

SOB Release Notes

SOB Release 8.56 : "SOB+GRIB" (5th October 2008)

This includes all changes since v8.32

Grey entries are included in the PDF User Manual, or previous Release Notes

General

GRIBs

Support for data type #91, **Ice Cover**.

Ice cover is displayed on the chart in shades of green as percentages of cover.

More information from the Canadian weather bureau.

The GRIB data is produced weakly and issued by

Env Canada Weather-Météo ECWeather-Meteo@ec.gc.ca

To receive the GRIB file, send an email to this address and they'll email the file.

WARNING the GRIB file emailed is 4 Mb in size and thus not suited to a low speed internet connection.

And due to the large amount of data, you should expect SOB to slow considerably when displaying the ice data. It could take many seconds to refresh the chart.

AIS & DSC Targets

Added option to draw a connecting line between Target position fixes. For DSC targets the joining line will always be drawn and the checkbox on the Targets form has no effect for DSC.

StatusBar:

If incoming GPS data is valid, then UTC time on the status bar is derived from the GPS.

"GMT" will display if using PC clock to calculate UTC, "UTC" is displayed if time from GPS is used.

Inputting Lat/Lng values:

Additional formats will be accepted (refer to the "Notes" part of section 1.2.2 in the User Manual for existing supported formats)

The colon ":" can be used in place of the degree symbol, eg 34:30.5 = 34°30.5'

Two spaces can be used, to separate minutes from degrees and seconds, eg 34 30 30 = 34°30'30"

Drag and Drop:

NMEA ".log" files can be "Dragged & Dropped" onto the chart for instant replay.

Other files that can be D&D are: GRIB (.grb), Waypoints (*.wpt), Routes (*.rte)

SOB_PORTS Application

New version of SOB_PORTS application.

Comprehensive HELP system (press F1 when SOB_PORTS is running).

Ports 3 & 4 can be set in SOB_PORTS and are "opened" on return to SOB.

Added support for 57600 and 115200 baud for COM ports.

Tidal Stream Predictions

*** New Feature ***

Press Shift-T to show the Tidal Stream Prediction form which allows you to step by minute/hour/day or month while the tidal stream arrows on the chart dynamically change.

When the form is not visible, the prediction arrows on the chart will revert to present time.

Note the prediction date/time used is based upon your PC clock, so (1) be sure this is correctly set, including any daylight savings setting; and (2) be aware that display of the tidal arrows in a timezone other than your present location will need to be manually adjusted to that zone's local time (or UTC as applicable).

XML Waypoint Files

*** New Feature ***

- Added [XML Export] button on AllWaypoints form (only for Trial and Paid users), and also "Save to XML" option on C-Map UserCard transfer menu.
- XML/GPX waypoints files read into SOB via blue File List on AllWaypoints form.
 - * Wpts are imported to active SOB session and the originating GPX file is archived.
 - * Imported XML wpts will be saved to "{gpxfilename}.WPT" format file when SOB exits.
- Importing Wpts (from XML or CSV) will now interpret many standard waypoint shapes from a descriptive text (eg: House, Red Buoy, Flag, Cross, etc). CSV wpt files can include a "Shape" column with either the SOB wpt ID numbers (see User Manual and previous Release Notes) or the descriptive text.

NOTE: For SOB to be able to read an XML file it must be "correctly formed", which means that each tag must have a matching closing tag, and not a short-form closing tag.

For example,

This XML element is well formed:

```
<link href="http://www.digiboat.com.au</link>
```

This XML element is not well formed and will prevent SOB from reading the GPX/XML file:

```
<link href="http://www.digiboat.com.au />
```

Data Panels

N2D (Red Panel)

- VMG is also shown as a percent of SOG
- XTE is displayed more prominently
- At the end of an N2D scenario, the master Autopilot Output tickbox (on the NMEA form) is cleared rather than NMEA output sentence chosen (as was previously)

Navigation (Blue Panel)

- Leeway calculations are included as a display option, in place of the superfluous "PastTrack" data that was previously available (This PastTrack data is still available at the top of the PastTrack form - press [Backspace])
This leeway data is updated every two seconds.

Notes

- * To calculate Leeway, an electronic compass and a Boat Speed (LOG) device must be installed and connected to SOB.
 - * Leeway is only calculated if Boat Speed is greater than 1 knot.
 - * If only Leeway, or Leeway + Wind data only is displayed, then a larger font size is used.
- Fixed display of Routes "Total Distance" value which was always showing Km. Now it shows the units (Nm, Km, m/s or mph) as selected on the Ships Form.

