

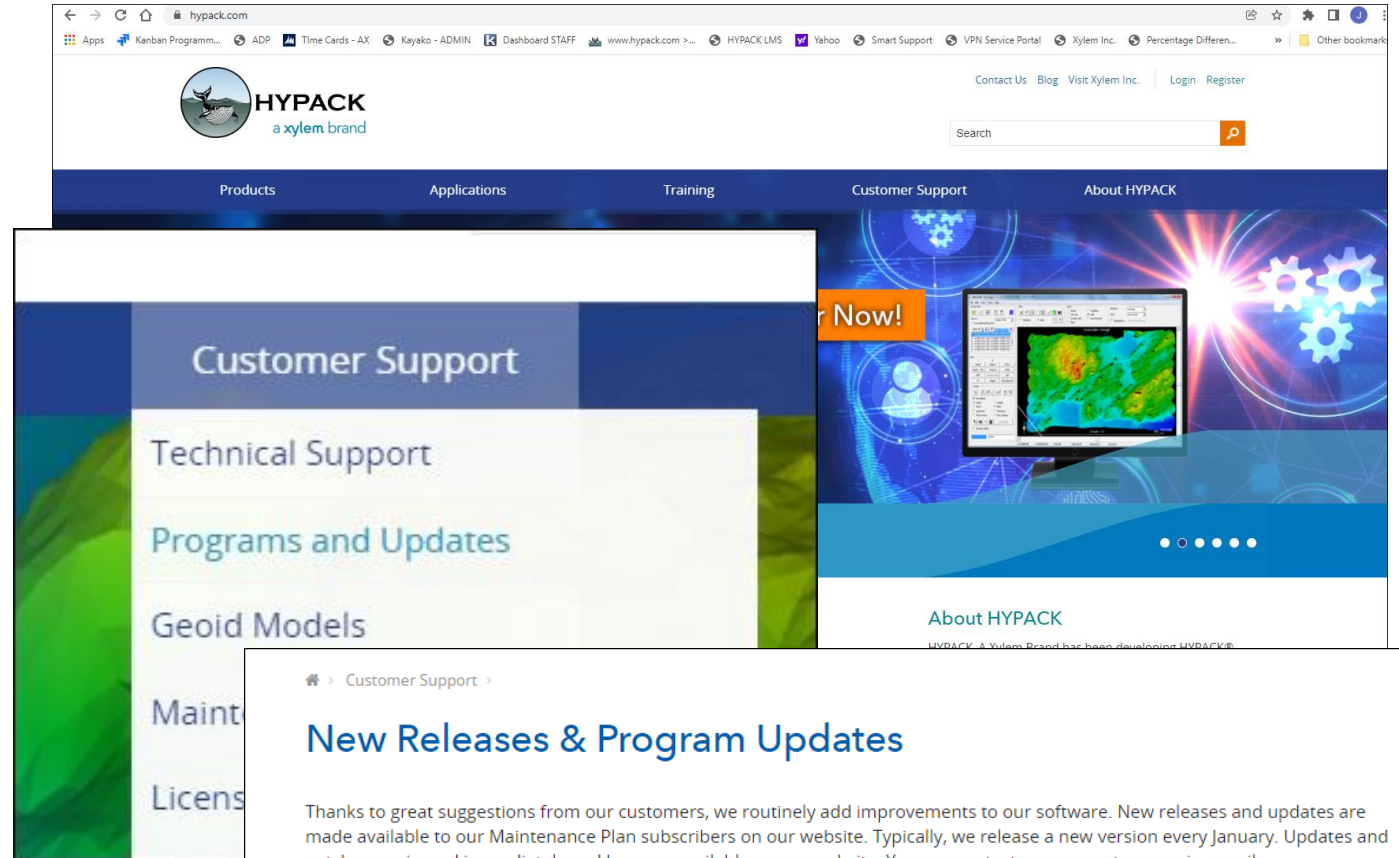
What's New in HYPACK 2022



HYPACK 2022

OVERVIEW

- Free to all MP members!
- Download from www.hypack.com
- Contains all updates from 2021 quarterly releases.
- Hundreds of new features, enhancements, bug fixes, etc.



Customer Support >

New Releases & Program Updates

Thanks to great suggestions from our customers, we routinely add improvements to our software. New releases and updates are made available to our Maintenance Plan subscribers on our website. Typically, we release a new version every January. Updates and patches are issued immediately and become available on our website. You can contact our support group via e-mail (help@hypack.com) if you have any issues downloading. Subscribers to our HYPACK Software Maintenance plan receive all updates and releases at no additional cost.

REMOTE ASSISTANCE (TEAMVIEWER) UPDATE

HYPACK has released a new version of Help - Remote Assistance (TeamViewer) in the HYPACK 2021 Q2 updates. If you are still using old versions of HYPACK or have not updated to HYPACK 2021 Q2, please do so now so HYPACK Support can continue to log into your machine if needed. As of September 15, 2021 TeamViewer no longer supports old version of TeamViewer. If you are still running old version of HYPACK with the old executable, it will need to be updated. **This update is available for download here:** [New Remote Assistance.exe](#)

DOWNLOADING THE RELEASE FILES

NEW PRODUCTS – Engineered to meet the job requirements

HYPACK ECHO

Simple Software for Single Beam Survey

- Replaces ULTRALITE
- Support for positioning devices, including RTK features
- Support for Echo-Sounders including those with Echogram capability
- Editing tools, including the SB Editor with Contour and Sort options to streamline workflow
- New HYPLOT MAX program to support final product renderings

HYPACK GEOPHYSICS

Side-scan, Sub-Bottom and Magnetometers

- Replaces SUBBOTTOM, ACOUSTIC
- Support for positioning devices, including RTK features
- Magnetometer interfaced to 24 models
- Sub-Bottom device interfaces to 11 models
- Side-scan interface supports 38 models
- Real-Time Mosaic during Survey aids in rapid target location and area coverage
- Post-Processing tools to complete the analysis of the survey
- New HYPLOT MAX program to support final product renderings

WATER QUALITY MAPPING

Software to cover ADCP and Environmental sensor data

- New license for new market
- Includes data collection and processing as well as HYPLOT and contouring.
- Support for positioning devices, including RTK
- Acoustic Doppler Profiler collection and editing
- User configurable interface to read up to 32 sensors and record them for later editing. If the interface does not exist, configure the Generic Parser to record your data
- New Water Quality Editor allows up to 32 sensor readings to be processed, cleaned, contoured and sorted for analysis
- New HYPLOT MAX program to support final product renderings

Customers that have an ULTRALITE, SUBBOTTOM or ACOUSTIC license will get free upgrade with new maintenance plan

AANDERAA®



SonTek



Environmental
Monitoring
Workshop '22



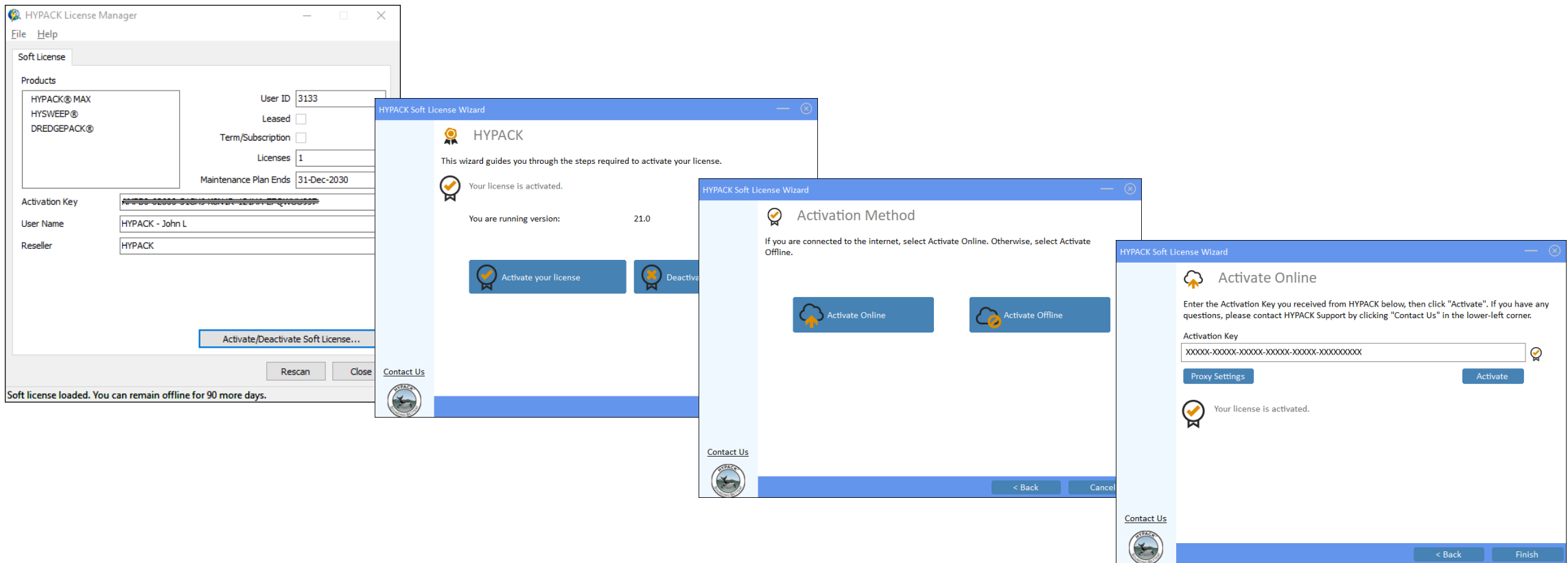
xylem
Let's Solve Water

SOFT LICENSE

- Web-based license activation.
- No need for a dongle!
- Easy transfer between computers, even if they are in different locations!

