# User Guide

# SQUID

Version 1.0 (May 2016)

great circle

# Contents

# Introduction

Squid Desktop is a software designed to help users download and manage weather forecasts (GRIB files). Squid Desktop also provides observational data such as satellite images or data from weather stations (SYNOP and METAR). Finally, it allows the user to compute weather routing. These routes are an estimation of the shortest path (minimum time) necessary to sail to a given destination depending on weather conditions (see section 2).
Squid offers a panel of functionalities:

- Overlay visualization of GRIB files from different models;
- Visualize of synoptic maps (Bracknell, DWD, NOAA, ..);
- Choose from a wide choice of models, global and regional (high resolution) [1] for different variables (weather, sea conditions, tidal currents);
- Download probabilistic models to assess the uncertainty of a forecast through the superposition of weather scenarios;
- Download near real time météosat satellite images available in HD;
- Compute of isochronous routings;
- Overlay visualization of satellite images, GRIB files and routings for a posteriori checks;
- Compression GRIB files with rates up to 90 % (depending on the density and variability of an estimate).

[1] Great-Circle is actively working to improve GCWF fine meshes based on feedback from our users.

# 1 The Squid interface

The Squid interface is divided into 5 zones:

- The central map;
- The top menu bar;
- The toolbar (located on the left with pictograms);
- The results panel, deployable in 4 tabs;
- The triple line of chronology, synchronized to the GRIB, the SAT and iso roads.

These zones will be explored in more detail in the following sections.


## 1.1 The Central Map

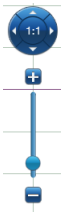
Squid gathers and overlay the query results (GRIB and SAT) and solutions of iso roads (Routing) on the central map. To edit the appearance (colors, resolution, ..):

open the configuration settings (see section 2.5.4).

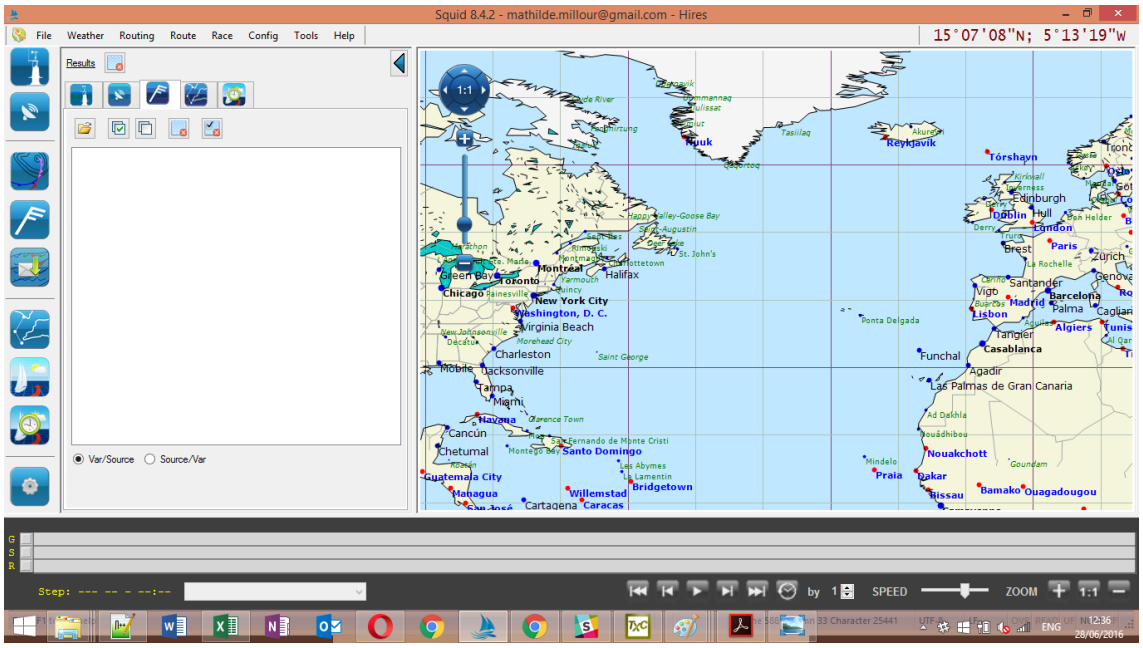
You have three options to zoom into the map:

- the mouse wheel
- right click to select an area, then "Zoom to see the selection"
- the scale rule in the top left corner. Left clicking on "+" or "-" to zoom in and out of the map (see image below).

You can always view the world map by clicking on "1: 1" (see image below).




## 1.2 The Top Menu




The top menu bar offers more tools and functionalities than those presented with pictograms on the left panel.
These tools and functionalities include:

- File: to open, saved or transferred GRIB from your USB key.
- Weather: to convert your GRIB1 files $<->$ GRIB2 files and check following runtimes available

- Routing: to compute a routing solution.
- Route: to edit the route.
- Configuration: to encode your preferences and personal data.
- Tools: for connection of a USB GPS (useful back-up or last resort if your usual routing software has crashed...)

## 1.3 The toolbar on the left with pictograms

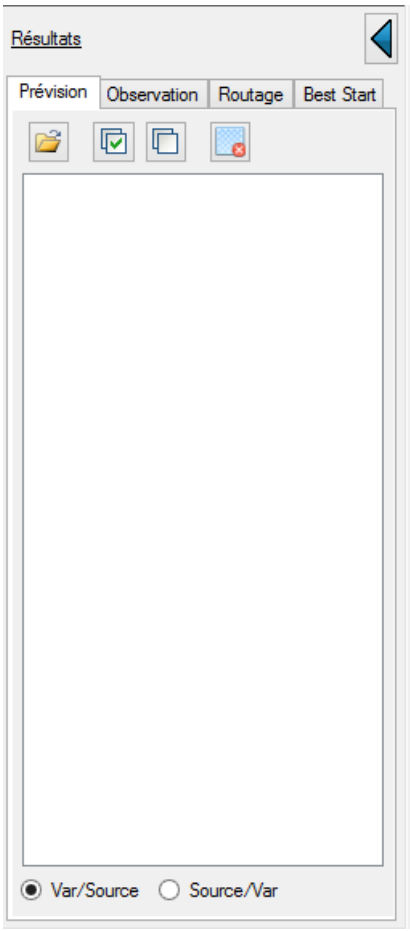
The toolbar on the left of the screen, includes all the main features of Squid:

-  : satellite images
-  : SYNOP and METAR
-  : synoptic charts
-  : the weather files direct download
-  : function GRIBMAIL
-  : creating road
-  : the routing module
-  : module "Best Start" deterministic
-  : the general parameters of Squid

## 1.4 The result panel, deployable in 4 tabs

The panel on the left of your screen is used to manage the GRIB files, roads iso, Best-Start solutions and satellite images. Results are grouped by a tab. On each tab, you find the same icons:

-  Open File
-  Check to see a variable charge on the map
-  Uncheck to remove it
-  Unload file. NB: This file will still be available on your hard disk, directory SQUID / or SQUID GRIB / ROUTE, etc.




Results panel with 4 different tabs.

You can hide this results panel and increase board space with the arrow at the top right of the pane.

## 1.5 The triple line of the time

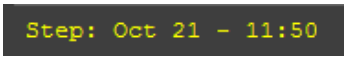
The timeline has been designed to be as dynamic and flexible as possible. It has 5 levels:

- level 1: date lines
- level 2: (symbol G) line of GRIB files
- level 3: (symbol S) satellite images line
- level 4: (symbol R) isoline routing
- level 5: shows the display settings and animation steps

Click on the eye, the square preceded by a letter to view the GRIB: G, satellite images: S or routings: R. **Depending on the case, these three levels can be overlayed and the timeline will adjust itself regarding the duration of each level shown**.

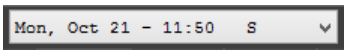
It is interesting to explore level 5 because it contains a lot of information:

- The first item on the left indicates the time step that is currently selected (displayed) on the screen. This information can also be found on lines 2, 3 and 4 shown as a vertical yellow line. This line extends to form a rectangle when we stretch the timeline by zooming with the wheel when the cursor is on the line;




Example of a time steps on the timeline

- All time steps are available from the drop-down list: date - time - tracking G, S and/or R




- The following 6 buttons allows you to navigate from one time step to another:
  -  : First time step
  -  : Previous time step
  -  : Start animation
  -  : Next time step
  -  : Last time step

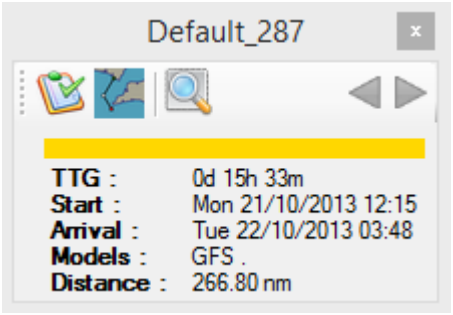
–  : Time step matching the computer time. Warning: your Windows computer time might differ from UTC time.

- To zoom in/out in the timeline, just click on the symbols. To return to the initial setup, click the "1:1".


## 1.6 Routing Window

When routing is displayed, a small floating window opens. This "routing panel" includes some valuable information on the requested routing. For example in the image bellow:

- The estimated navigation time is 15h33min
- The start of the route, Monday, October 21, 2013 at 12:15 UTC
- The expected arrival Tuesday, October 22, 2013 at 3:48 UTC
- The model used is GFS
- The total distance: 266.8 MN




Example of a routing window.

The top of the window displays 5 icons that provide the following actions:

-  : Display roadbook
-  : Display the requested route (Great Circle route)
-  : Zoom on the road
-  : View previous route (if it exists)
-  : View next route (if it exists)

# 2 Tutorials

In this section, we explore some of the most useful application of Squid in detail. We advise you to read the following steps:

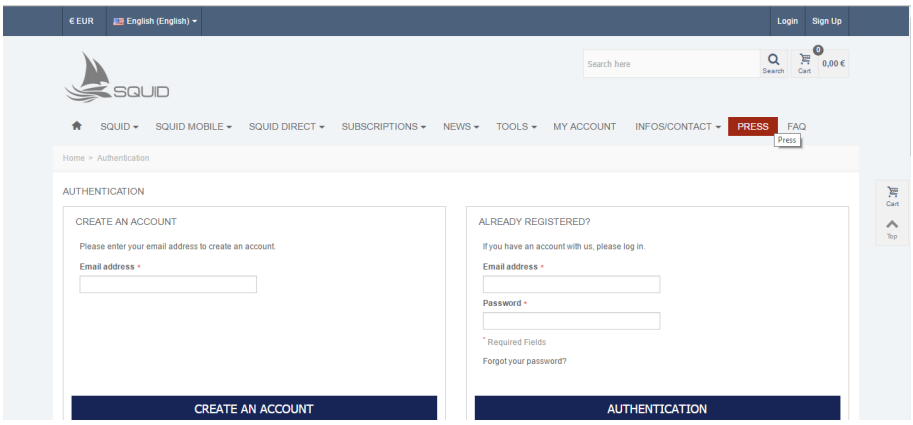
- Create an account on the site
- Download and install Squid
- Choose the working mode
- log in Squid

Finally, if you want, you can change the display settings.

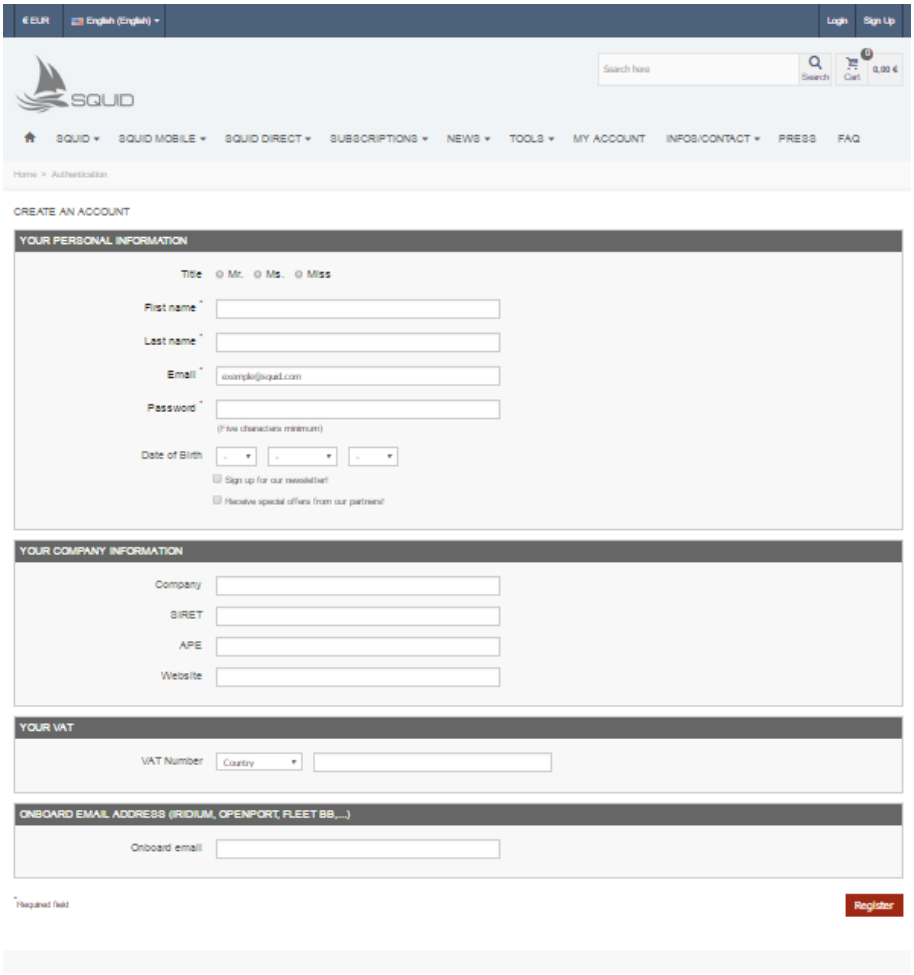
## 2.1 First use

### 2.1.1 Create an account on the site

- Go to the Squid Sailing web page:
  https://www.squid-sailing.com/en/authentication?back=my-account




- Enter your email address in the left rectangle
- Click on "Create Account"
- Fill the different text fields offered




- It is possible to key your VAT here
- Click on "Register"

### 2.1.2 Installation

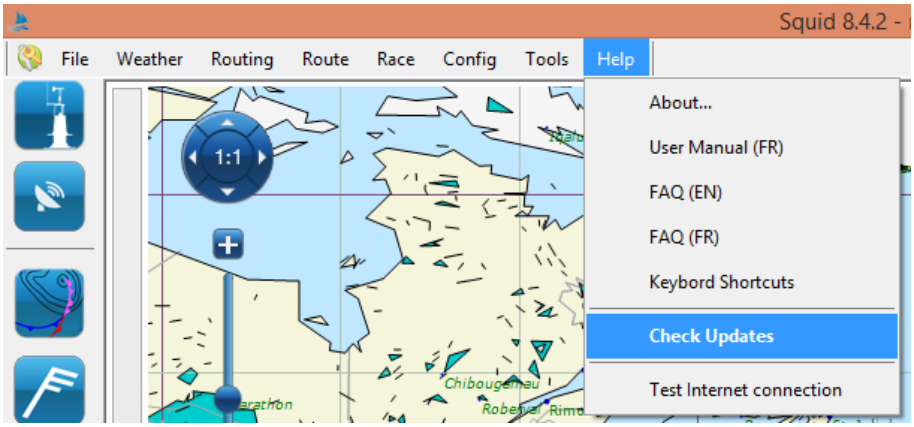
- Go to http://www.squid-sailing.com/
- Click on "Download Squid"


  - OPTION 1: Download the software in 3G or WiFi and save it directly on PC
  - OPTION 2: Download the software in 3G or WiFi and store it on your USB stick, smartphone or other mobile memory for later installation on the PC board

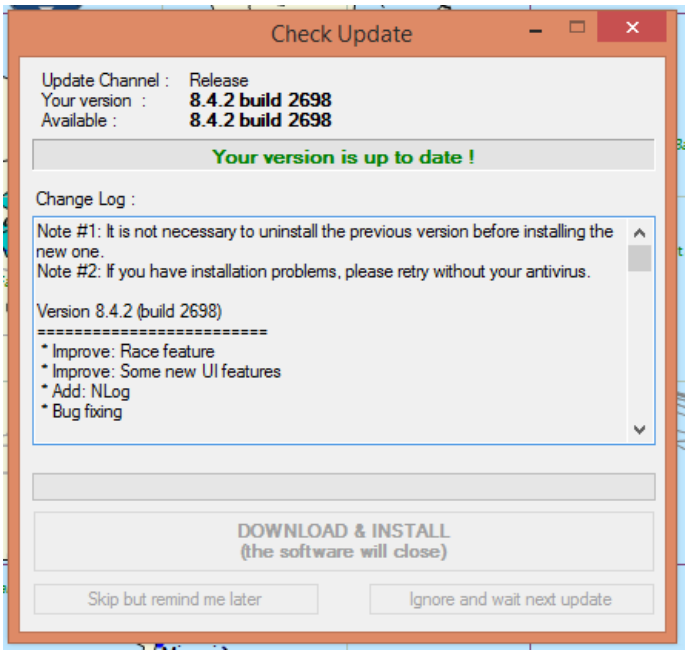
- Run the installation file previously downloaded
- Follow the steps of the installation package

### 2.1.3 Update Squid

- Click on "Help" in the top menu
- Click on "Check for updates"

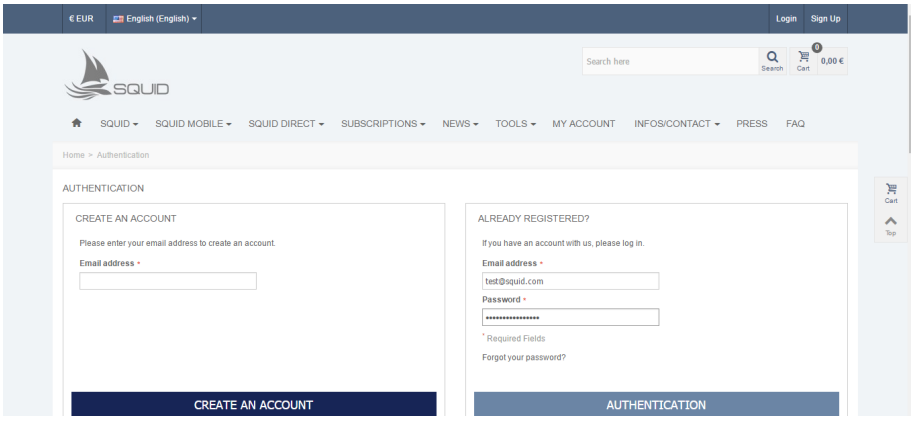



- The window opens and offers you to upgrade if you do not have the latest version




### 2.1.4 Modify your password

- Go to Great-Circle web page:
  https://www.squid-sailing.com/en/authentication?back=my-account




- Enter the email address and password in the right rectangle
- Click on "sign in"
- Click on "My Personal Information"
- Edit your password
- Click on "Submit"

### 2.1.5 The two launching modes available

Squid is installed, and two icons are created on the desktop:

- On-line: Designed for a stable and permanent internet connection.
- Off-line: Designed if you do not want, or can't work with a currently open connection.

