
SonarWiz Quarterly Highlights - 2015 Q3

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Table of Contents

1	Q3 2015 - SonarWiz Most Significant Enhancements.....	3
2	SonarWiz 5 Enhancements Details – 2015 Q3.....	4
2.1	Sidescan Post-processing License features - Enhancements	4
2.1.1	Independent PORT / STBD Sidescan Bottom-Tracking Capability.....	4
2.1.2	Symmetrical image-capture - contact-edit image orientation - at last!	6
2.1.3	Sidescan - ZOOM TO feature for navigating to a contact position.....	7
2.2	Bathymetry Post-processing License features - Enhancements	8
2.2.1	Bathymetry feature - CUBE gridding and modeling support.....	8
2.2.2	Bathymetry feature - navigation, attitude injection / repair.....	9
2.3	General Enhancements	12
2.3.1	Geoimage Export - Save Mosaic as Tiles - 5000 x 5000m tiles allowed	12
2.3.2	64-bit Architecture Support - starting to happen!	14
2.4	Real-time Data Acquisition Enhancements	15
2.5	Sub-bottom Post-processing License features - Enhancements.....	17

1 Q3 2015 - SonarWiz Most Significant Enhancements

Here are the most significant enhancements made in our SonarWiz software, during the period 2015 Q3 (July, August, September) releases, sorted by functional category.

Summary Table:

Functional Category	Highlight Description
Sidescan post-processing (see section 2.1 below)	Several great new features: (1) independent-tracking of PORT and STBD bottom-tracking (2) Sidescan contact editor image orientation - now matches data presentation in DigitizerView! (several users needed this!) (3) The "ZOOM TO" function for features or contacts really helps speed up post-processing!
Bathymetry post-processing (see section 2.2 below)	(1) CUBE modeling is now fully supported in SonarWiz, allowing you to quantify the total vertical (TVU) uncertainty in your bathymetry survey, and see it graphically presented (2) Bathymetry data set repair has been made possible by awesome new capabilities in NavInjectorPro, to revise position and attitude data in need of repair.
General (see section 2.3 below)	(1) Save Mosaic as Tile - the relaxation of tile-size limits has really help users export LESS tiles, while individual tiles may now be up to 5000x5000m in size! (2) Design and implementation of the full 64-bit version of SonarWiz have been started
Real-time Data Acquisition enhancements (see section 2.4 below)	Helm Display Rev 3 is released, supporting the new updated bathymetry packet-formats, for more complete bathymetry point-cloud R/T presentation, and eventually 64-bit format
Sub-bottom post-processing (see section 2.5 below)	We implemented new support for the import of Innomar native-file-format SES for sub-bottom post-processing.

2 SonarWiz 5 Enhancements Details – 2015 Q3

Here are more detailed explanations, with graphics, showing you what has changes in 2015 Q3 versions of SonarWiz! If you have a current EMA (extended maintenance agreement) on your SonarWiz license key, just navigate to www.chestech-support.com, log in, and select the top-left **SonarWiz** link, to download the version of SonarWiz containing all these improvements:

The screenshot shows the website www.chestech-support.com/ctisupport/sonarWiz6Downloads.asp. The user is logged in as 'ctistaff'. The 'Downloads' section is highlighted with a red arrow labeled '1', pointing to the link '***SonarWiz'. Below this, a 'Software' table is shown with a red arrow labeled '2' pointing to the 'Download' link in the first row. At the bottom left, a red arrow labeled '3' points to the 'Utilities' link under the 'FAQs' section.

Currently Available SonarWiz Downloads

Downloads

- ***SonarWiz
- ***SonarWiz 5
- ***SonarWiz.MAP 4
- ***SonarWiz Servers
- ***SonarWeb
- *Utilities
- *Tutorials
- *Evaluations
- Sample Data

Version History

- SonarWiz
- SonarWiz 5
- SonarWiz.MAP 4
- SonarWeb
- Servers

FAQs

- SonarWiz

Software

Name	Description	Ver	Format	Posted
SonarWiz 6	SonarWiz 6, with sidescan, sub-bottom, bathymetry and magnetometry feature sets, and new GUI color-scheme and button icons, and introductory CUBE bathy processing for you to try!	V6.01.0031	Self-installing EXE	10/16/2015 Download

Download a current version of SonarWiz (ASonarWiz_6), and you will have ALL these improvements in the software, available to you depending on the licensing options which you have purchased.

2.1 Sidescan Post-processing License features - Enhancements

2.1.1 Independent PORT / STBD Sidescan Bottom-Tracking Capability

We thank our customers at MMT for the great idea they proposed, which led this this new feature. New in SonarWiz sidescan post-processing, is the ability to independently set the blanking, duration, and threshold settings for PORT and STBD - with the option to lock them together in sync, OR NOT.

This great new feature was inspired by situations like running an AUV survey with port/stbd sensors not only separated significantly in space (e.g. more than 1m between them), but also possible asymmetry in position - e.g. one slightly higher than another. Ever try to run parallel to a steep bank and capture the iceberg scour detail where port and stbd get very different depth values? Now you can!

Processing: D:\SonarWiz-Projects\BathySet11_Plymouth_6205_JSF_5.08.0003\CSF\20140715114418_Binned-CH12.CSF

Channel Control
 Port
 Stbd
 Port + Stbd
 Sync port and starboard

Visual Control
 Gamma Correct
 Histo Equalize
 Normalize
 Copy to Clipboard
 Full Resolution

Manual Tracking
 Insert Points
 Remove Points
 Clear All
 Offset Alt (0.00m)...
 Auto Scroll

Auto Tracking
 Port: Blanking 20, Duration 2, Threshold 25
 Starboard: Blanking 10, Duration 2, Threshold 5
 Smooth

