GMM Navigator

RACE

USER MANUAL

Version 1.0.5.145

Index

1. Installation

Run the file **setup.exe** on the installation CD or on the software setup directory on your hard disk. The installation of the *iKey* dongle drivers and of the *Jeppesen Marine MAX PRO chart library*, will require some minutes. If during the installation some library of the ikey dongle fails to register, please try to install manually the full drivers solution from the installation CD.

For 32 bit operative systems:

\Redist\iKey\iKeyDrvr.msi and then **\Redist\iKey\SafenetCspPks.msi**

For 64 bit operative systems:

\Redist\iKey64\iKeyDrvr64.msi and then **\Redist\iKey64\SafenetCspPks.msi**

and repeat the software installation.

If during the installation you will be asked to provide the diagonal size of the screen in inches, please insert the correct display size. This value will be used to calculate the correct scale of the map on the screen.

2. Uninstall

To uninstall the program, open Windows Control Panel and remove the *GMM Navigator* software.

3. First execution and license request

When you run the program for the first time, you will be asked to provide a valid license. If you have the *iKey* dongle provided with the *Jeppesen Marine MAX PRO* digital charts, please connect it before starting GMM Navigator. A license will be provided for the iKey dongle and it will be possible to use the software on different PCs, simply connecting it to the required PC and installing the received license file.

The USB hardware dongle *iKey 1000*

Please note that the PC who has generated the license request file, will have the possibility to run GMM Navigator even without the iKey connected. Doing so, it will be not possible to see the detailed charts but all the navigation functions of GMM Navigator will work. This is a security option to allow the use of GMM Navigator on the main navigation PC, even in case of an iKey failure.

If you don't have an iKey USB dongle, you can ask a license valid only for the PC from which was generated the license request file.

To request a license, it is possible to choose the first option: *"Request a new license by e-mail"*. In this case the default Windows mail software will be opened and a message will be prepared with the request file attached.

It is also possible to choose the second option: *"Save the license request on local drive"*. In this case it will be possible to save the license request file *GmmNavigator_lic.req* on the hard disk or on a USB memory stick so it will be possible to attach it to an e-mail message and to send it to: info@3xel.com.

In less than 24 hours you will receive one e-mail message with the license attached. You will have to save the attached file on the hard disk and then you will have the possibility to install it restarting GMM Navigator and choosing the option: *"Install received license"*.

4. Basic settings

Once installed the license, you will have the possibility to start GMM Navigator and to proceed with some basic configurations.

- **Language:** click on the flag on the main menu bar and choose your language.

- **System Settings:** click on the menu *Settings→System Settings* to select the folder where all the program settings will be saved. If you have two hard disks or two partitions, it is suggested to save the settings on a disk where Windows is not installed . For example, if you have a disk *C:* with Windows installed and one disk *D:* suitable for data and documents, it would be better to choose a folder for settings on disk *D:*. For example: *D:\GmmNavigatorSettings*. Doing that, If one day you will have to reinstall Windows, all program settings, routes and waypoints will be not lost. Among other options, there is also the possibility to disable the digital chart disclaimer, to speed-up the program startup. It is also possible to start GMM Navigator automatically when Windows starts or to shut down Windows when exiting from GMM Navigator.

- **Screen Resolution:** click on the menu *Settings→Visual Settings→Screen Resolution*. Place a ruler near the reference picture on the screen to adjust the resolution. Changing the resolution will change the size of text in menus, the size of forms and windows and the size of the digital chart symbols. With very small displays it could be better to use a smaller resolution, to fit all windows contents on the screen.

- **Panel size and transparency:** click on the menu *Settings→Visual Settings→Advanced* to set the size and the transparency of the navigation data panels. If the main data panel is not visible, please try to activate the internal simulator *Settings→Simulator* to simulate the navigation instruments even when they are not available. It is possible also to change the transparency of the matt screen used to hide the digital cartography and to make more visible routes and waypoints. The matt screen can be activated with the menu *Display→Transparency→Matt*. It is also possible to change the default fonts used and to allow GMM Navigator to change the colors of Windows in night mode.

- **Main Input Device and On Screen Buttons:** click the menu *Settings→Main Input Device* to select the main device used to interact with the program. The default device is the mouse but it is also possible to use a touch screen and a keyboard. To show some useful buttons on the right part of the screen, you can enable the option *On Screen Buttons.* If you are using a touch screen, it could be useful also to enable the *Virtual Right Button*, a button on the screen that will switch between a right and a left click. The function *Left*

Click Context Menu it is used to activate the context menu when clicking for about 2 seconds one point on the screen.

- **Measure Units:** click the menu ***Settings→Measure Units*** to modify the measure units in use and to set the number of decimal digits to be displayed. The **Short Dist. Limit** is a threshold used to display a more detailed unit of measure for distances shorter than the limit. For example setting a threshold of 300 meters, distances shorter than 300 m will be displayed in meters and distances longer than the threshold will be displayed in the long distance units, usually Nautical Miles.

- **Boat Data:** click the menu ***Settings→Boat Data*** to set the size of the boat, the type and the reference point for the measures. Set also the position of the GPS antenna and the position of the echo sounder transducer. On the ***Advanced*** page it is possible to set also the name of the boat, the average cruising speed, the maximum speed and the fuel consumption.

- **Instrument Connections:** click the menu ***Settings→Instrument Connections*** to set the communication ports, the protocols, filters and other parameters. It is possible to use serial COM ports or UDP and TCP/IP networks. To connect many *NMEA0183* instruments to the COM ports, it is suggested the use of an NMEA multiplexer, for example the ***Actisense NDC-4-USB*** that has 4 optoisolated NMEA inputs with independently configurable baud rates and two optoisolated outputs (one serial RS-232 e one USB for the PC connection). For the connection to a *NMEA2000 network*, the gateway ***Actisense NGT-1-USB*** is required. For more details about different connections please read the chapters about NMEA0183 and NMEA2000 connections, at the end of this manual.

- **Instrument settings and calibrations:** it is possible to set received data damping, calibrations and corrections clicking the menu ***Settings→Instrument Settings.*** For a more detailed overview of calibrations, please read the chapter *"Instruments settings"*.

- **Users Management:** it is possible to create different users, each with his own specific settings, clicking the menu ***Settings→Users Management.*** Every new user created will inherit all the settings of the currently active user.

5. Simulator

To test the software without real navigation instruments, it is possible to use the internal simulator: ***Settings→Simulator.*** Keep in mind that the internal simulator generates navigation data using the protocol currently in use on the channel zero. Currently the simulator works with *NMEA 0183*, *NMEA 2000* and *Nexus FDX* protocols. If starting the

simulator no data is received, please check in menu **Settings→Instrument Settings** that the protocol in use on channel zero is one of the supported.

To move the boat to a different location, click the new point on the chart so it will be at the screen center, then press the button **Chart Center** on the simulator window.
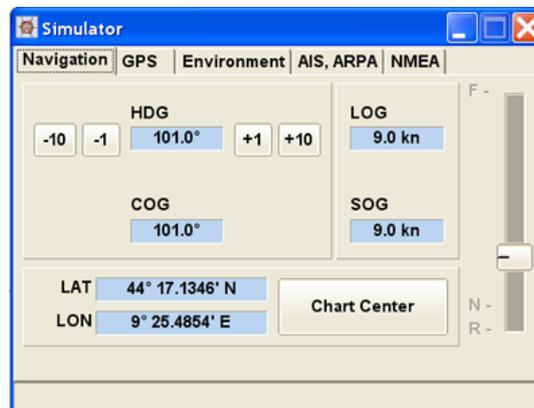
You can also change wind direction, drift and set and other parameters opening the page **Environment.**

The page **AIS, ARPA** can be used to configure the number of random *AIS* and ARPA targets simulated on the screen

It is possible to enable/disable some specific NMEA strings on the **NMEA** page. To enable the simulation of AIS and ARPA targets, it is necessary to enable the **TLL**, **TTM** and **VDM** messages.

6. ZOOM function

To zoom a specific location under the cursor on the chart, it is possible to use the mouse wheel or the keyboard buttons **Page Up**, **Page Down**. To zoom at the chart center, it is possible to use the keys *I* and *O, +* and *-* or the screen buttons *+* and *-* if they are visible. It is also possible to click on the scale value at the left bottom corner of the screen to change the chart scale. To zoom the content of a specific area, drag a rectangle on the screen using the mouse and holding down the left mouse button. If you drag from top to bottom of the screen, the function zooms in, otherwise it zooms out.

Please note that there is also the possibility to toggle between zoom and pan while dragging with the mouse, using the virtual button on the right side of the screen with a magnifier/hand icon. If the button is not visible, you can enable it from menu **Settings→Main Input Device→Pan-Zoom Switch Button.**

7. Map panning

Click with the left mouse button on the point of the chart that will be moved to the center of the window. For example clicking close to the right side of the screen, the chart will pan to the left. To pan the chart it is also possible to use the keyboard arrows. Another way to pan the chart is to hold down the right mouse button and to move the pointer near the chart borders. More close is the pointer to the borders, faster is the panning.

Please note that there is also the possibility to toggle between zoom and pan while dragging with the mouse, using the virtual button on the right side of the screen with a magnifier/hand icon. If the button is not visible, you can enable it from menu **Settings→Main Input Device→Pan-Zoom Switch Button.**

8. Centering the boat

If the GPS is active, it is possible to locate the boat clicking the center button of the mouse (usually it is the mouse wheel), or the **space bar** or the key **Home** on the keyboard. If the virtual buttons on the right side of the screen are visible, it will be possible to locate the boat using the button with a view finder icon. It is also possible to keep the boat in view automatically, enabling the option **Display→Keep Boat in View.** In **Smart Mode,** the boat will stay near the screen corner opposite to the navigation direction. With **Screen Center** the boat will always stay near the screen center. This function is automatically disabled during short periods when the pointer is moved on the map or when a measuring function is activated. This is to avoid that the map is automatically moved when we are working on regions of the chart far from the boat position.

9. Automatic chart rotation

It is possible to enable the automatic chart rotation using the menu **Display→Chart Rotation.** There are many different options to align the chart with the True North, the Course, the Heading, the Route and the Wind direction.

10. Measuring functions

To activate the measuring function click on the chart with the right mouse button or press the key *Enter* on the keyboard and select *Measure* or *Measure Path* in the context menu. It is also possible to activate the measure function clicking the virtual button on the screen with the dividers icon. When a valid GPS position is received, the starting point of the measure is connected to the boat. To disconnect it and to start a measure with a new origin, left click on the map on the new position or drag the starting point with the left mouse button down. To change the starting point of the *Measure Path* function, you have to double click the map on the new point or to drag the starting point holding down the left mouse button. If the main input device is a Resistive Touch Panel, the behavior is slightly different: double click to change the origin with the *Measure* function, hold down the left mouse button on the new point for two seconds with the *Measure Path* mode*.* To change some graphical options of the measuring functions go to the menu *Display→Measuring Options.* Please remember that the calculations are Rhumb Line or Great Circle, according to the settings in the menu *Navigation→Navigation Mode*. During path measures, the length of each leg is displayed on the screen, together with the total distance at each measure point. It is possible to modify each point of the path left clicking on it and dragging without releasing the mouse button. To delete a point on the path, right click it. To add a new point on the path, left click on the leg between two measure points.

It is also possible to convert a measure to a route or to waypoints clicking the label with the total distance on the top right corner of the screen. The option *Export to file* creates a text file or an Excel table with a report of distances and bearings.

The option *Set Average Speed* is used to quickly set an average speed for the calculation of the required total time.
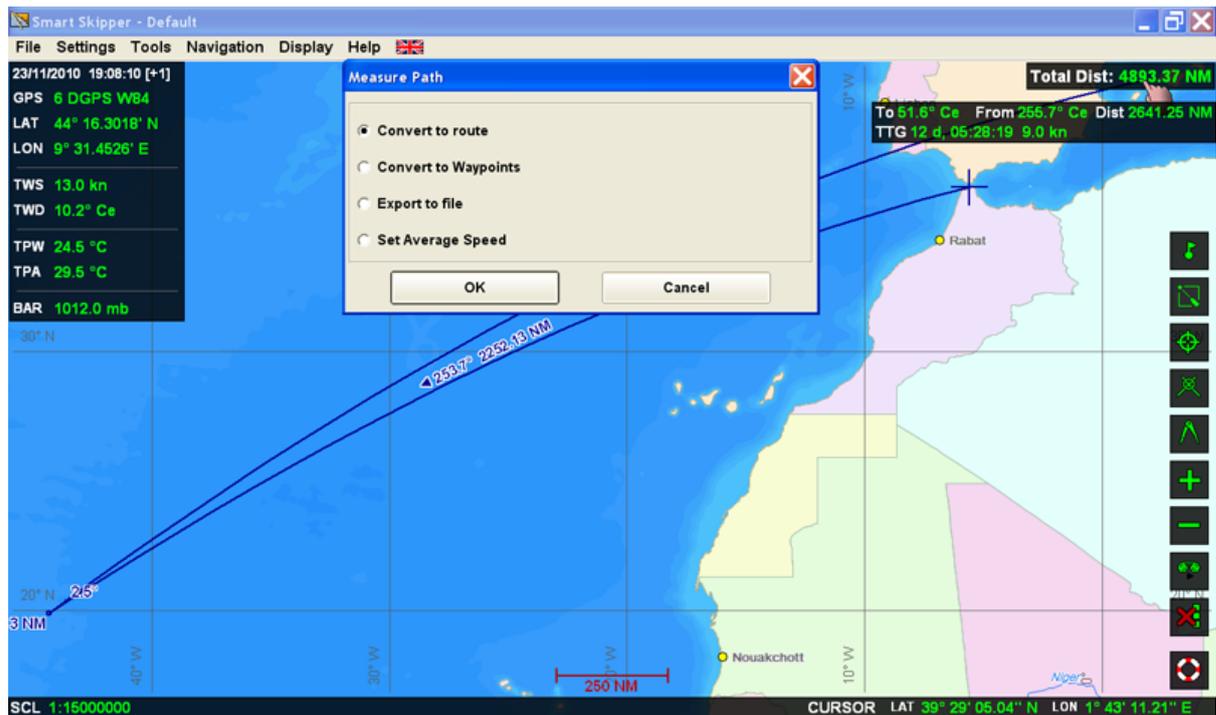
The option **Convert to Route** can be used to create a new route from the measure function.

The option **Convert to Waypoints** can be used to create new waypoints from the measure function.

The option **Set Average Speed** can be used to set a speed for the time calculations. If the average speed is not set and the boat has a valid speed, the speed received from the GPS is used for the time calculations.

To avoid that a measure could be deleted by mistake, enable the option "Ask before closing measure path function" in the menu **Settings→System Settings.**

11. Exit from a function

To exit from an active function, click the map with the right mouse button or press the **Esc** key on the keyboard. If the main input device is a Resistive Touch Panel or the Active Pen, it is possible to exit from the active function clicking the tick mark at the center of the screen.

