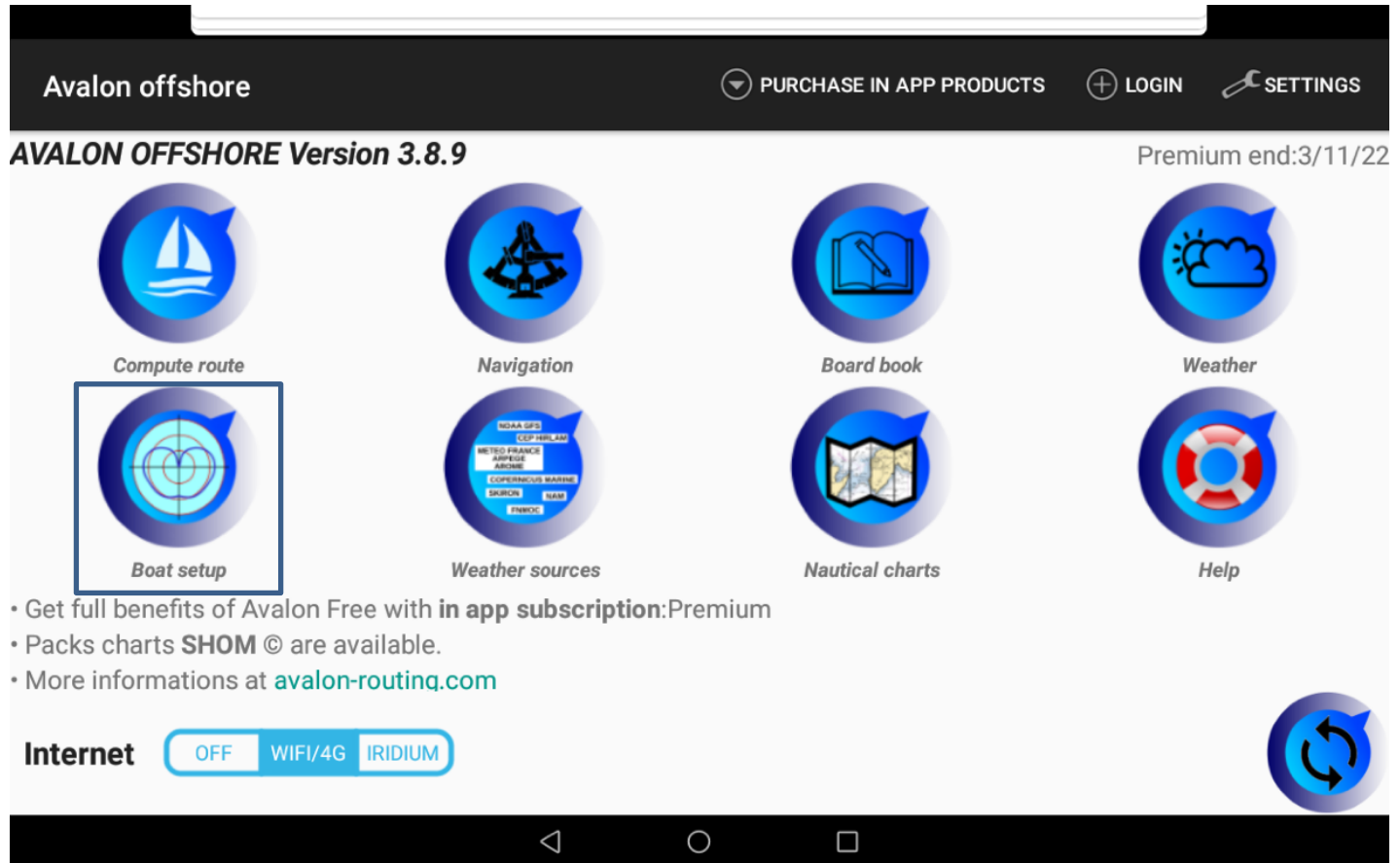http://www.avalon-routing.com/en/users-guide/