Wind Polars

*** New Feature ***

A new button on the PastTrack form will display the Wind Polars interface.

Wind Polars are made up from data and describe or predict the yacht's performance characteristics while under sail.

SOB supplies three different methods to create your wind polar data:

1. Automatically create from a SOB PastTrack file

A suitable PastTrack file must first be created. Naturally this PastTrack data needs to be created while sailing optimally (as if racing) without using the engine.

Obviously you need wind instruments connected to your computer and SOB, and for best results you should have an electronic compass input (eg, fluxgate or gyro) and ideally a Boat Speed (ie, LOG device) connected. If electronic compass and boat speed data is not available then COG and SOG (from the GPS) will be used, although this will not provide as accurate data for the Wind Polars.

Additionally, the track should be created in an area without current although SOB will filter out data that appears to be influenced by currents.

During the wind polar creation process, extra information is retained which indicates the statistical accuracy of the data created (standard deviation information). This is shown on the polar graph in different colours (ie, grey data points if the data is not too stable, red/green for good data for port/stbd tacks, black if too few points for a good statistical average).

2. Import from a Maxsea ".POL" file

Maxsea uses a simple row/column format for defining some key data for known points of sail and a selection of wind strengths. When SOB imports and converts these files data is interpolated between known points and extrapolated beyond the known data based on certain rules. (see also point 3)

3. Create (using interpolation and extrapolation) from known data points

The Maxsea file format is simple enough to serve as a generic format for importing custom or published polar data. A sample spreadsheet is included in the **SOBvMAX\PastTracks\Polars** folder with example sheets showing how to convert published polar data for the Sydney 38 and Catalina 36 yachts into the simple Maxsea data table.

Or determine from measurements some of your yacht's data and create a simple table as shown on the first spreadsheet.

With the completed Maxsea data table, simply cut and paste the cells from Excel into Notepad and save in the **SOBvMAX\PastTracks\Polars** folder with a ".POL" extension.

For best results you should include a value for each column for 180 degrees (running square) and values for your optimum and/or minimum upwind sailing angle. Basically the more data included the better SOB can fill in the gaps.

SOB will not extrapolate beyond the highest wind speed included in the data, so SOB's data for all stronger winds will be zero.

All POL files imported remain untouched and SOB creates its own format file starting with "P_" then the original filename and finally a ".PLR" extension. The SOB polar files are about 1 mb in size. For example, "maxsea.pol" would remain and a new file "P_maxsea.plr" of around 1,000 Kb in size is created.

NOTES:

- SOB Polar files have a ".PLR" extension. These are simple text format easily interpreted upon inspection - however, DO NOT EDIT THESE FILES. Although it is permissible to insert comment lines in the file provided the first character on the line is a hash "#".
- When the Wind Polar form is first displayed, SOB will load the default polar file, named "**!polars.txt**".

Race Start

*** New Feature ***

An invaluable aid for the racing yachtsman (whether serious or casual), to achieve the Perfect Race Start. For best results you should have an electronic compass input (eg, fluxgate or gyro) and ideally a Boat Speed (ie, LOG device) connected. If electronic compass and boat speed data is not available then COG and SOG (from the GPS) will be used, and this will not provide as accurate data. The data input should also be correctly calibrated and dampened

The use of the Race Start form should be mostly intuitive after a short "play", below are some tips to get started.

1. Show/Hide the form: Use "S" key to display/hide, and the [Close] button to hide.
2. Show/Hide the [Settings...] section by pressing this button.
3. Make the Start Line: You must make regular SOB wpts at each end of the start line - you should do this upon your first approach to the line (recommended you sail along the start line and "drop" wpts with the [Space]+[Space] shortcut keys at each end, unless the lat/lng of the startline are published by the Race Committee in which case manually create these wpts using regular SOB wpt creation methods).
In the "Settings" section, select these wpts from the drop-down lists. SOB will try to pre-select these choices, firstly with the first two wpts found with "Start" in their name, otherwise the last two wpts created will be pre-selected.
The length of the Start Line from the two chosen wpts will be displayed for your interest.
4. Tick the "Draw Start Line" box to show visual aids on the chart, including:
 - Solid black line for the Start Line;
 - Dot/Dash lines in red or green for a Port/Stbd-tack approach;
 - Dashed line for a perpendicular approach (closest point on Start Line from your present position).You should also enable some other regular SOB visual aids such as:
 - the "COG look-ahead line" (on Ships Form) and
 - if using a close-haul approach it may help to enable the wind laylines (on Ship Form).
 - Your wind 1/2-angle should also be accurately set on the Ships Form or Wind Polars form.
5. Choose your "Starting Strategy" - this can be changed as required right up to the final start countdown. The chosen strategy will draw the approach line (listed in prev point) in bold.
6. Start the "Countdown Timer". Synchronise this timer to the time used by the Committee Boat, ie as "puffs of smoke" or hoisted start-flags are noticed the appropriate time-to-start button can be pressed.