12. Chart objects info

To show a window with a list of the objects under the cursor, click the map with the right mouse button and select *Info*.
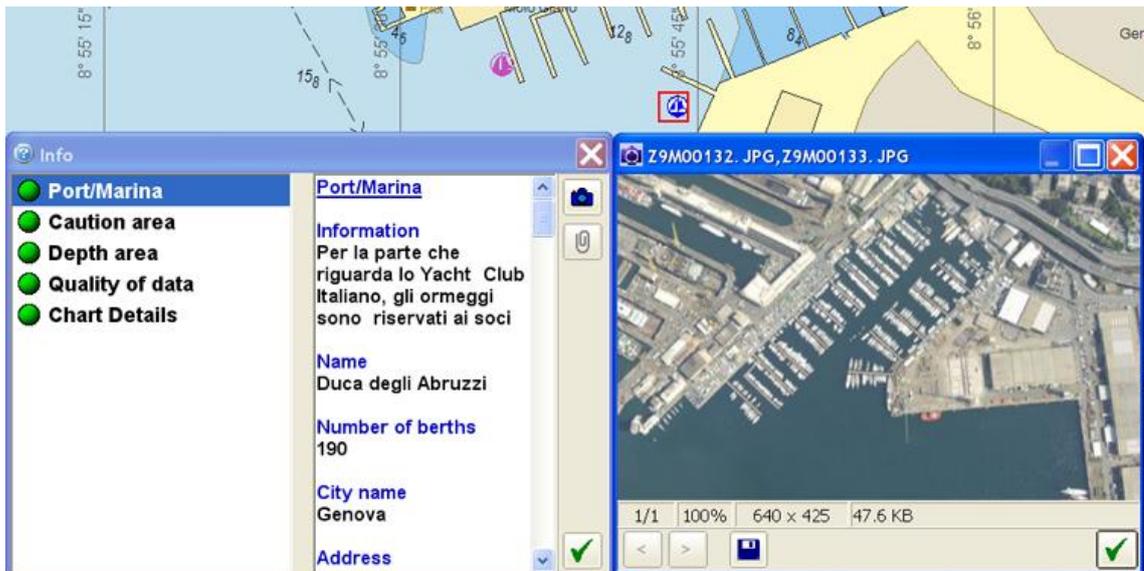
If on the right top corner is enabled one button with a camera, it is possible to open a picture clicking on that button. The picture can be zoomed using the mouse wheel. With a double click the zoom will be again set to 100%. Dragging with the left mouse button, it is possible to pan the map.

If a button with a clip icon is enabled, it means the clicking it, will be possible to open some attachments.

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13. Waypoints creation

Click with the right mouse button and select *Insert Waypoint*. To activate the navigation to a Waypoint, right click on it and select *Activate Destination*. Please note that a destination can be activated only when a valid GPS position is received. It is also possible to insert a Waypoint at a certain range and bearing from an existing one. Right click on one existing Waypoint and select *Waypoint with Offset.*
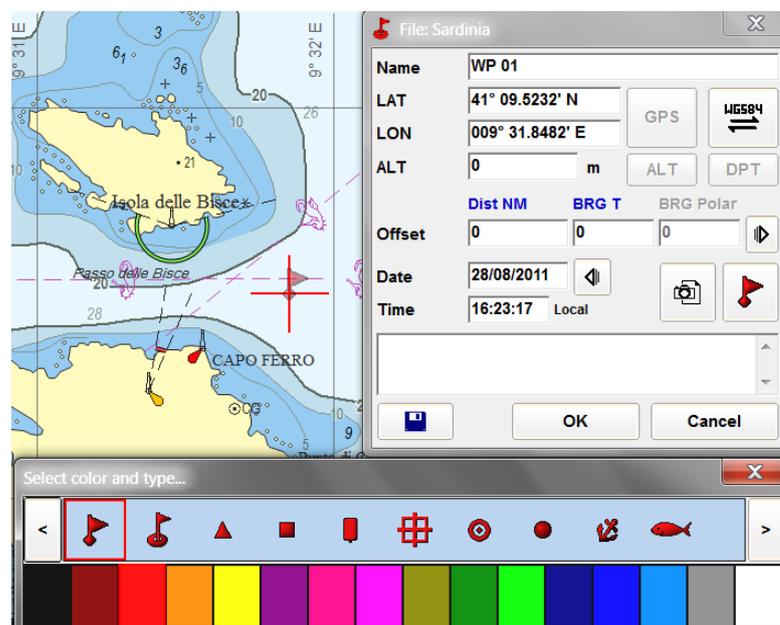
The waypoint editor window is designed to change the name, the position, the icon shape and color and to add attachments to the Waypoint.

The *WGS84* button will convert coordinates referenced to a chart datum different than the standard WGS 84.

The *GPS* button is used to move the Waypoint to the currently received GPS position. It is enabled only when the received position is valid.

The *ALT* and *DPT* buttons are used to add a depth or an altitude for the waypoint, reading the value directly from the integrated instrumentation.

The button with a floppy disk icon is used to change the waypoint file currently in use.

Clicking on the blue labels *Dist NM* and *BRG*, it is possible to change the measure units and the bearing mode to move, if required, the waypoint to a certain distance and bearing from the current position.

Clicking with the right mouse button on an existing waypoint and selecting *Waypoint with Offset*, it is possible to set a new waypoint at certain distance from the previous.
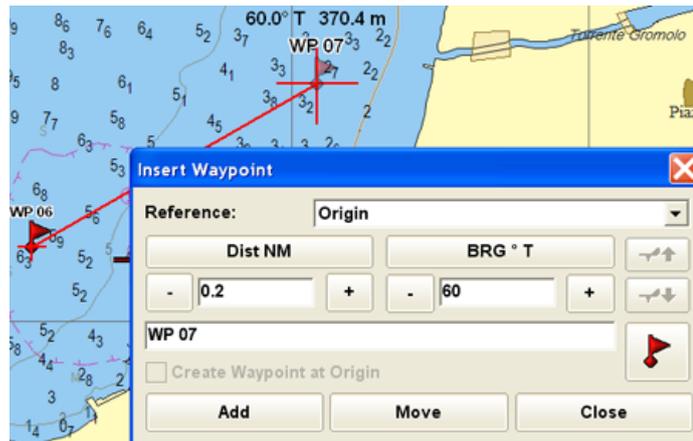
The box with the reference is used to select from which point the distance and bearing of the new waypoint are calculated.

If *Origin* is set, the reference is the existing waypoint that was selected . If *Last Waypoint* is set, the reference origin is the last waypoint that was added. It is possible to change the measure units clicking on the *Dist* and *BRG* buttons . On the right side there are two buttons with a wind vane: if the wind direction is received from the instruments, it will be possible to click the buttons to move the waypoint upwind or downwind.

The *Move* button it is used to move the origin waypoint without creating a new one.

There are quick functions that can be activated using the keyboard: to insert a waypoint on the current GPS position, you can press the key *F3*. It is also possible to click the button on the screen with a buoy icon. When the button is clicked, the current GPS position is saved in memory and a list will appear with different options.

To insert a waypoint on the current GPS position and to activate a navigation to this waypoint, it is possible to press the *F2* key on the keyboard. All the navigation functions will be activated to reach the waypoint, as it happens with the *Man Over Board function*.

14. Routes

With the current version of the software, the fastest way to create a route is to use the *Measure Path* function from the context menu that appears when you left-click with the mouse on the map.

When the *Measure Path* function is still active you can add new points left clicking on a path segment, you can modify already inserted point left clicking on them and dragging with the mouse. You can also delete a point right-clicking on it.
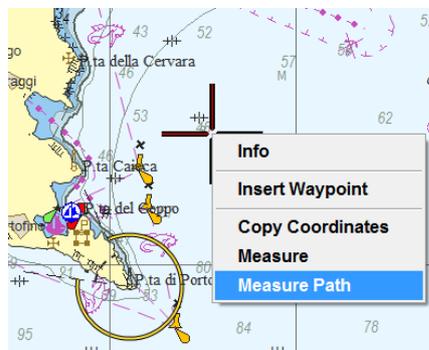
To convert the path into a route, you can click on the total distance box on the upper right corner of the screen and select the option: *Convert to route.* Then you can give a name to the new route or select an existing one in the box to replace it.
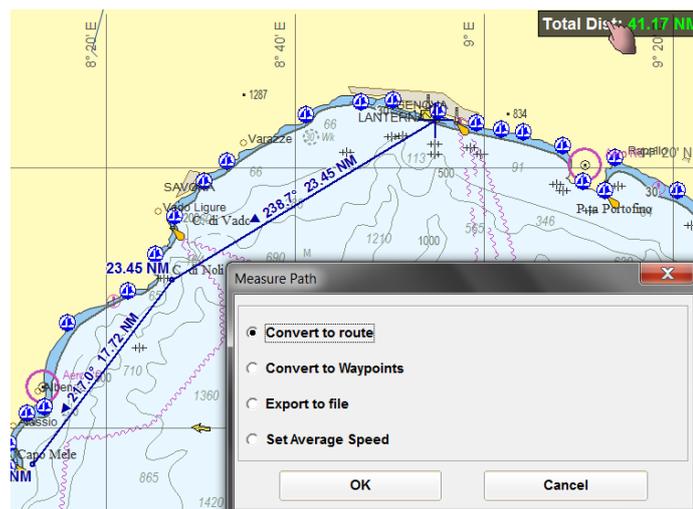
To show range and bearings labels on the routes, you can enable the menu *Display→Waypoints, Routes and Tracks→Range and bearing on Routes*.

To delete a route you can open the menu ***Navigation→Waypoints and Routes*** and click on the ***Routes*** tab. You can then select an existing route and delete it with the Delete button.

15. M.O.B. function

The ***Man Over Board*** function, once activated with the icon on the bottom right corner of the screen, will create a waypoint on the clicked and will set it as active destination. The M.O.B. button is only visible if a valid GPS position is received.

16. Screen buttons

The virtual screen buttons on the screen can be used to quickly activate some functions:

Insert a waypoint at the current position →

View the boat and the active destination on the same screen →

Locate the boat →

Start the bearings function →

Start the measure function →

Zoom, increase →

Zoom, decrease →

Start/Stop the data logger and the track recorder →

Hide the virtual screen buttons →

Activate the Man Over Board (M. O. B.) function →

There are some clickable buttons on the screen, other than the virtual screen buttons on the right side:

The scale label on the lower left corner can be used to select a scale or a specific range from the boat.

In *Resistive Touch Panel* mode virtual button with a point with four arrows will be visible. It is used to enable/disable the chart panning when clicking the chart with the mouse.

The virtual right mouse button on the lower right part of the screen will be available only when a valid GPS fix is received.

Toggle the chart pan when clicking the map in touch screen mode →

**Virtual right mouse button to simulate a right click →**
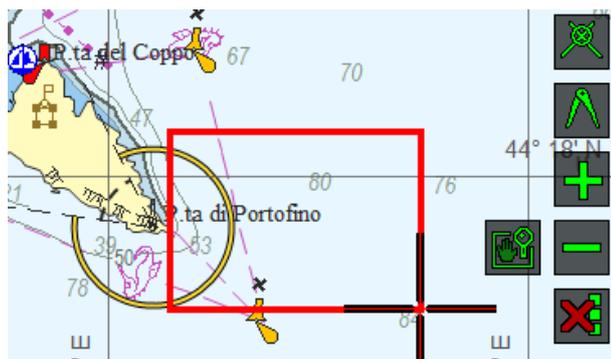
On the right side of the screen there is a button with a magnifier/hand to toggle from the zoom function to the panning function when dragging with the left mouse button on the map.

When displaying weather forecasts, it is possible to change the forecast date clicking the two arrows on the label at the top right corner of the screen.

Clicking the two arrows on the upper right corner of the screen, it is possible to change the forecast time.

This is a general overview of the buttons available on screen. Some of them are displayed only if a valid GPS position is received and some can be displayed or not according to the user interface settings:
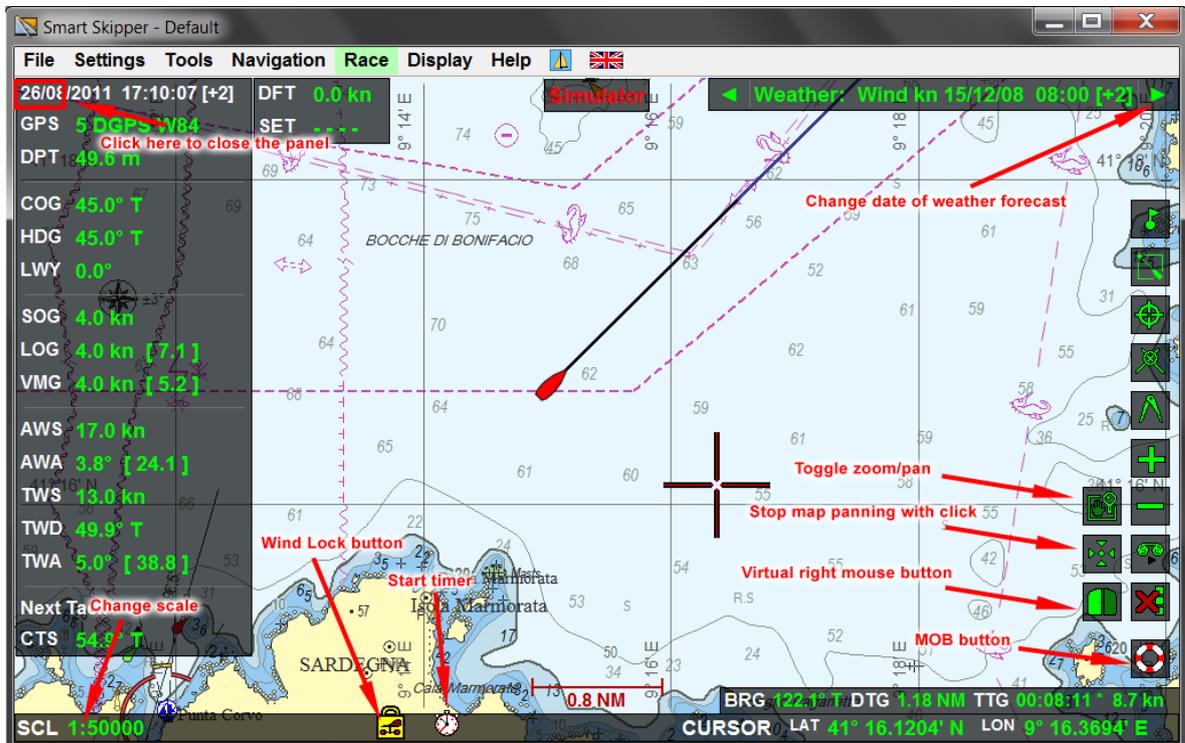
The *wind lock* button is used to freeze the true wind direction and speed. This function can be used during the starting procedure of a race when too many boats and different course changes can give unreliable wind direction readings.

The watch icon is used to show the timer and countdown options.

The scale text on the lower left corner can be used to change the map scale..

The virtual right mouse button is displayed only in touch screen mode and is used to simulate a right click on the screen.

The buttons to change the weather forecast date are only visible when a weather file has been opened.

Clicking the left upper corner of the screen when the navigation data panel is visible will hide the panel. This function is useful when you want to see all the chart without panels on it.

17. MAX PRO Cartography installation

GMM Navigator is designed to display the *Jeppesen Marine Max Pro* cartography. Without a valid license the software will display a World background without details. To install and display a detailed cartography, it is necessary to connect the *iKey* USB protection dongle with a valid license to the PC. The *iKey* dongle can be obtained when purchasing the first cartography license. After connecting the protection dongle, it is necessary to run the *Chart Manager* application to proceed with the installation of the charts from Max Pro DVDs.

To install the MAX Pro charts:

1. Be sure that the iKey USB dongle is connected

2. Start *C-MAP Max Pro Chart Manager*. You can start it from the Windows menu **Start→Programs→Jeppesen Marine→MAX Pro SDK Runtime→MAX Pro Chart Manager** or directly from inside *GMM Navigator* with the menu **Settings→Charts Management**. Before starting the *Chart Manager* from inside *GMM Navigator*, please check that in the menu **Settings→Active Cartography** is selected **Jeppesen Marine MAX Pro.**

3. If the hardware key is correctly connected and if the drivers are installed, the serial number of the key will be displayed on top of the *Chart Manager* window.

4. Press the button **Install Charts.**
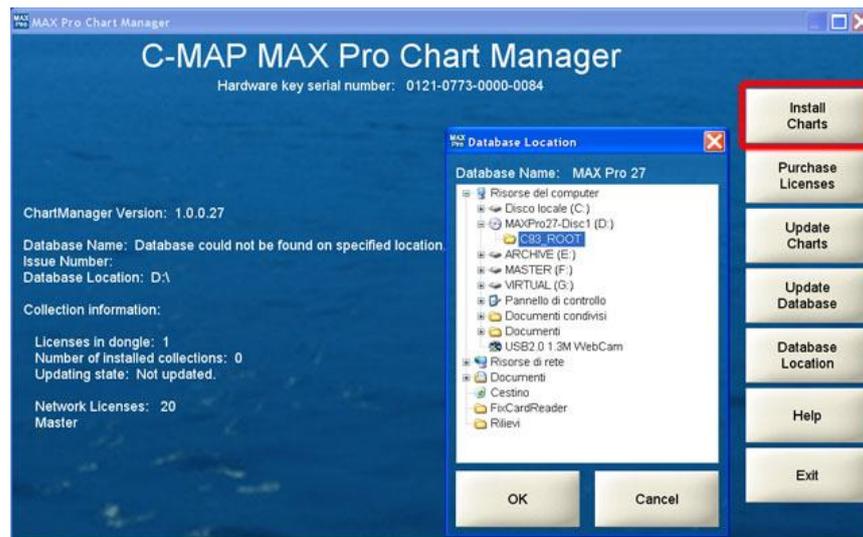
5. If a window appears requesting the database location, insert the first DVD of the cartography and select the folder **C93_ROOT**, then press **OK**.