2 - Boat

- To select/modify a boat, go to the « Boat setup » module.
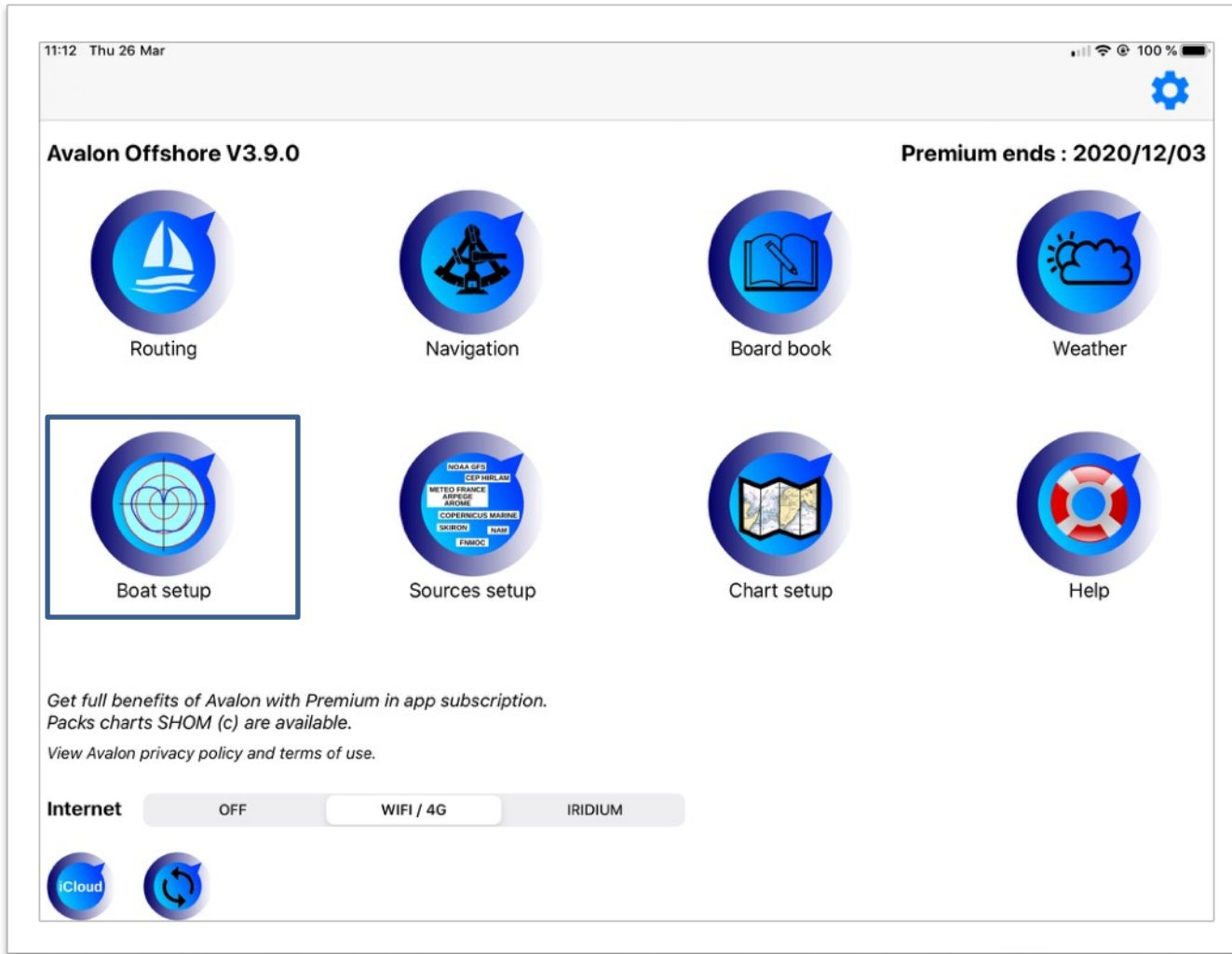
iPad screenshot. See Android on next pages

2 - Boat

Android screenshot

2 - Boat

Alternative 2: Use one of the 450 pre-loaded boats.

• From the main menu, go to « Boat setup »

iPad screenshot. See Android on next page

2 - Boat
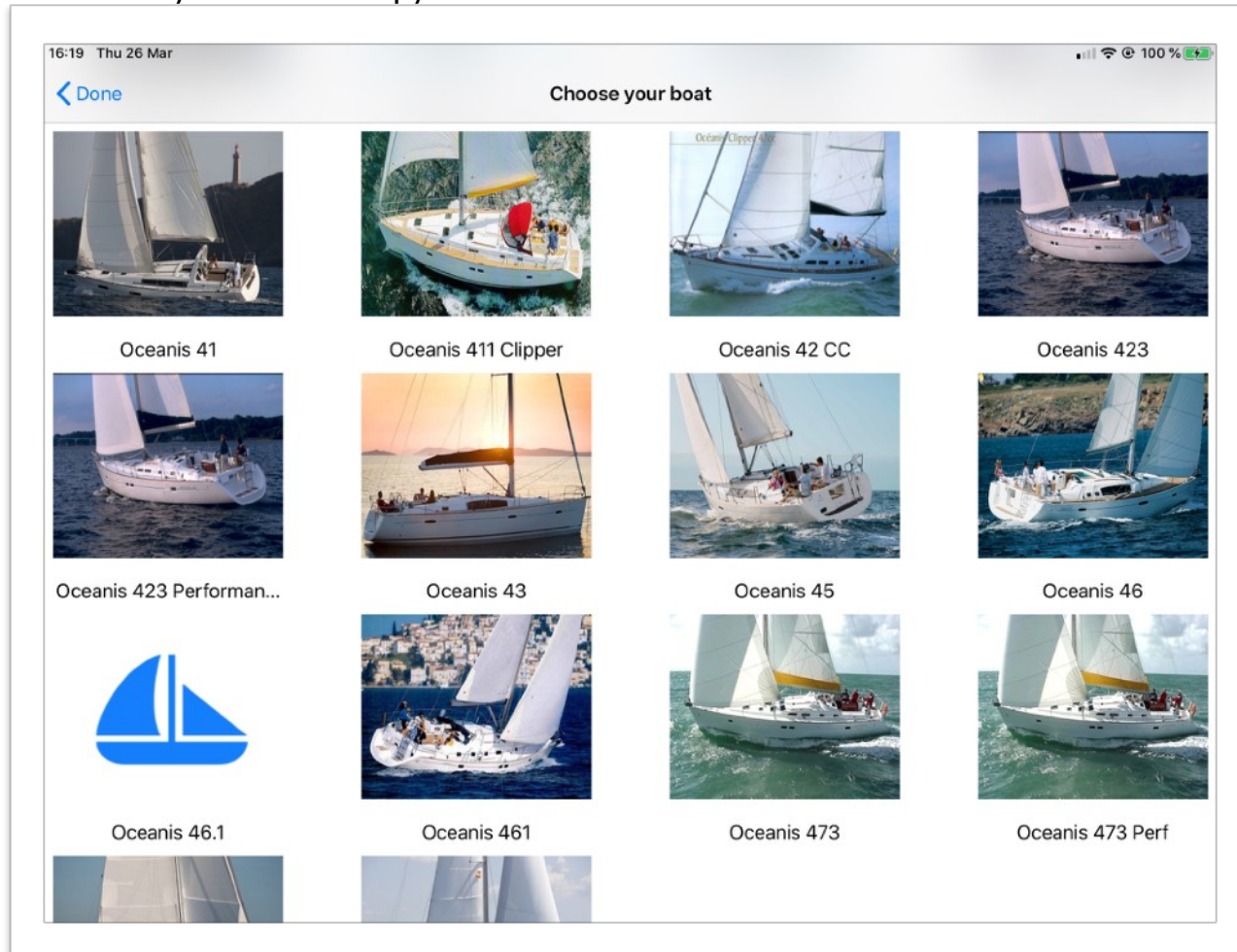
Alternative 2: Use one of the 450 pre-loaded boats.