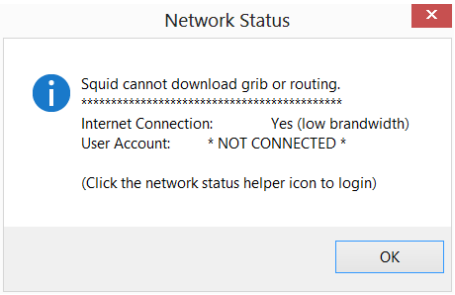
Just click on the icon that suits your situation and Squid will open. **Off shore, with a laptop and a data kit iridium, imperatively use the OFF-LINE mode, with a 'fleet' the ON-LINE mode is possible.**

### 2.1.6 Test of connexion

An upper left icon (next to the "File" menu) is displayed and can display 3 different states:

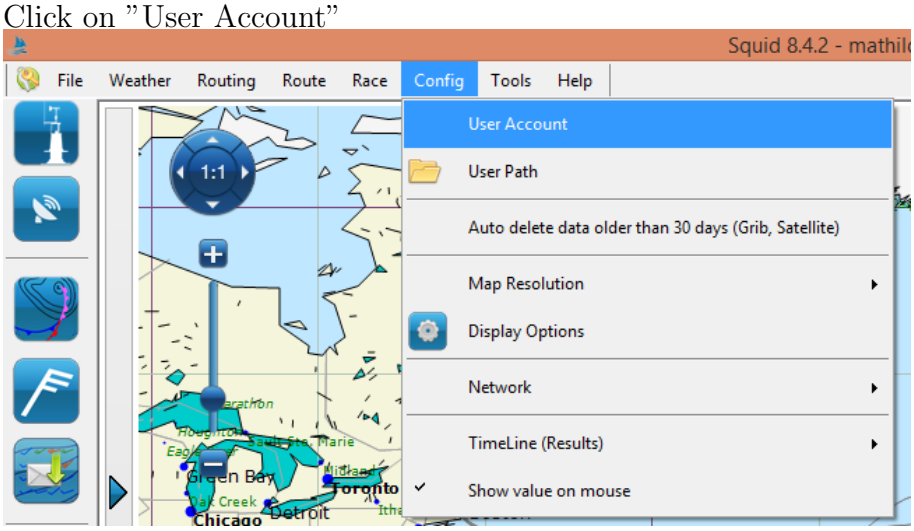
-  : you have an internet connection and you have a license Squid
-  : you don't have an internet connection
-  : you have an internet connection, but you have not saved a Squid license yet.

By clicking on these icons there, you will get the detailed status of your account and your connection. In the example below you have internet access but are not yet recognized by the server.

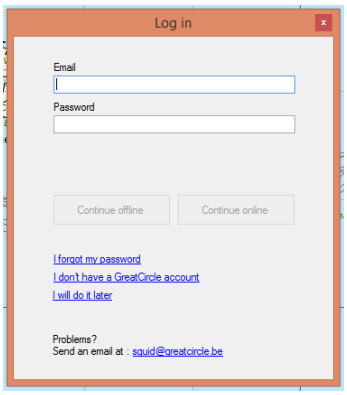



### 2.1.7 Login

- Open the top menu "Configuration"
- Click on "User Account"




- Put your email and password. If you didn't register on the site, you can do so by following the step described in section 2.1.1.



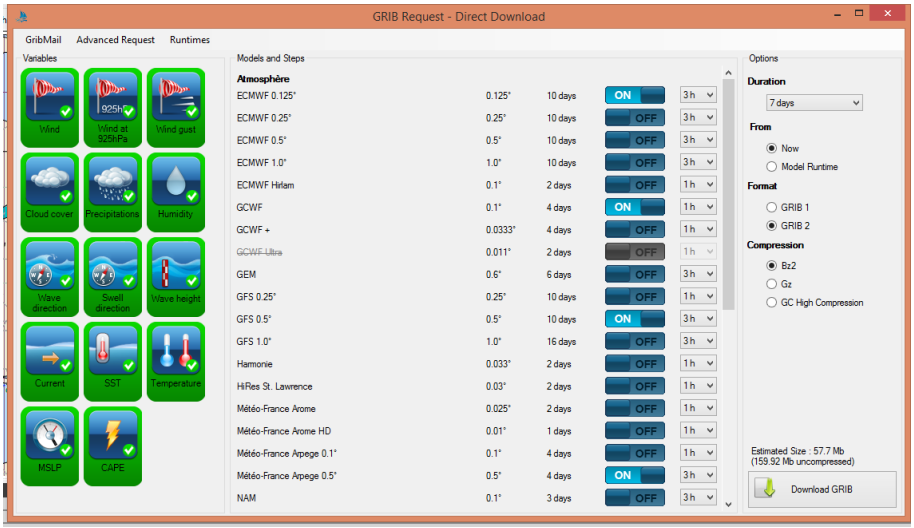

- Click on "Log in"
- If your license is valid, the window disappears

## 2.2 GRIB

### 2.2.1 GRIB request

- Select an area by moving your mouse (holding right click)
- Option 1: A context menu pops up, click "download GRIB"
- Option 2: Open the download window by clicking on the button below in the tool bar.

- Select the desired variables by clicking the icons




- Select / models by clicking on the ON / OFF button


- Select the desired time step
- Choose the first time step GRIB: Now? Runtime or Model?
- Select the compression ratio, GZ, BZ2 or GreatCircle High Compression
- Finish by clicking on "Download GRIB"
- Once downloaded, the file opens automatically

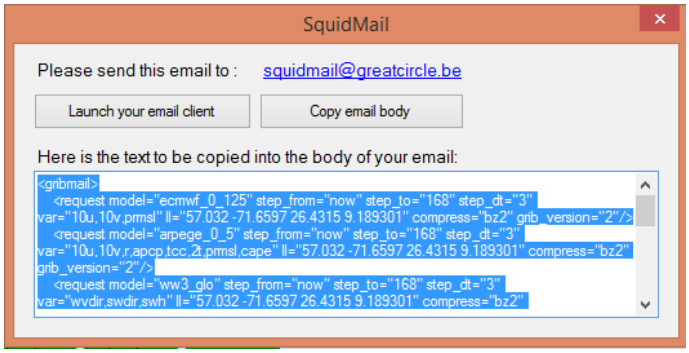
### 2.2.2 GRIB Requests by mail(iridium mode)

- Select an area by moving your mouse (holding right click)
- Option 1: A context menu appears, then click "GRIBMAIL for selecting"
- Option 2: Open GRIBMAIL window by clicking the button below in the toolbar

- Select the desired variables by clicking on the icons


- Select / models by clicking on the ON / OFF button

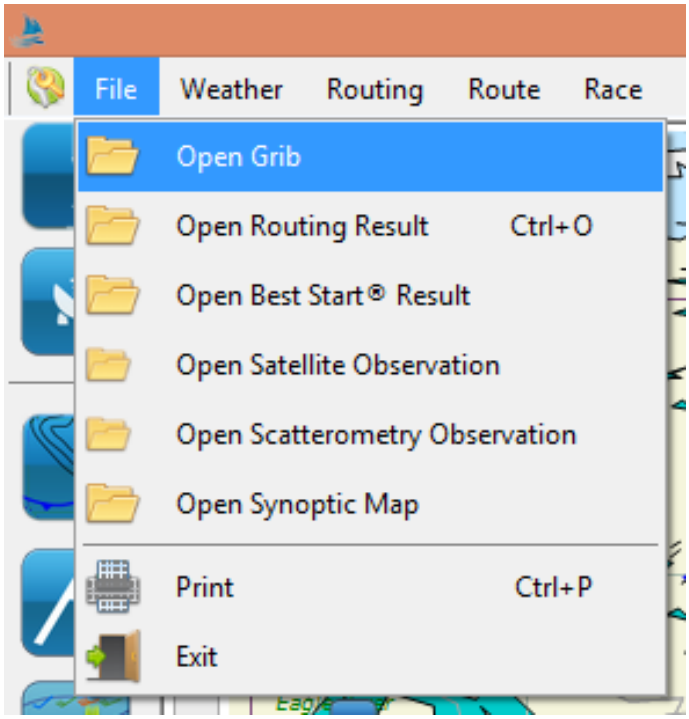

- Select the desired time step
- Choose the first time step GRIB: Now? or Runtime Model?
- Finish by clicking on "Send GRIBMAIL"
- "Launch your email client" will launch your default email software (Skyfile, Outlook, ...)
- "Copy email body" allows you to perform the operation manually. So be sure to send your email to gribmail@greatcircle.be, copy the body of the text (do not change the syntax of the query!). The subject of the message may be blank.




- Send mail to our server via the address gribmail@greatcircle.be
- The mail back arrives within 5 minutes max as an attachment with the requested GRIB

### 2.2.3 Load a GRIB file previously downloaded

- Click on "File" in the top menu
- Click "Open GRIB file"

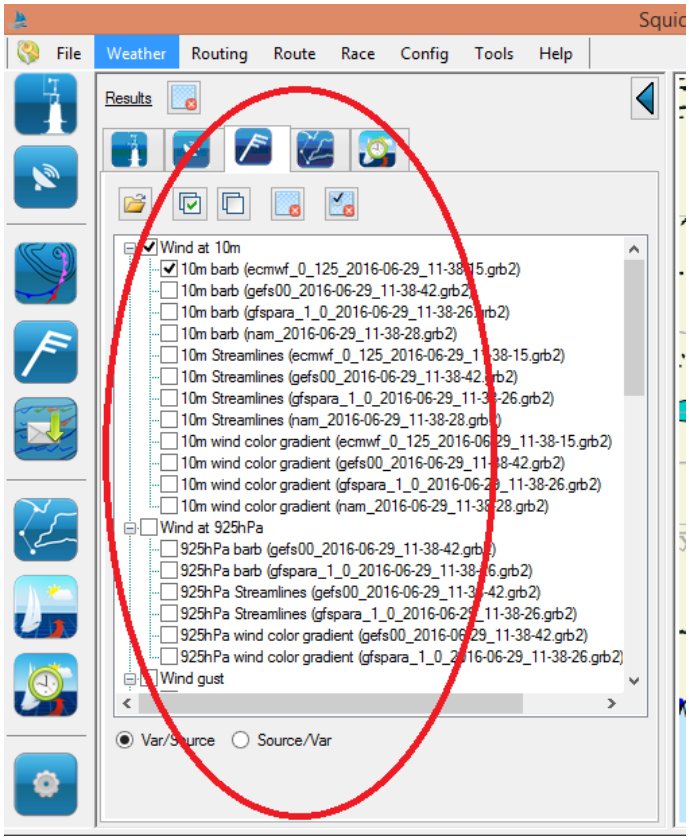



### 2.2.4 Download a GRIB file

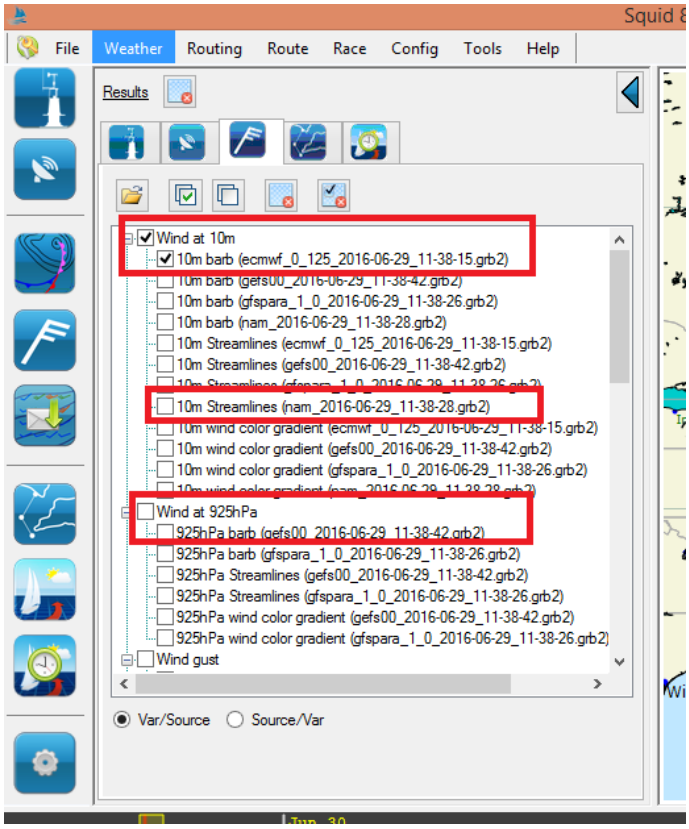
- Click on the button the left window (see below)

### 2.2.5 View more than one GRIB at same time

- Load / Upload multiple GRIB
- Files open automatically, and an editable window appears on the left

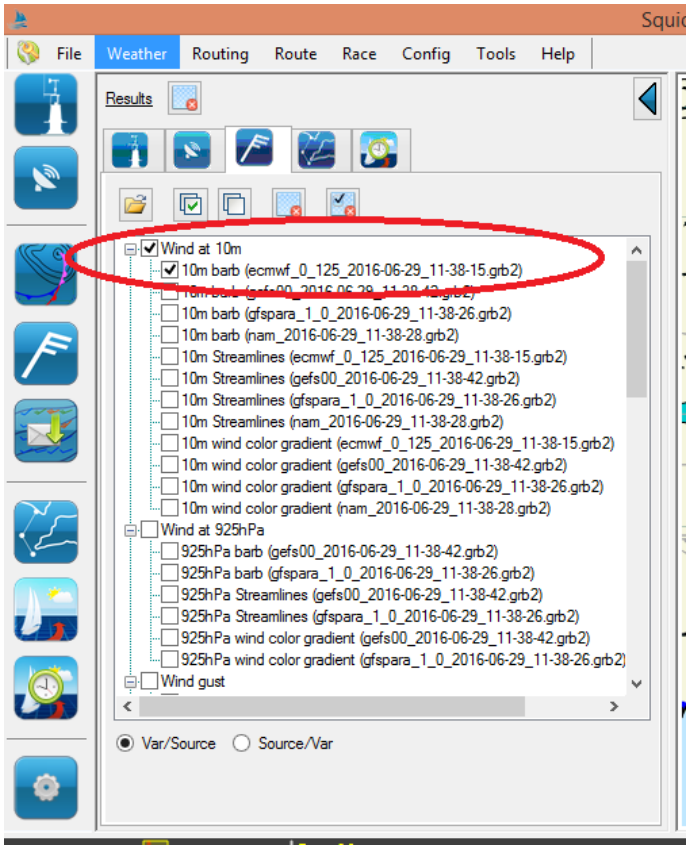



- In the forecast's tab appears all the variables that you have chosen. For our example, we downloaded the wind at 10 meters, the temperature, the pressure at to sea level and total cloud cover.




- To view a variable, click on the square on the left of the variable name

- For some variables, you have different types of performances. For example, the wind variable gives the choice between the Plotted winds ( "10m barb") and a color gradient ( "10m color gradient wind"). Multiple representations can be displayed simultaneously.




- To change the description of a variable, click on the square to the left of the representation of this variable

- To stop displaying a variable, clear the square next to the variable name

- Select several same variables in different models to compare models and you might discover spatial or temporal offsets.