“Disadvantages”

- A soft license does not support ARCS and S63 chart permits.
- Needs internet access (every 90 days)



PROJECT WIZARD

- A new project wizard has been implemented for easier operation
- It allows to create a new project or open an existing one and make changes.
- Ideal for users who use the same vessel with the same hardware and work in the same project area.
- Your work might be predredge and postdredge surveys, historical comparisons for environmental studies or beach replenishment, or updating depth data in areas of high erosion or sedimentation.

The Project Wizard interface consists of four sequential steps:

- Welcome to Project Wizard!**: A sidebar on the left lists 'Setup Project Type', 'Create Project', 'Geodesy Settings', and 'Hardware Settings'. The main area has three radio buttons: 'Create New Project' (selected), 'Load Existing', and 'Copy Existing'. A 'Next' button is at the bottom right.
- Please enter New Project Name and select location to begin:**: Two input fields are present: 'New Project Name' (containing '2021 Demo') and 'New Project Location' (containing 'HYPACK 2020'). 'Back' and 'Next' buttons are at the bottom.
- Edit Geodesy Settings:**: A 'Grid' section has four radio buttons: 'UTM North' (selected), 'UTM South', 'State Plane NAD-83', and 'Other'. Below are dropdown menus for 'Zone' (set to 'Zone 1(180-174W)') and 'Distance Unit' (set to 'Meter'). An 'RTK Tide Method' field contains 'Not using RTK tide'. 'Back' and 'Next' buttons are at the bottom.
- Advanced Settings**: A tree view on the left shows 'Boat' expanded with sub-items 'HYPACK File Simulation', 'HYPACK Coverage Track', and 'Tide File 2'. On the right, an 'Edit Settings' table is shown:

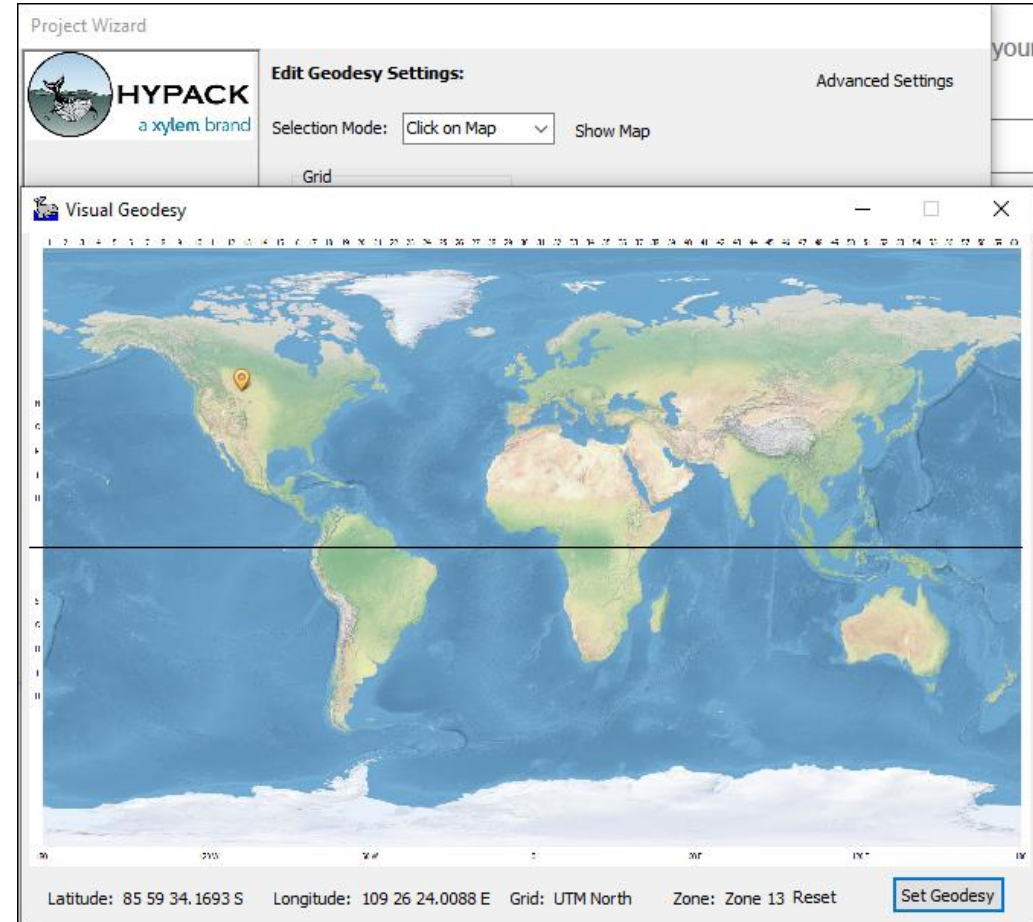
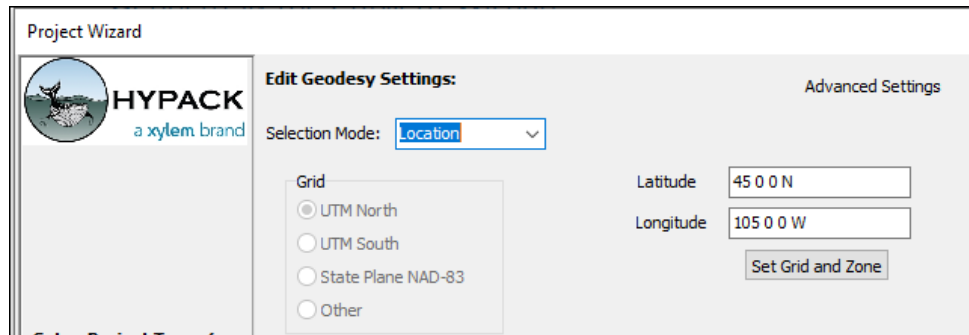
Information	Source
Position	HYPACK File Simulation
Depth	HYPACK File Simulation
Heading	none
Heave	none
Pitch	none
Roll	none
HYSWEEP Survey	Not Configured
Sidescan Survey	Not Configured

'Back', 'Finish', and 'Cancel' buttons are at the bottom of the final screen.



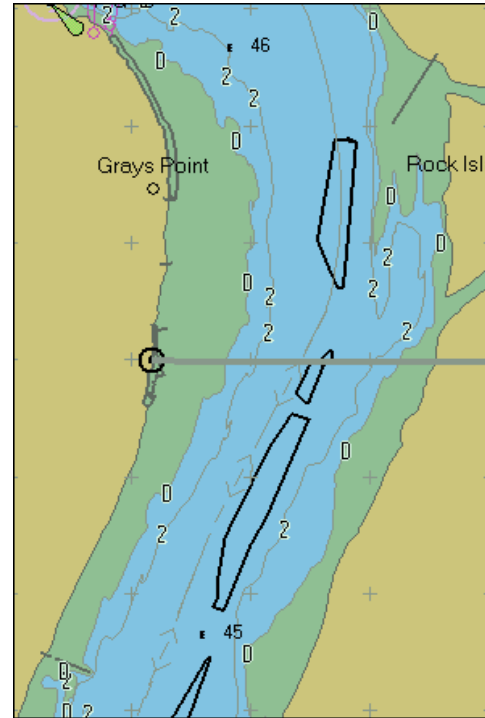
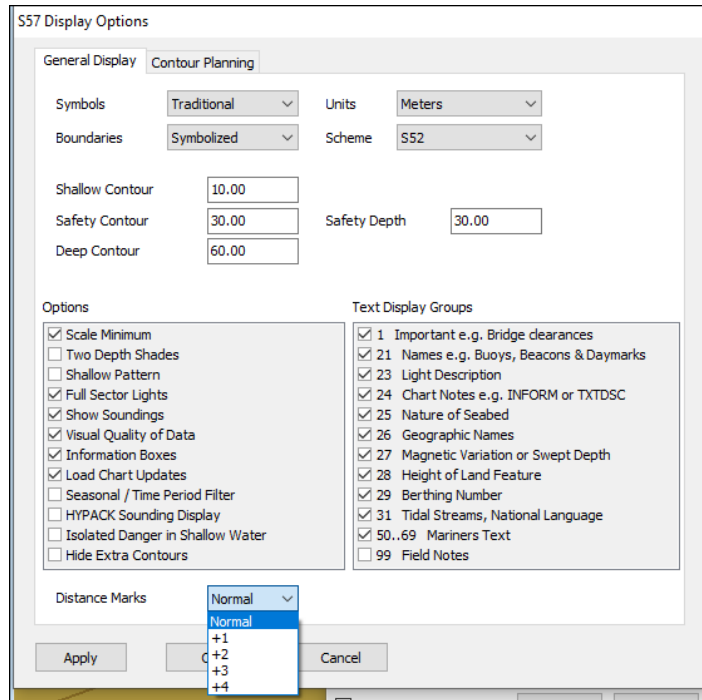
PROJECT WIZARD

- Select geodesy by entering latitude - longitude or click on map.
- HYPACK will select nearest UTM Zone.