Save, Save & Next, Next, Previous, Cancel

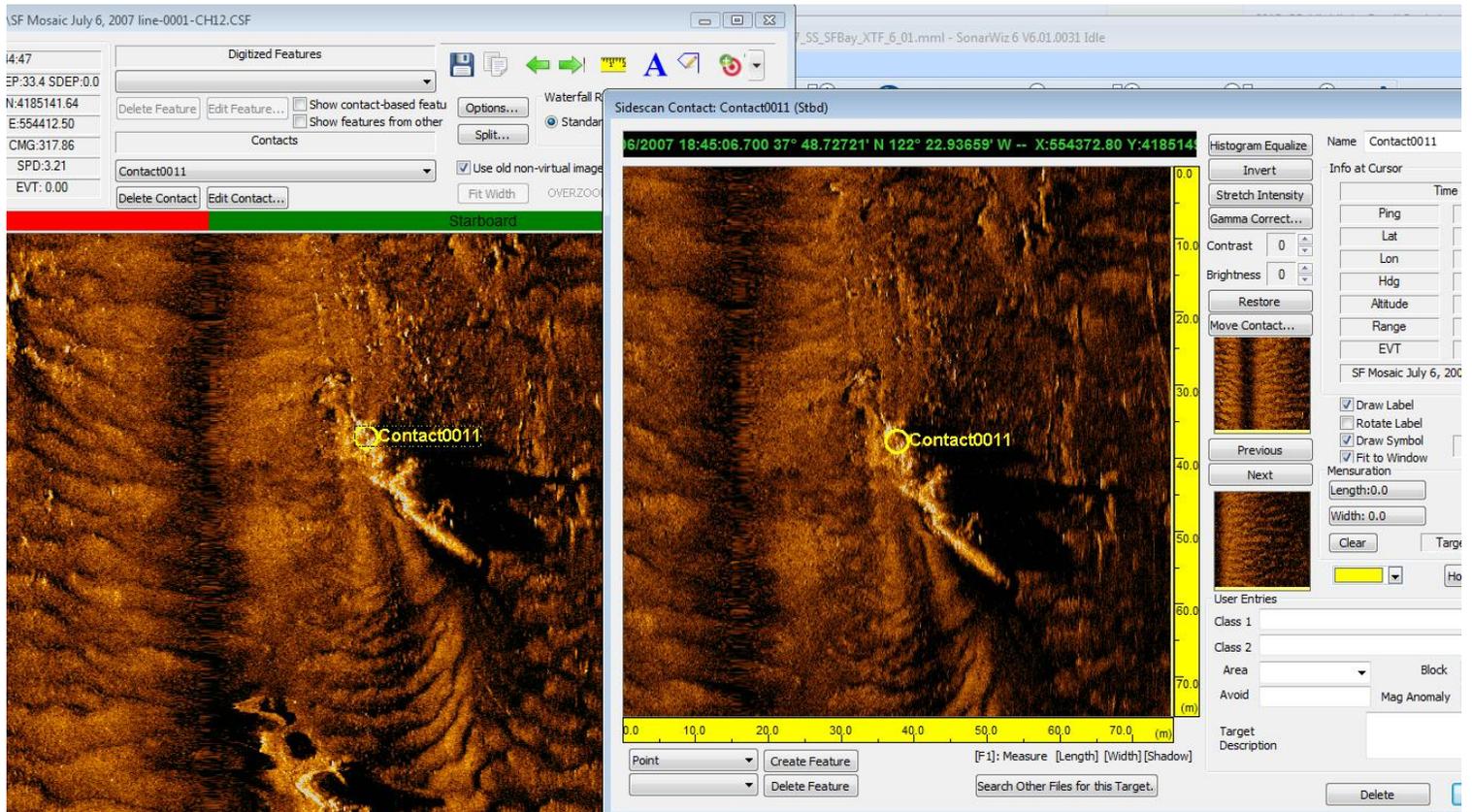
07/15/2014 11:49:23	
Ping: 7782	CBL:0.00 (m)
50° 17.76348' N	N:5572126.70
004° 05.96669' W	E:421691.81
HDG:304.00	CMG:305.14
RNG: 52.1 METER	SPD:6.00
EVT:0.00	WDEP:0.0 SDEP:0.0

Optimal blanking, duration, threshold very different for PORT and STBD sides in this case

You now have the freedom either to SYNC port/stbd settings, or track them independently.

2.1.2 Symmetrical image-capture - contact-edit image orientation - at last!

Several users asked us, over the years, to make it possible to view the sidescan waterfall and contact-edit images in the same orientation. Now it's possible! Take a look at this example from an XTF sidescan waterfall (left side), and contact-edit view (right side) of a sunken craft in San Francisco Bay, where Contact0011 has been captured, then selected for EDIT:

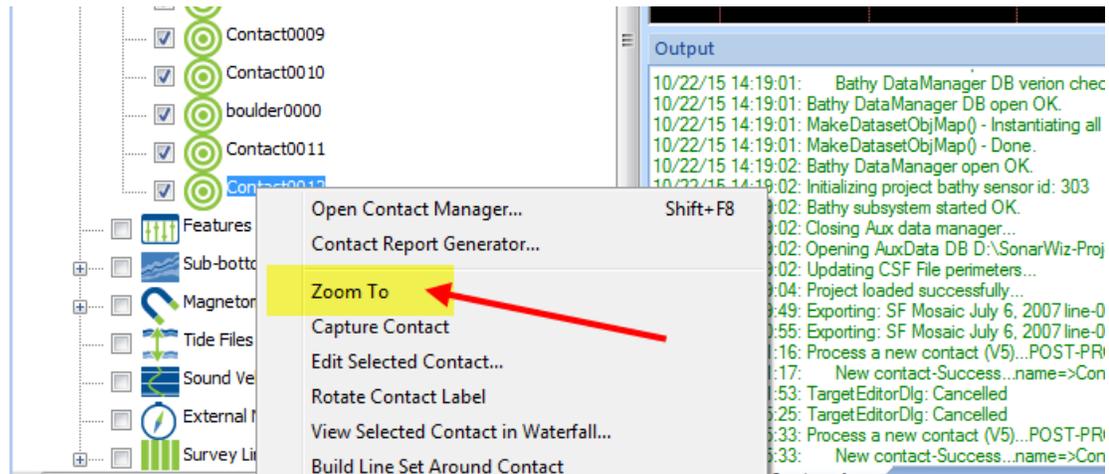


There is something easier to process, in the human brain, when the waterfall and contact-edit images are in the same orientation, so said our customers. Ok so now it's easier!

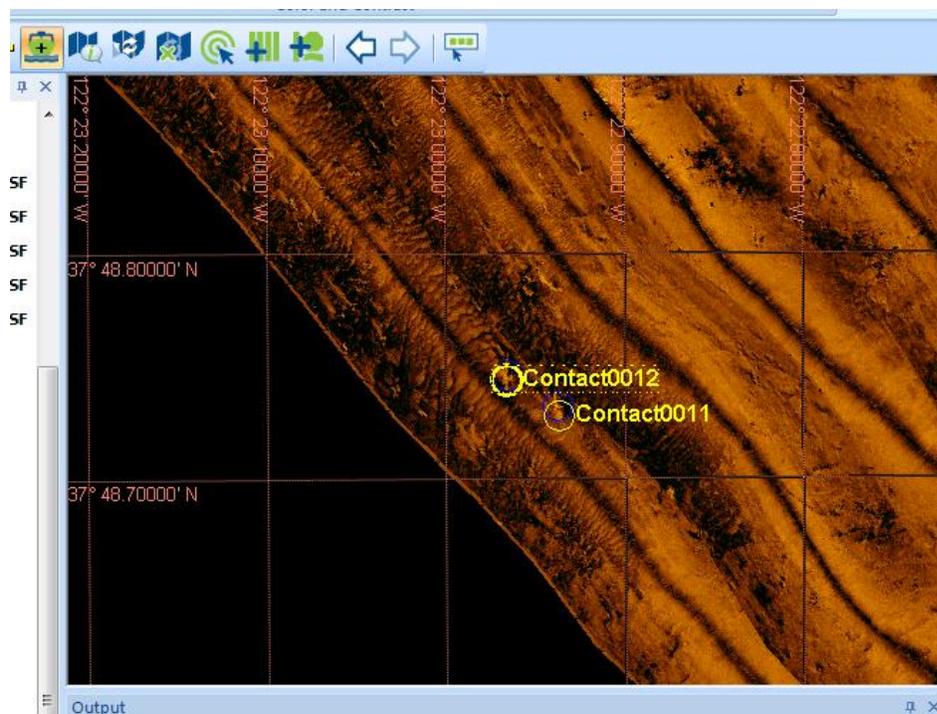
2.1.3 Sidescan - ZOOM TO feature for navigating to a contact position