## 2.3 Observations

### 2.3.1 Requests for satellite images

- Select an area by moving your mouse (holding right click)
- Option 1: A context menu appears, and click "download satellite image to the selection"
- Option 2: Open the download window by clicking the button below available in the toolbar

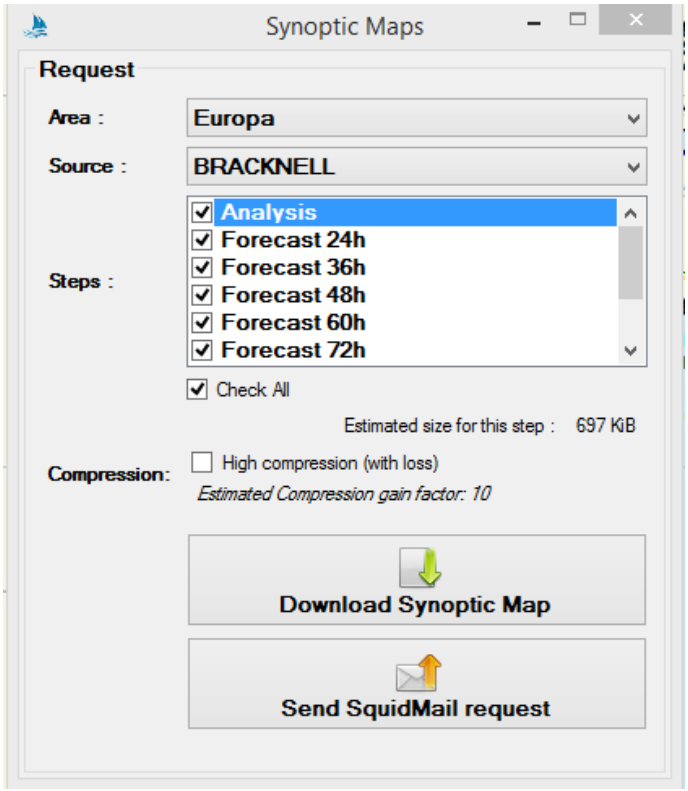
- Select the satellite


- Select the necessary variables
- Select the desired image number (from 1 to 15 steps or images)
- Finish by clicking on "Send Request"
- Once downloaded, the file opens automatically
- WARNING! 15 steps of a full disk on the entire Atlantic exceed 100 MB !!! In navigation, to limit the "'damage"', reduce the area and select only the last SAT image (number of steps: 1, IR or VIS)

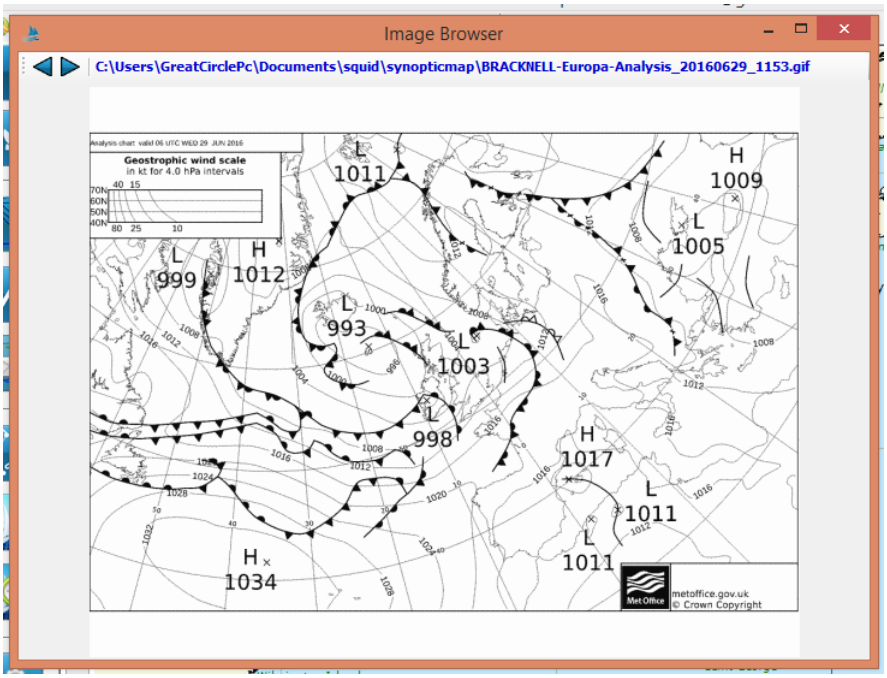
### 2.3.2 Synoptic maps queries

- Open the synoptic maps by clicking the toolbar button (see below)

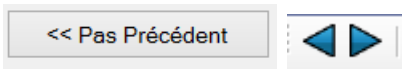
- Choose the geographical area




- Select the source
- Select the time step
- Start query by clicking "Download and Display the selected time step"
- The general map pop-up



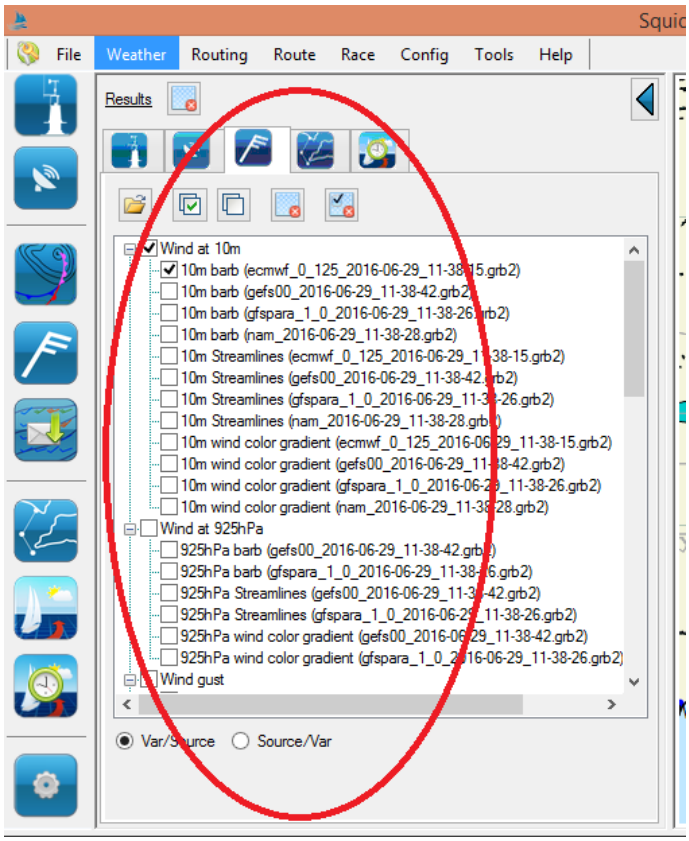
- Get other time steps by clicking on the arrow buttons or below



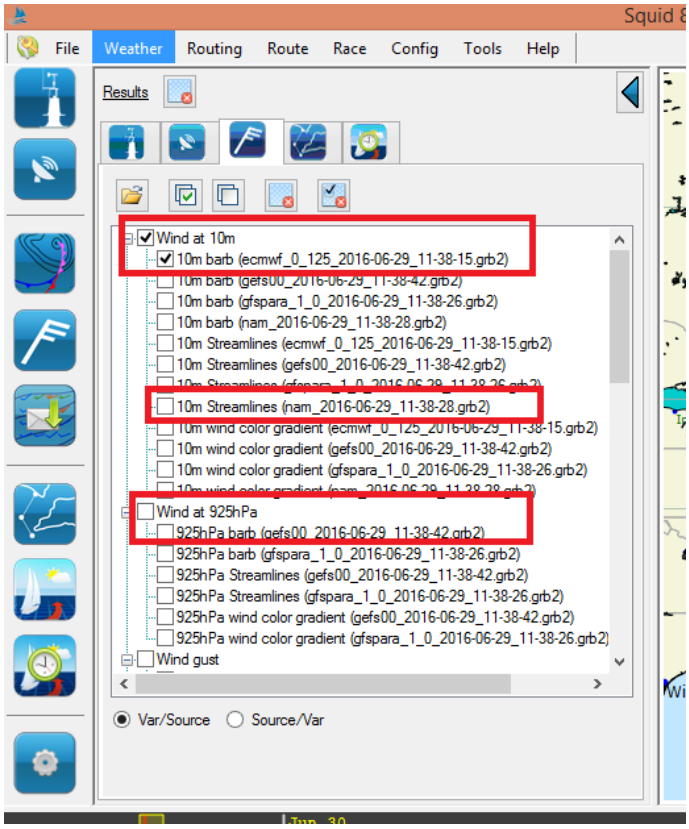
## 2.4 Display

### 2.4.1 Make a meteogram

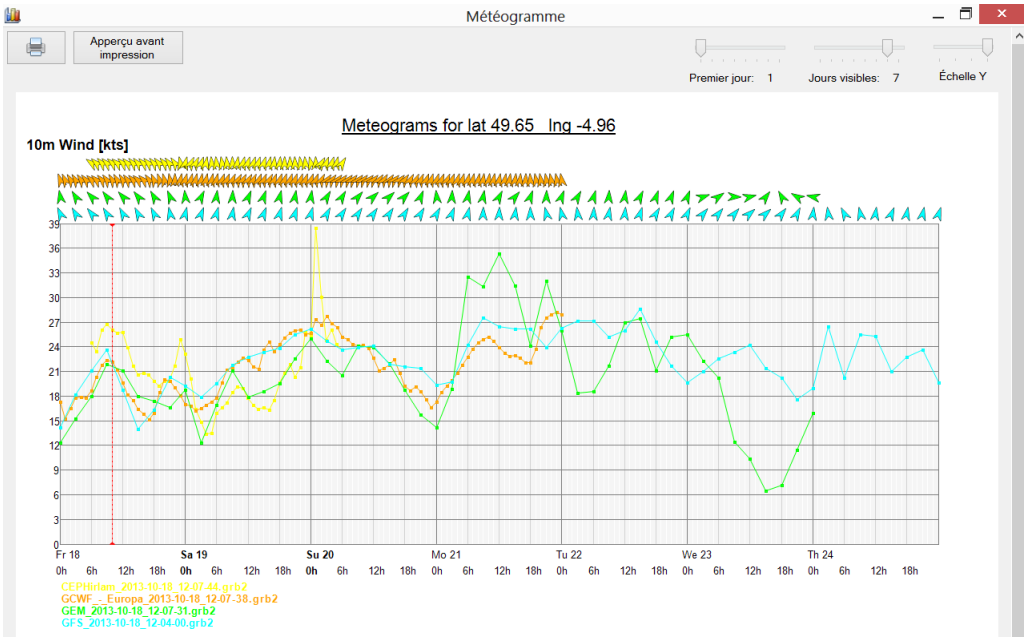
- Open or download a GRIB file
- The GRIB file is displayed on the map



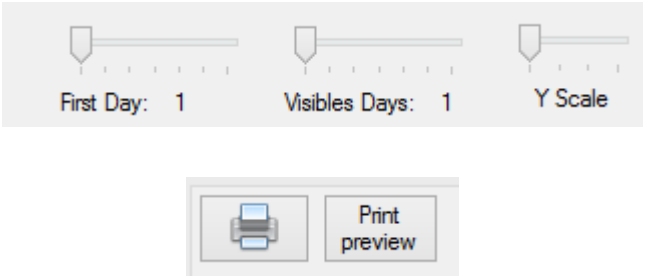

- Select the variables you want to display by checking / unchecking the boxes




- Option 1: Double click quick left at the desired Lat/Long meteogram
- Option 2: Right click and select "Meteogram here"
- The meteogram opens

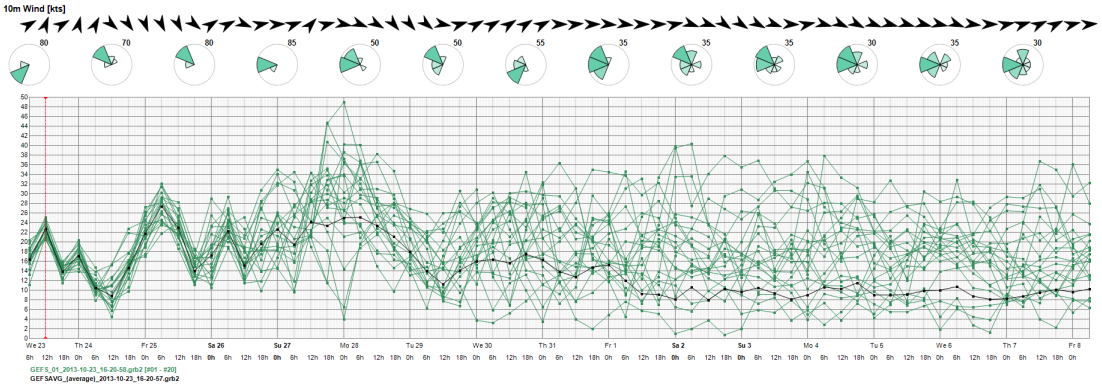



- You can change 'the number of visible days', 'the vertical scale' and 'the first day to display' with the 3 sliders at the bottom of the window

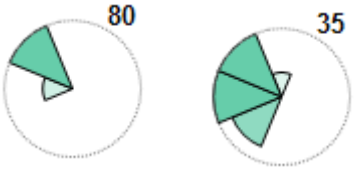



### 2.4.2 Interpret a meteogram with all scenarios of a model

- Download the whole GRIB
- Check all scenarios in the retractable component to be visible on the map
- Make a meteogram

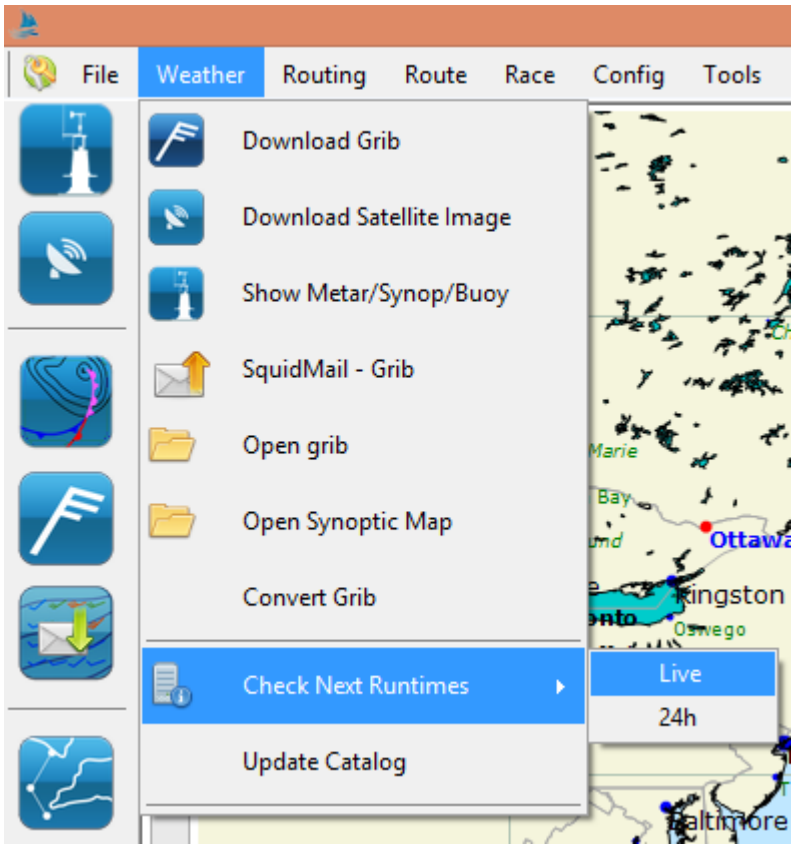



- For the wind direction, Great-Circle aggregated all scenarios. The result comes in a "pie-chart". The value at the top right of each pie gives the probability of the greatest sector.
- In the example below, the first sector, 80 % of the GEFS scenarios give a North-West area and 20 %westerly sector
- In the second example, there is a probability of 35 % to have Noth-West wind and 35 % to have a West wind, 25 % of South-West wind and only 5 % of North wind.



### 2.4.3 Check Models arrival time (runtimes) available on the Squid server

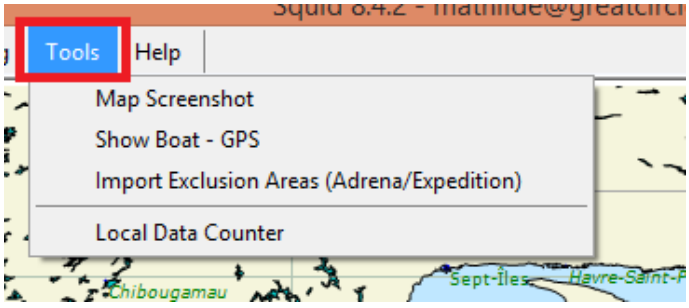
- Click on "Weather" in the top menu
- Click "Check next runtimes available"



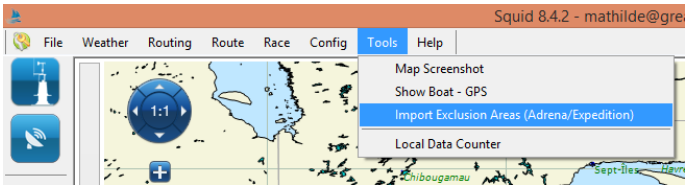

- A new window opens with the available runtime, following runtimes and the estimated time of arrival.