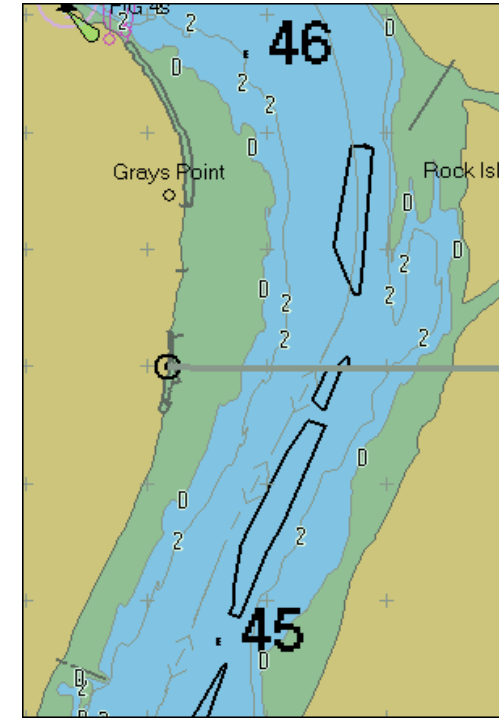


HYPACK SHELL – Continued

- Added ENVIRONMENTAL EDITOR to the PROCESSING menu.
- Added OBJ EDITOR to the PREPARATION-EDITORS menu.
- Updated to provide Polish language interface.
- Updated to provide Ukrainian language interface.
- ENC Charts - Distance Marks display option increases the font size for river mile numbers.



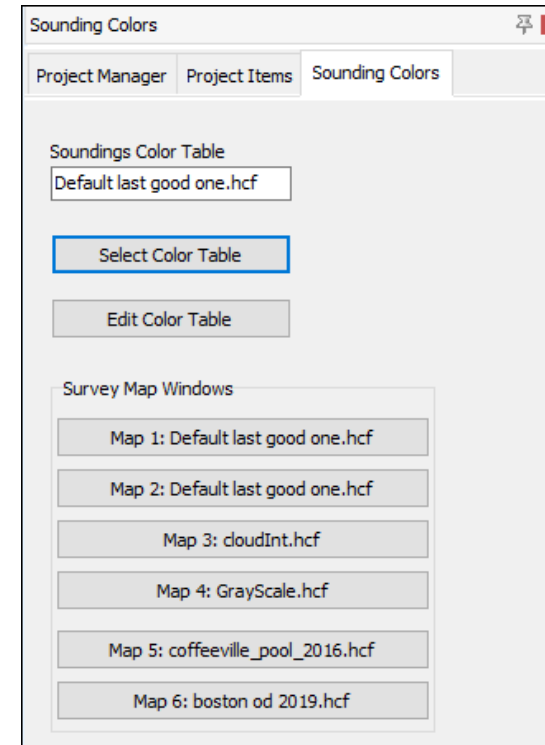
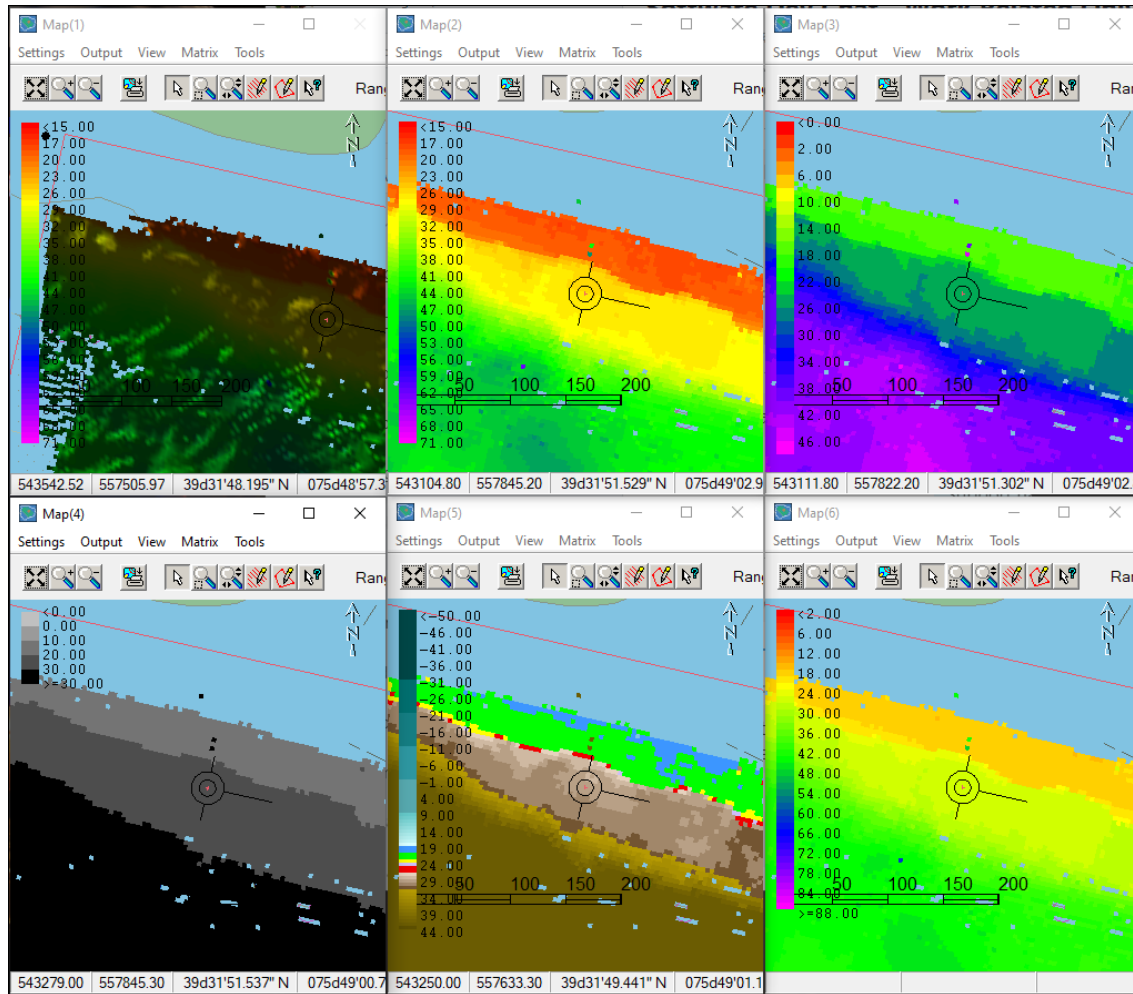
Normal



+2

PROJECT COLORS

- Assign colors to various Survey maps via Shell tab.



GEODESY - VDATUM

- Simplified VDatum
 - Eliminates an installer. Simply download the zones from NOAA website.
 - <https://vdatum.noaa.gov/download.phpwww>
 - Avoids potential IT restrictions regarding software installation.
 - Instantly updates the options for new and updated VDatum files. We don't have to synchronize our coding for each NOAA change, and users can implement NOAA changes instantly.
 - VDatum zone = NOAA folder name.

The image displays a screenshot of the VDatum software interface. The main window is titled "RTK Tide Method" and "Geoid Model". The "RTK Tide Method" section has radio buttons for "Not using RTK tide", "(K-N) from KTD file", "N from geoid model, K from KTD file", "N from geoid model, K from VDatum" (which is selected), and "N from geoid model, K from user value". The "Geoid Model" is set to "g2018-CONUS". The "Orthometric Height Correction" is set to "0.000 ftUS". The "VDatum zone" dropdown menu is set to "GASCNCsab31_8301". The "Chart Datum" is set to "Mean Lower Low Water".

Below the main window, there is a "Tidal Datums and NAVD88:" section with a table of datums. The table has columns for "Name", "Version", and "Height". The "vdatum_regional_20210602.zip [807 Mb]" file is highlighted in red. The "New Jersey/New York/Connecticut - Northern NJ, NY Harbor, western Long Island Sound, Version 3.4" entry is also highlighted in red. A red arrow points from the "GASCNCsab31_8301" dropdown menu to the "GASCNCsab31_8301" folder in the file list on the right.