Android screenshot

2 - Boat

Alternative 2: Use one of the 450 pre-loaded boats.

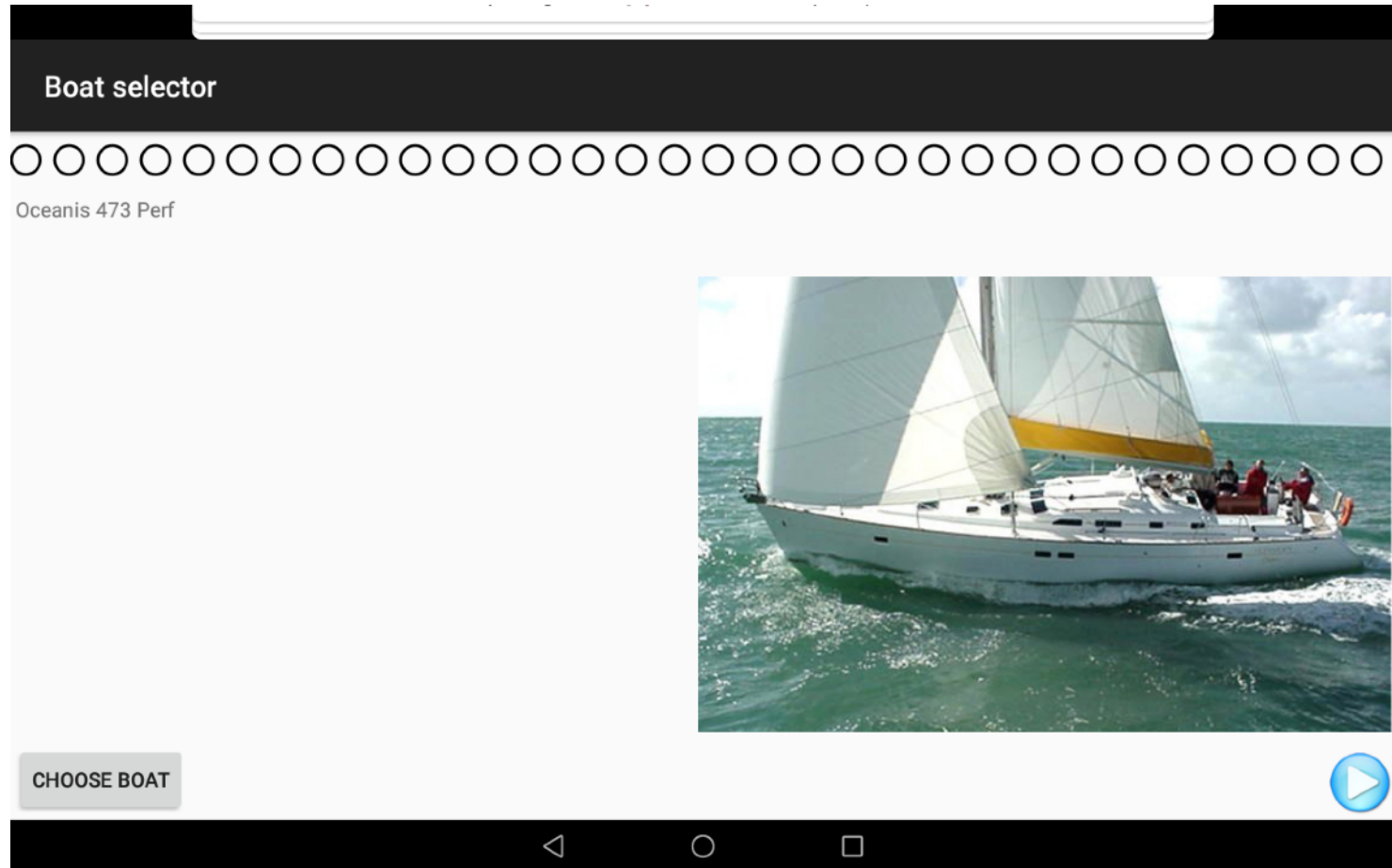Scroll the screen until you see the shipyard and then select the boat