### 2.4.4 How to view the exclusion zones in Squid?

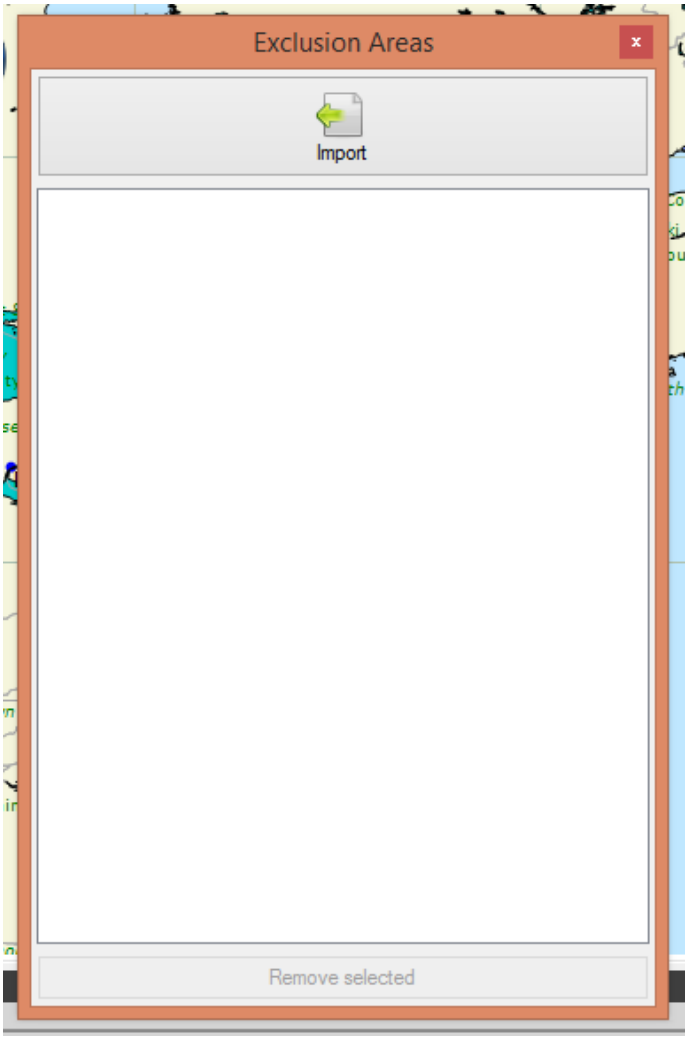
- Open Squid, and move to the geographical area concerned by the exclusion zones or coming from Adrena and Expédition



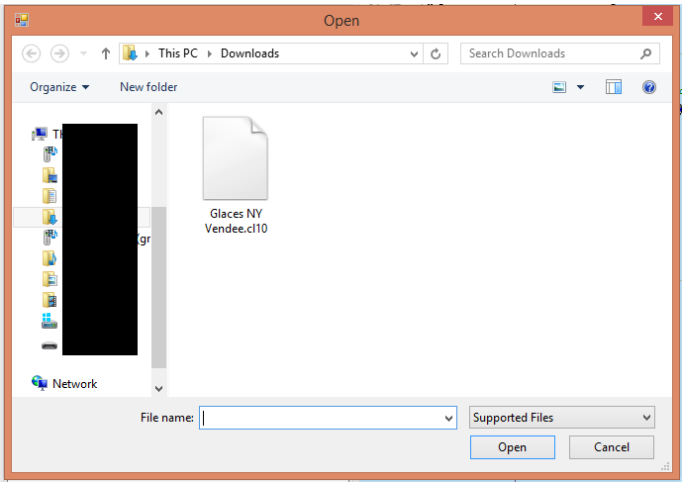

- Go to the "Tools" menu and open "Import exclusion zones (Adrena/Expedition)"



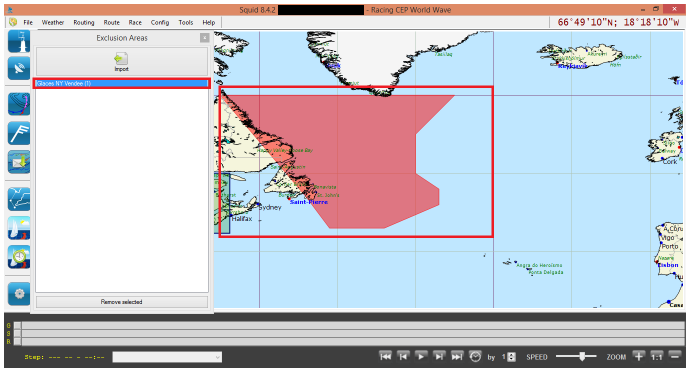

- Click on "Import"




- Select the appropriate files




- Check the information

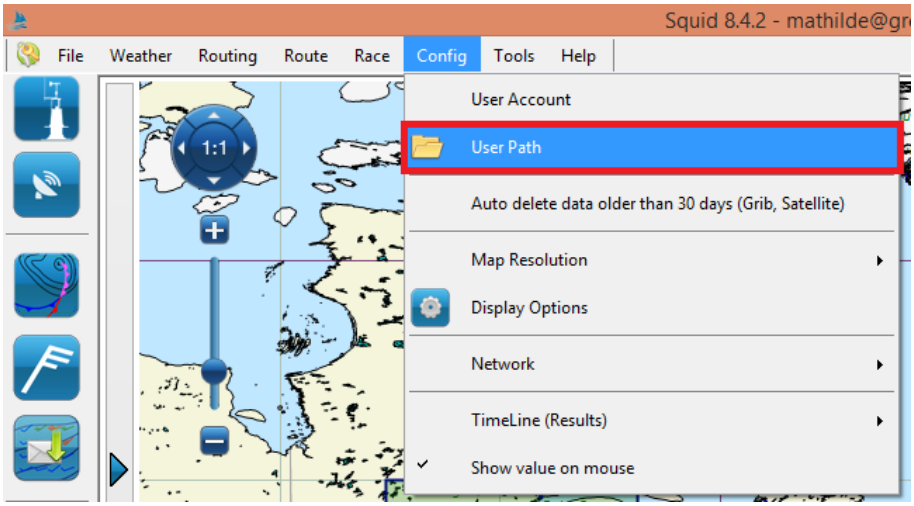



- The exclusion zones are displayed in Squid

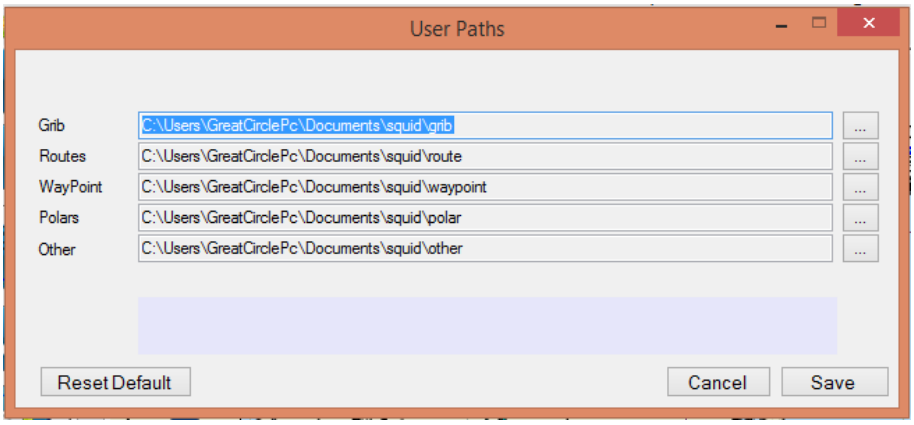
## 2.5 Parameters

### 2.5.1 Edit the destination directory of GRIB, routes, waypoints, polar or satellite images

- Open the top menu "Configuration"
- Click on "User Folder"




- Edit Destinations files by clicking the "..." button

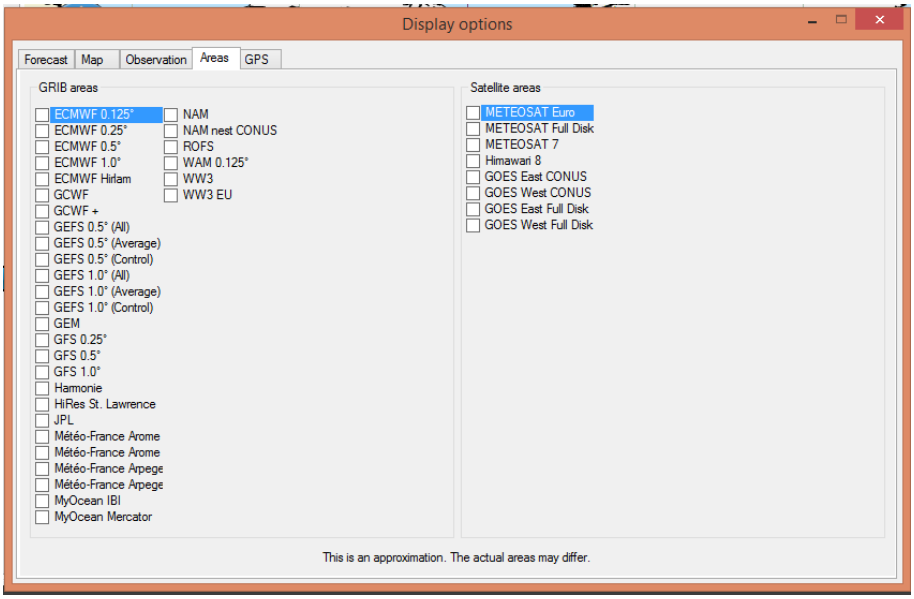



- Save

### 2.5.2 View the geographic coverage of each model

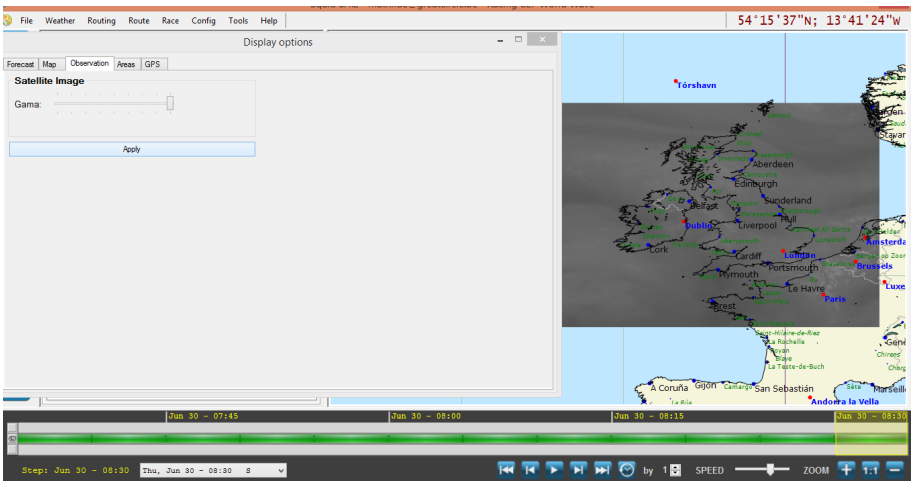
- Open the "Display option" window by clicking the toolbar button below

- Select "Zones" tab
- Check / uncheck models to see area covered by the model




### 2.5.3 Changing the gamma satellite images

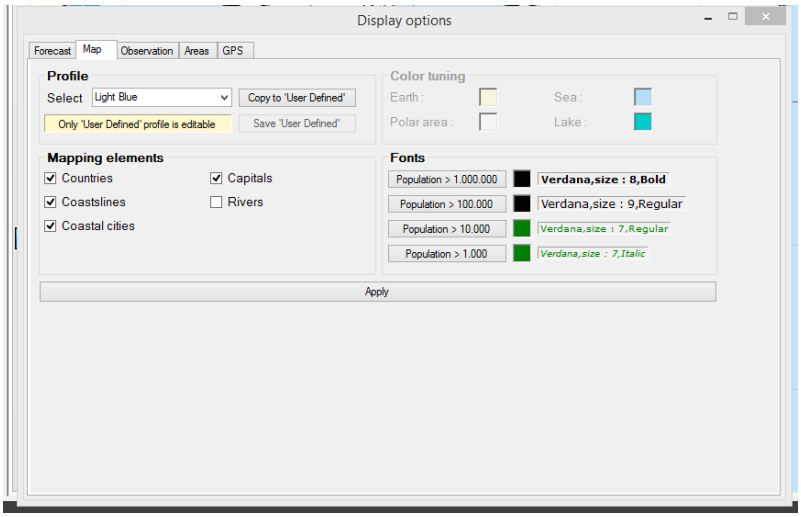
- Select the box and download satellite images for selection.
- Go to settings
- Adjust the intensity of contrast and brightness (gammas) using the settings window



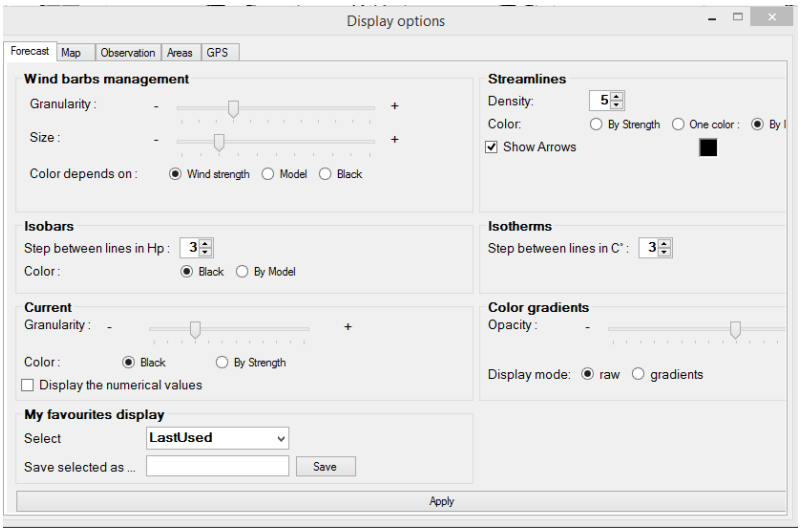

### 2.5.4 Set up your maps appearance

- Click on the button below in the toolbar

- This window has 4 tabs: Map, Forecast, Observation and Zones.
- To change the appearance of the main map, click on the "Map" tab

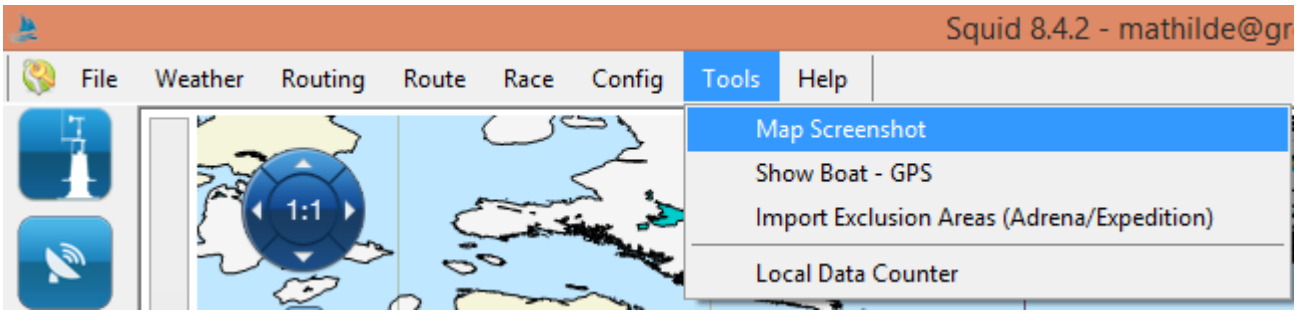



- To change the appearance of the weather elements (barbules, isobars, colors, ...), click on the GRIB's tab

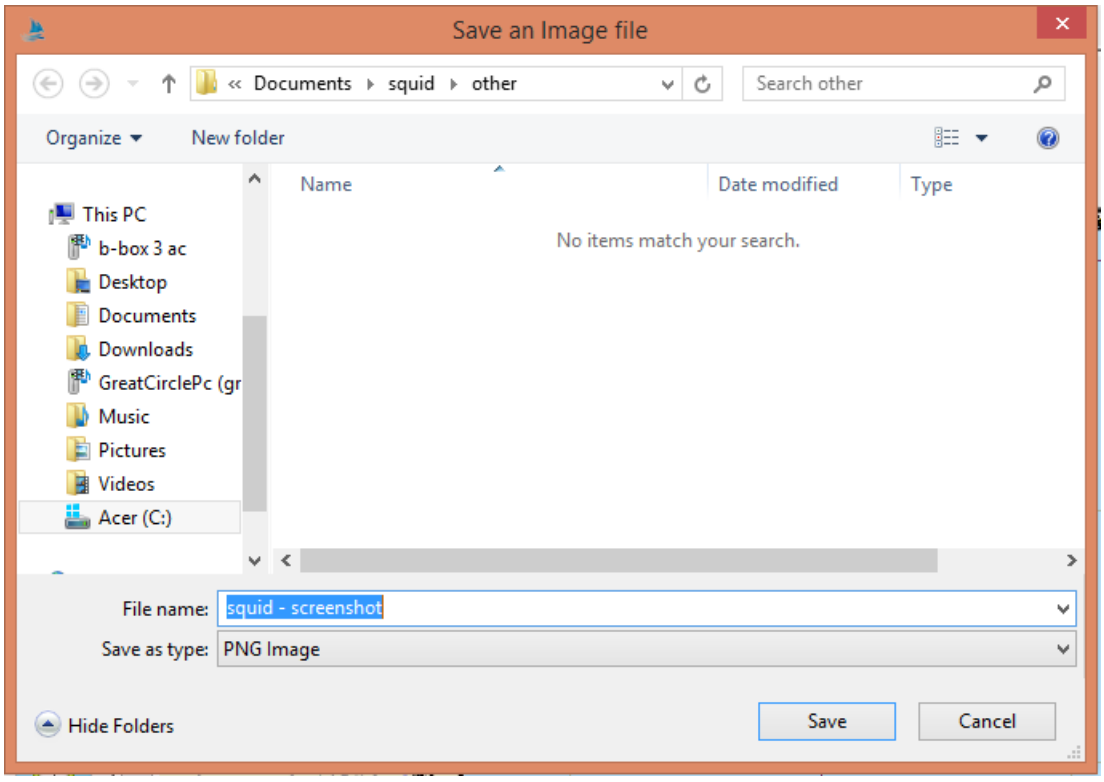



### 2.5.5 To make a screenshot

- Click on "Tools" in the top menu
- Click on "Make a screenshot"




- Select the file name.