On the right side, there is a file list window titled "datum > vdatum". The list shows several folders, with "GASCNCsab31_8301" highlighted in red. The folders listed are: FLapalach01_8301, FLGAeastbays31_8301, FLGAeastshelf41_8301, FLjoseph03_8301, FLpensac02_8301, FLsoicw01_8301, FLsouth12_8301, FLwest01_8301, GASCNCsab31_8301, LAMobile02_8301, LATXwest01_8301, MDVAchb12_8301, and MENHMAgome23_8301.

GEODESY – EPSG CODES

- Select Geodesy based on EPSG Code.
 - Choose “EPSG” tab.
 - Enter EPSG Code or select from dropdown list.

Geodetic Parameters

Tools Display Help

Predefined **EPSG**

Grids
NAD83

Zone
Connecticut (ftUS)

Distance Unit
US Survey Foot

Depth Unit
same as horizontal

Elevation Mode (Z-axis positive going up)

Ellipsoid
GRS-1980

Semi-Major Axis
6378137

Flattening
298.257222101

Datum transformation parameters

Delta X 0.000 Delta rX 0.00000

Delta Y 0.000 Delta rY 0.00000

Delta Z 0.000 Delta rZ 0.00000

Delta Scale 0.00000

Datum shift file

Projection
Lambert Conformal Conical

Central Meridian 072 45 0 W

Reference Latitude 40 50 0 N

Scale Factor 0.99996

North Parallel 41 52 0 N

South Parallel 41 12 0 N

False Easting 1000000

False Northing 500000

Local Grid Adjustment Local Grid

RTK Tide Method

Not using RTK tide

(K-N) from KTD file

N from geoid model, K from KTD file

N from geoid model, K from VDatum

N from geoid model, K from user value

(K-N) from user value

Geoid Model
g2018-CONUS

Orthometric Height Correction
4.07 ftUS

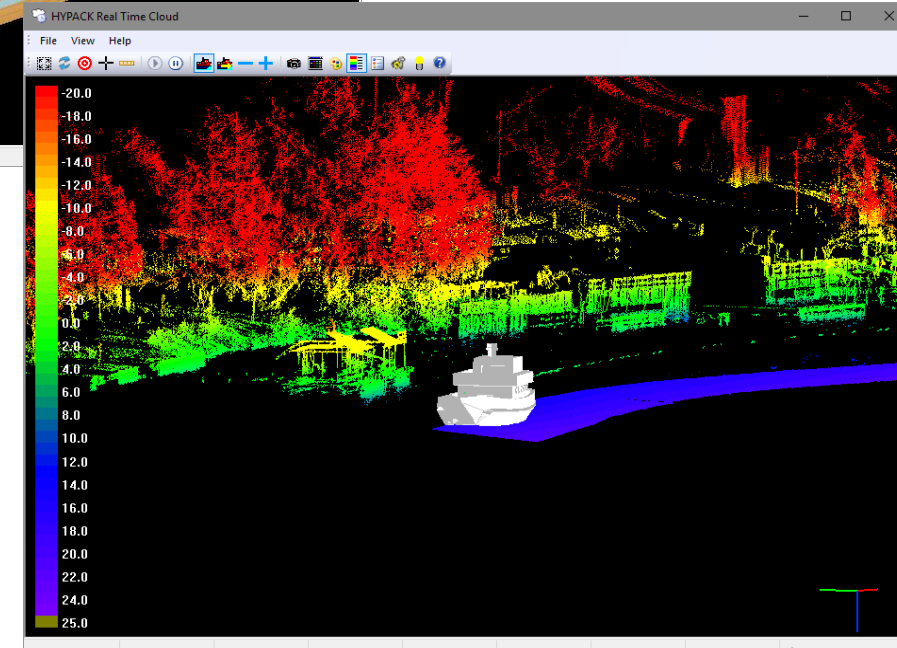
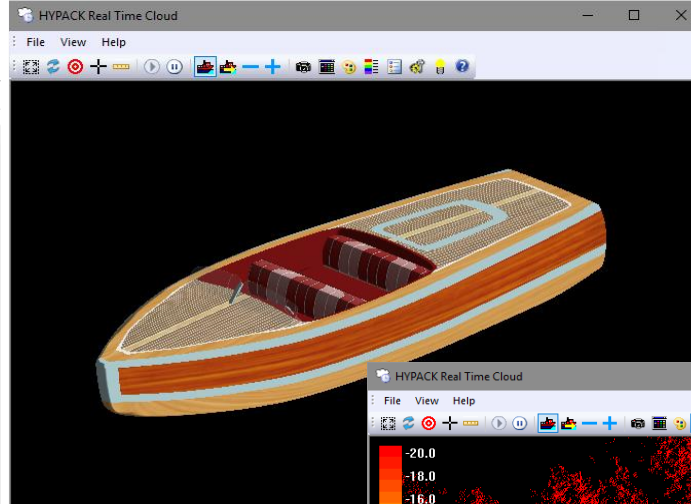
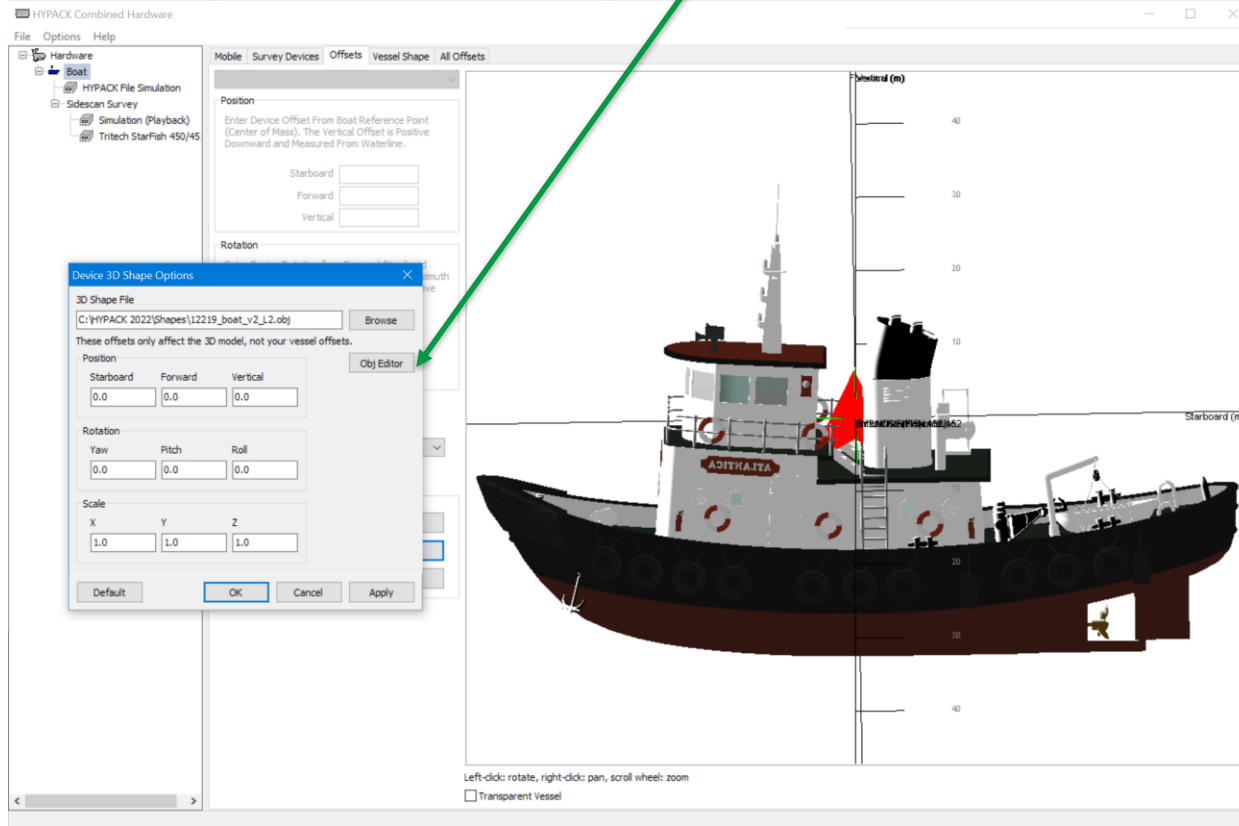
Height of geoid above chart datum 0.00