This next feature was also requested by several users, and makes it easier to navigate to the sidescan sonar line position, where a particular contact was captured:

Right-click on a contact in the left-side Project Explorer like we have done on Contact0012 here:



Then select ZOOM TO in the drop-menu. The result is a map-view ZOOM to center the specified contact:

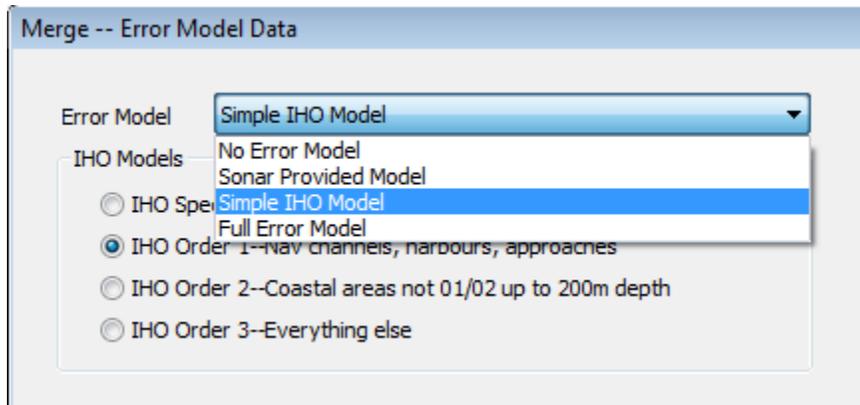


This saves all sorts of screen-search and screen-refresh time, making your contact require process faster.

2.2 Bathymetry Post-processing License features - Enhancements

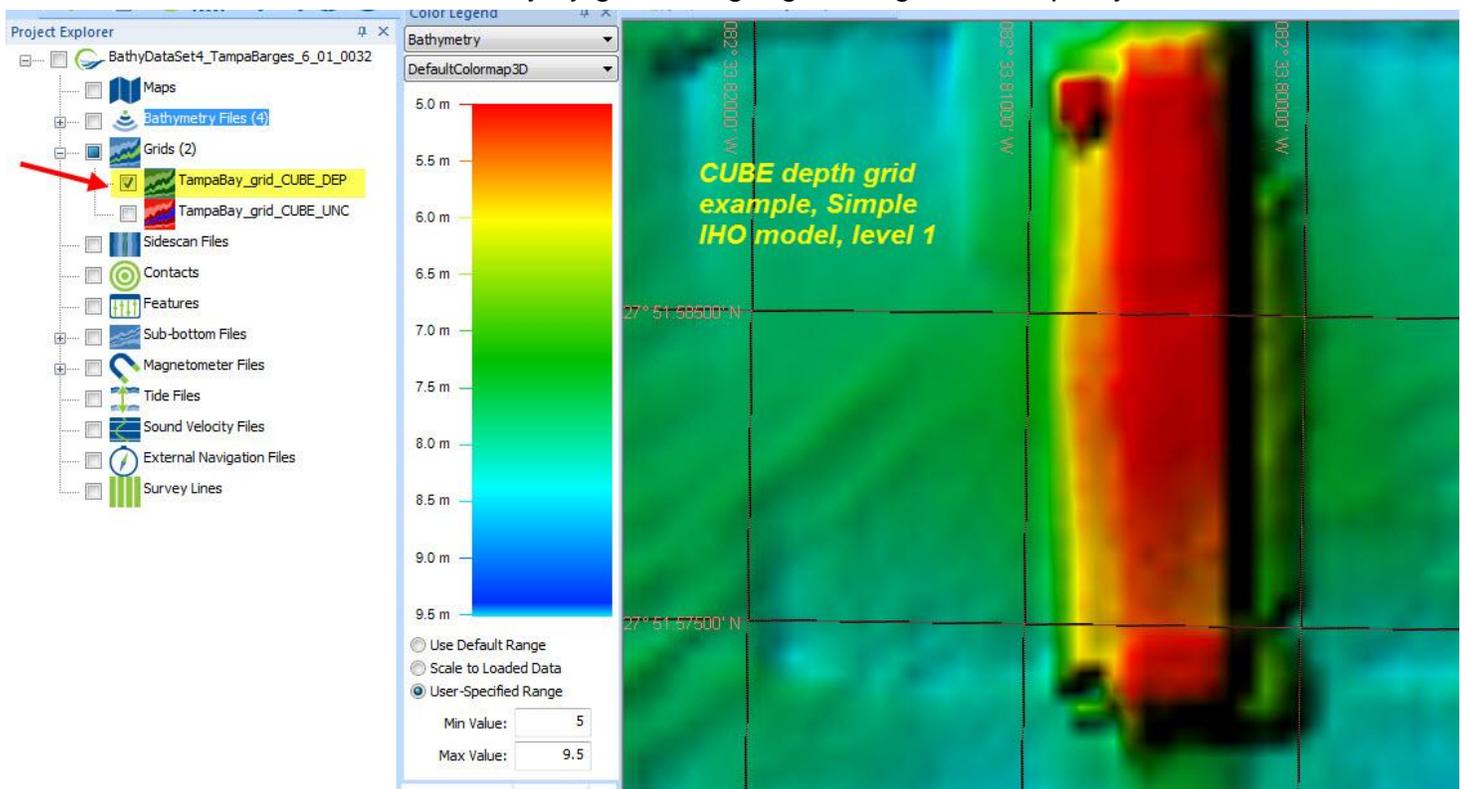
2.2.1 Bathymetry feature - CUBE gridding and modeling support

CUBE (combined uncertainly bathymetry estimates) processing has been added as a bathymetry post-processing license option in SonarWiz. You now have the option to determine the uncertainty in your bathymetry survey results, to comply with NOAA requirements for IHO S-44 compliant surveys, for example.