iPad screenshot. See Android on next page

2 - Boat

Alternative 2: Use one of the 450 pre-loaded boats.

Android screenshot
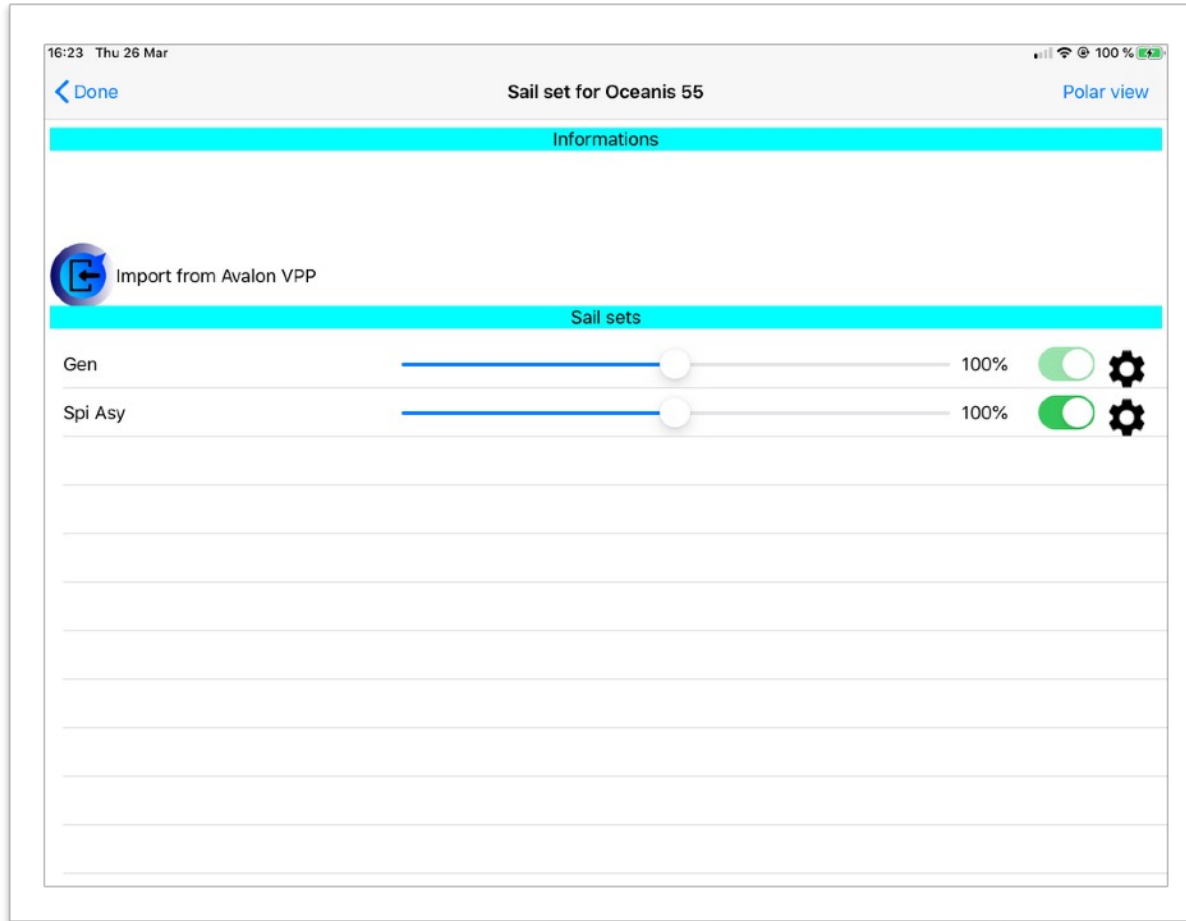
2 - Boat

Alternative 2: Use one of the 450 pre-loaded boats.