6. Press the button *Install All* or *Install Selected* and wait that the *Chart Manager* starts to copy the licensed charts from the DVD to the hard disk.
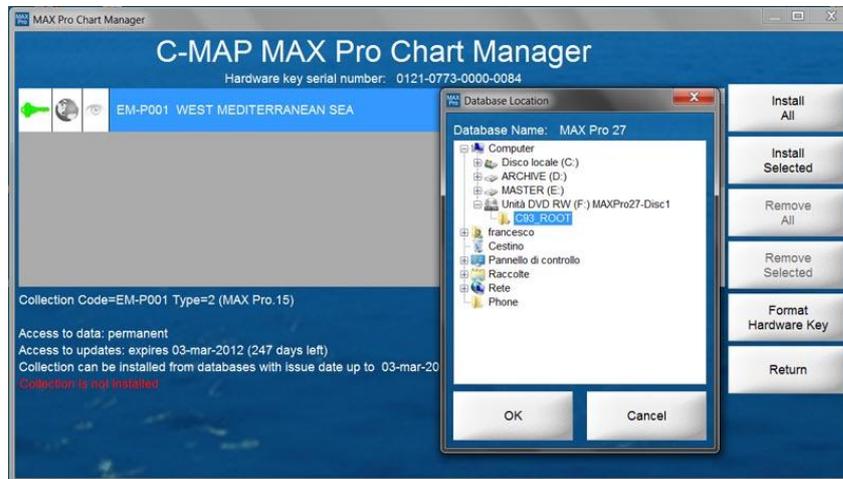
7. Every 30% of the installation process, a window will appear and ask to "Select path to a new Database": insert the next DVD, select the *C93_ROOT* folder and press *OK*.
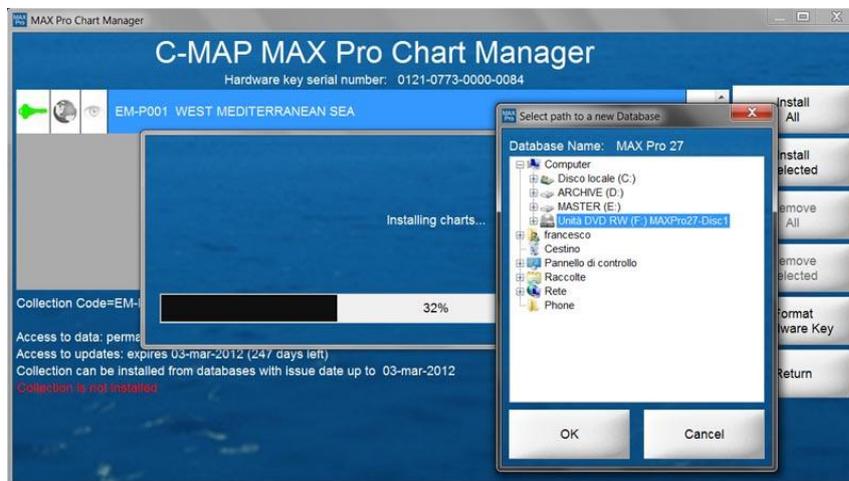
If you don't have a DVD reader on your PC or if you want to save all the content of the three MAX Pro DVDs on your hard disk, you can create for example a folder named "C:\MaxProCharts" and you can copy inside it the folder C93_ROOT from the first DVD using Ethernet, WiFi or a USB memory stick. Then you can take all the **C0**a**X0**n.**DAT** files from the second and third DVDs and copy them inside the local C93_ROOT folder. You can then choose this C93_ROOT folder from the *Chart Manager* as default database location directory when requested during the charts installation process.

If *GMM Navigator* was running during the chart installation process, restart *GMM Navigator* to let it read the new installed charts*.*

18. Updating the charts

It is possible to update the Max Pro cartography from an Internet server or by e-mail. The purchase of a chart license includes 365 days of free updating service from Internet. When the updating service subscription expires, it is possible to purchase a renewal for another year.

To update the cartography you have to start **C-MAP Max Pro Chart Manager** with the menu *Settings→Charts Management* checking that the iKey protection dongle is connected*.* Then press the button **Update Charts.** To download the updates directly from the Internet server, check if you have access to Internet and press the button **Update via Internet**. The updates will be installed automatically after the download.

To update the charts by e-mail it is necessary to create a request file pressing the button **Create Order.** The order file should be sent by e-mail to the address shown. The updates will be sent by e-mail as attachments. To install them you should save the files on the hard disk and then you should press the button **Install Updates.**

19. How to order new chart licenses

It is possible to order new cartography licenses ordering them by phone or by e-mail. Received licenses will be stored inside the *iKey* dongle. After storing the received licenses, it will be possible to install the new charts from the Max Pro DVDs.

To purchase new licenses:

1. Be sure that the iKey USB dongle is connected

2. Start *C-MAP Max Pro Chart Manager*. You can start it from the Windows menu *Start→Programs→Jeppesen Marine→MAX Pro SDK Runtime→MAX Pro Chart Manager* or directly from inside *GMM Navigator* with the menu *Settings→Charts Management*. Before starting the *Chart Manager* from inside *GMM Navigator*, please check that in the menu *Settings→Active Cartography* is selected *Jeppesen Marine MAX Pro.*

3. Press the button *Purchase Licenses*

4. If a window appears requesting the database location, insert the first DVD (Disc 1) of the cartography and select the folder **C93_ROOT**, then press **OK**.

5. Select on the map the charts to purchase left clicking on the required area and selecting the chart name on the list that appears below. To pan the map, left click on the gray border. To zoom, click the buttons **Out** and **In**. Once the chart has been selected, press the button **Add to Purchase**.
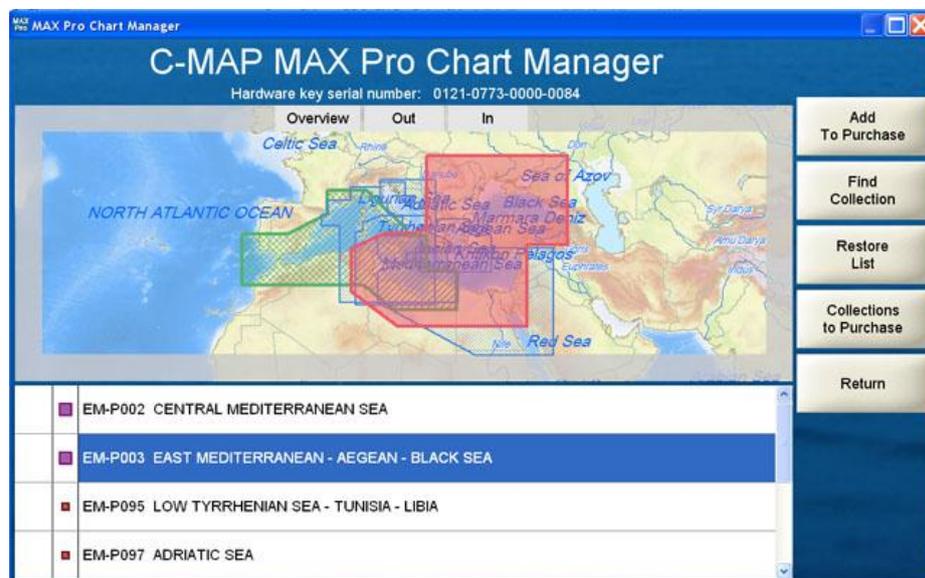
6. When requested, you can choose if to purchase the selected chart or to just rent it for a 4 months period. Please note that the charts have two sizes: "*Mega Wide*" and "*Wide*". The Mega Wide are displayed on the selection list with a bigger violet square. They cover a larger region and they are more expensive than the Wide.

7. You can add all the required charts to the purchase/rental list repeating points 5 and 6. When all the charts have been added, press the button **Collections to Purchase.**

8. You will see a list of charts ready for the purchase. If there is a key icon near the chart, this means that the license is already stored inside the iKey dongle. If there is a yellow shopping cart, this means that the license is not yet installed and needs to be ordered.
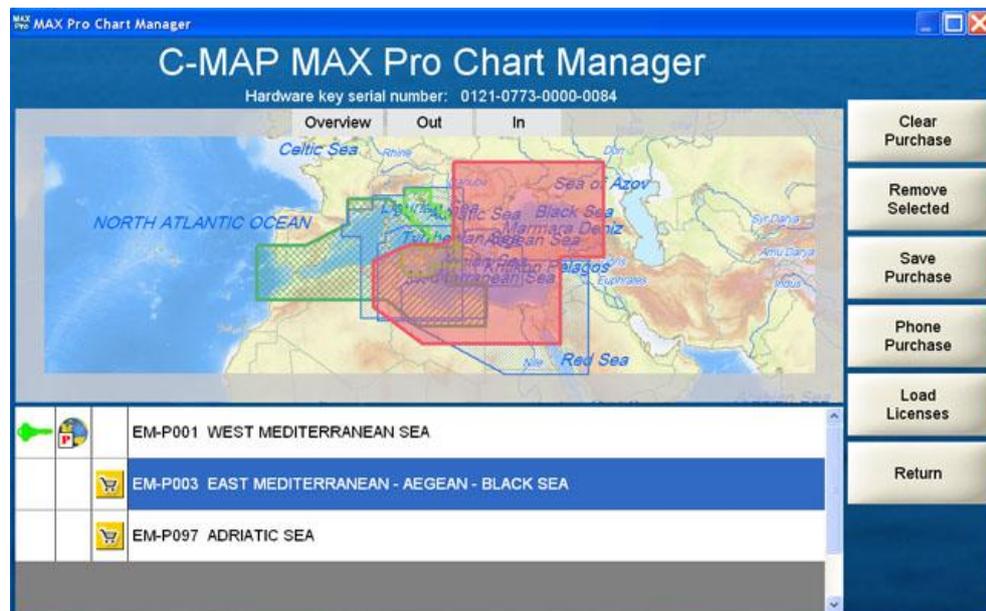
9. To proceed with the purchase, you have two options. The first is to select one by one the licenses with the yellow shopping cart and to press the button **Phone Purchase.**

Then you can write an e-mail message to your dealer or to the Jeppesen Marine orders address (*eu-orders@jeppesen.com*) reporting the name of each chart with the 20 digits purchase info code. If you don't have e-mail access, you can call your dealer or the Jeppesen office (in Italy: +39-0585-794800) and tell the code by phone.

Once you have received back the license code, you can type it in the box and press the button **Apply Code**. The license will be stored inside the iKey dongle and it will be possible to install the new charts from the DVDs. Please refer to the Max Pro Cartography installation procedure.

10. The second option to request new licenses, is to save a purchase order file using the button **Save Purchase.** You will have to fill a form with your details.

Then you can press **OK** and select the folder where the license request file will be saved. By default the *Chart Manager* will create a subfolder **MAX Pro\Licensing** with inside the file **License.req**. You can send it as an e-mail attachment to your dealer or to the Jeppesen Marine orders address (eu-orders@jeppesen.com).

Once you will receive the license file, you will be able to load it with the button **Load Licenses**. The license will be stored inside the iKey dongle and it will be possible to install the new charts from the DVDs. Please refer to the Max Pro Cartography installation procedure.

20. Disable chart layers

With *Max Pro* cartography it is possible to enable or disable specific layers. If you don't need them for navigation purposes, you can disable Roads, Satellite Images and Terrain from the menu *Display→Chart Option*, clicking on the tab *Cartographic Layers.* The drawing speed is faster when less layers are displayed.
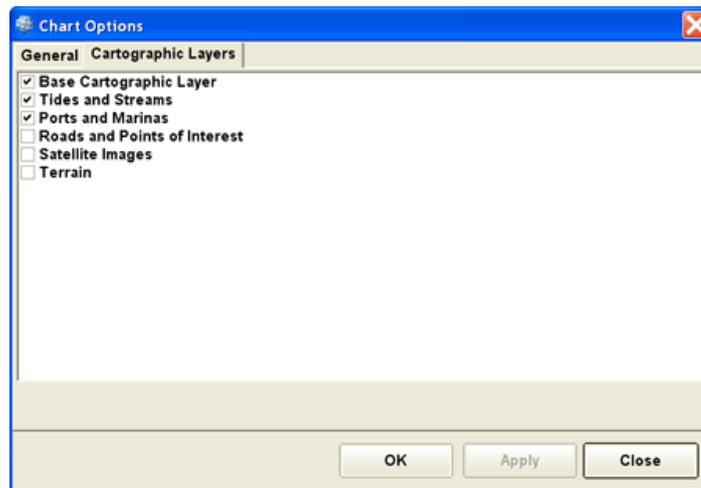
Clicking on the *General* tab is possible to change the size of the objects drawn on the chart, the details of the cartography, a filter that hides cluttered objects and the limits of the safety depth areas filled on the chart with a darker blue color.
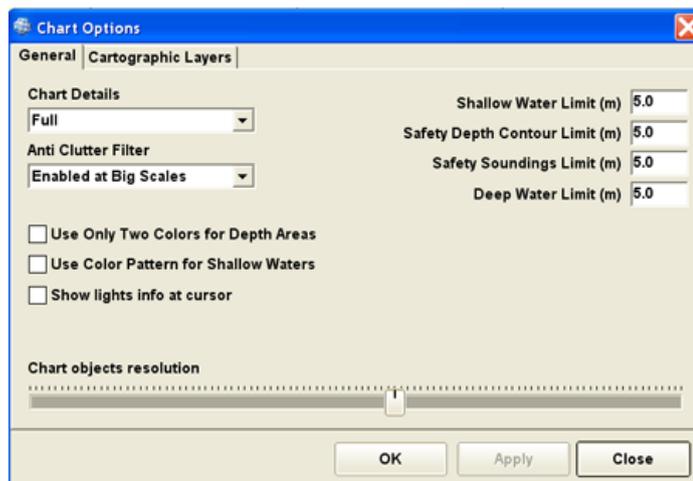
21. Instruments settings

Instruments calibration is an important operation that frequently is skipped. If the instruments are not calibrated, probably the software will give you inaccurate information.

The first calibration should be carried out directly on the navigation instruments. The correct procedure is usually described on the user manual of the integrated instrumentation. Remember to check also the transducers:

- The electronic compass should be fixed steady, far from electric cables and metal bodies and possibly near the centre of gravity of the boat.
- The LOG paddle-wheel should be clean from fouling and oriented to the bow.
- The GPS antenna should be installed not too high, to avoid swinging. If installed under a fiberglass hull, you should check that the reception is good and that the antenna is not too close to metal objects or walls that can reflect the satellite microwaves, thus reducing the signal stability.
- Check also that the PC is not connected with two different GPS sources, for example an active antenna module and a chart plotter at the same time. If the software is connected to more than one GPS source, the boat on the map will jump from one GPS position to the other.

As a general rule, the calibration procedure should follow this scheme:

- Start first with the LOG calibration, possibly in calm sea, without wind and current, checking the speed read by the paddle-wheel versus the SOG calculated by the GPS. The average integrated instrumentation on the market has usually just one LOG calibration coefficient. The paddle-wheel has a non linear output at different speed so a calibration correct at 8 knots, could be wrong at 5 knots. If your system doesn't support a table of coefficients for different speeds, perform the calibration at your typical cruising speed.
- Calibrate the electronic compass following the instructions reported on the user manual of the instrument. Usually the calibration requires the navigation along two big circles with constant speed. This procedure can be repeated more times to improve the results. The calibration should be carried out far from submarine cables, magnetic anomalies and possibly with calm sea. You can then compare the reading of the compass with the COG from the GPS, taking into account the local magnetic variation and sailing on a fixed course, without current. You can check the difference between COG and Heading and then correct the installation offset due to compasses not aligned with the boat axis.