OK Cancel

HARDWARE

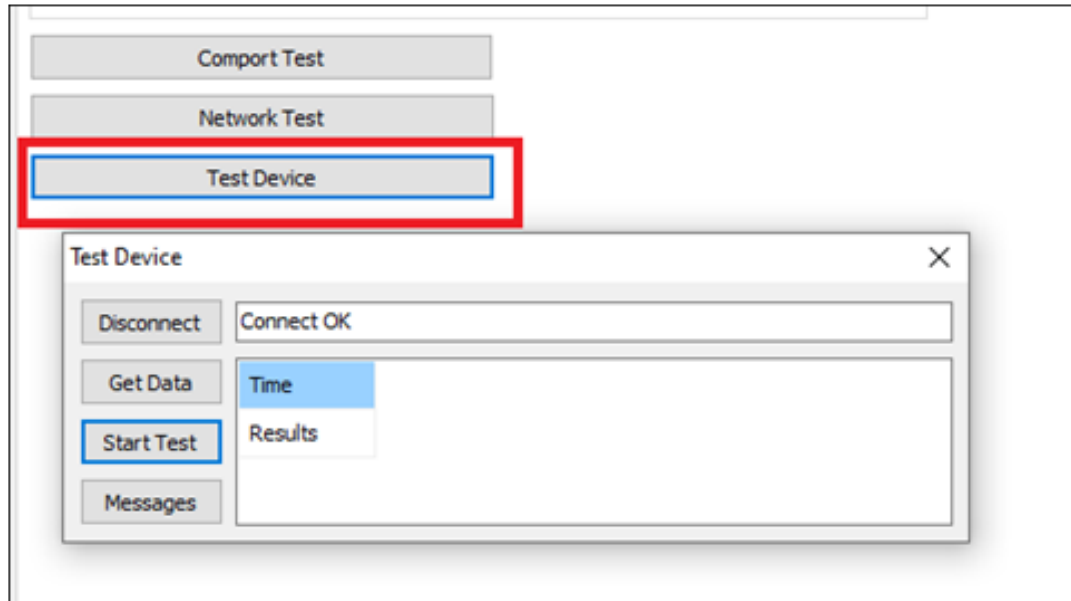
- Support for 3D OBJ boat shapes
- Edit OBJ parameters in OBJ Editor

- 3D OBJ Shapes in Real time Cloud display in Survey



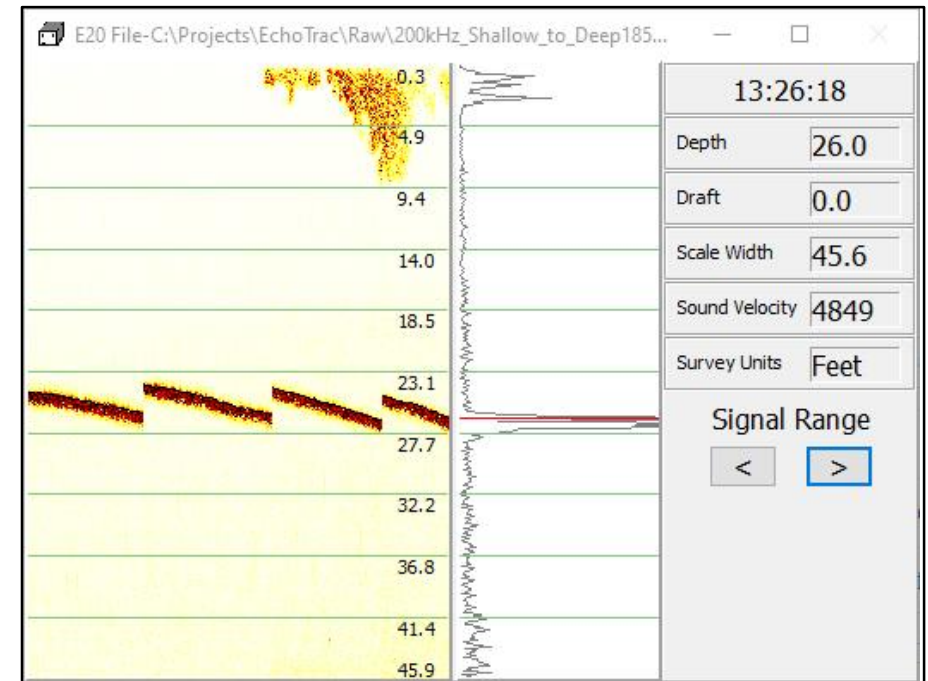
HARDWARE

- New Test Device window for MB and SS devices.



DEVICE DRIVERS

- Added support for 32-bit echogram. Any data logged with the E20 is logged at full-quality—no downsampling as in earlier versions.
- Survey device window includes Signal Range buttons to adjust the display brightness.
- 32-bit and 64-bit Single Beam Editors have also been updated to process echogram data.



SURVEY DRIVERS – More!

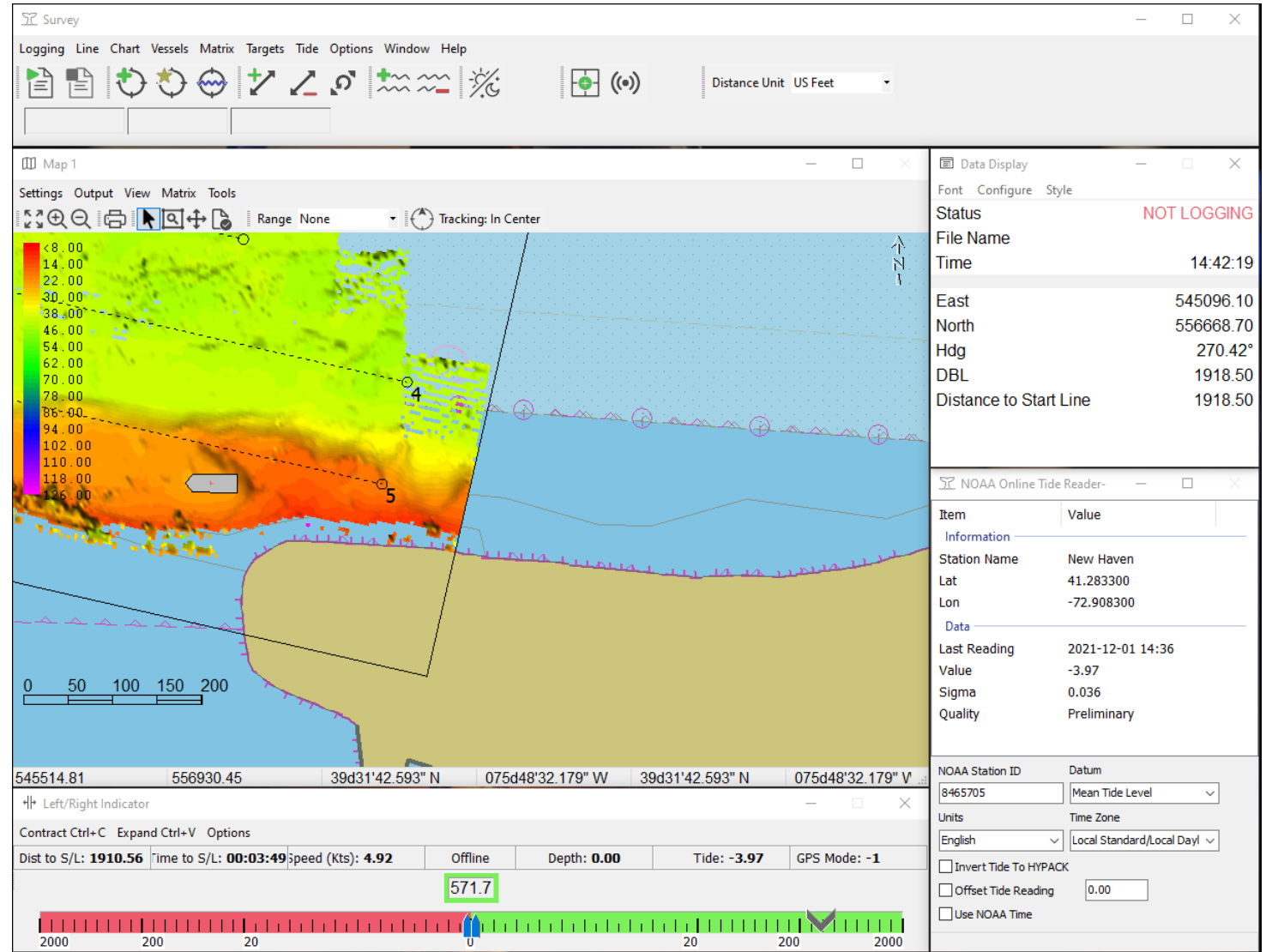
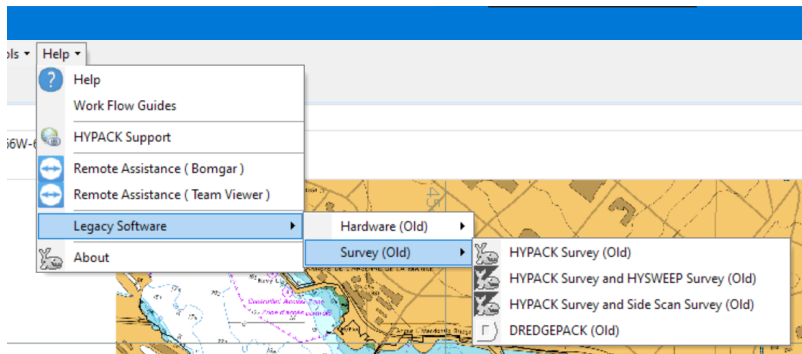
DRIVER	CHANGES
Advanced Nav INS driver	<ul style="list-style-type: none">• Corrected inverted heave.
DQM_Mechanical.dll	<ul style="list-style-type: none">• Enhancements and bug fixes• Added US Digital T7 sensor
Geodimeter Driver	<ul style="list-style-type: none">• Added support for Trimble S6 Robotic Total Station
Magnet.dll	<ul style="list-style-type: none">• Changed the Marine Magnetics labels to be more clear• Added support JW Fisher Proton 5
PosMV.dll	<ul style="list-style-type: none">• Fixed SURVEY crash if Tide is disabled.
Towfish.dll	<ul style="list-style-type: none">• Added [Reset Towfish Position] to reposition the towfish at its maximum cable length directly behind the vessel until the driver receives device input data to calculate it.• Added an LCI-90i “Legacy” option
Vectornav.dll	<ul style="list-style-type: none">• Support for VectorNav IMU

SURVEY DRIVER UPDATES - Even More!