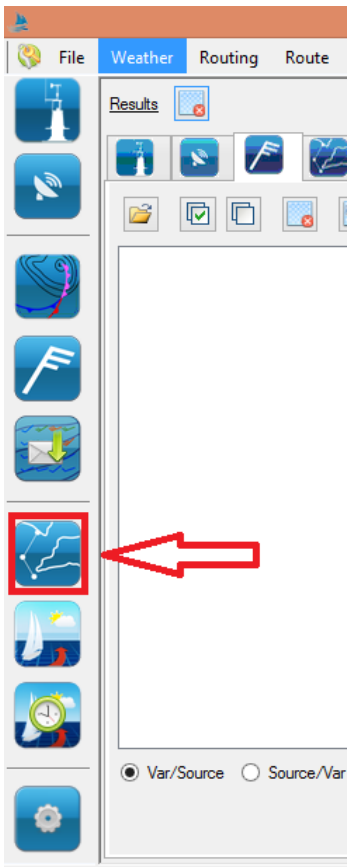



- "Save"

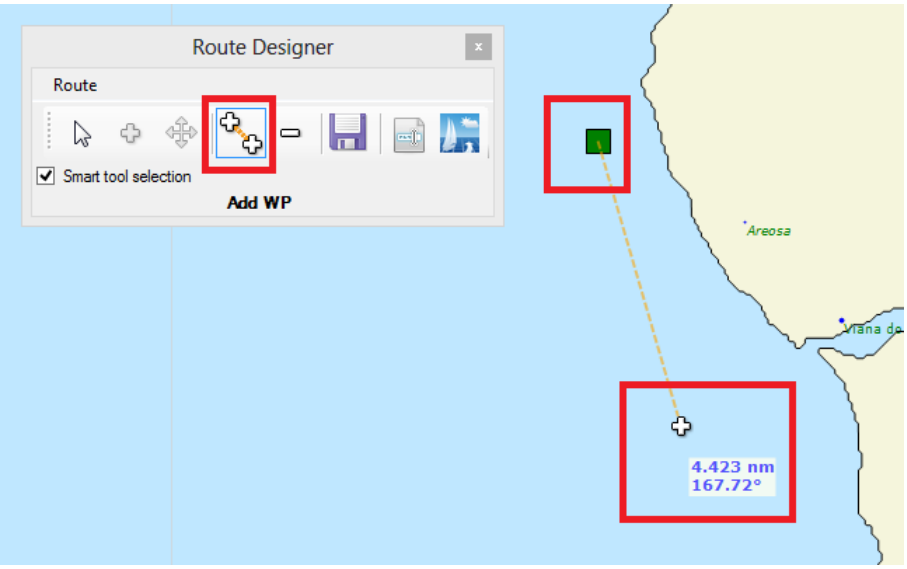
## 2.6 Routing

### 2.6.1 Draw a route

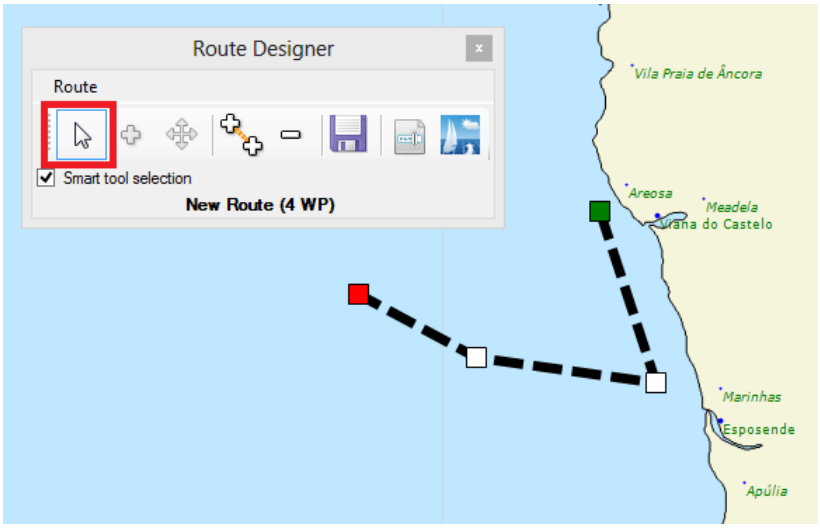
- Select "New Route" icon in the toolbar



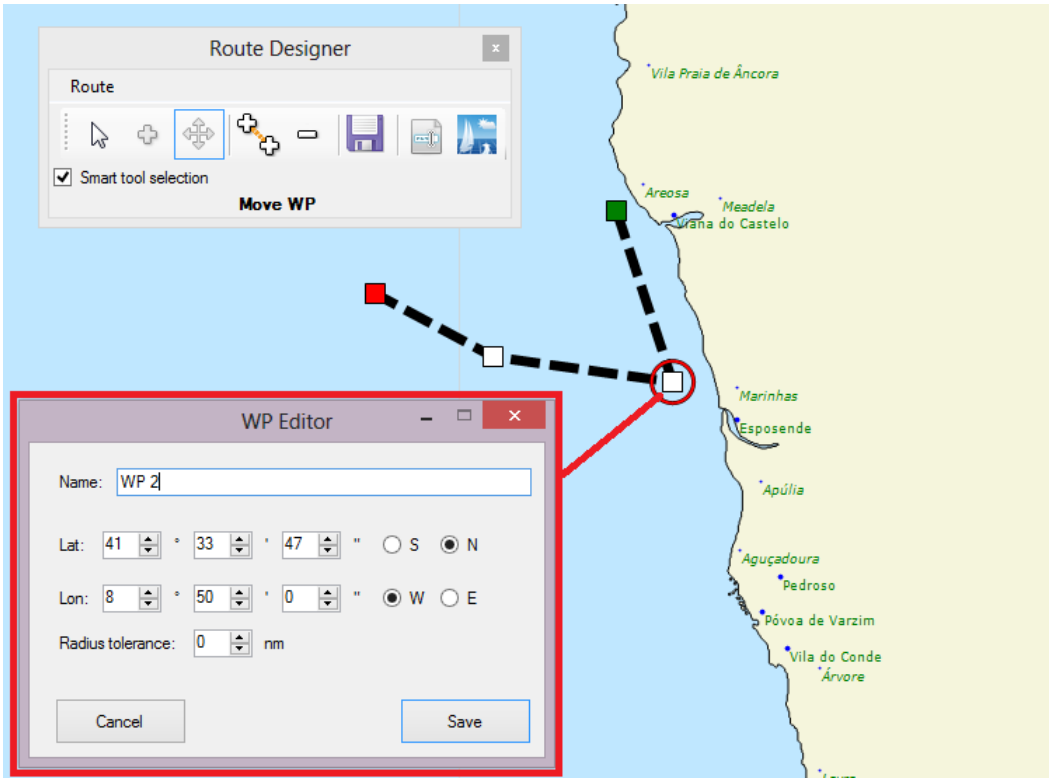

- To add a Waypoint (WPT), just click right where you want to place it.
- To add an extra WPT, move the mouse cursor (without pressing the mouse button) to the desired location. An orange dotted line appears between the last point and your cursor. Then an additional click adds a WPT to the road.



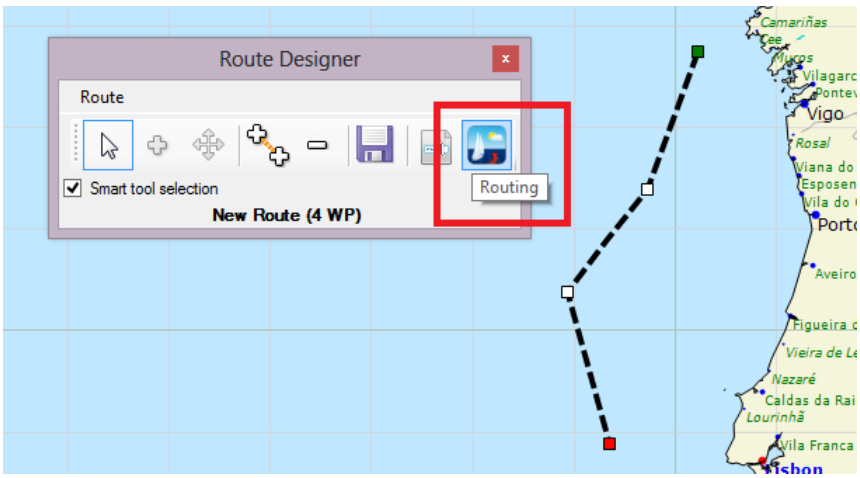

- Once all points have been added to the route, you can exit the mode of adding points a pressing [ESC] on your keyboard. Safeguarding the road is not essential, unless you want to reuse the same road later.




- If you want to further define the coordinates of a point, right-click an item and choose "Edit WPT". You can then edit the WPT. It is also possible to add a tolerance for the mark (range 0 to 10 MN). This will allow a variable between the WPT and the computed route.



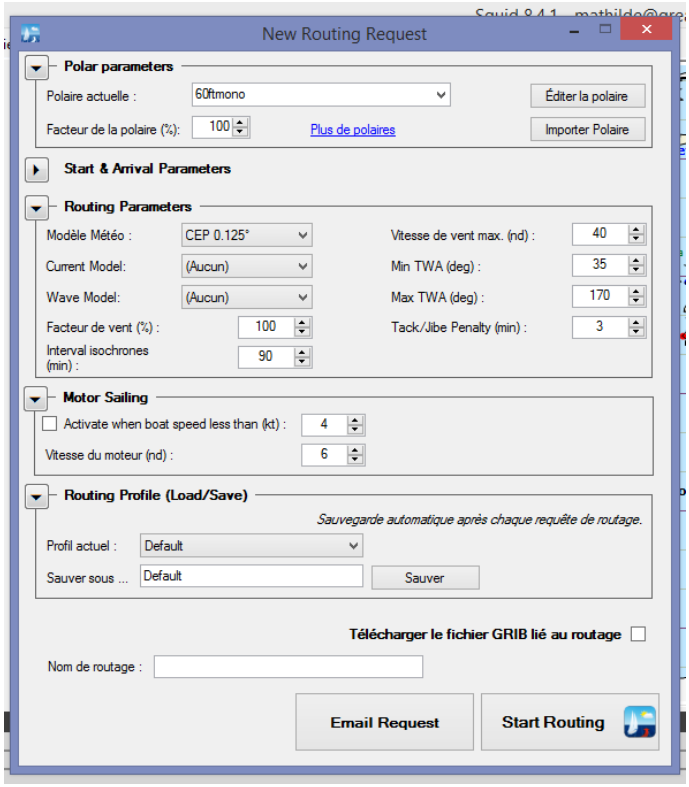

- To delete a WPT, right click on a WPT and choose "Delete WPT".
- To move a WPT, left click and you hold the mouse button down while moving the WPT, then release the mouse button.
- To start routing parameterization, click the "Routing" button (on the right in the routing window).



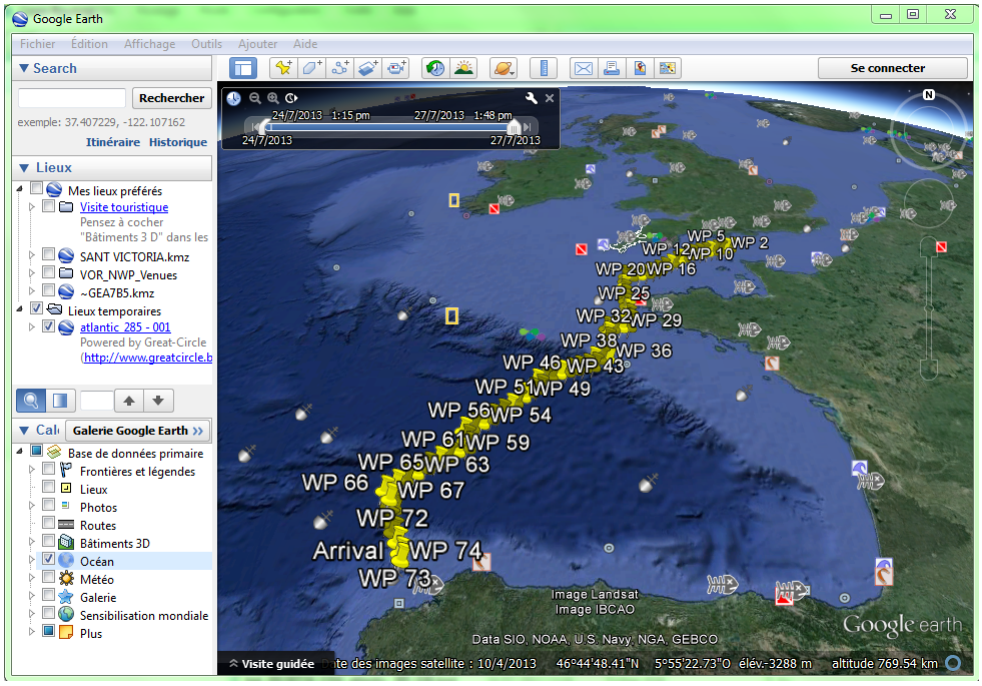

### 2.6.2 Make a routing

- Open the routing window by clicking the icon below the toolbar

- Configure different elements (polar, date, routing parameter motor sailing, ...) of the window




- Start routing request by clicking "Start"
- Routing is calculated on the servers of GreatCircle and will be returned within a few seconds, from 10 to 30 on average depending on the complexity and length of the route.

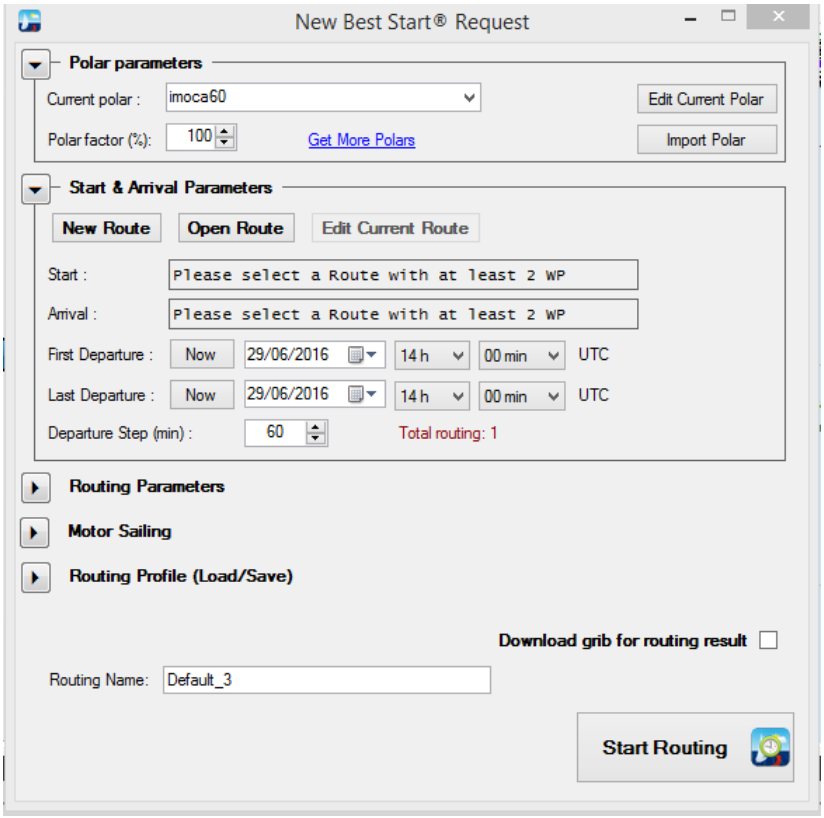



- For your communications or sharing in social media, it is possible to open a route Squid in Google Earth KML the file is located by default in My Documents / Squid / Route

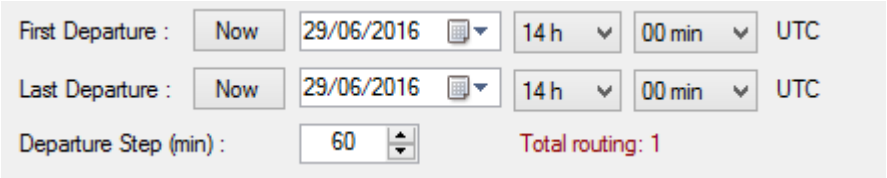
### 2.6.3 Make a deterministic Best-Start