- Then start with the apparent wind calibration. During one ideal day with calm see and without wind and current, proceed on a constant course using the engine, at a speed of about 6-7 knots. Adjust the apparent wind angle AWA to read 0° on the instrument and adjust the apparent wind speed coefficient until the apparent wind speed AWS is equal to the speed over ground SOG from the GPS.

Once the apparent wind sensor has been corrected without wind and sails, it is necessary to calibrate it with the effect of the wind on the sails.

Under sail, the air flow that the mast head sensor can measure is partially deflected. Furthermore an electronic compass is affected by some errors when the heeling of the boat is higher than 15-20 degrees. Since to calculate the true wind speed and direction starting from the apparent we must use the compass heading and the COG and SOG, the errors due to the effect of the sails are added to the errors due to the compass.

Another problem are the *Wind Shear* and the vertical wind gradient. Especially in Spring and Autumn, when there is a greater difference between the temperature of the sea water and the temperature of the air, the wind is affected by some changes in speed and direction near the surface of the sea. In those conditions the wind that flows around the mast head is different from the wind at half mast height. You can see the effect of the shear when your instruments are showing a narrow wind angle along one tack and a wider one on the opposite. In the northern hemisphere there is a left rotation of the wind at different heights measuring it from top to the surface. On a port tack the instruments will show a narrower wind angle than on a starboard tack. The difference could be about 5-6 degrees.

WIND AT MAST HEAD
AWA 28° AWS 12 kn

WIND AT HALF MAST HEIGHT
AWA 23° AWS 10 kn

AWA 28.0°
AWS 12.0 kn

WIND SHEAR ON A STARBOARD TACK
(NORTHERN HEMISPHERE)

WIND AT MAST HEAD
AWA 18° AWS 12 kn

WIND AT HALF MAST HEIGHT
AWA 23° AWS 10 kn

AWA 18.0°
AWS 12.0 kn

WIND SHEAR ON A PORT TACK
(NORTHERN HEMISPHERE)

Once the integrated instrumentation has been properly calibrated, you can perform more precise calibrations inside *GMM Navigator*. To start with the software internal calibrations, open the menu **Settings→Instrument Settings.** Every instrument has his own page and calibration tables. There are two buttons on the lower left corner that can be used to change pages.

LOG

From the **LOG** page it is possible to add different calibration coefficients for different navigation speeds. Values can be entered manually or semi-automatically.
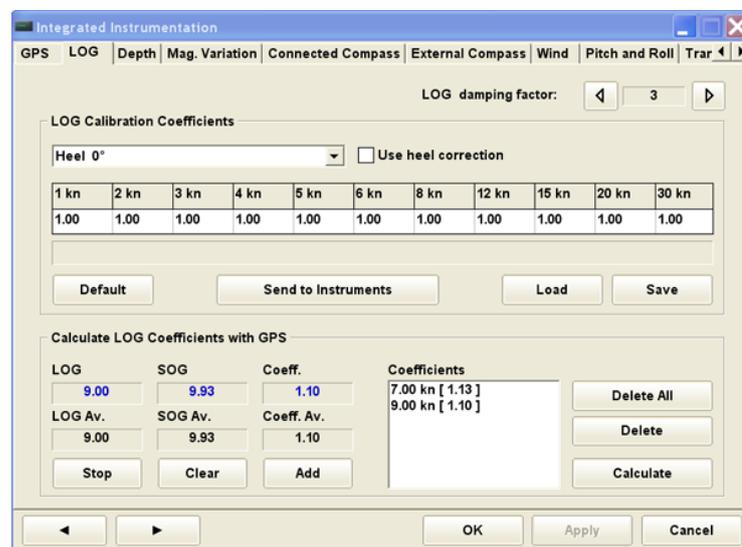
To calculate the coefficients with the semi-automatic procedure, press **Start** to enable the input of the LOG and SOG speeds. After some seconds, the button **Add** will be enabled and it will be possible to add the calculated coefficients to the list on the right side. After adding at least 4 coefficients to the list, for different navigation speeds, it will be possible to press the button **Calculate** to add all the values to the calibration table using interpolation. Calibration coefficients are multipliers of the values read from the instrument. That is:

corrected value = coefficient x value read from the instrument

For example a coefficient = 1.0 will not change the values read from the speed log.

The button **Default** can be used to reset the LOG calibration table to default values. The button **Send to Instruments** can be used to send the calibration table to supported instruments. At the moment only the Actisense *DST-2* modules are supported by this function.

The LOG damping factor is used to make more stable the instrument readings, using a moving average calculation on the last received values. A damping factor = 3 means that the displayed LOG speed value will be the average of the last 3 values received. If the LOG sends one value per second, this means that the average will be calculated on a 3 seconds interval. If otherwise the LOG works at 5 Hz, or 5 readings per second, the average willbe calculated on a 0.6 seconds interval.

It is possible to save the calibration table using the button *Save.* To open a saved calibration table, you can use the button *Load*.

MAGNETIC DECLINATION

To calculate correctly the true bearing, the software needs to calculate the local magnetic variation. There are two international models that can be used to estimate the magnetic variation for a specific location and date.

WMM-2010 and *IGRF-2010* models are valid till 2015 and will be updated at the end of January 2015.
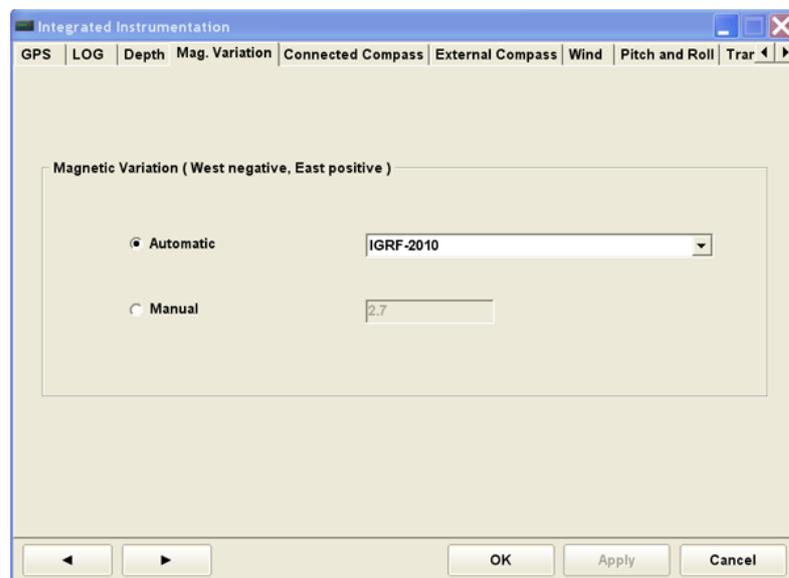
ELECTRONIC COMPASS

To improve the calibration of the electronic compass connected to the system, it is possible to enter the corrections in the page *Connected Compass*.

The option *Priority to Heading True* can be enabled to read the true heading as calculated from the navigation instruments, instead of calculating it from the magnetic heading. It is suggested to leave this option disabled, unless you have a gyro compass or a GPS compass (two GPS receivers at a fixed distance, both connected to a device that calculates the geographical orientation).

The table contains the calibration values in degrees. It is used to calculate the compass bearing from the magnetic bearing, taking into account the deviations due to metal bodies. The semi-automatic calculation of the deviations is very similar to the procedure used for the LOG calibration.

You can start the calibration pressing the button *Start* and sailing along a fixed course, with calm sea and without current. When the deviation value is stable, you can press *Add* to store it in the list. You can then change the course and repeat the procedure. You can repeat it for all the 360°, at 30° or 45° intervals. To calculate the deviation table, you can press *Calculate*.

The button **Plot** can be used to draw the calibration curve on a chart.

Enabling the box *Use heel correction* it is possible to enter different calibration values for different heeling values:- 45°, 0° and +45°. If a heeling sensor is connected to the integrated instrumentation, the deviation will be calculated by interpolation from the values entered in the tables for different heeling angles.

A way to calculate the table for different heeling angles is to start a calibration without sails with *Heel 0°.* Then you can disconnect the compass sensor and install it with an inclination of +45° starboard, trying not to change the alignment with the bow. Then you can repeat the calibration selecting in the box *Heel 45° STARBOARD* . To complete the calibration you will have to install the compass transducer with an inclination of -45° port. You can then repeat the calibration selecting in the box *Heel -45° PORT*. In the end you will have three full calibration tables for the three heeling angles.

The *Compass installation offset* is a correction in degrees between the boat centerline and the compass you can enter to correct a not perfectly aligned installation.

WIND PRO

The special table you can find on the page *Wind PRO* can be used to calibrate the true wind angle for all the 360°. You have the possibility to insert the angle correction in degrees and a coefficient for the wind speed. The calibration procedure is very long since you need to enter the values for many wind speeds and many wind angles.

You can start the calibration with the button **Start**, then you should point the wind direction with the boat and press **Get** to store the true wind direction and speed, possibly during a day when the wind is stable. Then you start sailing with a fixed angle with the wind and press the *Add* button to add the new correction to the list. Then you should point again the wind direction to check if the wind is still coming from the same direction and with the same speed. You should repeat the procedure for many sailing angles and possibly with the same sails combination you will use in a race.

To speed up the procedure and to have more reliable values, shortly it will be possible to have a function in the software to compare in real-time the wind direction and speed transmitted from a similar boa. Connecting a radio transmitter to the second boat, moored

in the same area where we are calibrating the instruments, it will be possible to receive the true wind direction and speed, not affected by the sail and to compare it with the wind measured by the boat under sail.

22. Special Transducers

If you have generic transducers connected to the navigation system, you can enable them from the menu *Settings→Instruments Settings* and opening the *Transducers* page. If you press the button *Rescan*, the input data is scanned to find generic transducers. If one or more transducers are found and listed on the table, you can assign them to standard instruments using the button *Set*. Usually pitch and roll, rudder angle, barometric pressure and load cells can be assigned using this function.

On the lower part of the *Transducers* page is possible to send special commands to supported transducers selecting device and command in the list. You can also write custom command strings in the box *Send Custom String* and send them with the button *Send*. If the custom string requires the addition of a checksum, that is the two characters after the asterisk used at the end of standard NMEA 0183 sentences, you can enable the box *With Checksum*.
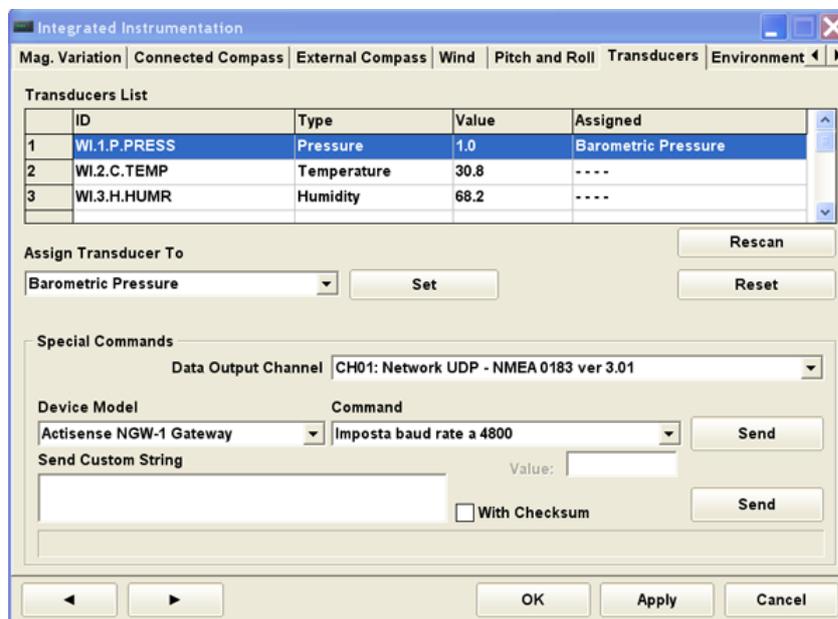
23. NMEA Repeaters

It is possible to send NMEA 0183 commands and parameters to integrated instruments capable to receive them. The program contains a list of commands supported by some common instruments on the market. In some cases it is possible to modify the default values and to force the software to send different parameters.

For example the command *B&G Distance and Time to Start Line* should be used to send to the B&G instrument the distance and the time to the starting line. It is possible to change the default values to send for example the distance and time to one of the starting pins. The external display will show them as they were relative to the start line but the numbers will be relative to one of the two pins. We should keep this in mind when we change the default values.
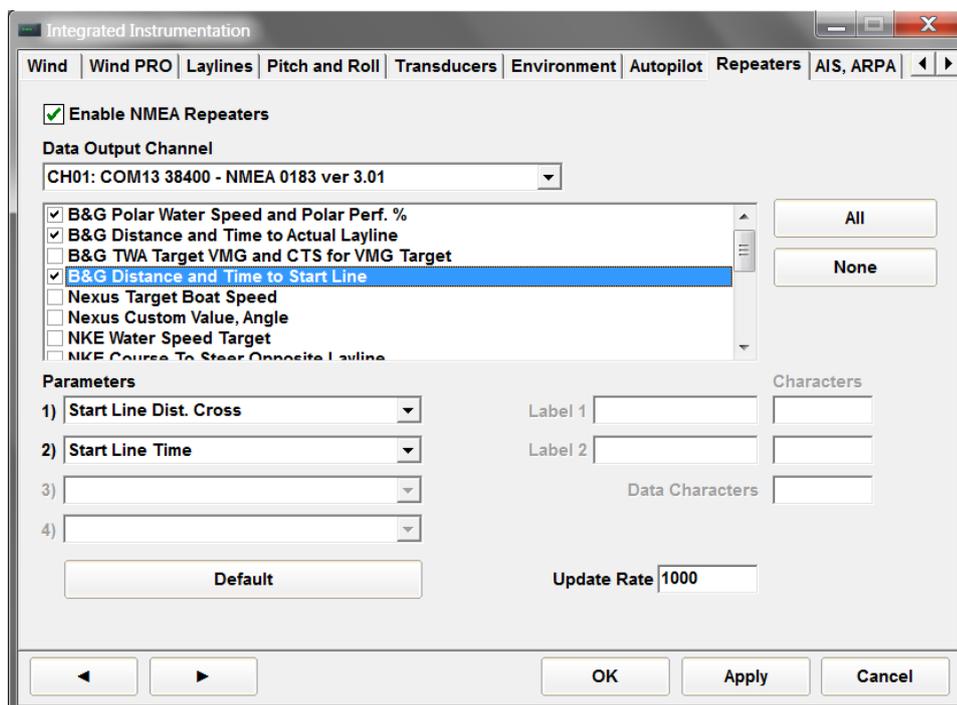
We should configure also the navigation instruments to receive the data from the software and to display them.

The update rate is the update frequency of the parameters. A value 1000 means that every parameter is sent once per second (the interval entered is in milliseconds).