DRIVER	CHANGES
GenCutterDQM.dll	<ul style="list-style-type: none">• Based on the original GenDevParse with a few additions
NOAATides.dll	<ul style="list-style-type: none">• Added tide offset• Option to use NOAA time.
Inclinometer.dll	<ul style="list-style-type: none">• Added the 2Gig Engineering option• Added Telestra / SignalQuest sensor
GPS.dll	<ul style="list-style-type: none">• Enhanced PTNL,GGK quality indicator codes

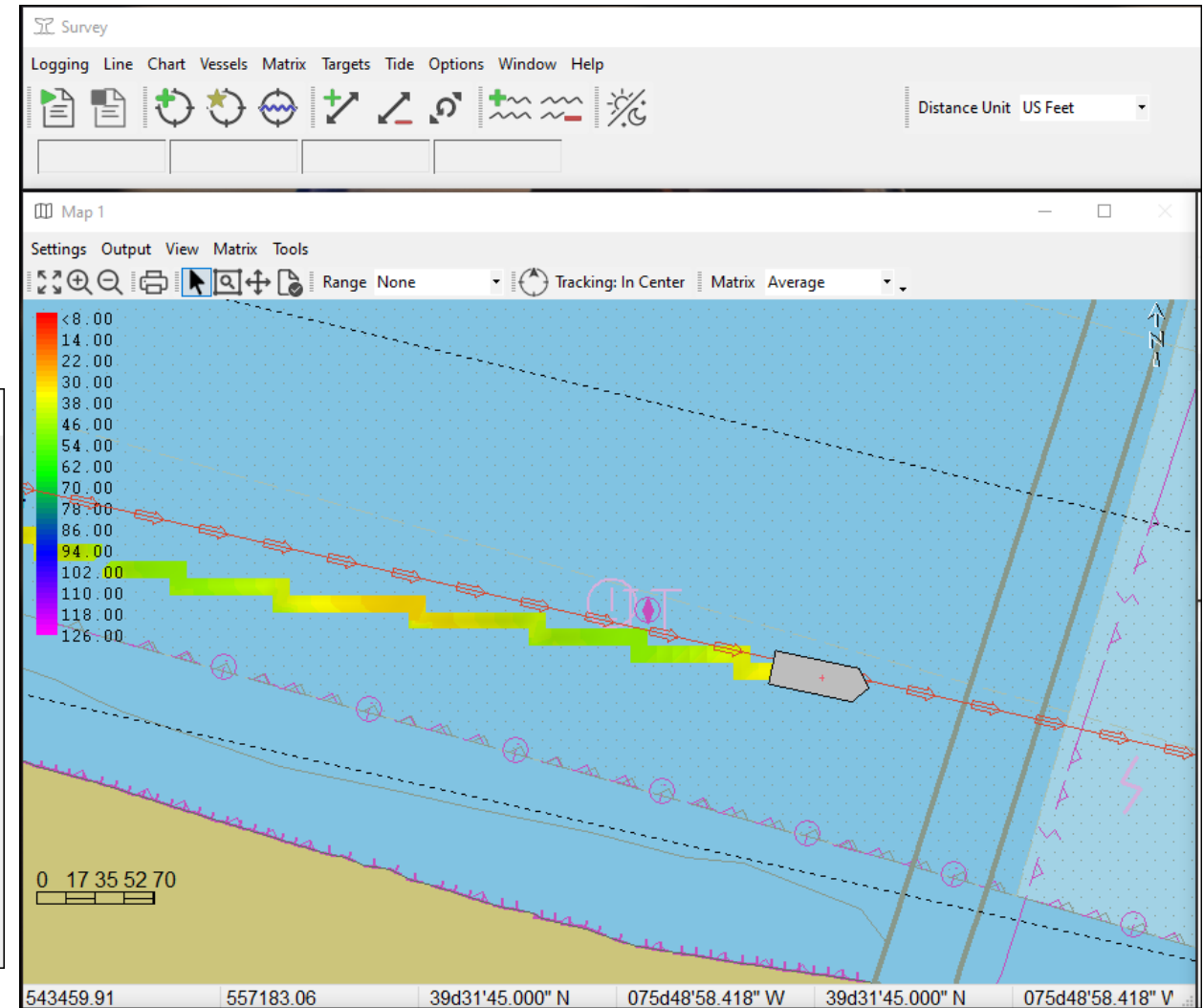
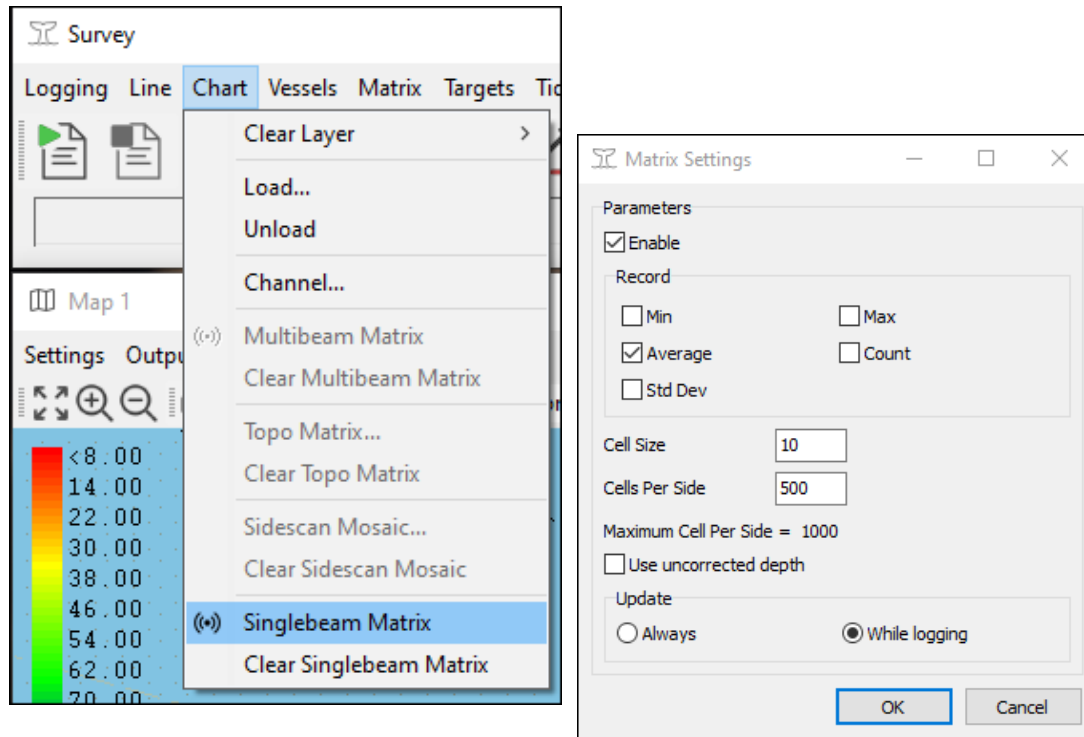
SURVEY

- New code base!
- Same functionality.
- Updated icons.
- More reliable.
- Easier to update with new features.
- The old Style SURVEY program is still there..