Now use the displayed "Final Approach..." data to determine your optimum speed and heading to achieve the perfect start! A short two-tone alarm will play through your PC Speaker when the timer reaches zero.

Notes

- If wpts are added or deleted to SOB, the "Start Line" wpt lists will not be refreshed until the Race Start form is hidden then redisplayed. Any wpts that had been preselected for the Start Line may need to be re-selected.
- The "Final Approach" countdown is calculated and displayed every second, if there is less than a 5 second difference between this and the start time, the boxes will be WHITE. If you are early for the start, the boxes will be RED (ie, Red traffic light? Slow Down) and if you are slow to the start the boxes will be YELLOW (ie, Yellow traffic light? Speed Up!),
- The visual approach aids drawn on the chart are only refreshed when the chart is redrawn (about every 5-10 seconds, or when any pan/zoom/etc is performed). In other words, these aids are not dynamically updated with each change of speed/course. This is to prevent them "jumping around" too much as your incoming GPS and Wind data fluctuate. This is the reason why you may wish to enable the regular wind laylines (mentioned above in Pt 4) which will move around with each wind shift or change in boat heading. If you want to force them to be redrawn, simple pan/etc the chart to force a normal screen refresh.
- You may need to use the Dampen & Calibrate feature to "smooth" the incoming wind and heading and speed data to reduce the jitteriness of the vectors drawn on the chart and the calculated values on the form from changing too wildly.
At a minimum we'd recommend dampening your COG with a 3 to 5 seconds setting. We recommend dampening your wind data at the instrument rather than SOB, or SOB and your Wind Indicator displays will differ, also these devices generally offer quite good internal dampening algorithms. It is rarely

required to dampen the electronic compass data (boat heading) as these devices mostly send very stable data (if correctly mounted etc, and in particular gyros but also great results from fluxgates, especially if corrected by a yaw/roll/pitch rate-gyro).

- For an upwind starting line, it may initially be confusing looking at the red/green colouring of the wind-approach lines drawn on the chart. IE, the Red line will be off to your Starboard side! Of course, when sailing along this line, you will be on Port tack.
- If the "closest point" approach vector appears the wrong way from the start line, then reverse the order of the two waypoints.
- If the ship's dimensions are entered on the AIS Static Data page, then the actual location used for all approach calculations is the bow of the boat. Otherwise the GPS position is used, which would result in early starts depending on the distance between the GPS and bow etc.

NMEA Form and Data

- Corrected incoming data from many devices which send irregular, or wrong, data! Mostly Wind and Depth devices which alternate sending zero values with the correct data.
- Added checkboxes to depths (Under Water, BK and BT) so you can force the display in the SOB Ships Data (black panel) to the same value that is shown on your Depth instrument display.
- Water temperature should now be shown on NMEA form from all devices sending the MTW sentence.
- Corrected/tweaked display of the Apparent Wind vector when heading data (from electronic compass) is available. If heading data not available, then COG is used to calculate True Wind (NOTE: this will not give an accurate True Wind value unless there is no current or leeway, ie your speed over ground equals your speed through water).
- Enabled calibration of boat heading value (from electronic compass) on the Dampen & Calibrate form. Note: Depth IS NOT included in D&C as this creates great danger potential!
- Added/Fixed all "Boat Heading" NMEA Sentences HCC, HCD, HDM, HDT, HDG, VHW so that all Compass HEADING data is, correctly, corrected to TRUE values.

Misc & Bug Fixes

- Stopped "AIS as OwnShip" using Hdg=511° (which is the AIS value for N/A)
- Allowed auto-pan to 80 degrees latitudes
- Fixed bug that was showing N2D form after changing NightMode settings
- Wpt form closes immediately on Wpt Delete
- About SOB form: stopped display of files in root folder (C:\) when C-Map Selector is not installed.
- Animated Lights are temporarily disabled when printing, to avoid the small black squares that could appear in the print-out.
- PastTracks filter interval defaults to ZERO to disable filtering of "!LastTrack.trk" when loaded at SOB startup.
- Improved drag-middle-mouse-button for Zoom Window and/or GRIB area selection. Will now work in any direction, but window resets at some extents.
- Fixed bug that caused occasional crash when making a Wpt with the dbl-space keys.
- Added AIS sentences to MUX-Output

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