- Select the boat by tapping on the image. Available sail sets are displayed.
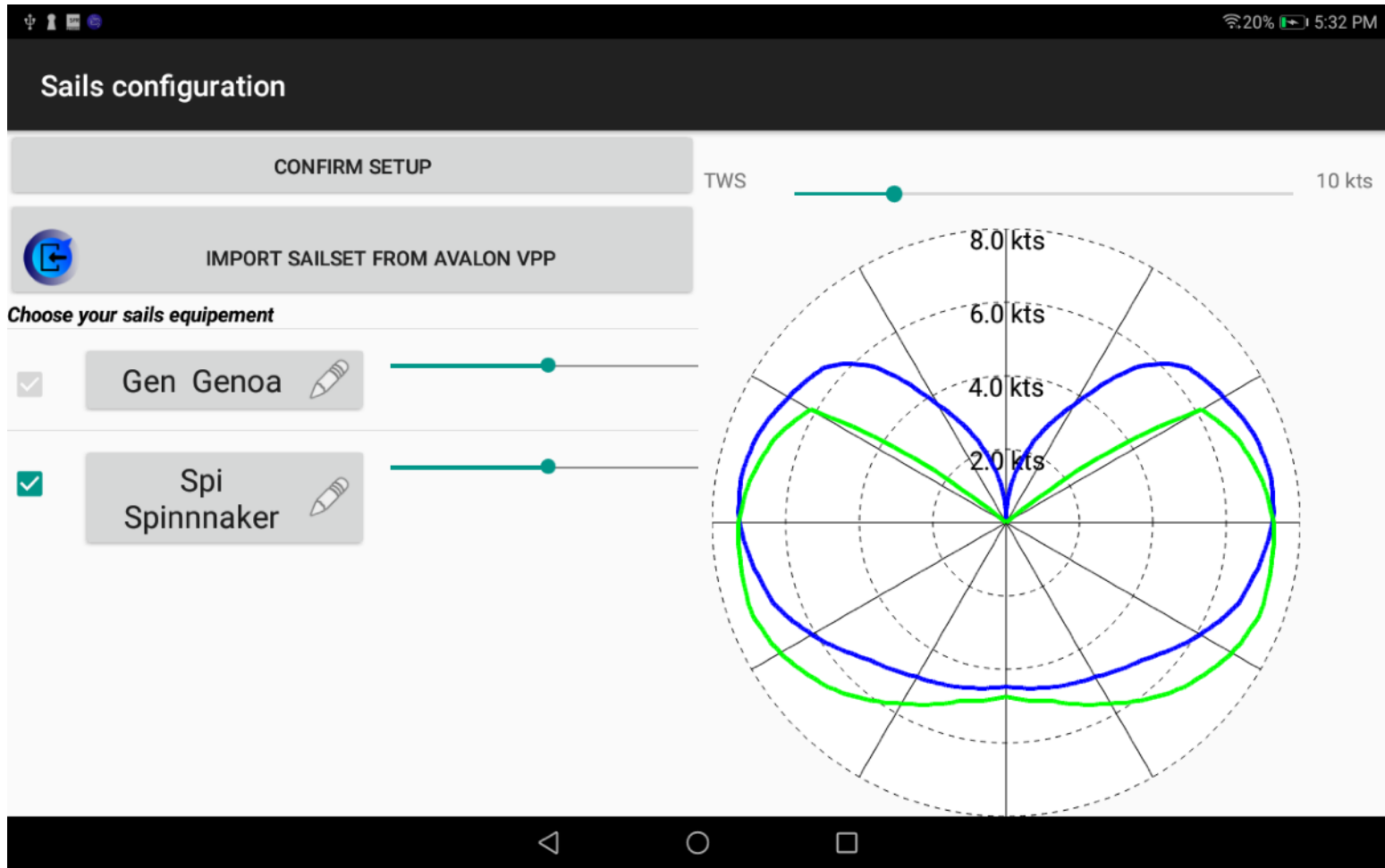- Tap on « done » to confirm

iPad screenshot. See Android on next page

2 - Boat

Alternative 2: Use one of the 450 pre-loaded boats.

Android screenshot

2 - Boat

Alternative 3: Compute your customized VPPs with Avalon VPP

1. Standard VPPs contained in our library or downloaded from the Internet are generally not suited to your boat and therefor the calculated route will be imprecise. Those standard VPPs are often too optimistic to be used when cruising as:
   - Boat displacement too light (no/few water and fuel, very light anchor, no tender/motor, etc.), brand new racing sails, folding propellor, etc .
   - Sail sets non available (gennaker, Code 0, Asymetric Spinnaker, Staysail, etc.).
   - Not possible to fix a heeling limit.
   - Etc.
2. Some skippers correct their polar by using an overall weighing factor. This is wrong because the factor to apply should depend upon point of sail and wind speed. For exemple, a used jib will give terrible results when close hauling but will not be too bad when sailing downwind.
3. Avalon Navigation Systems has developed a VPP system, available free on Internet. This system enables you to calculate your VPPs for every sails you have on board and takes into consideration many key parameters of your boat that will impact its speed. It will also enable you to consider capabilities and wishes of your crew, by reducing the heeling and increasing reefing for example..
4. This software has been developed in line with the main principals of naval architecture..
5. On top of the speed, Avalon VPPs also calculates heeling and reefing.V
6. You can find some VPP calculation products on the market, often for a fee. Beware of those that pretend to calculate speed predictions from 4 or 5 parameters, forgetting draft and other key data.