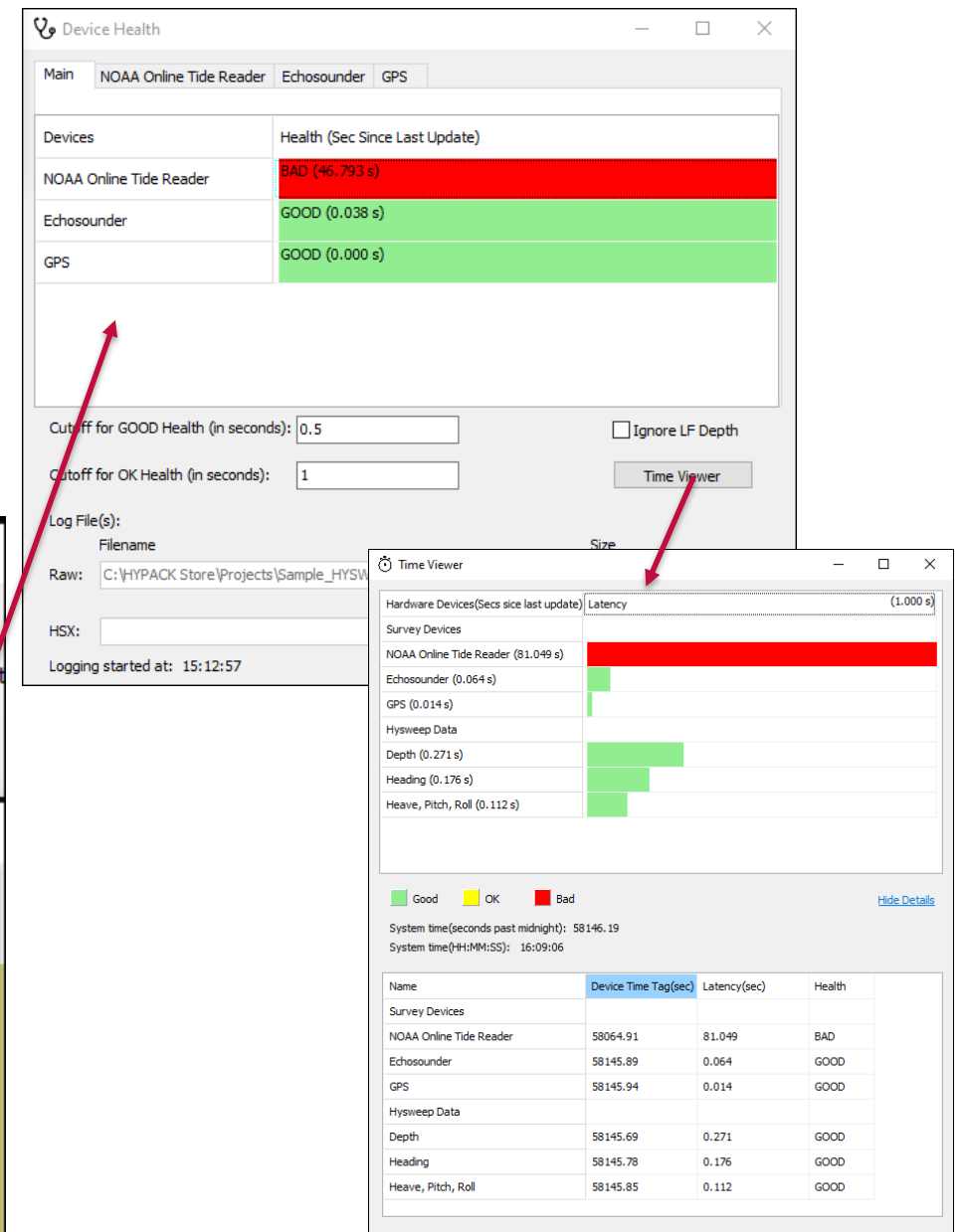
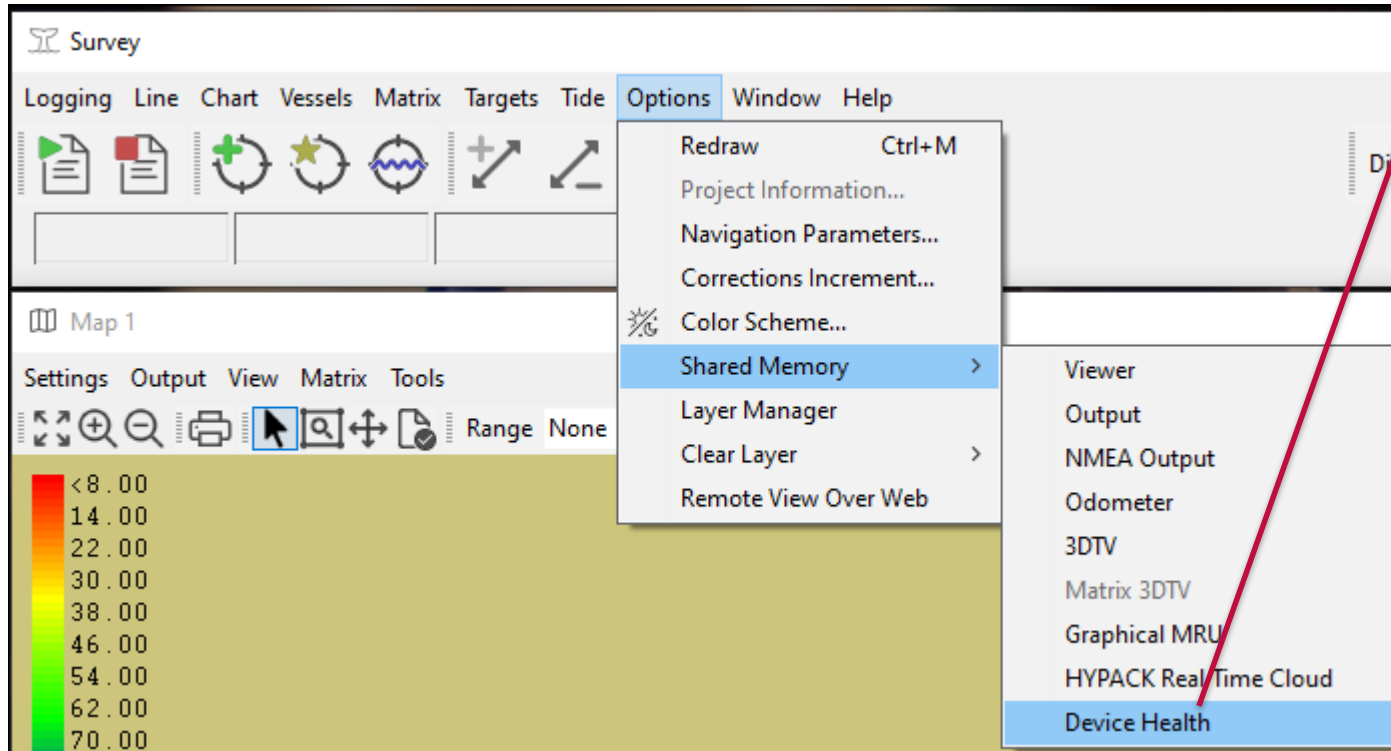
SURVEY – Single Beam Auto Matrix

- Automatically paint matrix with single beam echosounder data.
- Same options as multibeam auto matrix.



SURVEY – Device Health

- Launches from Survey program
- Tracks device timing from HYPACK, HYSWEEP and Side Scan devices.
- Color coded warning indicators.
- Tracks file logging and file size.



SURVEY LOG

- Automatically saves data to *.csv file so survey can be reloaded.
- Import Survey *.log file.
- Import/export header info
- Export sheet to PDF, XLS and CSV format files
- Add custom header fields
- Log targets to Memo section

Survey Log Sheet Creator

File Preferences Help

HYDROGRAPHIC SURVEY LOG SHEET Survey # 061521 Sheet 1 1

Project Details Log Targets Date 03 - Dec - 21

Halifax Harbor Test

Fathometer Frequency 200 Khz Survey Crew R. Ruffman

Draft of Fathometer 1.1m Survey Vessel SV Das Boot

GPS Mode RTK Sea State Calm

GPS Latency 0 Avg. Speed of Sound 1500

Vessel Squat 0.2

Project Bench Mark Georges Island

Bench Mark Elev and Datum 007 @ 3.33m

Bench Mark LAT/Y 44 38 28 N

Bench Mark LONG/X 063 37 37 W

Horizontal Datum UTM WGS84

Vertical Datum NAVD88

MLLW-NAVD88 Relationship 0

HYPACK File Information

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Delete Custom Header Fields

Field Name	Value
Crew 1	Pete S
Crew 2	Bob B

Add Field

Delete Field

Line #	Line Name	Start Time	End Time	Tide	Speed	Heading	HDOP
1	1	16:13:00	16:13:39	0.00	21.57	162.14	0.00
2	1	16:13:39	16:13:55	0.00	20.37	162.14	0.00
3	2	16:13:58	16:14:08	0.00	23.49	162.14	0.00
4	3	16:14:26	16:14:31	0.00	25.10	162.14	0.00

Note: Changes to Survey Log grid will be autosaved to survey_log.csv located in the project folder.