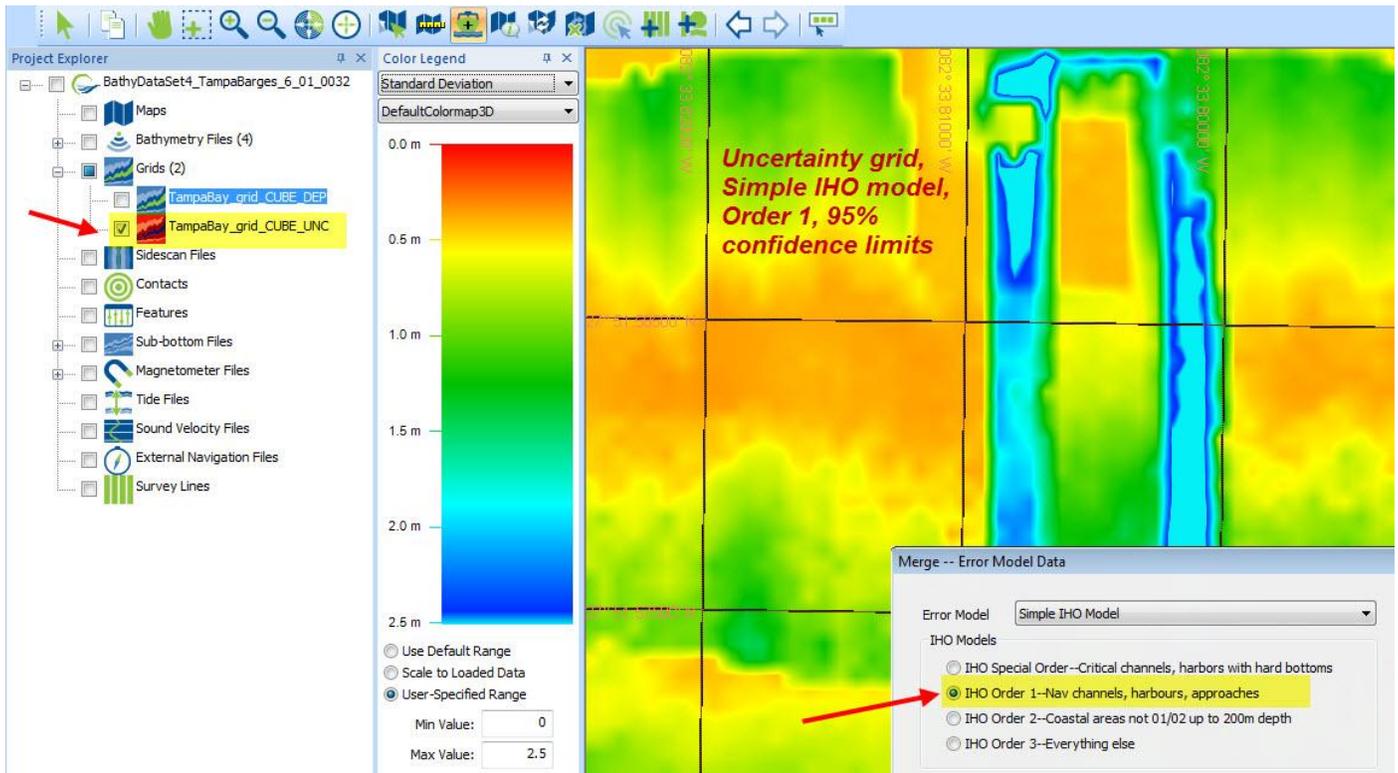


You may opt for the sonar vendor-provided uncertainty model, if your sonar type supports it, or choose the Simple IHO model and Order level you need, or use the Full Error Model.

You can see the results visually by generating a grid image based upon your criteria:



In addition to the CUBE-based shaded grid shown above, you may separately display the uncertainty grid in standard-deviation-scaled color:

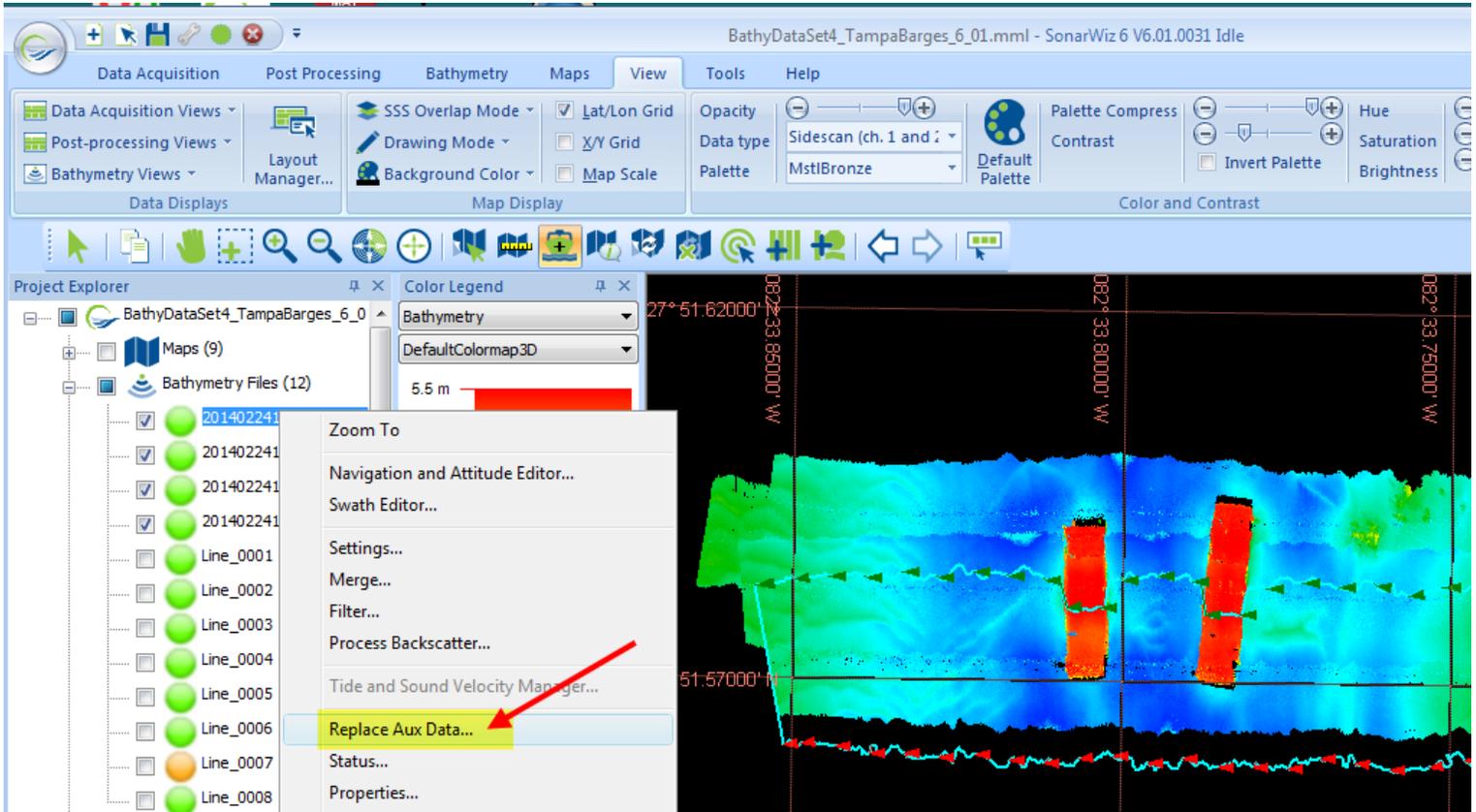


This uncertainty grid display example shows the excellent quality of this survey (most areas with uncertainty at 95% confidence, below 0.6m), but higher uncertainty (blue), at the depth-transition of the barge edges. Contact Chesapeake Technology for a free trial of bathymetry post-processing for your existing license key, today!