- Open the routing window by clicking on the following icon

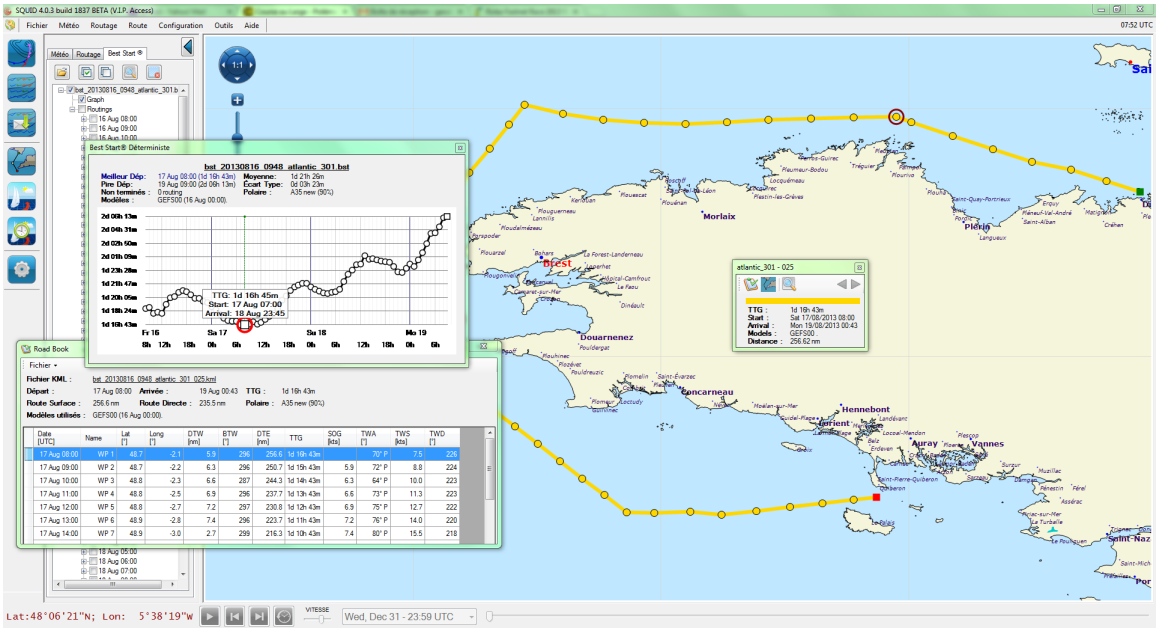
- Select the polar




- Edit your road with the road manager, like you do for any simple routing
- In polar parameters, select/edit/import the polar.
- In Routing Parameters, select the weather and current models, limit factors TWA and TWS fibe, penalty, etc...
- Choose your time of earliest and latest departure




- Start best-start computing. This operation can take a few seconds to a few tens of minutes depending on the distance and the number of requested routes. To request a BestStart with more than 100 consecutive routings, please contact us at squid@greatcircle.be.
- Squid shows the Best Start window summarizing graphically all departures and their ETA positioning.



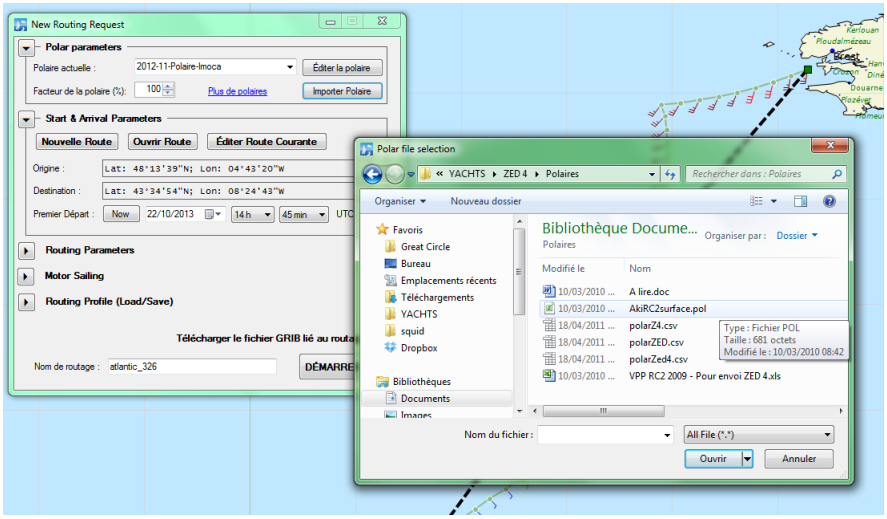
- Double click on the "road book" pictogram in the routing window to display the minimum ETA roads in tabular form which you can export the form in Excel.

- Compare your alternatives.

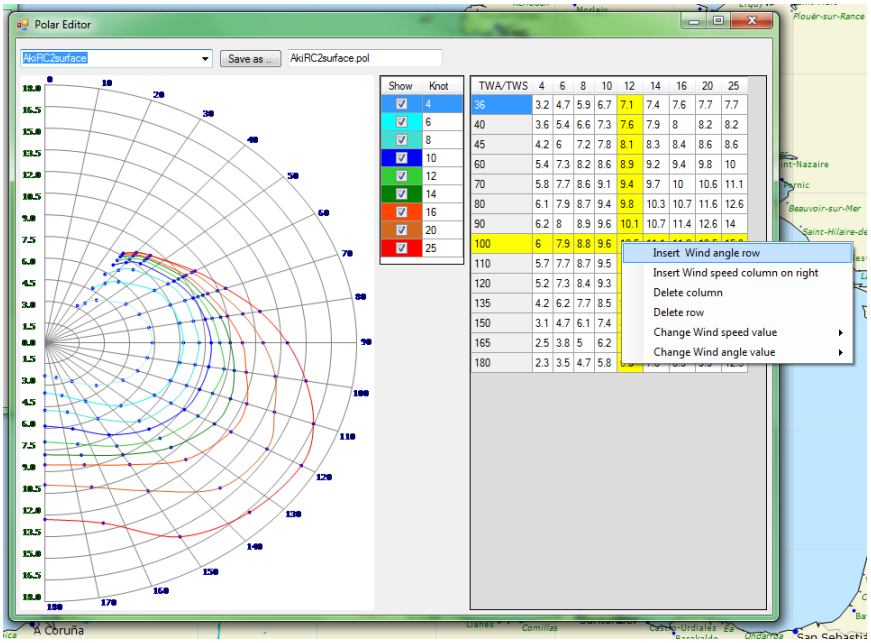
### 2.6.4 Importing a polar

- You already have your polar form of a delimited text file: XXXYYY.pol. The extension ".pol" is essential to be recognized by SQUID

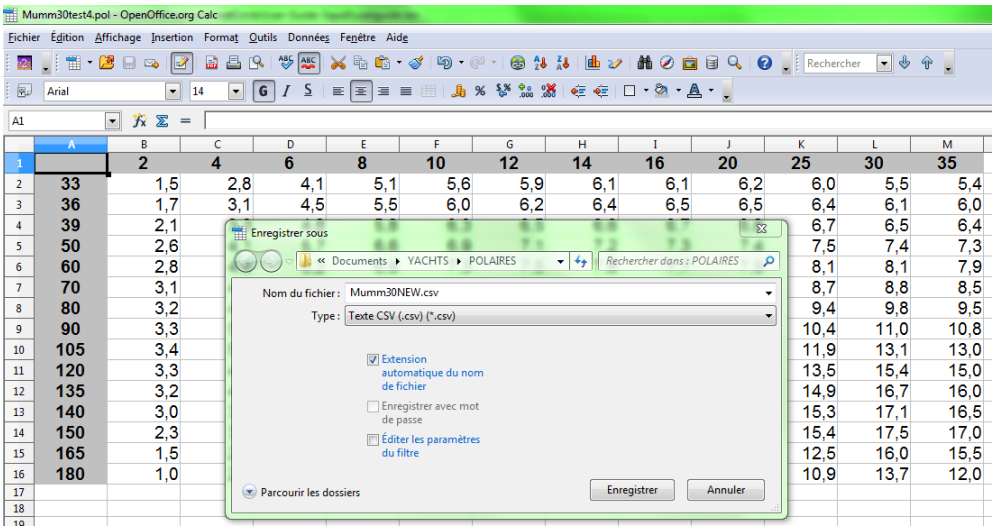
- Open this file with the command "Import Polar" in the routing query window in the upper right.



- Place your mouse over any value in the table, right click and follow the instructions
- Save the polar under a different name, if necessary. WARNING, an unsaved polar will not be taken into account when computing the routing



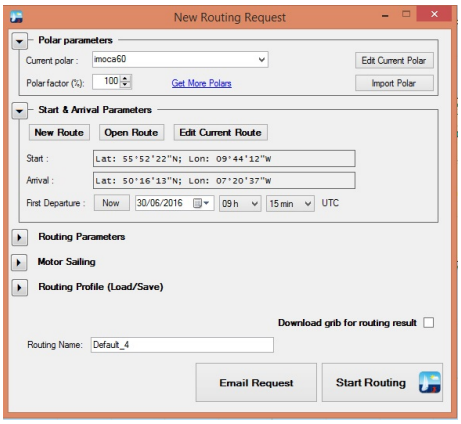

- You do not have your polar. So you can create the delimited text file with an extension .pol. Starting from an existing Excel file or OpenOffice containing all the speed values for each couple.



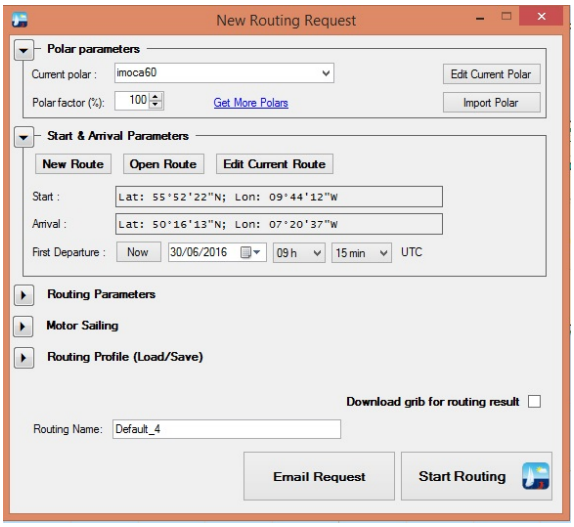

| | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 20 | 25 | 30 | 35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 33 | 1,5 | 2,8 | 4,1 | 5,1 | 5,6 | 5,9 | 6,1 | 6,1 | 6,2 | 6,0 | 5,5 | 5,4 |
| 36 | 1,7 | 3,1 | 4,5 | 5,5 | 6,0 | 6,2 | 6,4 | 6,5 | 6,5 | 6,4 | 6,1 | 6,0 |
| 39 | 2,1 | | | | | | | | | 6,7 | 6,5 | 6,4 |
| 50 | 2,6 | | | | | | | | | 7,5 | 7,4 | 7,3 |
| 60 | 2,8 | | | | | | | | | 8,1 | 8,1 | 7,9 |
| 70 | 3,1 | | | | | | | | | 8,7 | 8,8 | 8,5 |
| 80 | 3,2 | | | | | | | | | 9,4 | 9,8 | 9,5 |
| 90 | 3,3 | | | | | | | | | 10,4 | 11,0 | 10,8 |
| 105 | 3,4 | | | | | | | | | 11,9 | 13,1 | 13,0 |
| 120 | 3,3 | | | | | | | | | 13,5 | 15,4 | 15,0 |
| 135 | 3,2 | | | | | | | | | 14,9 | 16,7 | 16,0 |
| 140 | 3,0 | | | | | | | | | 15,3 | 17,1 | 16,5 |
| 150 | 2,3 | | | | | | | | | 15,4 | 17,5 | 17,0 |
| 165 | 1,5 | | | | | | | | | 12,5 | 16,0 | 15,5 |
| 180 | 1,0 | | | | | | | | | 10,9 | 13,7 | 12,0 |

### 2.6.5 Routing with Models Ensemble

- Start a routing, and select GEFS in the models menu.

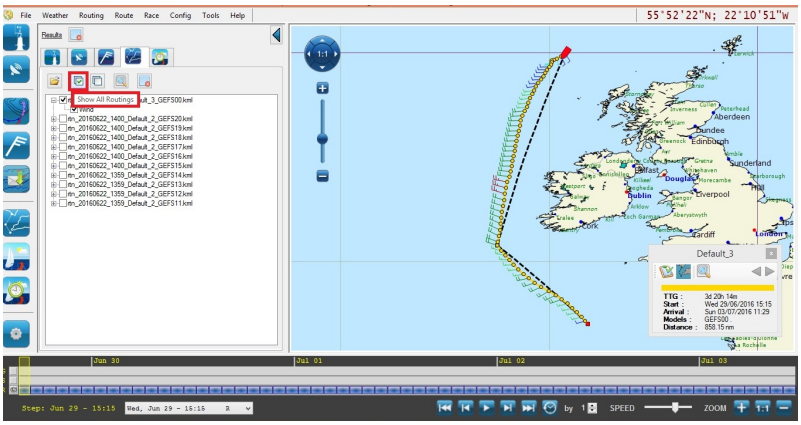



- Read the results.

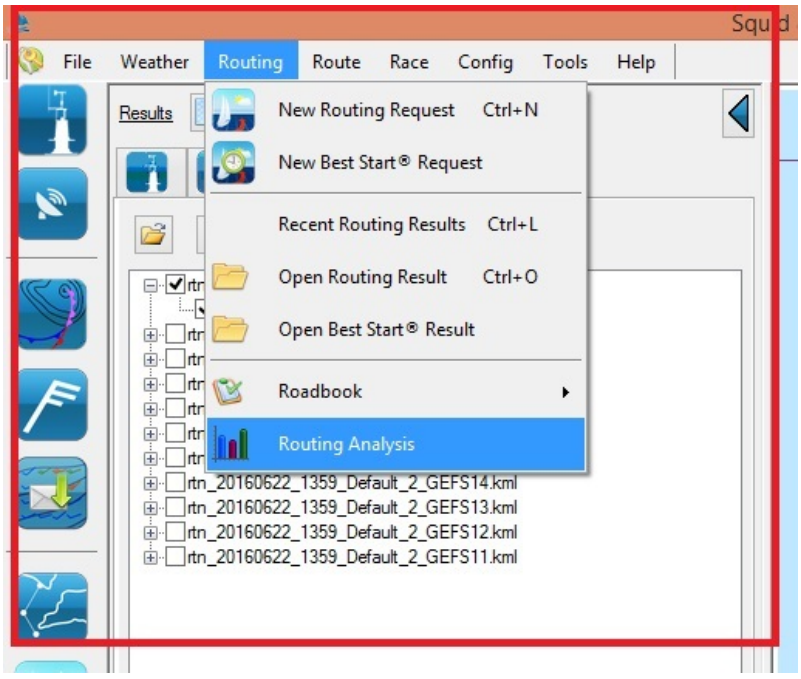


### 2.6.6 Routing Analysis Tool

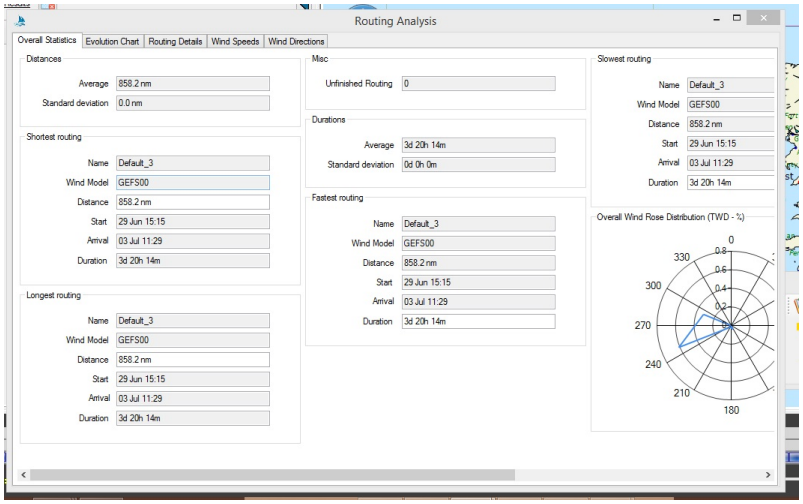
- Select all routings.