2 - Boat

Alternative 3: Compute your customized VPPs with Avalon VPP

To access Avalon VPP, please go to our website at:
 http://www.avalon-routing.com/en/polars//
And click on « Calculate your boat VPPs »

You are then able to compute VPPs for each of the sail sets available on board.

To help you using the product, there ia a video tutorial here:
http://www.avalon-routing.com/en/video/

And a user's guide here:
http://www.avalon-routing.com/en/users-guide/

At the end of the process, your VPPs are stored privately on our server. You will receive an email containing an 8 digit code per sail set to enable their integration in Avalon on your tablet

This process is described in the video and the user's guide mentioned above.

2 - Sailset selection and tuning

- Go to the « Boat setup » module
- And then to « Modify my boat »
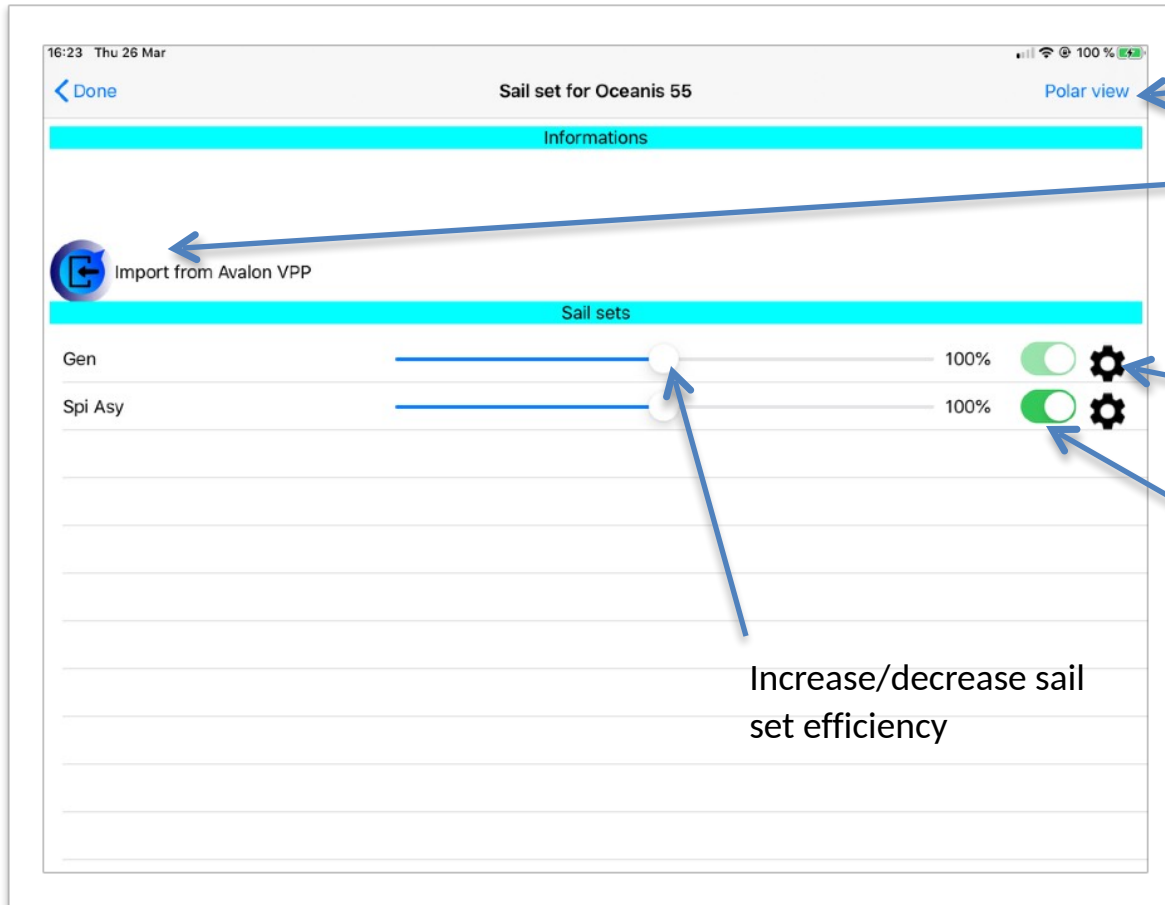
Display all polars