24. Virtual Jumbo

The *Virtual Jumbo* is a special panel with big numbers and highly customizable. It is possible to configure all the parameters that should be displayed and to save the layout. For example we can create a layout for standard navigation, one for racing and one for the pre-start operations. You can start two virtual jumbo display at the same time using the menu *Tools→Virtual Jumbo.* You can configure the panel right clicking on it or with a double click.
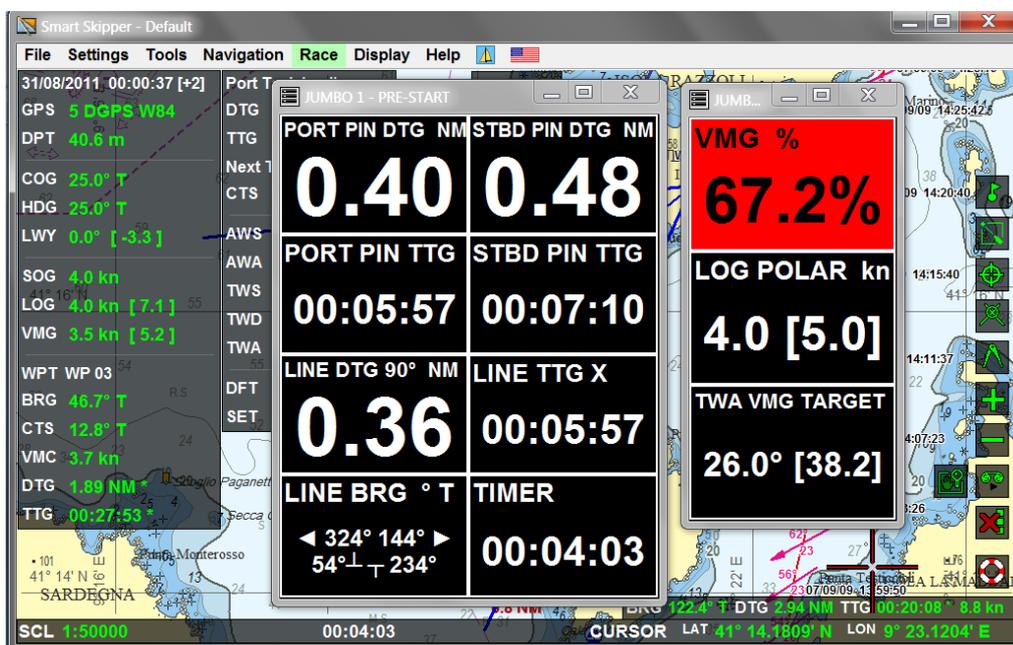
After editing the panel layout, it is important to save it or all the settings will be lost at program shutdown. A saved panel will remember also its size and position. If you have multiple monitors, it is very handy to keep a jumbo panel on a secondary monitor while the cartography is on the main.

The *Virtual Jumbo* has also the possibility to start automatically when GMM Navigator starts. All the settings are in the context menu that is activated double clicking or right clicking on the panel..

Another interesting option is the possibility to change the color of displayed data according to some rules. For example to set a red background when the depth is less than a safe value or when the VMG is below the target.

25. Alarms

From the menu *Navigation→Alarms→Settings* it is possible to activate and configure different alarms, for example the mooring one.

Each alarm can be configured to play a sound, to warn by voice or to send SMS messages. If you have a mobile phone or a GSM modem with a cable for the PC connection or with a Bluetooth link, you can set the software to send you a message with the description of the active alarm. This function is useful when you leave the boat alone, moored in a bay and you activate the mooring alarm.
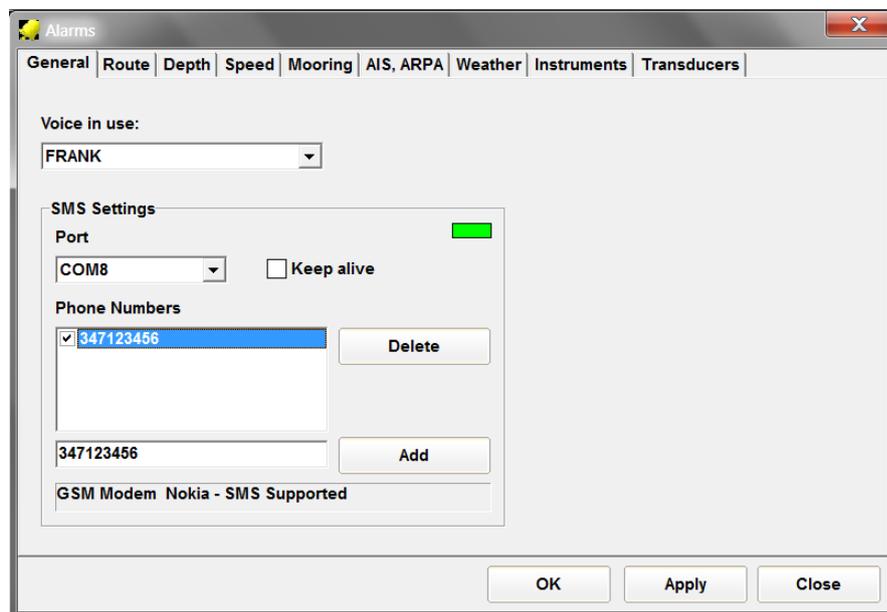
This is one example of a mooring alarm sent from the software by SMS:

MOORING ALARM:
RANGE MAX = 20.9 m
(LIMIT 20.0)
LAT43 45.6037N
LON10 11.3357E
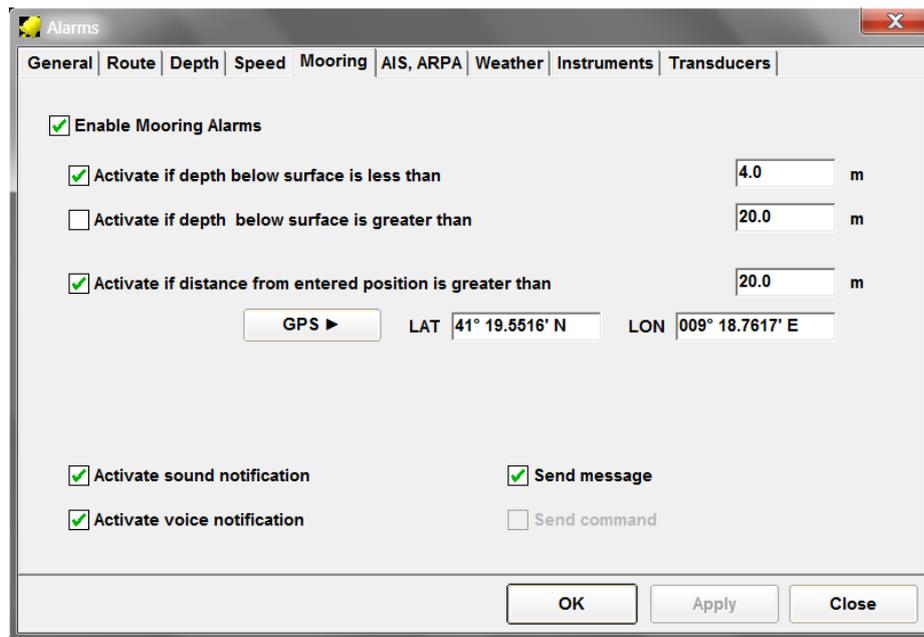
26. Weather

Open the menu **Tools→Weather** and press the button **Download** to select and download some free weather files.

Downloaded files are saved inside the *WEATHER* folder. This folder can be accessed with the menu **File→Explore program data folder**.

To open a weather file, press the button **Open** and select the file type to open (GRIB, METAR or the user meteo format MET). Then open the file.

GRIB files with wind forecasts are freely available from the list on the *Download Manager* page. There are also payment services like *NaviMail* by Meteo France and the website PredictWind.
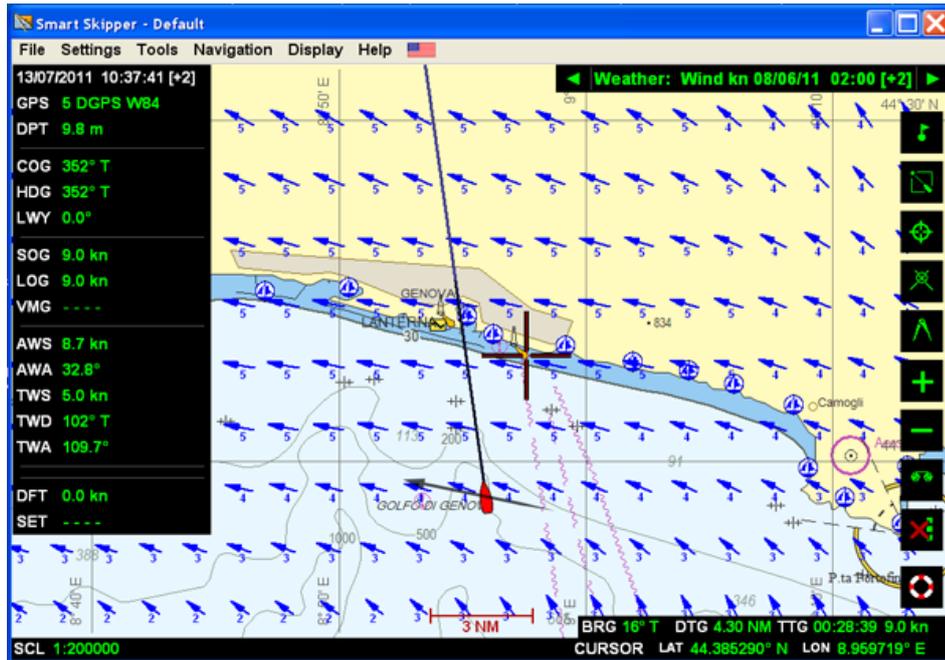
METAR files are used to collect almost real-time weather data from many world airports.
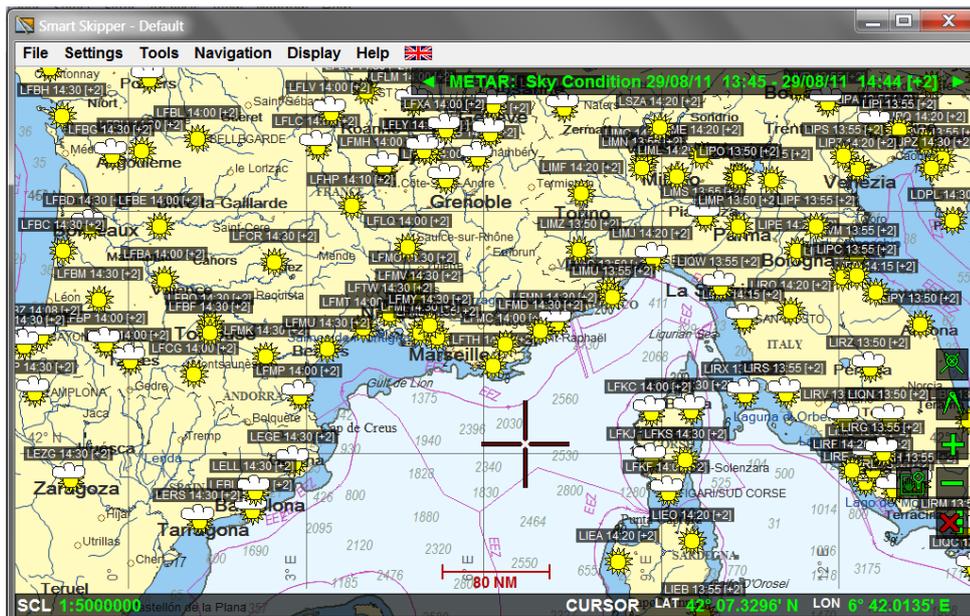
MET files contain special data not available in other standard formats. They have a proprietary format readable only by GMM Navigator. It will be soon possible to download data with surface currents, real-time data of tide and currents and hurricane forecasts.

Included with the software there is also a simple web browser with a list of useful weather links. You can start the browser using the button *Web*.

You can customize the list of weather links editing manually the file: *\EXTRA\webmetlinks.txt*
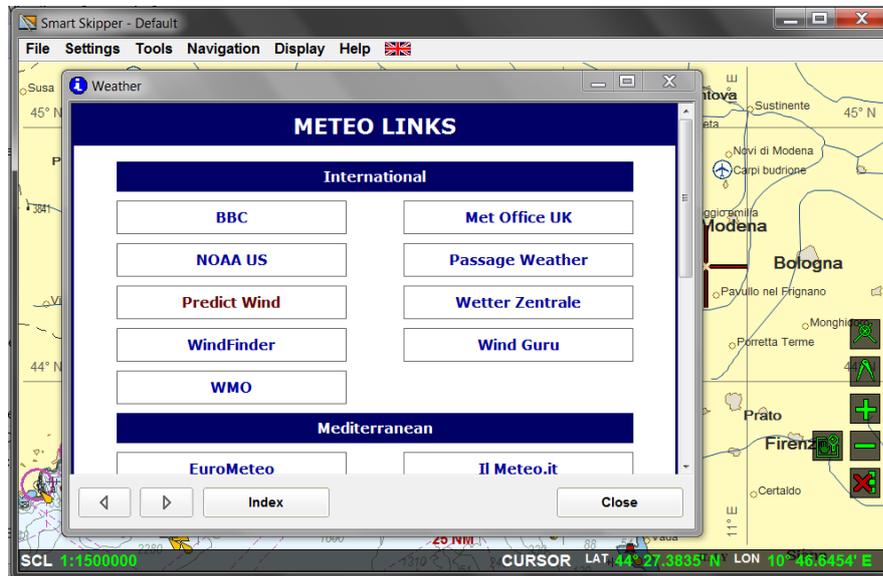
27. Tides

Tide calculation is available only when the Max Pro cartography is installed and has a valid license. The window with tide stations can be displayed from the menu: *Tools→Tide Predictions.*
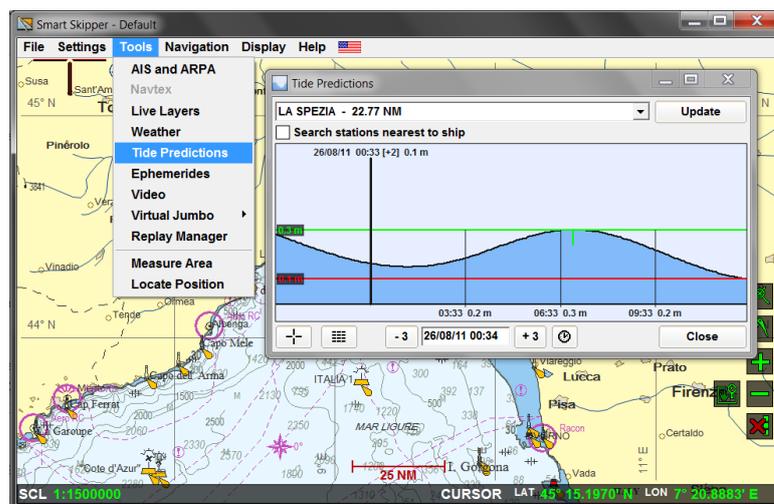
In the box on the top of the tide window you can select a tide station. The station are sorted by distance from the chart center. When the option **Search stations nearest to ship**, the list contains the stations nearest to the ship position, sorted by distance.

The button with a cross can be used to center the chart on the tide station position. The button with a table can be used to export station data in text or Excel formats.

The button with a watch is used to center the prediction at the current time. You can move the mouse on the tide chart to read the tide level at different times.

28.   AIS and ARPA

The window with AIS and ARPA target can be displayed from the menu **Tools → Ais and Arpa.**

You can add or remove AIS and ARPA targets to the targets list with the check boxes AIS and ARPA.

To mark a target with a frame, you can check the box **Show selection**.
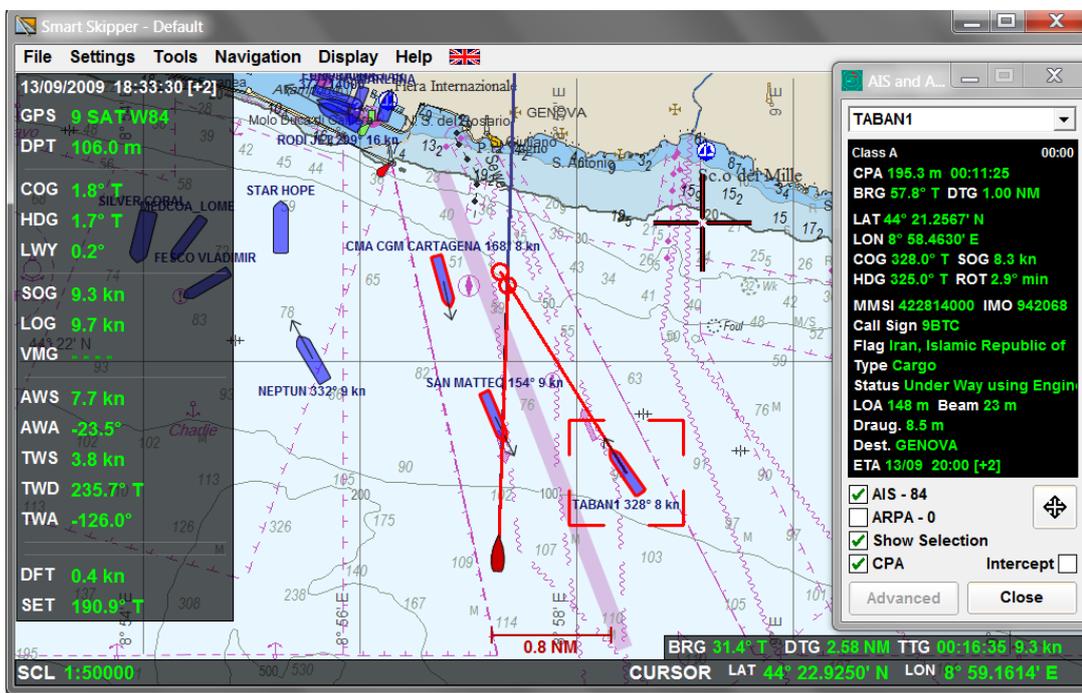
Checking the **CPA** box, you can see on the chart the **Closest Point of Approach** points.