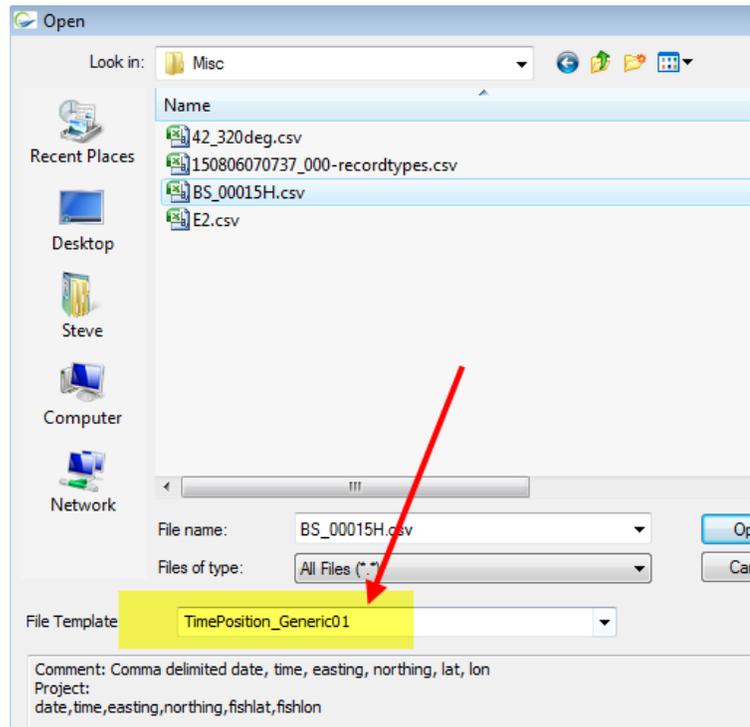
2.2.2 Bathymetry feature - navigation, attitude injection / repair

As soon as bathymetry data started flowing through SonarWiz, customers found that there were sometimes better sources of attitude and navigation data available, than that which had initially been stored inside their recorded sonar lines. SonarWiz actually has two excellent technique options for replacement of such data in your bathymetry survey data:

(1) REPLACE AUX DATA: Right-clicking a bathymetry line, you can select to inject a better set of navigation data into an imported bathymetry line, by using REPLACE AUX DATA:



The next drop-menu allows you to select from a limited set of import templates, to replace navigation position data in your imported bathymetry line:



This technique supports a replacement data sentence format like this:

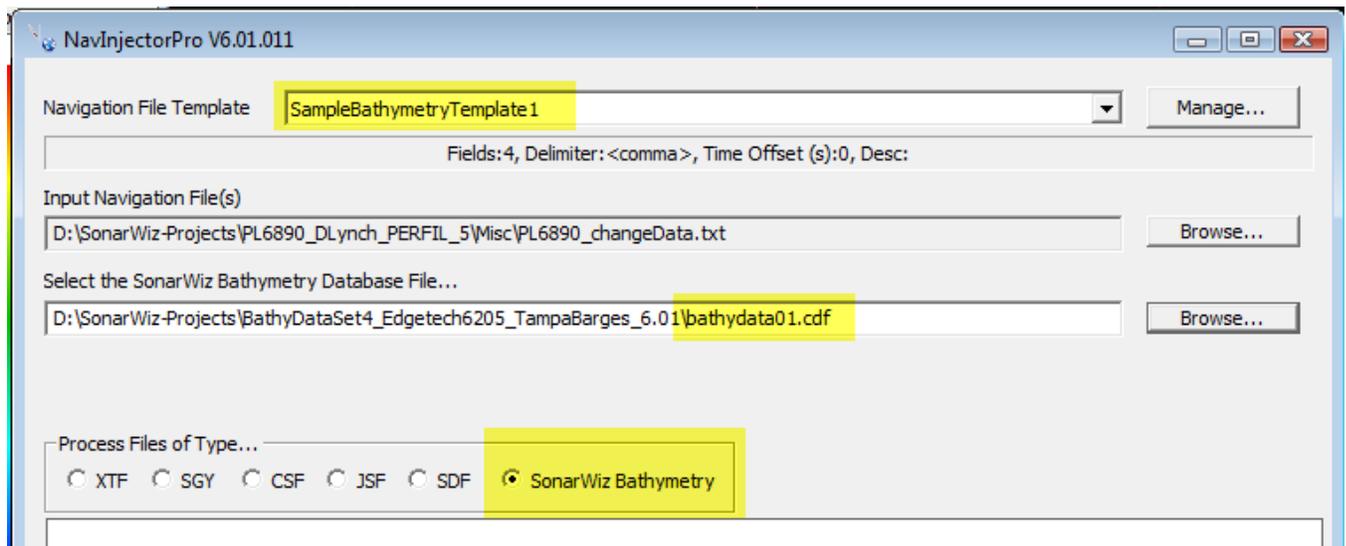
```
<data>,<time>,<X (easting)>,<Y(northing)>,<Latitude>,<Longitude>
```

Format of the fields:

```
<date>      = MM/DD/YYYY
<time>      = HH:MM:SS
<X>         = grid coordinate - floating point
<Y>         = grid coordinate - floating point
<Latitude>  = DDD.ddd format - positive = north, negative = south
<Longitude> = DDD.ddd format - positive = east, negative = west
```

and is described in a tutorial PDF document at www.chestech-support.com in the SonarWiz TECH NOTES section.

(2) NavInjectorPro - an even more powerful capability to replace both position AND attitude (roll, pitch, heading) data in your imported bathymetry data set is now supported too, in the familiar NavInjectorPro utility:

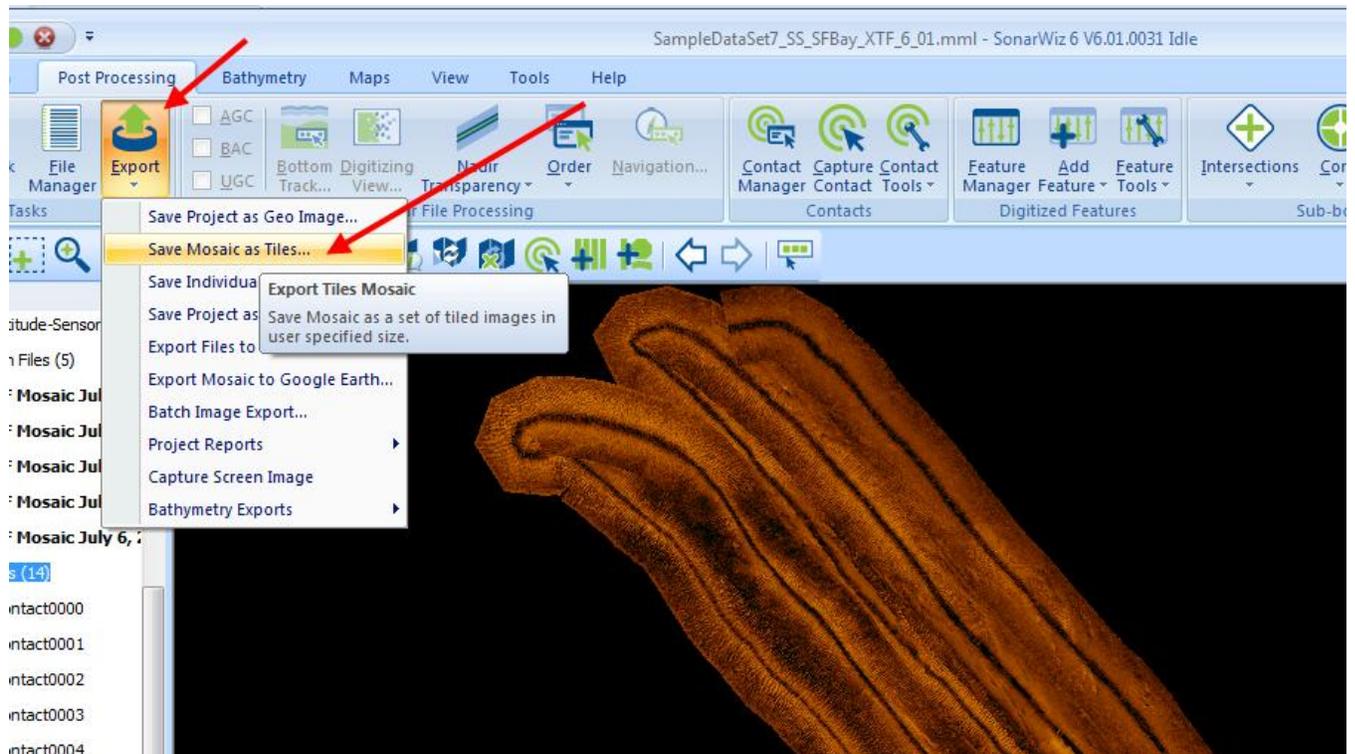


This technique is fully described within the NavInjectorPro.PDF help document, available under the HELP button when you select TOOLS -> NavInjectorPro. A simple change like replacing only HEADING or PITCH, to repair part of the attitude data, is possible. Please give this a try with your next bathymetry data set.