- Click Routing − > Routing analysis

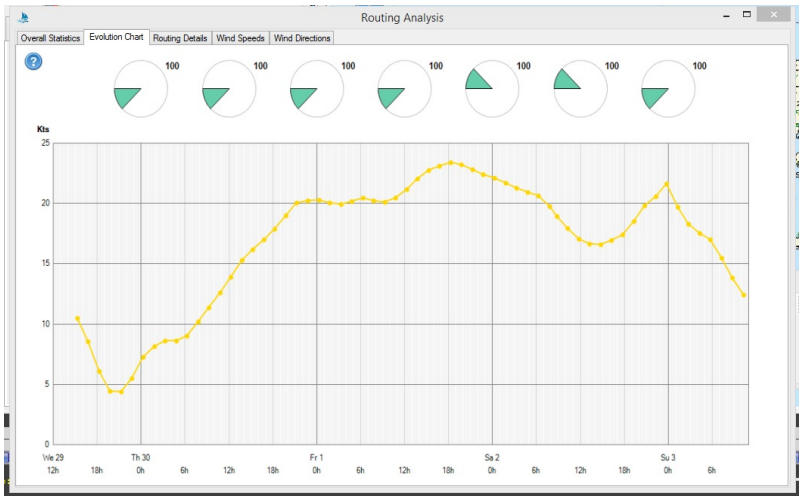



- Here is an example based on an example of probabilistic routing with the GEFS (ensemble of 20 scenari)




Graphic tab of evolution:

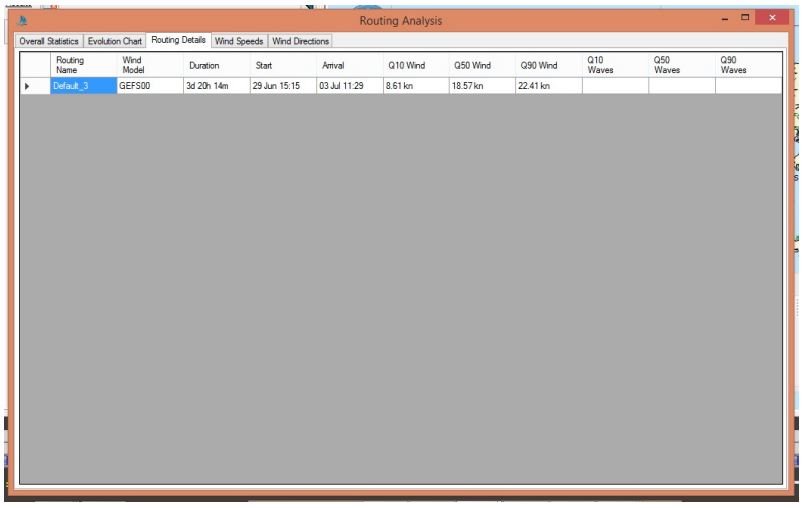
- Each routing scenario, shows TWS changes (vertical axis) versus time (horizontal axis):
- Each line of the graph is an independent routing
- The more lines are close, the less the model includes uncertainties.
- Beware, for a given time, there are different values of TWS. This is quite logical since the geographical position of the point at the given time varies for each routing (weather scenario).
- The pie charts on the top represent the distribution of TWD. The value at the top right of the circle represents the highest probability of TWD.




Tab detailed statistics:

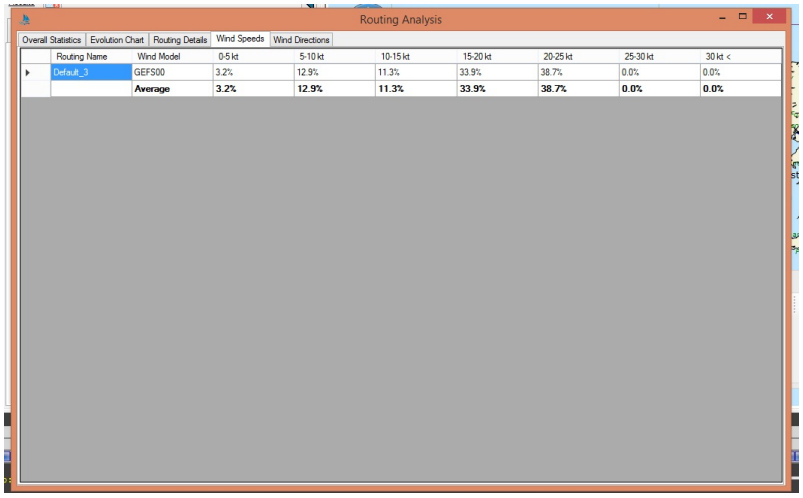
- For each routing scenario:
- The duration

- The start time
- The arrival time
- The different types of wind encountered along each routing
- Q10: 10
- Q50: Median of wind speed. 50
- Q90: 90



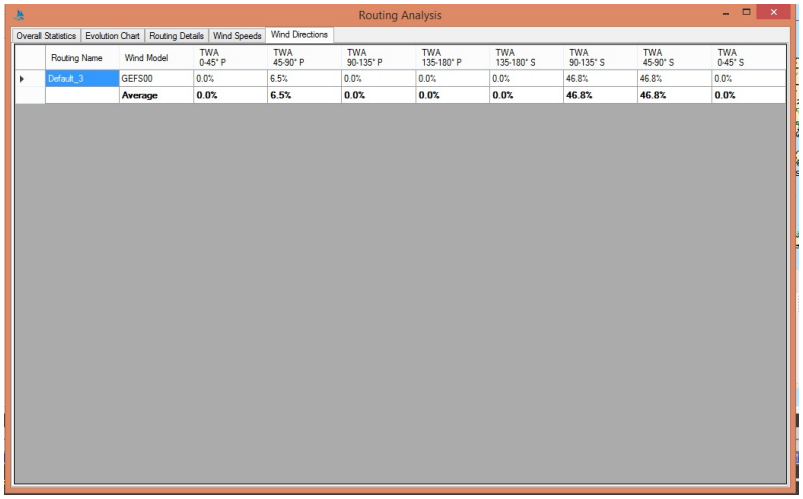

Tab wind speeds:

- For each routing, distribution of wind speeds clustered by 5 kts.




Tab wind direction:

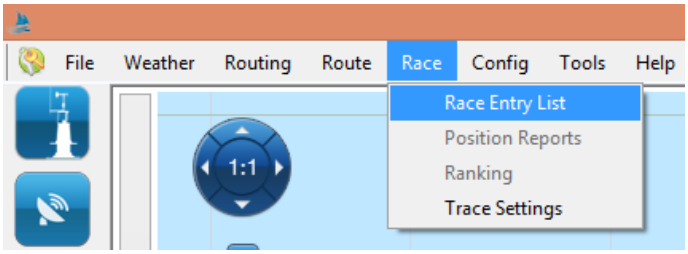
- This table gives you detailed information about the different TWA (portside "P" and starboard "S").



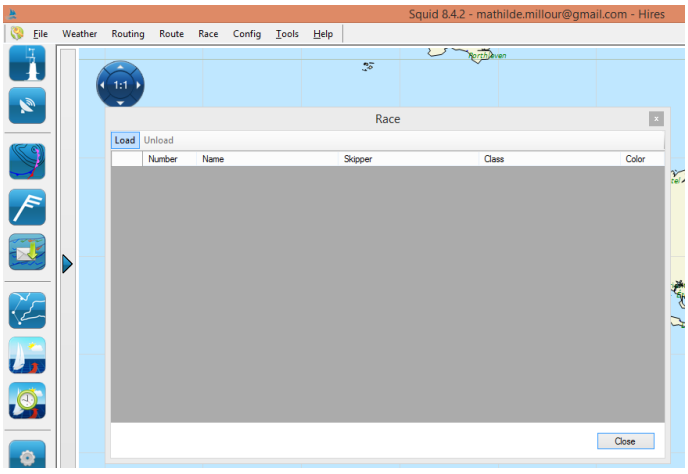

## 2.7 Race

### 2.7.1 Add an entry list

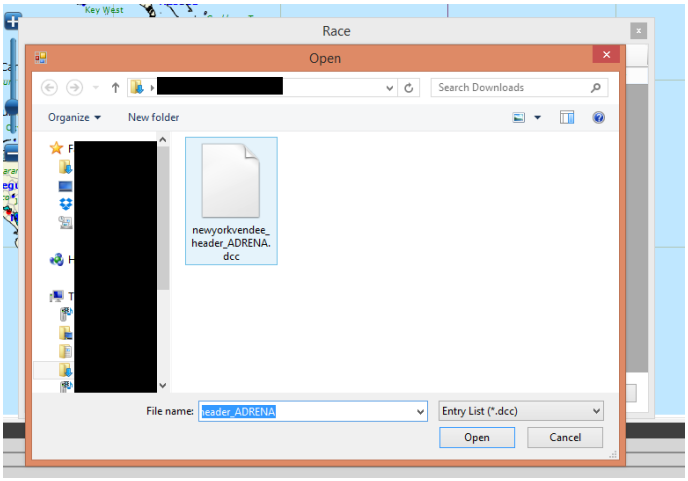
- Click on Race
- Click on Race Entry List



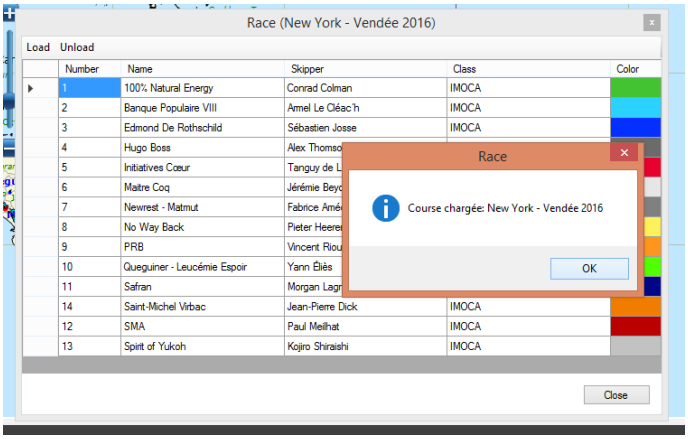

- Click on Load



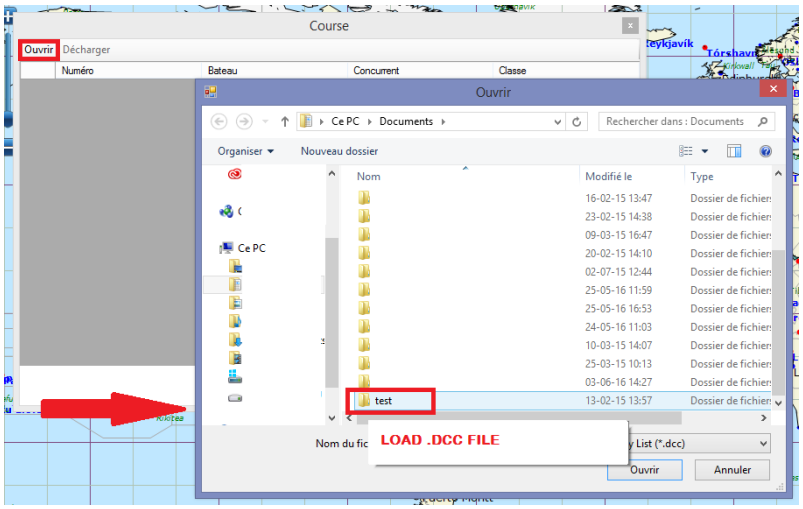

- Select your .dcc file



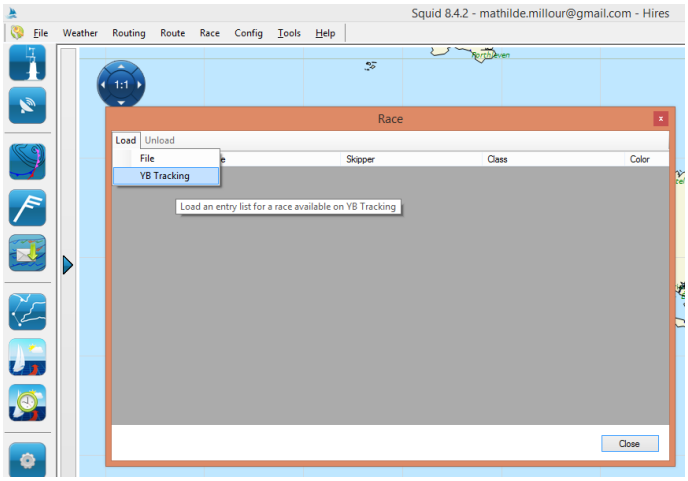

- Displaying of your file



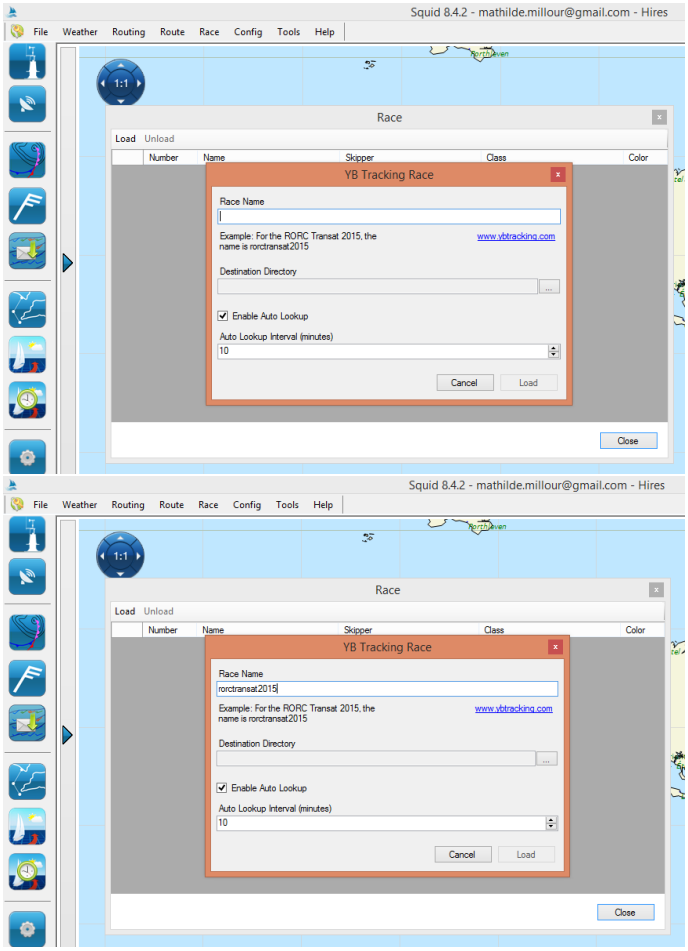

### 2.7.2 Add a entry list for YB data



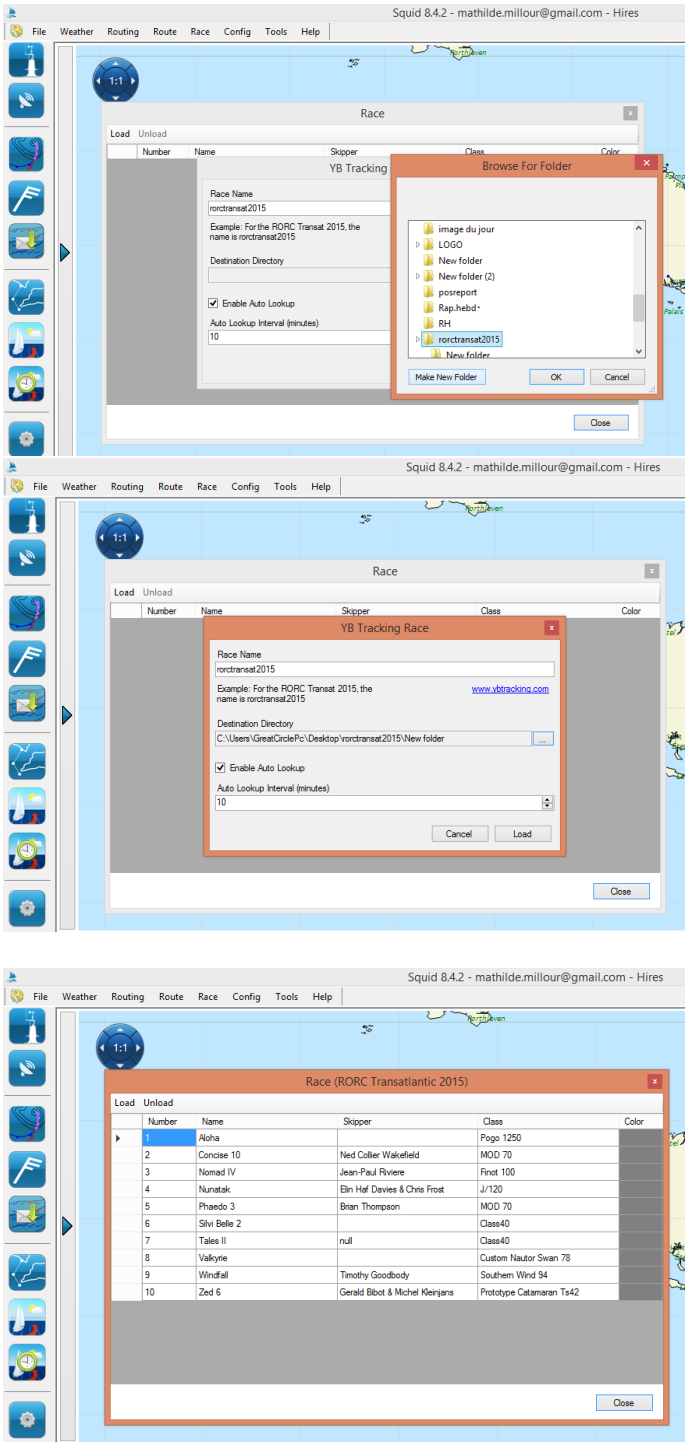

- Click on YB Tracking for YB data




- Fill race ID (see YB website)




- Select/create a folder



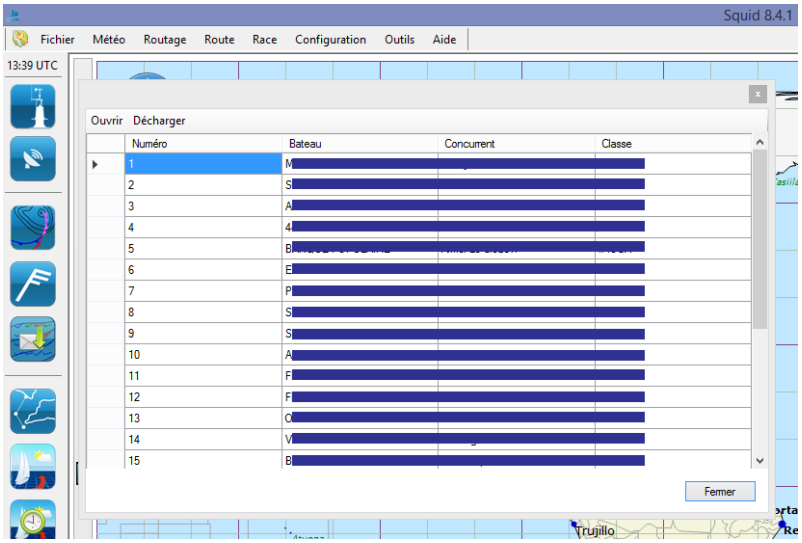

### 2.7.3 Data reception configuration

- Click on "Race" $->$ "Position reports"
- 3 possibilities to get position reports: File system, FTP or Yellowbrick
- Option 1 (File system): Fill the directory path where position report are saved + position report prefix
- Option 2 (FTP): Fill classical ftp informations (URL, Path, File, etc)

- Option 3 (Yellowbrick): FILL race ID (following YB website)

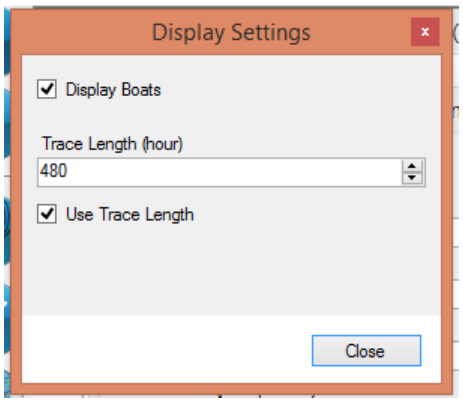
### 2.7.4 View ranking

- Click on "Race" − > "Ranking"




### 2.7.5 Trace Settings

- Click on "Race" − > "Trace Settings"



# 3 Forecasts

In the section we descibe in greater detail the weather data available in Squid (depending on your subscription).