Import a new sail set from Avalon VPP

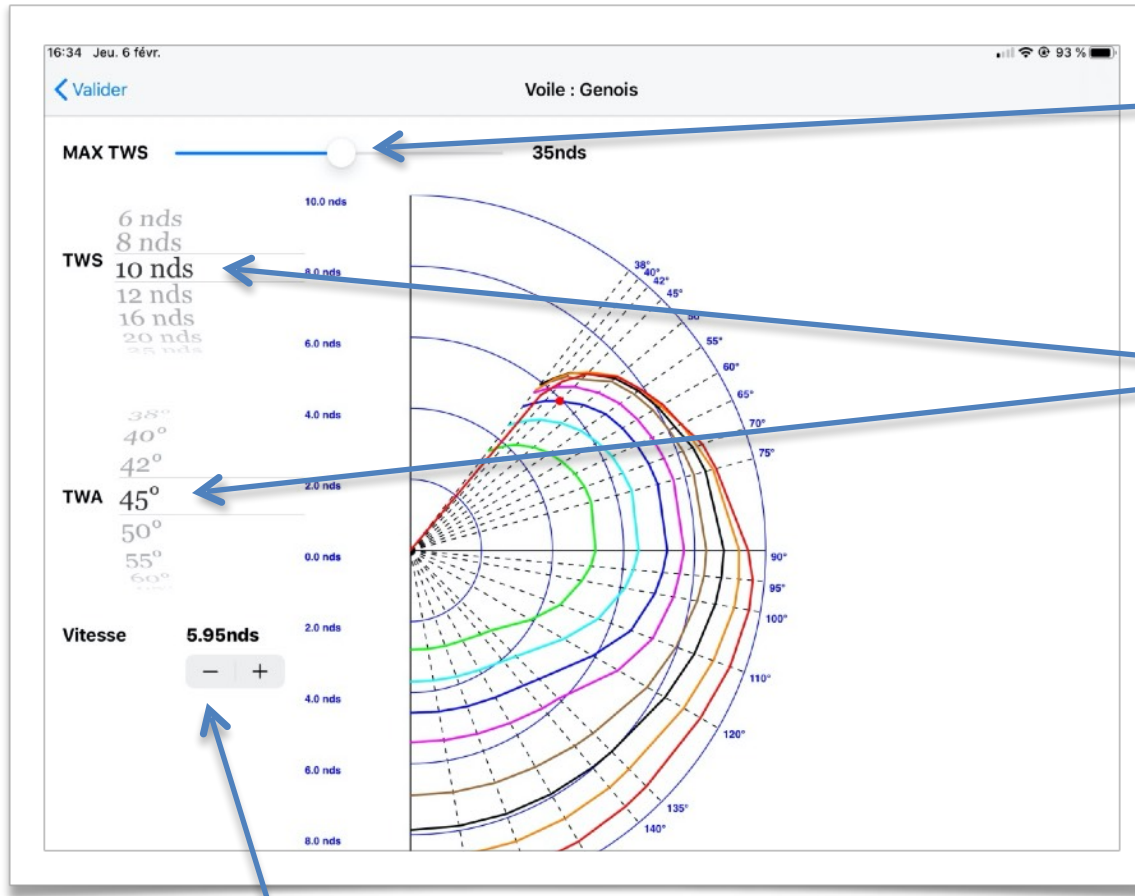Display and edit sail set polar (see next page)

Activate/deactivate a sail

Increase/decrease sail set efficiency

iPad screenshot. See Android on next page

2 - Sailset selection and tuning
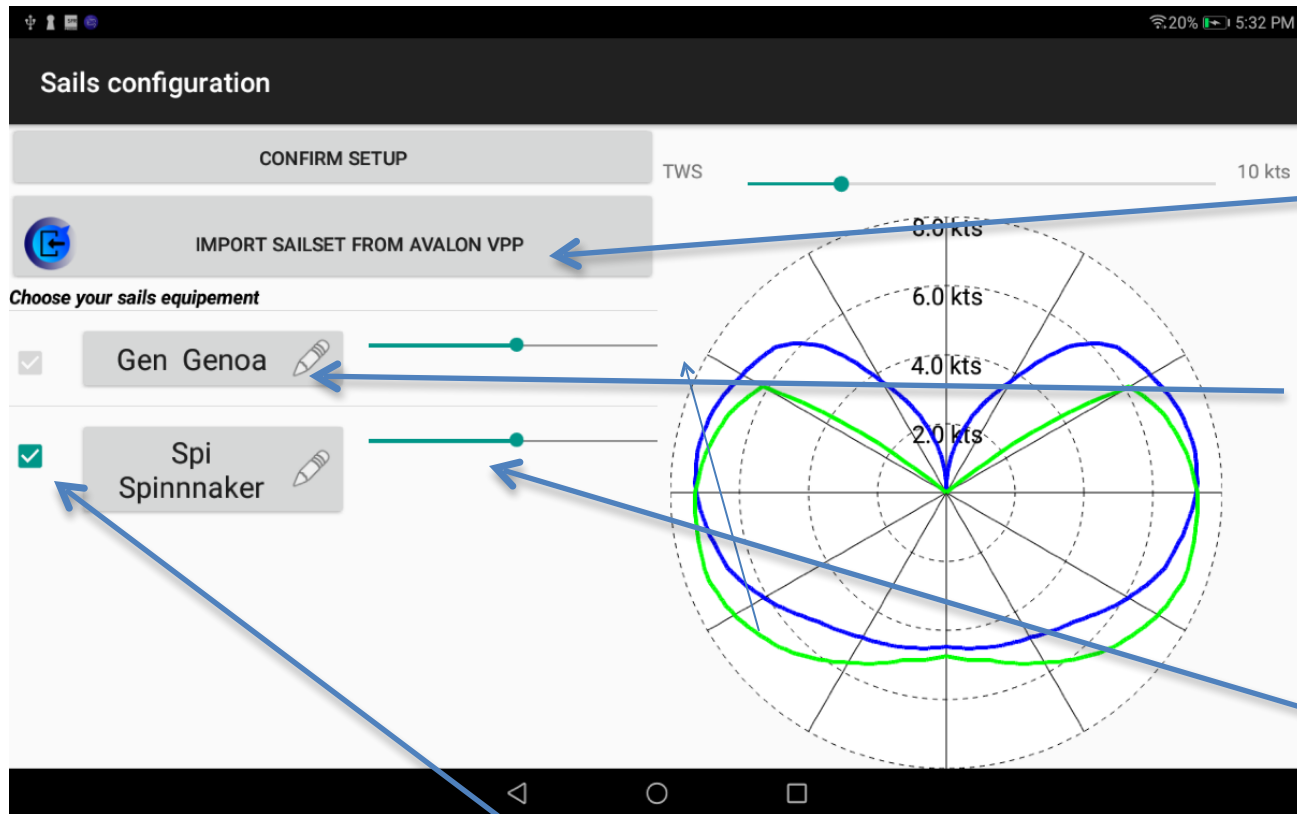
Apple iOS