Checking the **Intercept** box you can see on the chart the course and time to intercept a target.

The button with four arrows is used to expand the window to fit all the target description texts.

AIS and ARPA targets that could be dangerous, according to the safety distances entered in the program, will be drawn on the map with red contours.

Further options for AIS and ARPA are in the menu *Settings → Instrument Settings → (page AIS, ARPA)..*
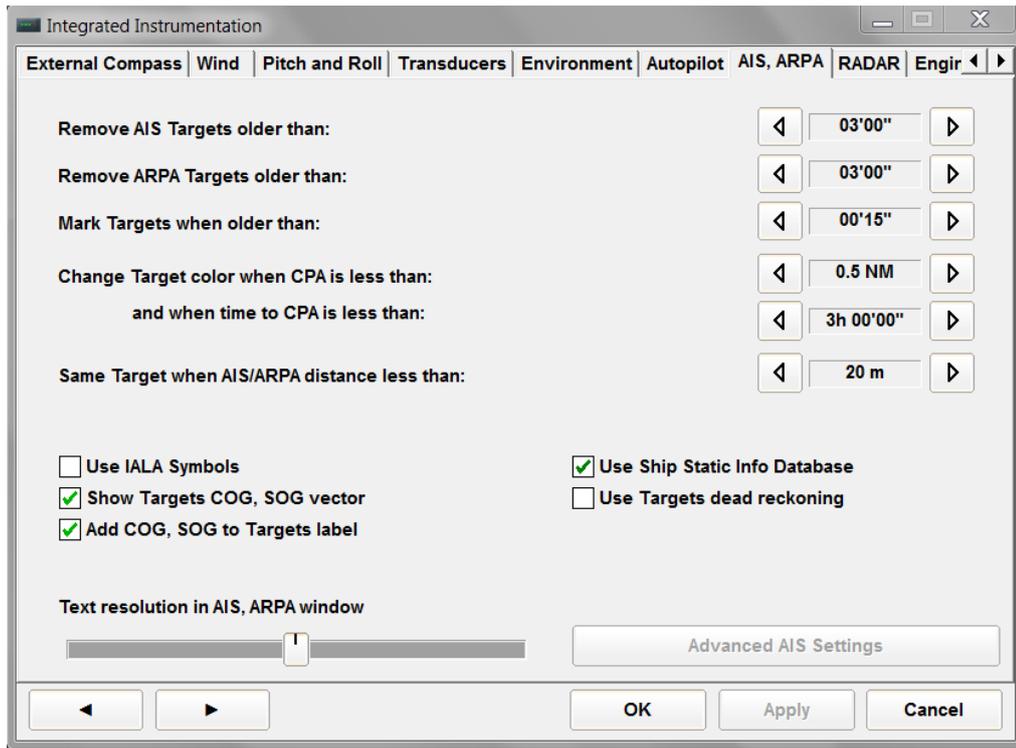
AIS targets are displayed in blue while ARPA targets are displayed in green. It may happen that a ship with AIS transponder is also tracked with the ARPA radar. In this case you will see on the screen both ARPA and AIS icons. Probably the two icons will be not exactly in the same position since targets acquired with the ARPA radar are less precise than targets received from the AIS transponder. The two icons below are the same ship acquired by the AIS and the ARPA:

If required, you can change the display of AIS and ARPA icons using the IALA recommended symbols:
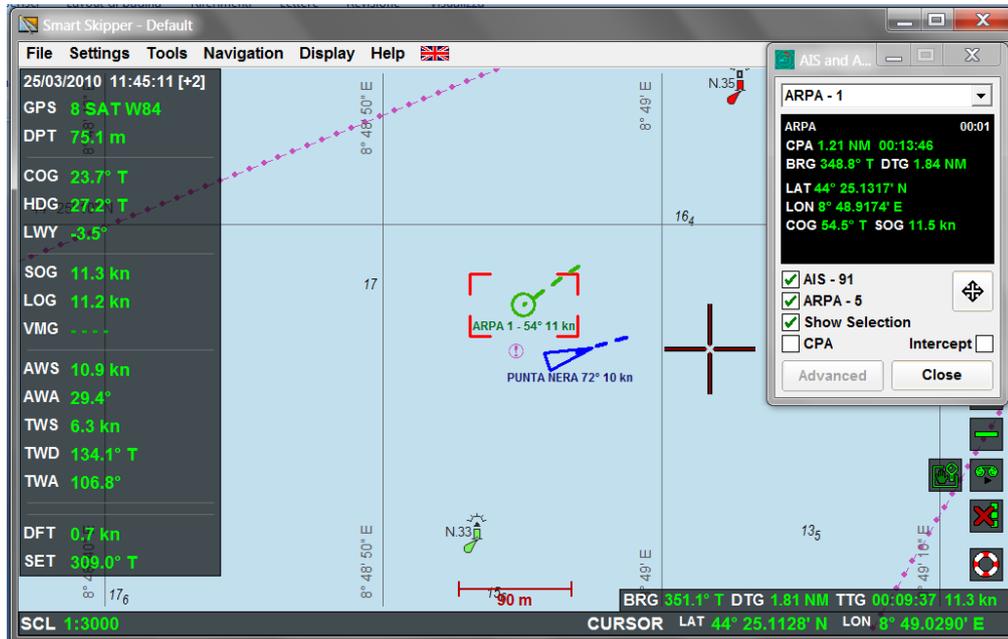
29. Tracks and navigation data logger

To change the settings of the data logger, open the menu **Navigation → Data Logger →Settings**. You can set the file name to use, the parameters that should be saved and the recording frequency.
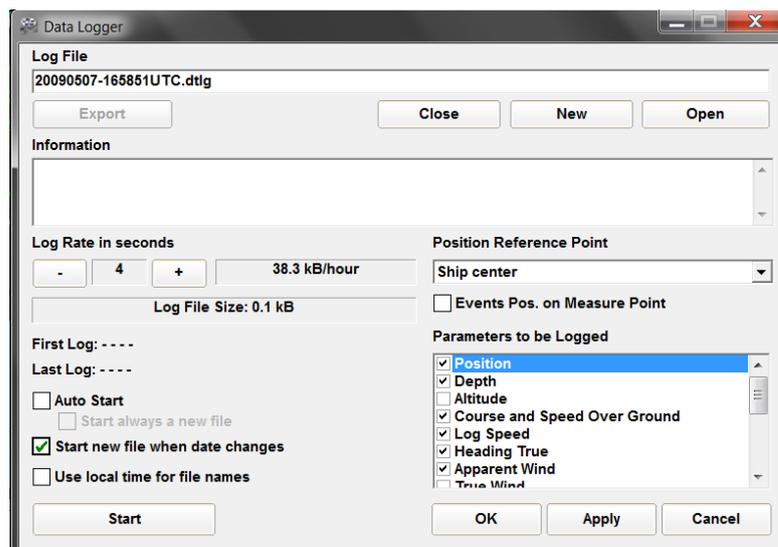
You can then press the **Start** button to proceed with data recording.

If the virtual buttons are visible on the screen and the instruments are connected, a button with a tape icon should appear. You can use this button to start/stop the recording and to open the data logger settings page. When the data logger is active, a little flashing triangle is displayed under the tape icon.

It is possible to export a track with the menu *File→Export→Track and recorded data.*

You can also export the tracks in the *Google Earth* KML format. To export in *Microsoft Excel* or *Open Office,* you should have at least one of the program installed on the PC.

Example of KML export displayed in Google Earth:
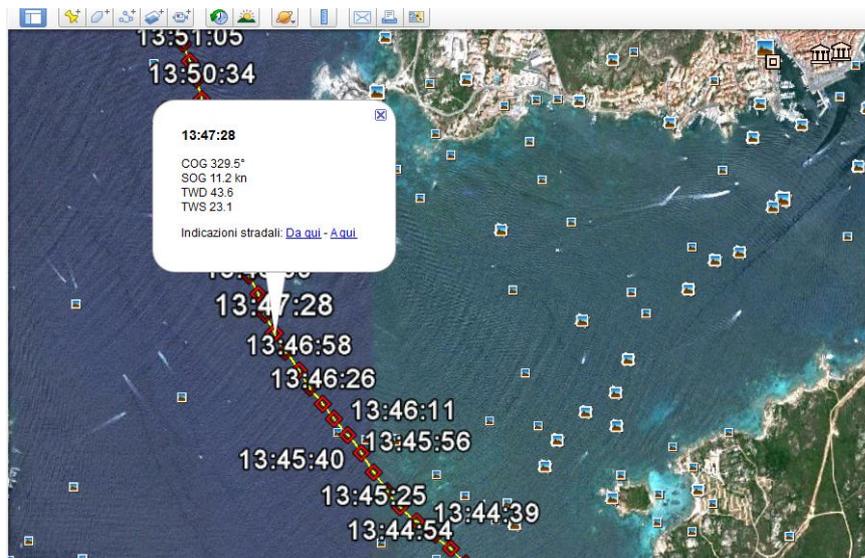
It is possible to show time, SOG, depth and other info on the tracks in GMM Navigator using the menu *Display→Waypoints, Routes and Tracks.*
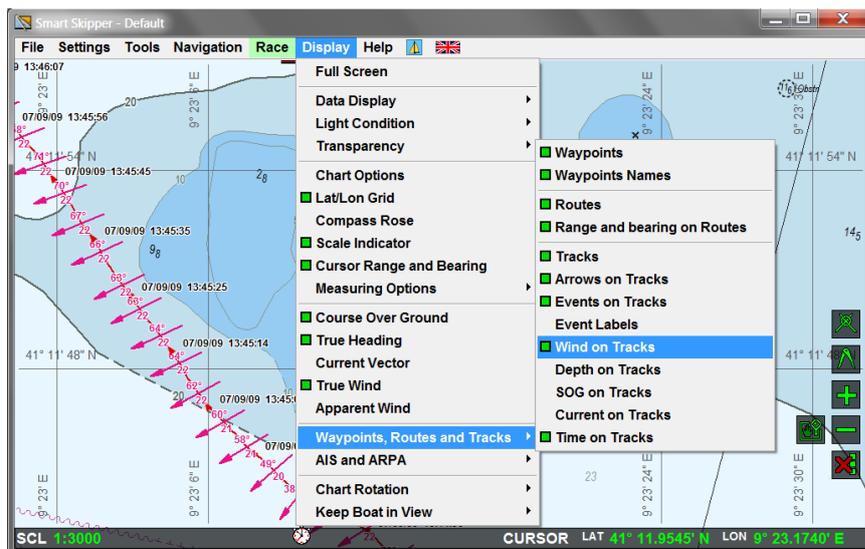
30. Race Mode

To switch to race mode, you should click the menu *Race→Enable Race Mode.*

To insert the buoys for a race, right click on the map and select *Insert Waypoint.*

To activate the start line, first insert the two pins of the line as standard waypoints, then click on the map with the right mouse button and select *Set Start Line.* At this point, left click on each pin to define the line.

The start line calculations will be not activated until you will select also the destination waypoint, i.e. the first buoy of the race.

To activate the navigation to a waypoint, click on it with the right mouse button and select *Activate Destination.*
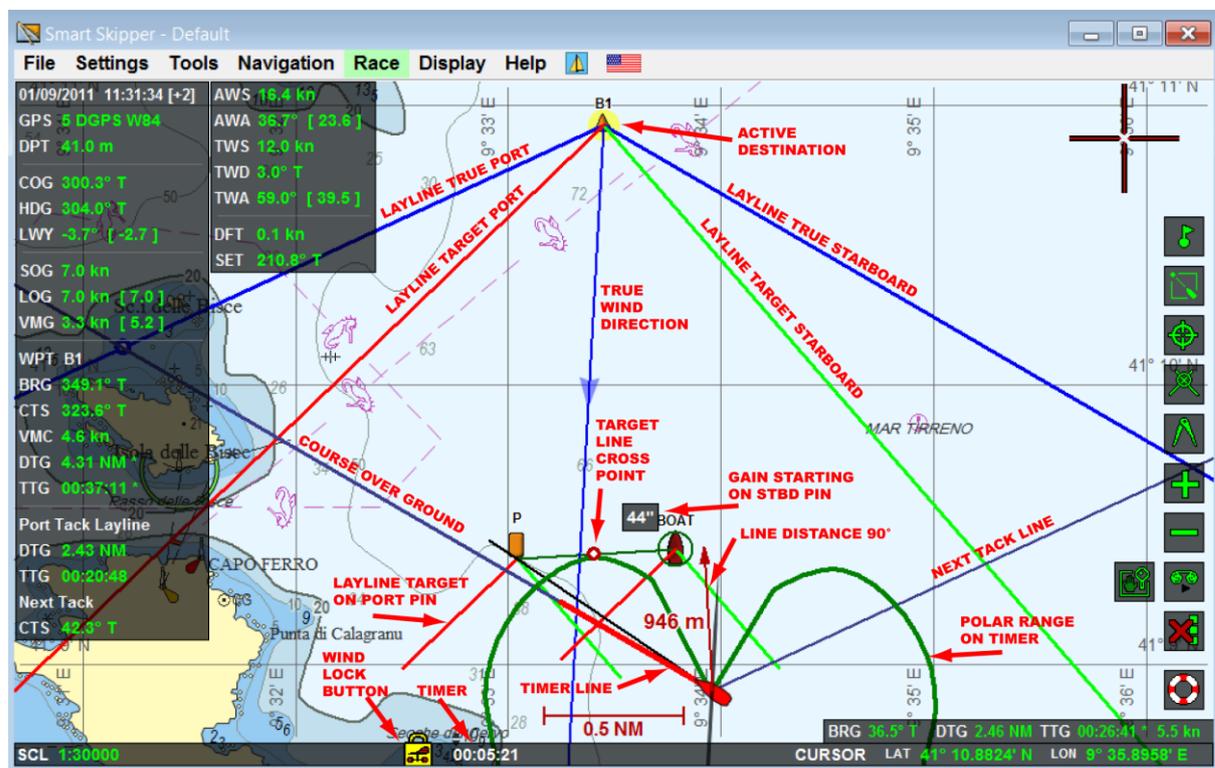
Some useful data displayed on the screen are:

- **True and target laylines representation: if they coincide, the boat is in target conditions .**
- **Indication of the best side of the starting line with the time gained with respect to the opposite side: if the time is very small, you can start where it is more clear from other boats.**
- **Timer with the start countdown. You can activate it clicking on the watch icon or on the menu *Race→Timers.***

- **Timer Line, plotted in red from the boat when the timer is active and when you have enabled it on the timers window (menu *Race→Timers).* The line will show where the boat will be at the end of the countdown, according to the current speed over ground.**
- **Polar Range on Timer to show all the points where the boat can arrive at the end of the countdown, sailing with target speed. It is useful for the race starting procedures. Can be enabled from the menu *Race→Polar Range→On Timer Elapsed.***

Another useful tool is the *Measure* function. In race mode it will show also the wind speed and angle on the measured segment, and this info can be used for example to select the sail for the next buoy. The wind is calculated from the current wind direction measured from the boat. To start the measure function, right-click on the map and select **Measure.**
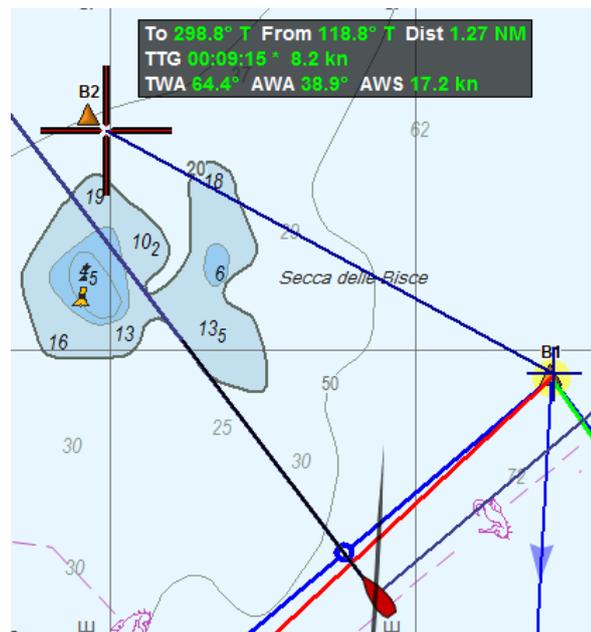

In this picture you can see that along the course to the next buoy, the TWA will be about 64°. So you will be able to select the best sail for this wind. When the time TTG is reported with an asterisk, it means that it is calculated from the speed on the polar tables . When the asterisk is not present, the time is calculated with the current speed over ground.