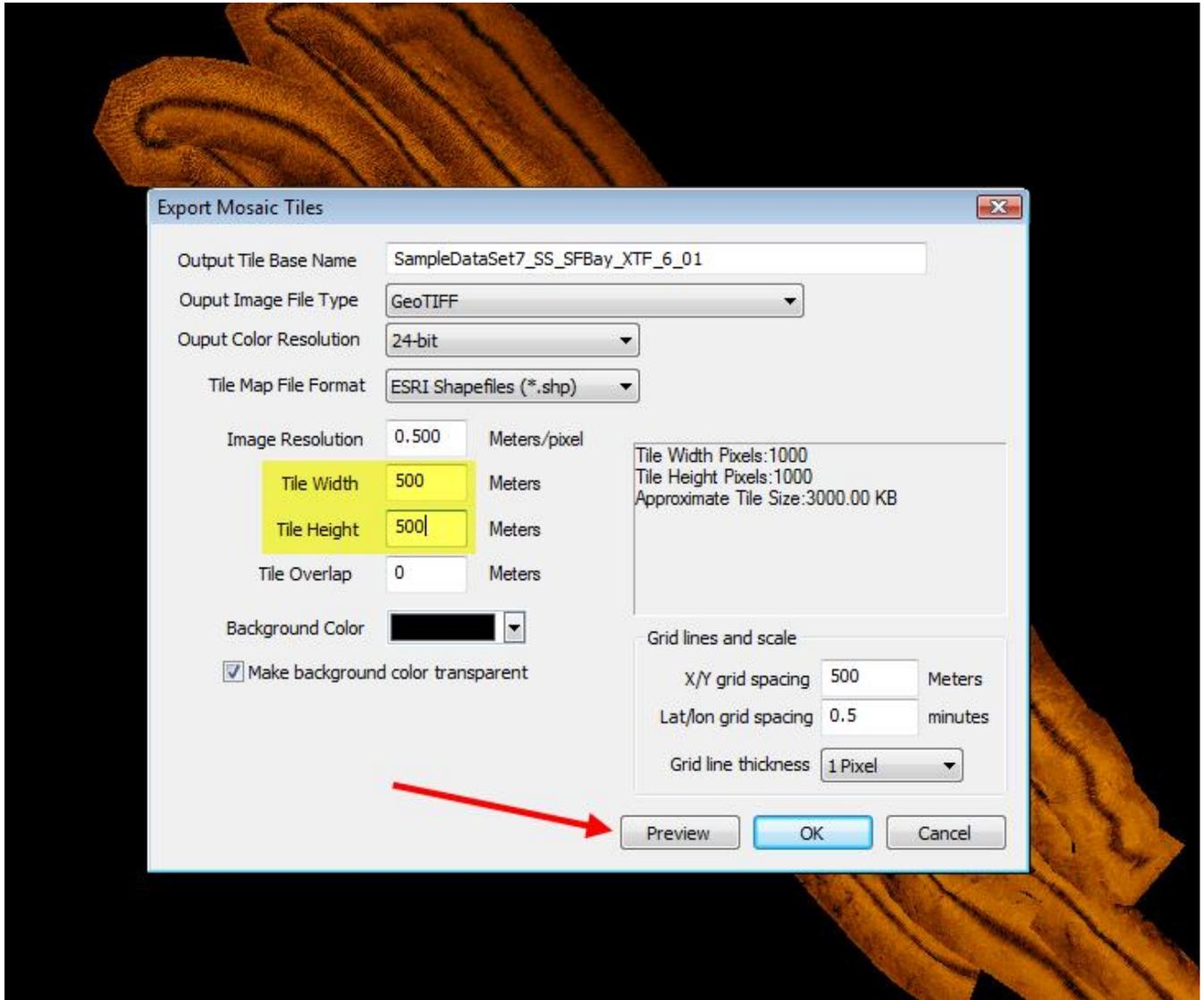
2.3 General Enhancements

2.3.1 Geomage Export - Save Mosaic as Tiles - 5000 x 5000m tiles allowed

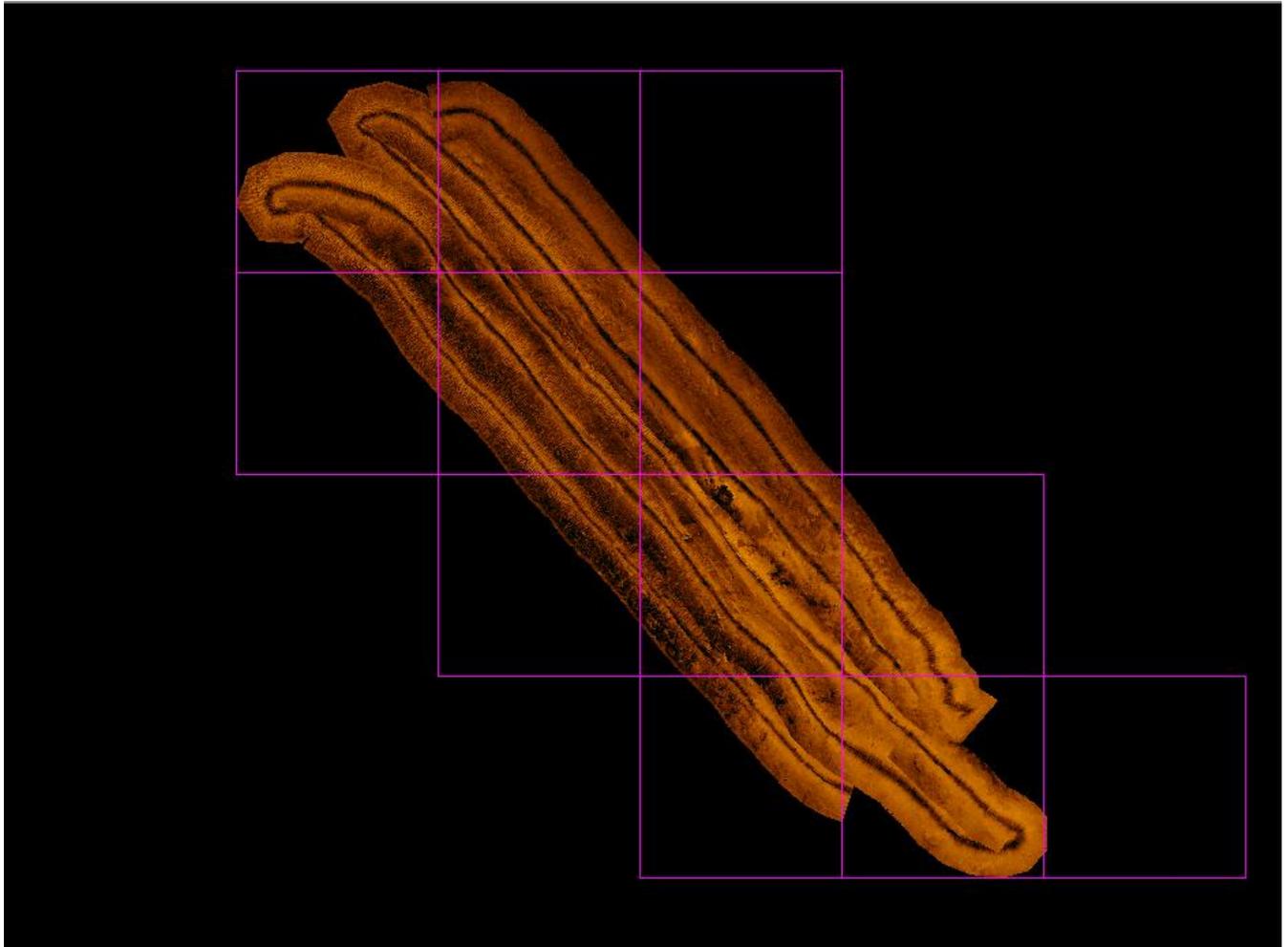
On many PCs, Save Project as Geomage simply runs out of memory, when trying to export a huge mosaic. The solution - use Export -> Save Mosaic as Tiles instead! Customize your export plan and preview the SHP file tiles-outline first, creating a set of say 50 or less tiles to export:



The export dialog allows you to specify tiles up to 5000 x 5000m in size now, though for this mosaic, we'll use 500 x 500m:



Then select PREVIEW to see a SHP file outline of the proposed export tiles:



Then run the same dialog but select OK, to actually export the tiles. Several users requested the expansion of a 1000 x 1000m tile limit, to allow 5000 x 5000m tiles, and it's available now as a feature in SonarWiz. Your set of individual geo-referenced tile JPG files can import and re-assemble in ArcMAP, for example. Exporting like this, you are much less likely to encounter and out-of-memory error. Please give it a try!

2.3.2 64-bit Architecture Support - starting to happen!

PC chip-sets and operating systems have been evolving to support 64-bit architecture for years now, but it took time for us to evolve the inner workings of SonarWiz to make full use of these architecture changes. This work is well on the way now, and may complete during 2015 Q4, or 2016 Q1. It will speed up processing on PCs with a 64-bit chip-set and OS, for sure.

2.4 Real-time Data Acquisition Enhancements

Helm Display version 3 has been released, and is a utility available to use with any SonarWiz license, which has any real-time data-acquisition feature enabled. The Helm Display replaces our earlier utility NavWiz, and provides a UDP-network option of remoting many features of the SonarWiz display, such as basemap chart, survey lines, bathymetry data, and real-time boat and towfish position and heading, to a separate PC display, which can be located at the helm. The Left/Right steering indicator can also be displayed in Helm Display, helping the captain steer a survey line. If you have any real-time feature enabled on your license key, please visit the SonarWiz UTILITIES area of www.chestech-support.com, to download and try this utility:

Currently Available SonarWiz Downloads

Downloads

- [**SonarWiz](#)
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- [SonarWiz](#)
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- [SonarWiz.MAP 4](#)
- [SonarWeb](#)
- [Servers](#)

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- [SonarWiz](#)
- [SonarWiz 5](#)
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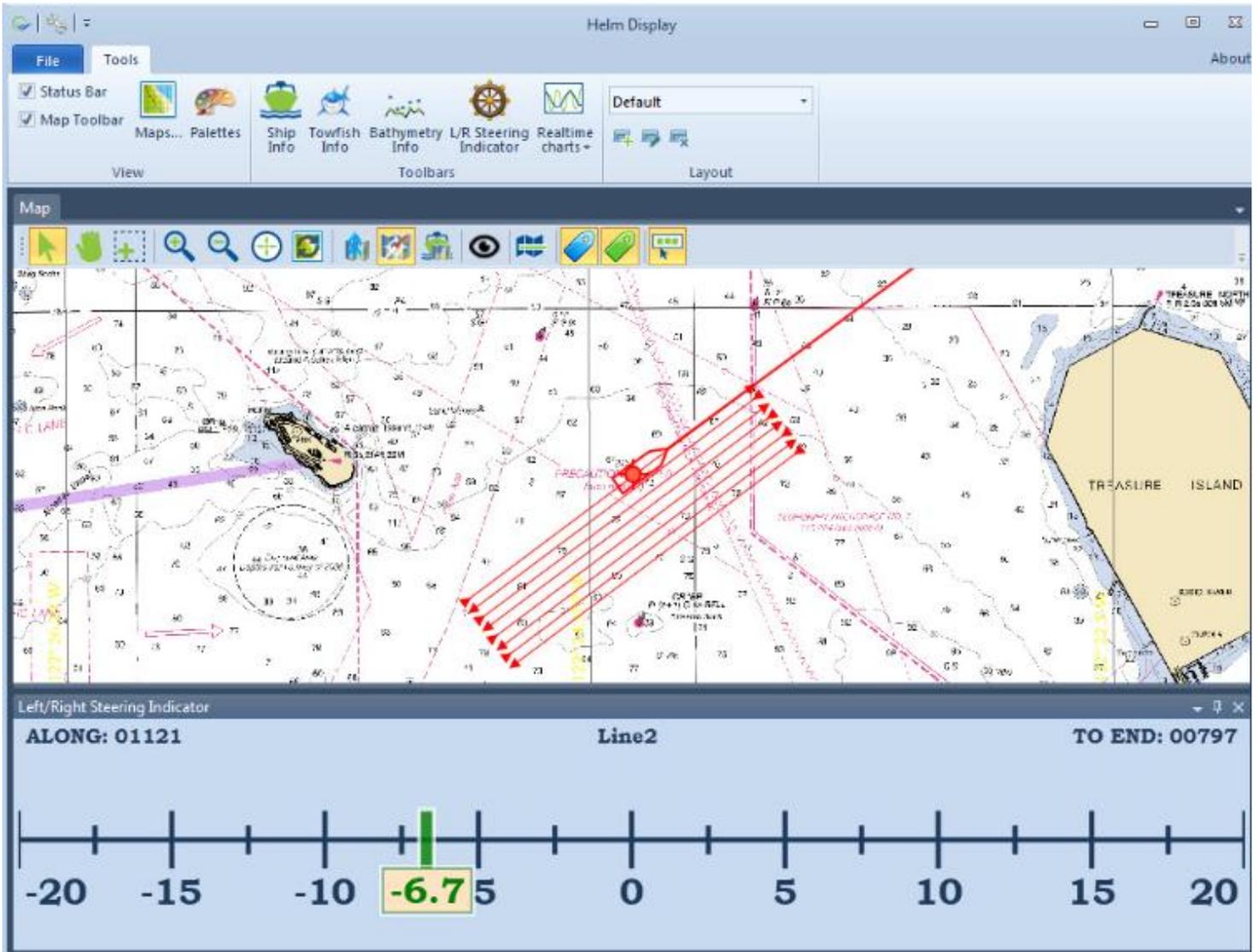
Software