Fix a maximum TWS for the selected sail

Select TWS and TWA do display precise speed value and edit it if necessary Speed gets displayed just below.

Change boat speed for selected TWS and TWA

iPad screenshot. See Android on next page

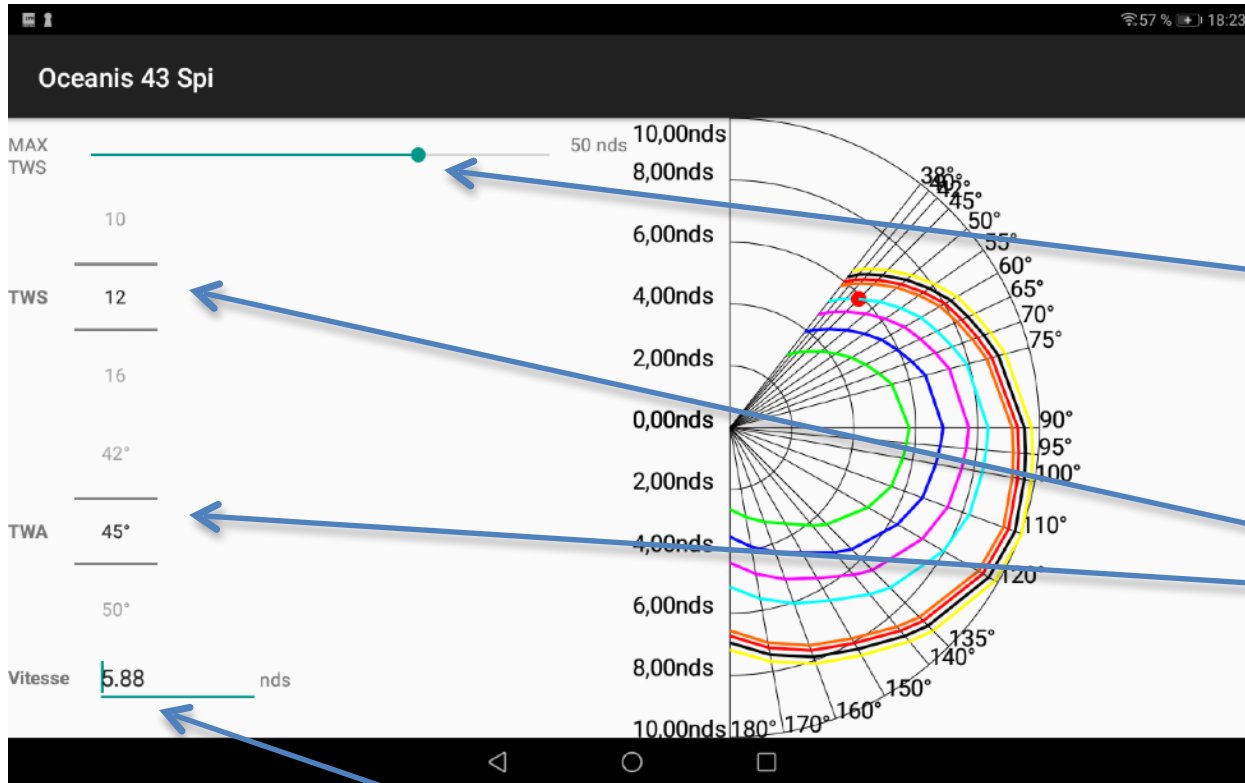# 2 - Sailset selection and tuning

Import a new sail set from Avalon VPP

Display and edit sail set polar (see next page)

Increase/decrease sail set efficiency

Android screenshot

Activate/deactivate a sail

2 - Sailset selection and tuning

Android screenshot

Fix a maximum TWS for the selected sail

Select TWS and TWA do display precise speed value and edit it if necessary
Speed gets displayed just below.

Change boat speed for selected TWS and TWA

End of module 1: Initial Settings

Avalon is now ready for you to calculate your first route.

See next education Module 2: Easy Routing