31. Polar Tables

You can edit manually the polar tables from the menu *Race→Polars and Targets.* You have also the possibility to import them from a *Microsoft Excel* sheet*.*

To import from *Excel*, open the worksheet where you have the polar table and then press the button *Import from Excel*. *GMM Navigator* can understand if the wind speed is reported as rows or columns and will try to import them. Anyway to have an example of the polar table format in *Excel,* export a sample table with the button *Save* and select *Microsoft Excel* as file format.
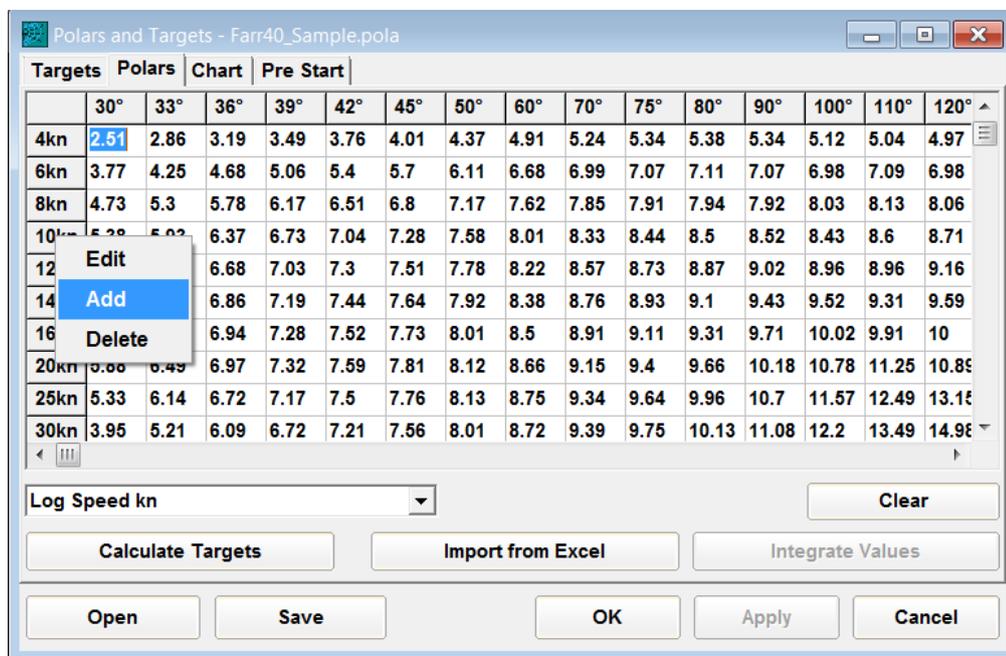
You can use the button *Calculate Targets* to calculate the boat targets from the polar table.

Clicking with the right mouse button the headers of a polar table row or column, you can add, edit or delete the wind speed or the wind angle. When you add a new angle or a new speed, the polar values are interpolated from the existing ones.

As a start point, you can ask your polars and targets to the designer of the boat, or you can find them on Internet or in your racing certificate. Please note that in the racing certificate the target speeds are usually expressed as VMG and not as VT (target LOG speed). In this case you can enter first all the true wind angles TWA and all the true wind speeds TWS. Then you can enable the box *Show VMG* and you can enter in the targets table the VMG

speeds from the certificate. Internally the software will convert them to target boat speeds using the provided TWA and TWS.

In the *Chart* page you can see the polar tables plotted. You can change the chart from polar to Cartesian. It is possible also to zoom the chart using the mouse wheel, the keyboard *Page Up* and *Page Down* or the "*+*" and "-" keys. To pan the chart, you can drag with the left mouse button.
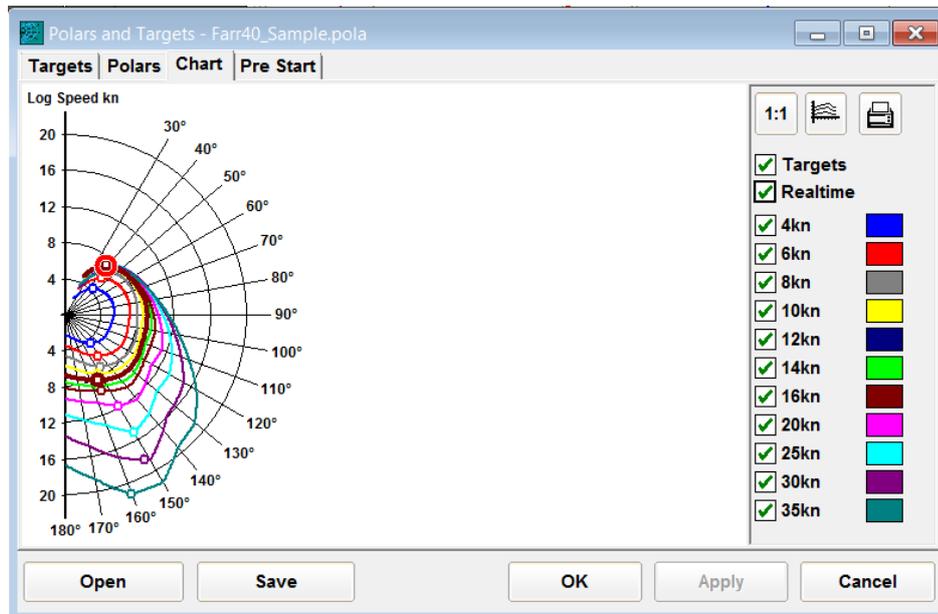
Enabling the *Realtime* option, you can see the polar graph for the wind currently received by the instruments. It is plotted in a darker color and it is thicker than the others. The red circle that is visible on the chart is the current status of the boat with respect to the polars. When the boat is on target, the circle should be plotted on top of one of the little target dots of the realtime polar.

32. Wind Strip Charts

The wind strip chart window can be activated from the menu *Race→Strip Charts.* You can display the true wind direction *TWD*, the true wind speed *TWS* or both values together.

When both values are displayed, with a double click on the upper part of the chart window you can show the settings box for the *TWD*. Double clicking the lower part, you can open the settings box for the *TWS*. You can set the central value of the chart and the width of the band. Clicking the button with a triangle under the reference value, you can set as reference the current wind received from the instruments.

Checking the **Auto** options, the reference value or the band amplitude will be changed automatically according with the received data.

Changing the position of the cursor under the strip chart, you can compress or expand the time interval displayed. If drag the chart with the left mouse button, you can scroll it to show older records.

The button with a black triangle pointed down, just under the chart, is used to minimize the strip chart window on the taskbar and to show the wind graph as an overlay of the cartography.
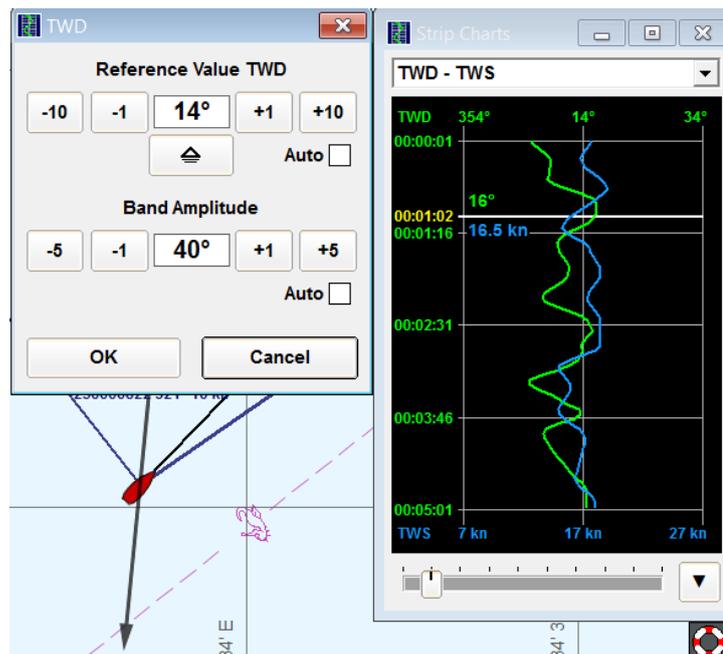
Moving the mouse pointer on the graph you can read exactly the wind values received and how long ago the data was recorded.

The maximum interval of the recording is 12 hours. The strip chart recorder is always active and it is completely independent from the navigation data logger. When you exit from *GMM Navigator*, the records are not deleted and will be visible when the program will be restarted. Obviously, when the software is not running, no more records are added to the strip chart and you will see a blank interval.

33. Abbreviations list

| DATA PANELS	
12:00:51 [+2]	Local time and time zone difference [+2 hours from UTC]
10:00:51 UTC	UTC time
GPS 8 DGPS W84	GPS status. In this case 8 satellites are available, the receiver is working in the precise differential mode (DGPS) and the GPS Datum is WGS 84. Some of the listed parameters can be missing if the GPS doesn't send them to the software. If you see a datum other than W84, please change it on the GPS instrument or the received position will not match the digital cartography WGS84 reference datum.
LAT	Latitude GPS
LON	Longitude GPS
ALT	Altitude GPS
DPT	Depth calculated from the sea surface.
DBT	Depth calculated from the transducer position.
DBK	Depth calculated from the boat keel.
LOG [ ]	Speed water referenced calculated by the LOG. If you will see a value in brackets, this is a target calculated from the polar tables.
SOG	Speed ground referenced calculated by the GPS. It is the sum of the water referenced speed plus the surfece current drift and set.
HDG T	True heading of the boat. It is the one relative to the geographic Nord. It is calculated from the electronic compass, tacking into account declination and deviation errors. The true heading can be calculated also directly from a Gyro Compass.
HDG M	Magnetic heading of the boat, calculated tacking into account the compass deviation errors.
HDG Cc	Heading of the electronic compass connected to the system, without any correction.
HDG Ce	Heading of the traditional analog compass not connected to the system, without any correction. The compass calibration table can be changed in the menu *Settings →Instrument Settings→External Compass.*
COG	Course Over Ground calculated by the GPS. If the COG is different from the HDG, there can be drift and set, leeway or just a calibration error of the HDG sensor.
LWY [ ]	It is the leeway calculated as difference between HDG and COG. If the value is positive, our leeway is to starboard, otherwise to port. A value in brackets will show the target leeway from the polar tables.
RUD	Rudder angle.
ROT	Rate of Turn usually calculated from a Gyro Compass.

TRP	Total trip mileage. The value can be reset with the menu **Navigation→Trip Log.**
AWS	Apparent Wind Speed.
AWA [ ]	Apparent Wind Angle. If you will see a value in brackets, this is a target apparent angle calculated from the polar tables.
TWS	True Wind Speed. It is calculated from the Apparent Wind Speed using a GPS and a compass.
TWA { }	True Wind Angle. It is calculated from the Apparent Wind Angle using a GPS and a compass. If you will see a value in brackets, this is a target true angle calculated from the polar tables
TWD	True Wind Direction. It is calculated from the Apparent Wind Angle using a GPS and a compass.
VMG [ ]	The Velocity Made Good on Wind is the speed of the boat projected on the wind direction. More close is the boat to the wind direction, higher is the VMG. . If you will see a value in brackets, this is a target VMG calculated from the polar tables.
WPT	Name of the Waypoint currently activated as destination.
BRG	Bearing to the Waypoint currently activated as destination.
DTG	Distance To Go to the Waypoint currently activated as destination.
VMC	Velocity Made Good on Course. It is the component of the boat speed that is projected on the bearing to the Waypoint currently activated as destination. It is the approaching speed to the Waypoint.
TTG	Time To Go to the Waypoint currently activated as destination.
ETA	Estimated Time of Arrival to the Waypoint currently activated as destination.
XTE < >	Cross Track Error. It is the distance between the boat and the center of the active route.
CTS [ ]	Course To Steer. It is the boat heading to reach the Waypoint currently activated as destination. In brackets is reported how many degrees of correction are required to have the correct heading.
Layline	Is the layline towards which we are sailing. Distance and time to the layline are reported. Can be reported also the Course To Steer for the next layline. If you want to see the data for the next tack layline, you should enable them from the menu **Settings→Instrument Settings→Laylines**
DFT	Current drift speed. It is calculated in different ways. See the settings in the menu **Navigation→Drift and Set Mode.**
SET	Current set direction. It is the direction of the current flow.
ROL	Roll or heeling angle of the boat.
PTC	Pitch or trim angle of the boat.
TPW	Sea water temperature.
TPA	External air temperature.
HUA	Absolute humidity percent.
HUR	Relative humidity percent.
DEW	Dew point.

BAR	Barometric pressure.
BAT	Battery level or voltage currently available for the integrated instruments.

34. How to connect to NMEA0183 instruments

To connect the PC with standard NMEA 0183 instruments, you have different solutions:

- The first is to use a NMEA 0183 multiplexer, equipped with optoisolated inputs and one RS-232 or USB output to the PC. One well tested product is the Actisense *NDC-4-USB Multiplexer*. It is suggested to connect the navigation GPS directly to the multiplexer since when the GPS signal is received trough the processor of an integrated instrumentation (Raymarine, B&G, Nexus…), some parameters are lost and the precision of the coordinates will be reduced. Here below there is the example of a wiring scheme using a NMEA multiplexer:
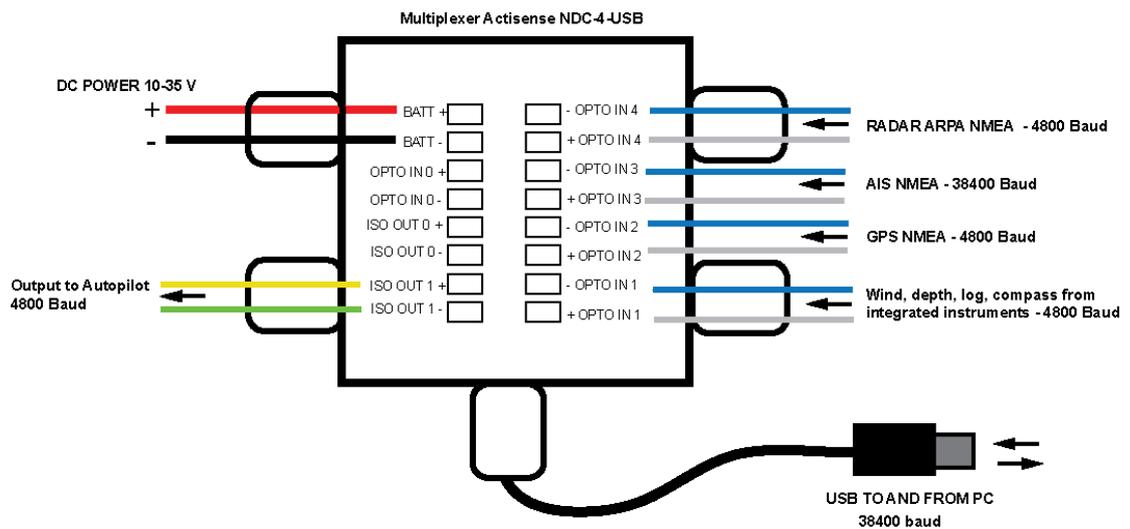
- the second is a connection with an optoisolated gateway from NMEA0183 to USB. A well tested and suggested product is the *Actisense USG-1-422*.