Name	Description	Ver	Format	Posted
SonarWiz 6	SonarWiz 6, with sidescan, sub-bottom, bathymetry and magnetometry feature sets, and new GUI color scheme and button icons, and introductory CUBE bathy processing for you to try!	V6.01.0031	Self-installing EXE	10/16/2015 Download

Utilities

Name	Description	Ver	Format	Posted
Nav Injector Pro	Utility for injecting navigation and other data into CSF, JSF, SDF, SEG-Y, or XTF files using a template and ASCII source data file. Now available for EVALUATION. New support added for HSX/RAW nav correction of JSF files, in the import templates. Unzip into C:\Program Files (x86)\Chesapeake Technology, Inc\SonarWiz6\	V6.01.010	Zip file	9/1/2015 Download
Helm Display - 32-64-bit OS installer	Helm Display - try this and compare to the older NavWiz helm-display option of SonarWiz 5. This installer works on 32-bit or 64-bit OS. Extract and install.. Please use this with SonarWiz versions 6.01.0021 or a later version, because it uses the updated bathymetry packet format (revised to accommodate CUBE processing - coming soon!)	Rev 3 V1.0.56	ZIP file	8/6/2015 Download

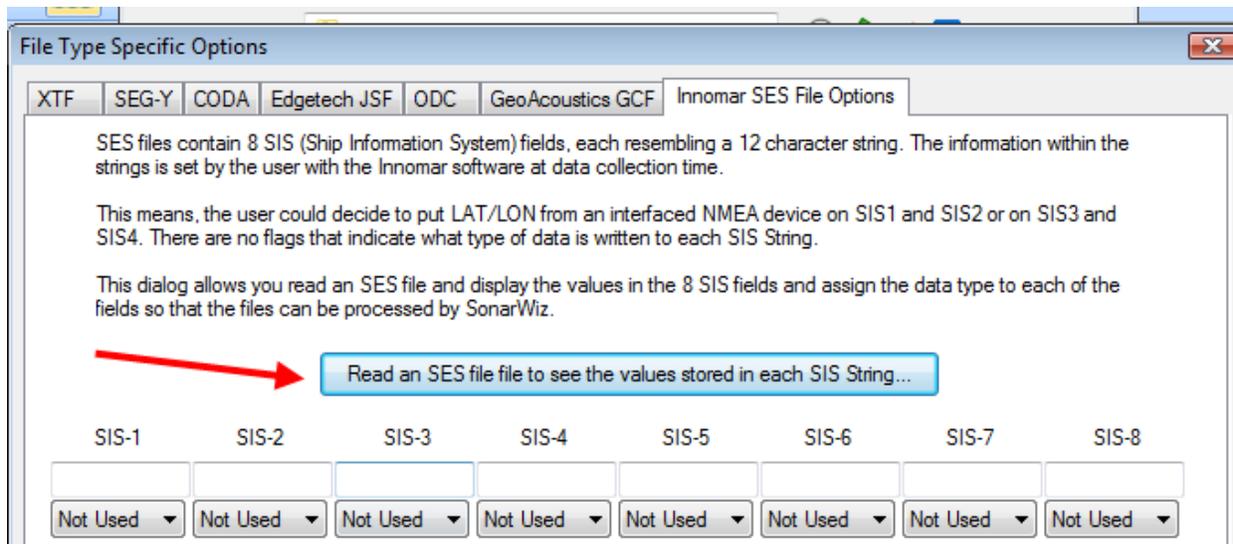
The Helm Display allows you to view your position in the context of a basemap chart, to help avoid obstacles:



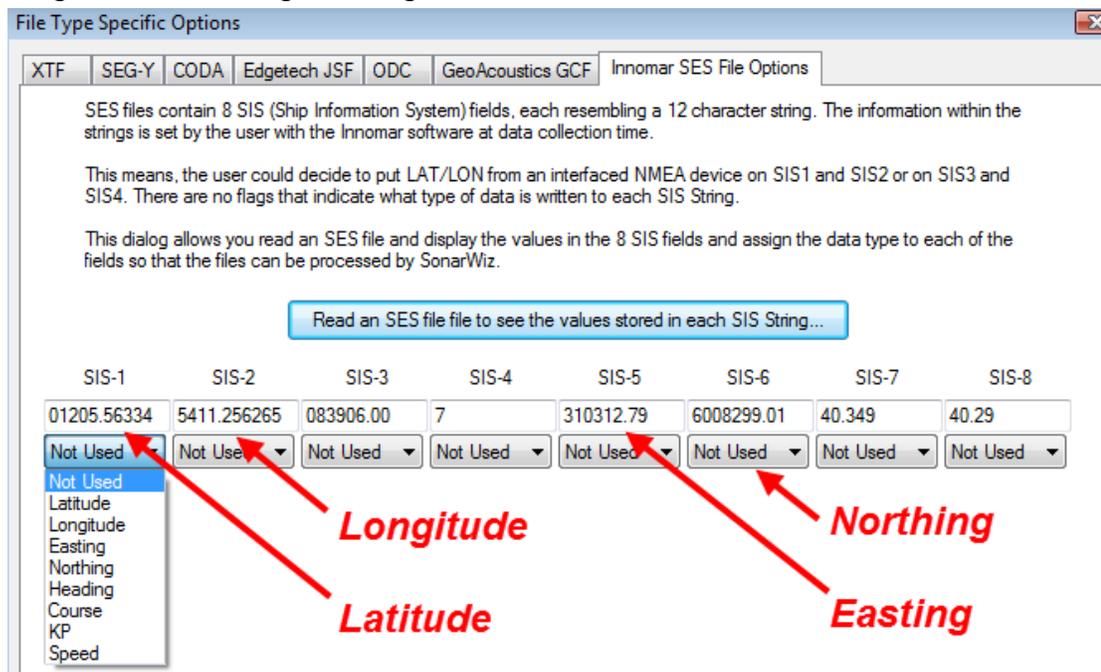
2.5 Sub-bottom Post-processing License features - Enhancements

The newest feature in sub-bottom post-processing in SonarWiz, is the ability to import Innomar SES-format sub-bottom files directly, in this native file format. Previously, the SES files needed to be converted to SEG format prior to import, but not any more!

Here are the import option controls you can use, to customize what types of data import from your Innomar SES file. Since there is variety in the ways Innomar has stored their files, you first PEEK at a sample SES file, to see what format was used:



When you read the SES file, and look at the numbers, you can decide whether to import using latitude, longitude, or easting/northing:



You can leave the other options as NOT USED:

Read an SES file file to see the values stored in each SIS String...

SIS-1	SIS-2	SIS-3	SIS-4	SIS-5	SIS-6	SIS-7	SIS-8
01205.56334	5411.256265	083906.00	7	310312.79	6008299.01	40.349	40.29
Not Used	Not Used	Not Used	Not Used	Easting	Northing	Not Used	Not Used

Then import and bottom-track the file and away you go!