## 3.1 Atmosphere

### 3.1.1 Arôme

| | |
|---|---|
| **Resolution (deg)** | 0.01 ou 0.025 |
| **Time Step (hours)** | 1h,3h, 6h, 12h, 24h |
| **Time of arrival for the model (Hour - UTC)** | 00:00, 06:00, 12:00, 18:00 |
| **Variables** | Wind at 10m, reduced pressure at sea level, temperature, cloud cover, CAPE, relative humidity, rainfall |
| **Number of days** | 2 days |
| **Area** | See image |

### 3.1.2 Arpege 0.5

| | |
|---|---|
| **Resolution (deg)** | 0.5 |
| **Time Step (hours)** | 1h,3h, 6h, 12h, 24h |
| **Time of arrival for the model (Hour - UTC)** | 00:00, 06:00, 12:00, 18:00 |
| **Variables** | Wind at 10m, reduced pressure at sea level, temperature, cloud cover, CAPE, relative humidity, rainfall |
| **Number of days** | 4 days |
| **Area** | Monde |

### 3.1.3 Arpege 0.1

| | |
|---|---|
| **Resolution (deg)** | 0.1 |
| **Time Step (hours)** | 1h,3h, 6h, 12h, 24h |
| **Time of arrival for the model (Hour - UTC)** | 00:00, 06:00, 12:00, 18:00 |
| **Variables** | Wind at 10m, reduced pressure at sea level, temperature, cloud cover, CAPE, relative humidity, rainfall |
| **Number of days** | 4 days |
| **Area** | See image |

### 3.1.4 CEP

| | |
|---|---|
| **Resolution (deg)** | 1°, 0.5°, 0.25°, 0.125° |
| **Time Step (hours)** | 3h, 6h, 12h, 24h |
| **Time of arrival for the model (Hour - UTC)** | 00:00, 12:00 |
| **Variables** | Wind at 10m, reduced pressure at sea level |
| **Number of days** | 10 days |
| **Area** | See image |


### 3.1.5 GEFS

| | |
|---|---|
| **Resolution (deg)** | 0.5°, 1° |
| **Time Step (hours)** | 6h, 12h, 18h, 24h |
| **Time of arrival for the model (Hour - UTC)** | 00:00, 06:00, 12:00, 18:00 |
| **Variables** | Wind at 10m, Wind at 925hPa, reduced pressure at sea level, temperature, cloud cover, relative humidity, rainfall |
| **Number of days** | 16 days |
| **Area** | See image |

### 3.1.6 GFS

| | |
|---|---|
| **Resolution (deg)** | 0.25°, 0.5°, 1.0° |
| **Time Step (hours)** | 3h, 6h, 12h, 24h |
| **Time of arrival for the model (Hour - UTC)** | 00:00, 06:00, 12:00, 18:00 |
| **Variables** | Wind at 10m, Wind at 925hPa, reduced pressure at sea level, temperature, cloud cover, relative humidity, rainfall, Wind gusts, CAPE, height of the atmospheric boundary layer |
| **Number of days** | 8 days |
| **Area** | See image |

### 3.1.7 GEM

| | |
|---|---|
| **Resolution (deg)** | 0.6° |
| **Time Step (hours)** | 3h, 6h, 12h, 24h |
| **Time of arrival for the model (Hour - UTC)** | 00:00, 12:00 |
| **Variables** | Wind at 10m, reduced pressure at sea level, temperature, cloud cover, rainfall |
| **Number of days** | 6 days |
| **Area** | See image |

### 3.1.8 CEP Hirlam

| | |
|---|---|
| **Resolution (deg)** | 0.1° |
| **Time Step (hours)** | 1h, 2h, 3h, 6h |
| **Time of arrival for the model (Hour - UTC)** | 00:00, 06:00, 12:00, 18:00 |
| **Variables** | Wind at 10m, reduced pressure at sea level, temperature, cloud cover, rainfall |
| **Number of days** | 2 days |
| **Area** | See image |


### 3.1.9 NAM

| | |
|---|---|
| **Resolution (deg)** | 0.1° |
| **Time Step (hours)** | 3h, 6h, 12h, 24h |
| **Time of arrival for the model (Hour - UTC)** | 00:00, 06:00, 12:00, 18:00 |
| **Variables** | Wind at 10m, reduced pressure at sea level, temperature, cloud cover, relative humidity, rainfall, Wind gusts, CAPE |
| **Number of days** | 3,5 days |
| **Area** | See image |

### 3.1.10 NAM nest CONUS

| | |
|---|---|
| **Resolution (deg)** | 0.05° |
| **Time Step (hours)** | 0h, 1h, 2h, 3h, 6h |
| **Time of arrival for the model (Hour - UTC)** | 00:00, 06:00, 12:00, 18:00 |
| **Variables** | Wind at 10m, reduced pressure at sea level, temperature, cloud cover, relative humidity, rainfall, Wind gusts, CAPE |
| **Number of days** | 2 days |
| **Area** | See image |


### 3.1.11 GCWF

| | |
|---|---|
| **Resolution (deg)** | 0.1° |
| **Time Step (hours)** | 1h, 2h, 3h, 6h |
| **Time of arrival for the model (Hour - UTC)** | 00:00, 06:00, 12:00, 18:00 |
| **Variables** | Wind at 10m, reduced pressure at sea level, temperature, cloud cover, relative humidity, rainfall, Wind gusts, CAPE |
| **Number of days** | 4 days |
| **Area** | See image |

### 3.1.12 GCWF +

| | |
|---|---|
| **Resolution (deg)** | 0.03° |
| **Time Step (hours)** | 1h, 2h, 3h, 6h |
| **Time of arrival for the model (Hour - UTC)** | 00:00, 06:00, 12:00, 18:00 |
| **Variables** | Wind at 10m, reduced pressure at sea level, temperature, cloud cover, relative humidity, rainfall, Wind gusts, CAPE |
| **Number of days** | 4 days |
| **Area** | See image |

### 3.1.13 Harmonie

| | |
|---|---|
| **Resolution (deg)** | 0.025° |
| **Time Step (hours)** | 1h, 2h, 3h, 6h |
| **Time of arrival for the model (Hour - UTC)** | 00:00, 06:00, 12:00, 18:00 |
| **Variables** | Wind at 10m, reduced pressure at sea level, temperature, cloud cover, relative humidity, accumulated rainfall |
| **Number of days** | 2 days |
| **Area** | See image |

## 3.2 Sea State

### 3.2.1 WW3

| | |
|---|---|
| **Resolution (deg)** | 0.5° |
| **Time Step (hours)** | 3h, 6h, 12h, 24h |
| **Time of arrival for the model (Hour - UTC)** | 00:00, 06:00, 12:00, 18:00 |
| **Variables** | Wave height (total , wind sea, houle1 ) direction ( total , wind sea , houle1 ) , period (total, sea wind , wave 1) |
| **Number of days** | 7,5 days |
| **Area** | See image |

### 3.2.2 WW3 EU

| | |
|---|---|
| **Resolution (deg)** | 0.2° |
| **Time Step (hours)** | 6h, 12h, 18h, 24h |
| **Time of arrival for the model (Hour - UTC)** | 00:00, 12:00 |
| **Variables** | Wave height (total , wind sea, houle1 ) direction ( total , wind sea , houle1 ) , period (total, sea wind , wave 1) |
| **Number of days** | 3 days |
| **Area** | See image |

## 3.3 Currents

### 3.3.1 ROFS

| | |
|---|---|
| **Resolution (deg)** | 0.26° |
| **Time Step (hours)** | 1h, 2h, 3h, 6h |
| **Time of arrival for the model (Hour - UTC)** | 00:00 |
| **Variables** | Current tide, Temperature at sea surface |
| **Number of days** | 6 days |
| **Area** | See image |

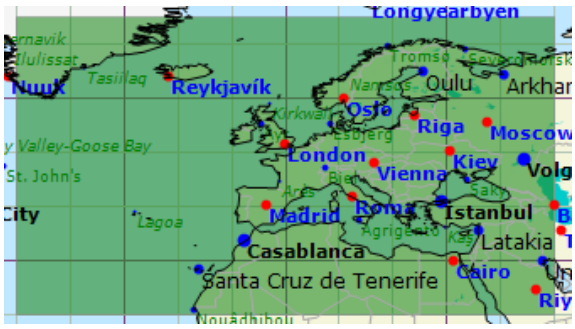
### 3.3.2 MyOceanIBI

| | |
|---|---|
| **Resolution (deg)** | 0.03° |
| **Time Step (hours)** | 1h, 2h, 3h, 6h |
| **Time of arrival for the model (Hour - UTC)** | 00:00 |
| **Variables** | Current tide |
| **Number of days** | 3 days |
| **Area** | See image |

## 3.4 Observation

### 3.4.1 METEOSAT Euro

| | |
|---|---|
| **Pas de temps(minutes)** | 5 |
| **Variables** | Infrared, Visible, Colored Infrared, Water steam, Air masses, Visible Infrared coloris |
| **Area** | See image |




### 3.4.2 METEOSAT Full Disk

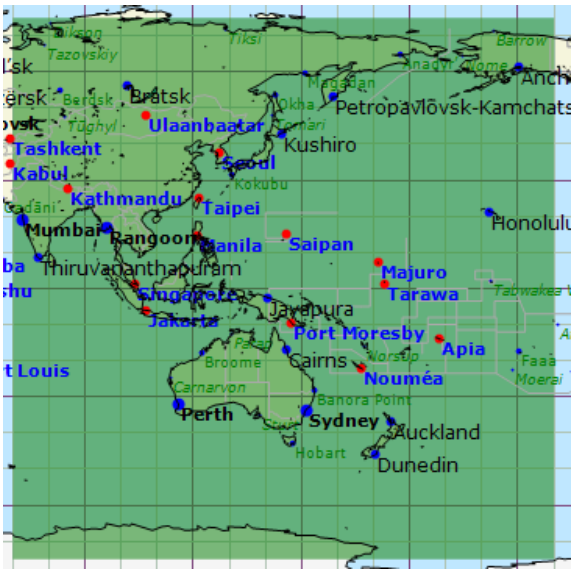
| | |
|---|---|
| **Pas de temps(minutes)** | 15 |
| **Variables** | Infrared, Visible, Colored Infrared, Water steam, Air masses, Visible Infrared coloris |
| **Area** | See image |

### 3.4.3 METEOSAT 7

| | |
|---|---|
| **Pas de temps(minutes)** | 30 |
| **Variables** | Infrared, Visible, Colored Infrared, Water steam, Visible Infrared coloris |
| **Area** | See image |


### 3.4.4 Himawari 8

| | |
|---|---|
| **Pas de temps(minutes)** | 60 |
| **Variables** | Infrared, Visible, Colored Infrared, Water steam, Visible Infrared coloris |
| **Area** | See image |



### 3.4.5 GOES East CONUS

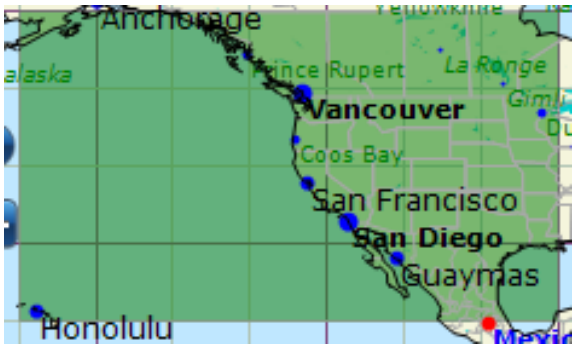
| | |
|---|---|
| **Pas de temps(minutes)** | 15 |
| **Variables** | Infrared, Visible |
| **Area** | See image |


### 3.4.6 GOES East Full Disk

| | |
|---|---|
| **Time Step (hours)** | 3 |
| **Variables** | Infrared, Visible |
| **Area** | See image |

### 3.4.7 GOES West CONUS

| | |
|---|---|
| **Pas de temps(minutes)** | 15 |
| **Variables** | Infrared, Visible |
| **Area** | See image |



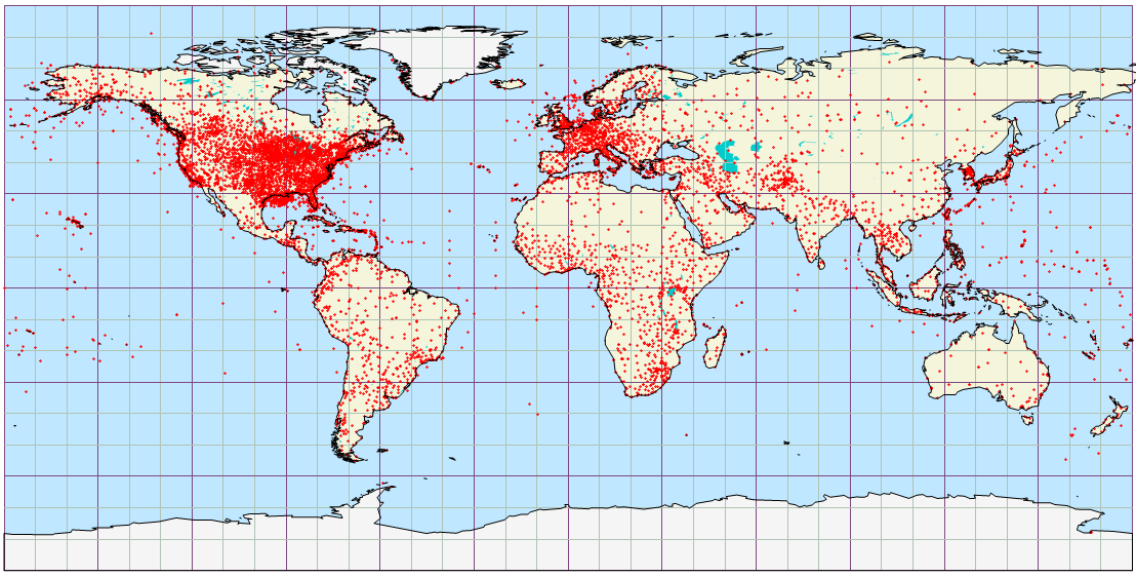

### 3.4.8 GOES West Full Disk

| | |
|---|---|
| **Time Step (hours)** | 3 |
| **Variables** | Infrared, Visible |
| **Area** | See image |

## 3.5 Stations météo

### 3.5.1 SYNOP, METAR, bouées

| | |
|---|---|
| **types** | Synop, Metar, Bouées |



# 4 About Great-Circle

Initiated by passionate and experienced off-shore sailors, Great-Circle distribues raw and custom high resolution grib files produced or forced from the major global models available. In addition to SQUID, Grea-Circle also offers climatological studies that optimize the preparation for races and records including bringing statistical input based on early VPP testing with naval architects. Great-Circle has also developed a serie of decision making tools to help skippers, race and regatta organizers reach the best strategic choice when weather dependant planification matters. These include, for example, the probabilistic Best-Start (r) for determining the best time to launch a record attempt or a possible hazardous passage.