- another option is to use an optoisolated cable from NMEA0183 to serial RS-232. A well tested and suggested product is the *Actisense USG-1-422*..

Optoisolated cable Actisense PC-OPTO-3

CONNECTION TO NMEA 0183 INSTRUMENTS

DB9 SERIAL CONNECTOR
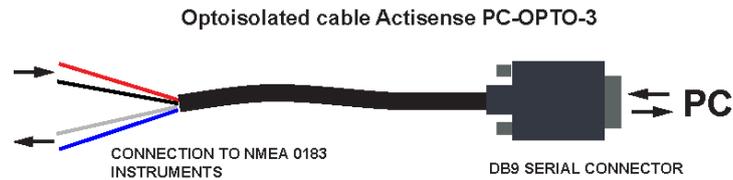
- if the integrated instrumentation has a dedicated RS-232 output for the PC, you can use a simple cable with a DB9 connector. If your PC is not equipped with a RS-232 serial port, you can add a converter from serial to USB on the same cable.

DB9 RS-232 female connector (view from the back side where to solder wires)
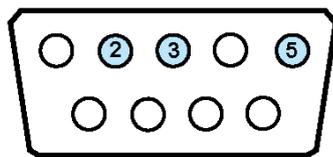
2 = NMEA TX + to PC RX +

3 = NMEA RX + from PC TX +

5 = GROUND -

- if you need a wireless connection, you can use a WiFi server that converts from RS-422 or RS-232 to WiFi ethernet. We have tested successfully the *Netcom123 WLan* by *VSCOM*.

- If you need to send the data through a wired LAN, you can use a converter from RS-422 or RS-232 to Ethernet. There are many products on the market made by *VSCOM, MOXA* and *Advantech*.

- an interesting option is also the use of a USB to Ethernet hub. There is for example one model from Belkin with five USB ports and one Ethernet connection. A remote PC will see the five USB ports through the network. The USB hub could be connected even to a standard WiFi access point. You will be able to connect a USB multiplexer or a USB gateway to the hub an see it remotely using Ethernet or WiFi.
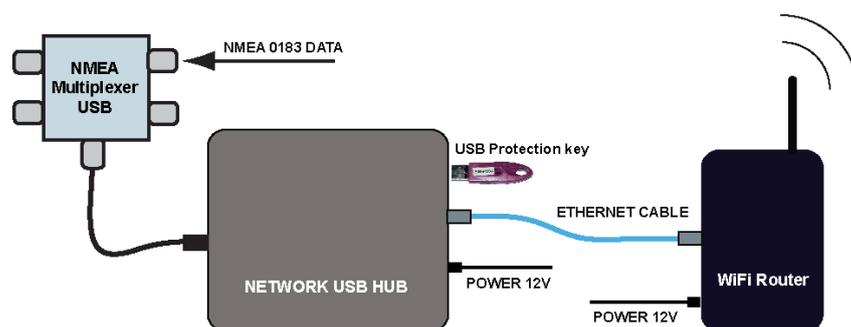
## 35. How to connect NMEA 2000 instruments

The *NMEA 2000* protocol is based on a fast and reliable network called *CANBus*. To connect *GMM Navigator* to standard NMEA 2000 instruments you can use the *Actisense* NGT-1 gateway that converts NMEA 2000 data to USB.
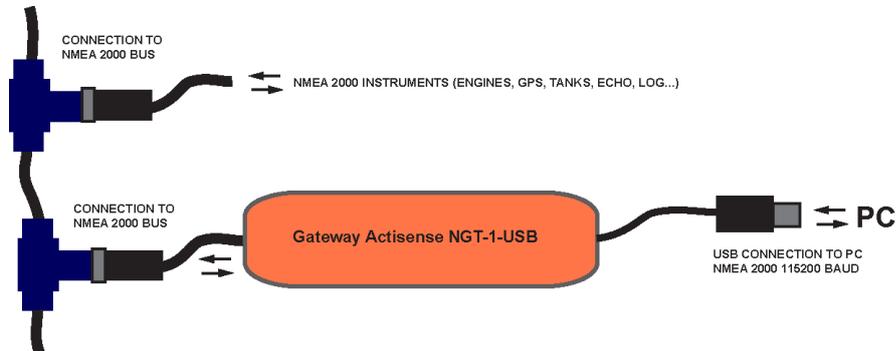
The NGT-1 gateway exists with USB or RS-232 output. The RS-232 serial version can be used for example with a serial to WiFi converter for a wireless data transmission.

To enable the NMEA 2000 connection in *GMM Navigator* you should open the menu **Settings →Instrument connections**. Then you should select the port where the NGT-1 is connected and you have to set the protocol to **NMEA 2000 Actisense NGT-1**. Other types of NMEA 2000 gateways are not supported.

If you need to connect to the NMEA 2000 bus also older instruments with only NMEA 0183 output, you can use a two-ways converter *Actisense NGW-1* from NMEA 2000 to NMEA 0183. Please note that not all the parameters available in NMEA 2000 can be converted into NMEA 0183. Usually data from engines and tanks can't be converted in NMEA 0183. You can program the converter to work with standard NMEA 0183 at 4800 baud or with high speed data, for example 38400 baud for an AIS or a 5Hz GPS.
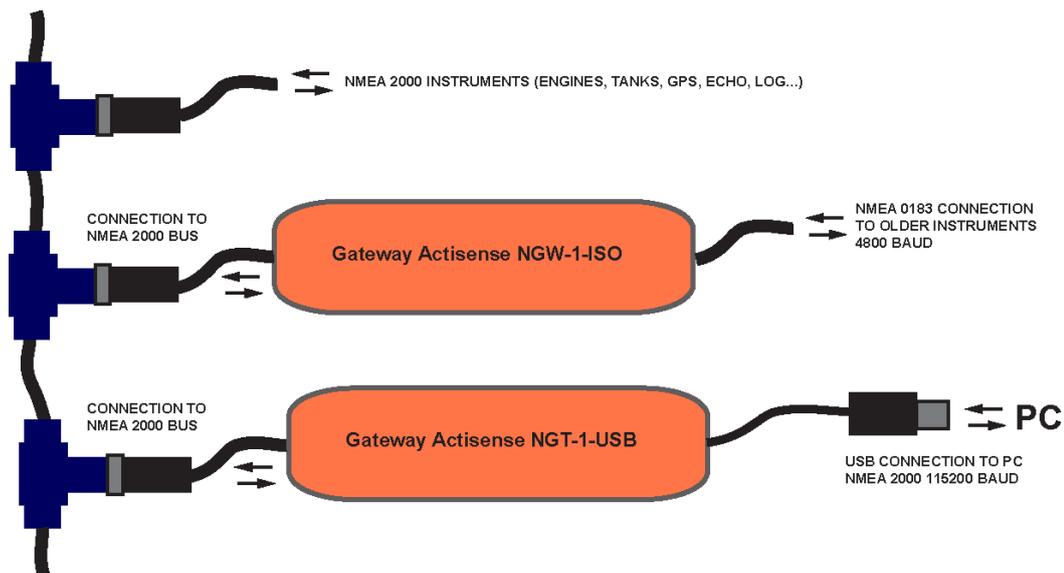
36. The jumping mouse problem

It may happen that starting Windows with a NMEA 0183 instrument connected, the mouse pointer starts to jump around the screen.

The problem is due to the plug & play Windows system that detects serial data as they were commands from a serial mouse, so the navigation instruments parameters are considered mouse commands and the pointer gets crazy.

There are some solutions to the problem:

- **With serial to USB adapters you can use special drivers that are not subject to this issue. All the Actisense USB products have a *FTDI* chip with a good driver not affected by this problem. Once installed the driver, you should check that the settings are correct:**
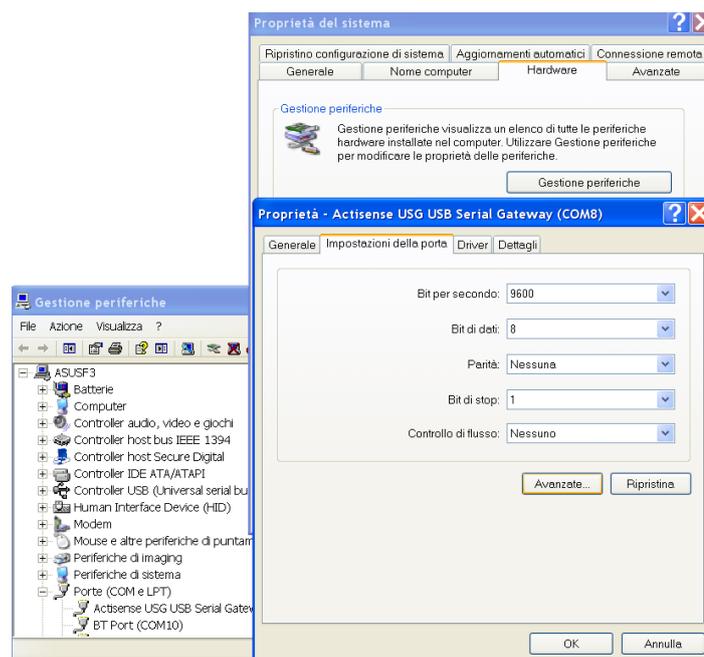
Right click on *My Computer*, select *Properties*, then open *Hardware*, then *Hardware management* and click on *[+]* near *Ports (COM e LPT)*. Click on the port entry where the USB to serial adapter is connected and select *Properties*. Open the tab *Port Settings*, then press the button *Advanced* and remove the check from *Serial Enumeration.*
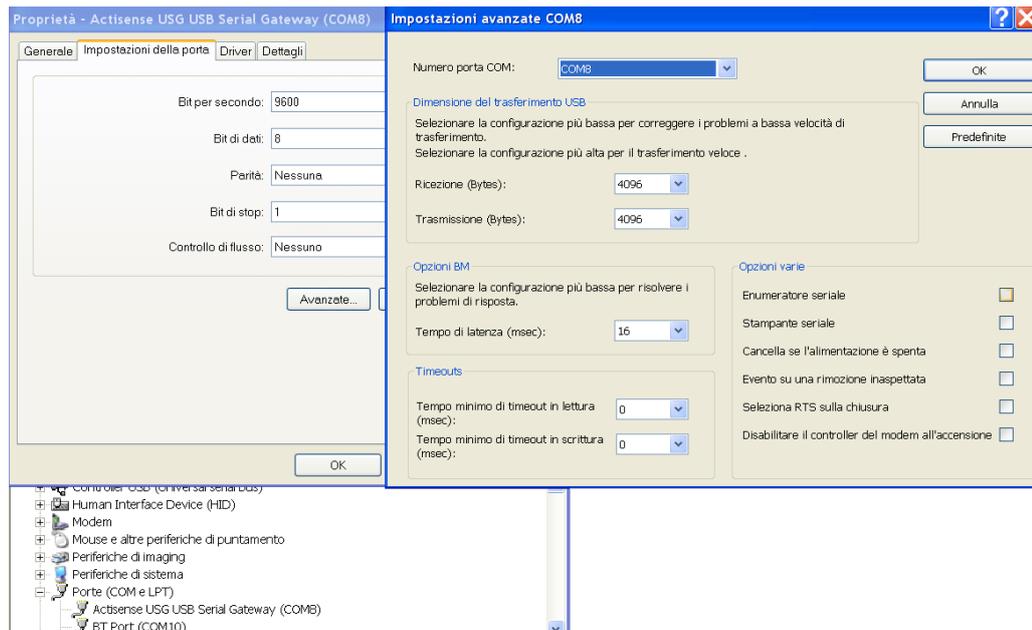
- **If the instruments are connected to a real serial RS-232 COM port, si you can try to modify the Windows system file C:\boot.ini that is visible when you enable the display of system and hidden files. After the name of the Operative System in use, you should add "/fastdetect /NoSerialMouse" :**

  [operating systems]

  multi(0)disk(0)rdisk(0)partition(1)\WINDOWS="Microsoft Windows XP Professional" /fastdetect /NoSerialMouse

- **Another option is to switch off the instrument connected to the PC, without removing the cable. Opening again the *Hardware Management* you can see if inside *Mouse and other pointing devices* is listed "*Microsoft Ball Point Serial Mouse*". If you can see this entry, you can right click on it and select *Disable*. There are also different solutions based on the editing of Windows internal registry but they are not easy**

- **Please note that from the GMM Navigator menu *Help→Special Fixes for Windows* there is the possibility to start an automatic procedure that will try to fix the jumping mouse problem automatically.**

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37. Software customization

You can open the program data folder using the menu File →Explore Program Data Folder to edit some customizable files. In the EXTRA folder you can find the files where the weather links are stored.

The text file **webmetlinks.txt** contains a list of weather links that you can open directly inside *GMM Navigator* using the internal browser (menu **Help →Meteo Web**). You can add more links or modify the existing ones. The title of the page is defined with the **"#TITLE = "** keyword.
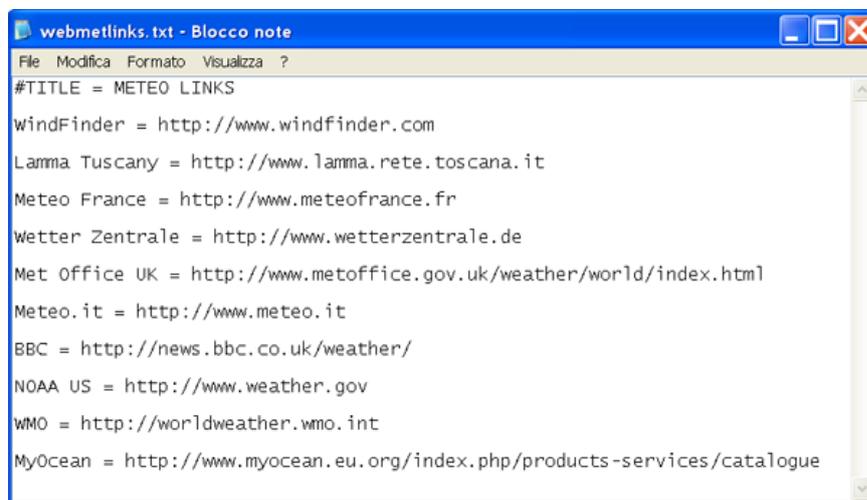
You can create groups using the keyword **"#GROUP".** For example:

#TITLE = METEO LINKS

#GROUP = World Meteo Services

BBC = http://news.bbc.co.uk/weather/

WindFinder = http://www.windfinder.com

#GROUP = Italy

Il Meteo.it = http://www.ilmeteo.it

The text file *menuindex.txt* contains the list of the custom pages that will be visible inside the *Help* menu. Every item in the list will be accessible directly from the *Help* menu in *GMM Navigator*. For example:

Boat Manuals = boatmanuals.txt

Meteo Web = webmetlinks.txt

To be more clear, the *Boat Manuals* entry will be visible inside the *Help* menu and when you will click this item, a page with all the links included in the file *boatmanuals.txt* will be displayed.

The links could be local files or Internet locations. For example you can create a folder with all the user manual of the boat and include them in the *boatmanuals.txt* file. For example:

#TITLE = BOAT MANUALS

#GROUP = Instruments Manuals

ACTISENSE NDC-4 MULTIPLEXER = docs\ACTISENSE_NDC-4_MULTIPLEXER.pdf

Another customization available is the possibility to change the picture that appears when the program starts and shows the chart disclaimer text. The picture is located in the main installation folder, usually *C:\Programs\GmmNavigator\boat.png.*

38. Support and contacts

For technical and commercial support, please contact:

3XEL S.r.l.

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