Delete Header Delete Data Delete Row Skip Line Export as Close

File Preferences Help

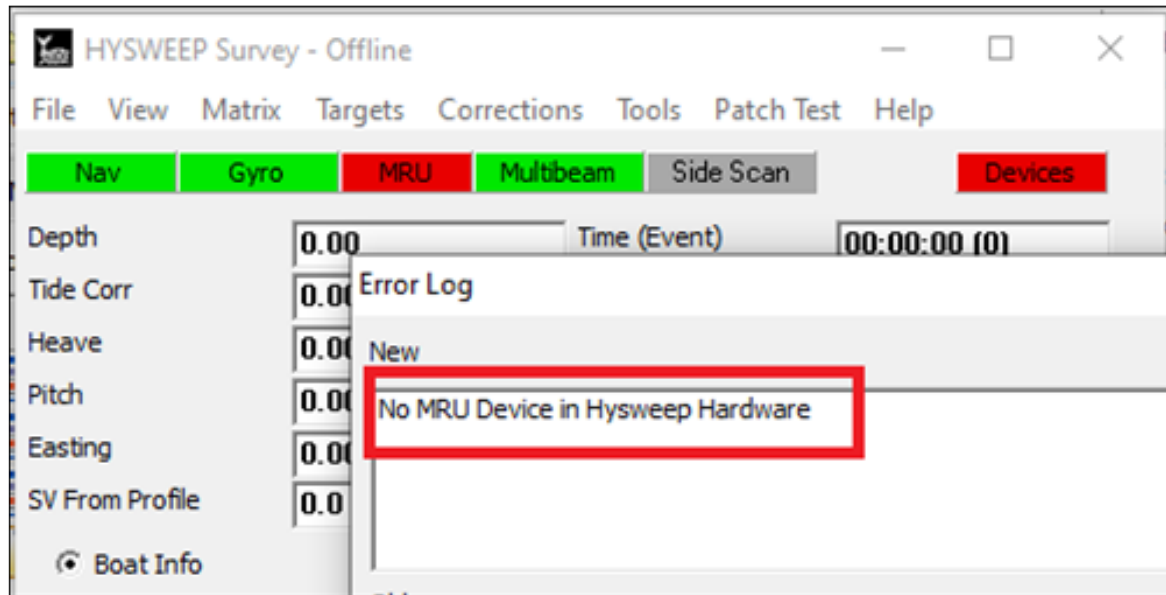
HYDROGRAPHIC SURVEY LOG SHEET

Project Details Log Targets

Halifax Harbor Test

HYSWEEP SURVEY

- IMU warning if no attitude device is installed



HYSWEEP SURVEY DRIVERS

DRIVER	CHANGES
Advanced Nav INS driver	<ul style="list-style-type: none">• Corrected inverted heave.
AML Driver	<ul style="list-style-type: none">• Support for AML-3 and AML-6 SVPs
Kongsberg drivers	<ul style="list-style-type: none">• Supports Kongsberg KMALL datagrams.• Sonar frequency logged in RMB datagrams of HSX file.• Supports GPS transfer to HYPACK Survey via the HYSWEEP_Extended.DLL.
WASSP driver	<ul style="list-style-type: none">• Extend slant range maximum from 650 m to 65,000 m.
Klein Drivers	<ul style="list-style-type: none">• Updated to latest Klein SDK
VectorNav Driver	<ul style="list-style-type: none">• Support for VectorNav IMU

Other: Added an option to suppress logging WGS84 data to HSX files
(FILE –LOGGING OPTIONS in HYSWEEP Survey).

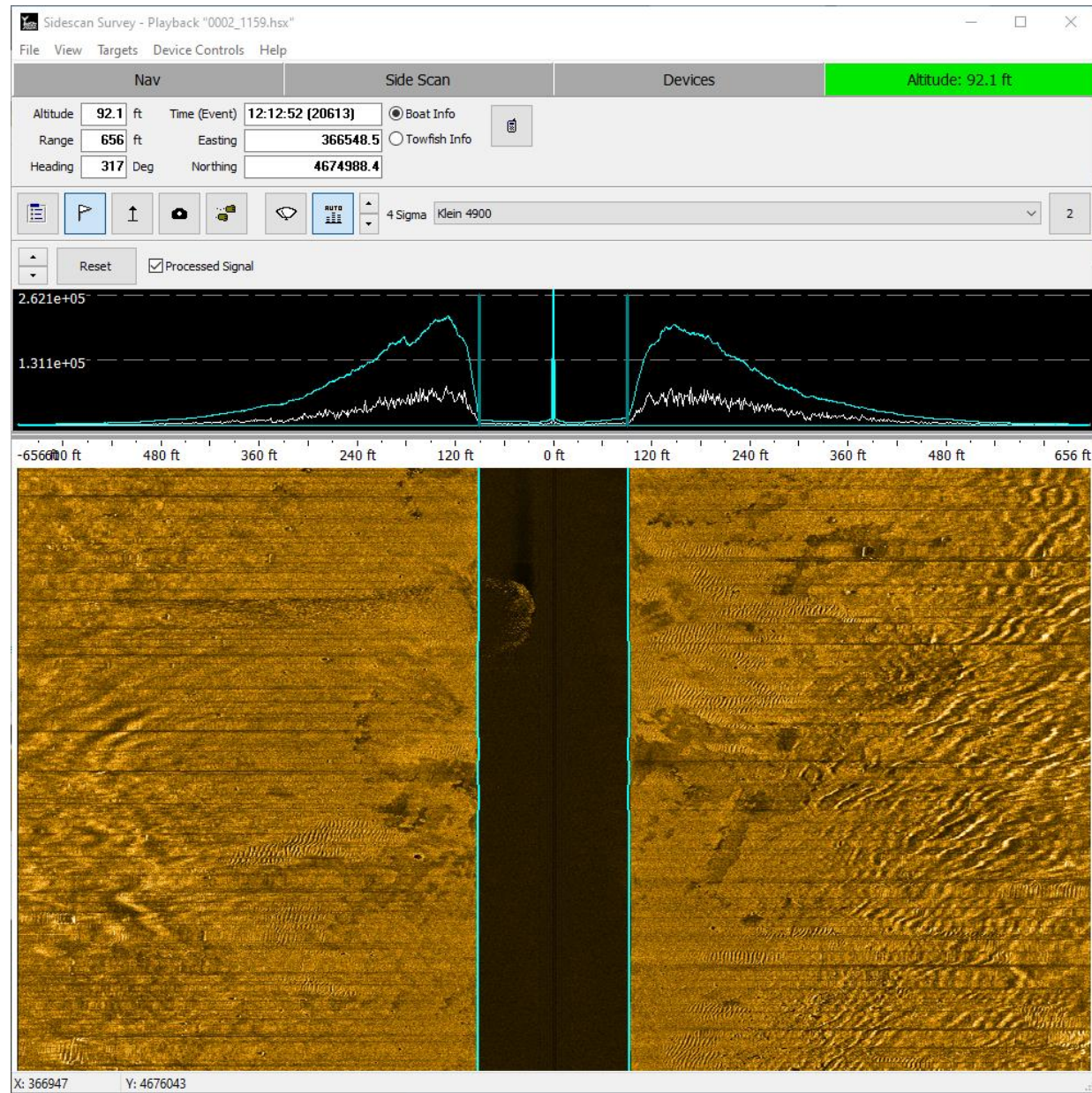
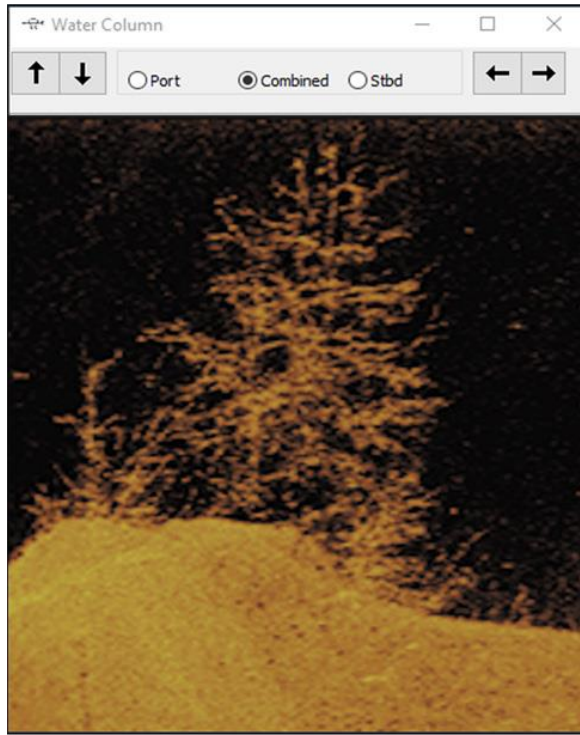
TPU EDITOR

- Added IHO Exclusive Order to Estimation Graph Parameters.

The screenshot displays the TPU Editor interface. On the left, three stacked graphs show uncertainty metrics over 256 beams. The top graph is 'Depth Uncertainty (m)' with a red curve. The middle graph is 'Position Uncertainty (m)' with a green curve. The bottom graph is 'Target Detection (m)' with a blue curve. Each graph has a horizontal line labeled 'IHO Exclusive' at approximately 0.25m. The x-axis for all graphs is labeled from 1 to 256, with a vertical dashed line at 128. The right panel shows configuration settings for 'TPU Editor - TPE.ini'. Under 'Estimation Graph Parameters', the 'IHO Exclusive' checkbox is checked and highlighted with a red box. Other options include 'IHO Special Order', 'IHO Order 1' (radio button A selected), 'IHO Order 2', 'USACE Hard', and 'USACE Soft'. The 'Tuning Parameters' section includes settings for Amplitude/Phase Measurement Crossover (12 samples) and Amplitude Detect Denominator (6).

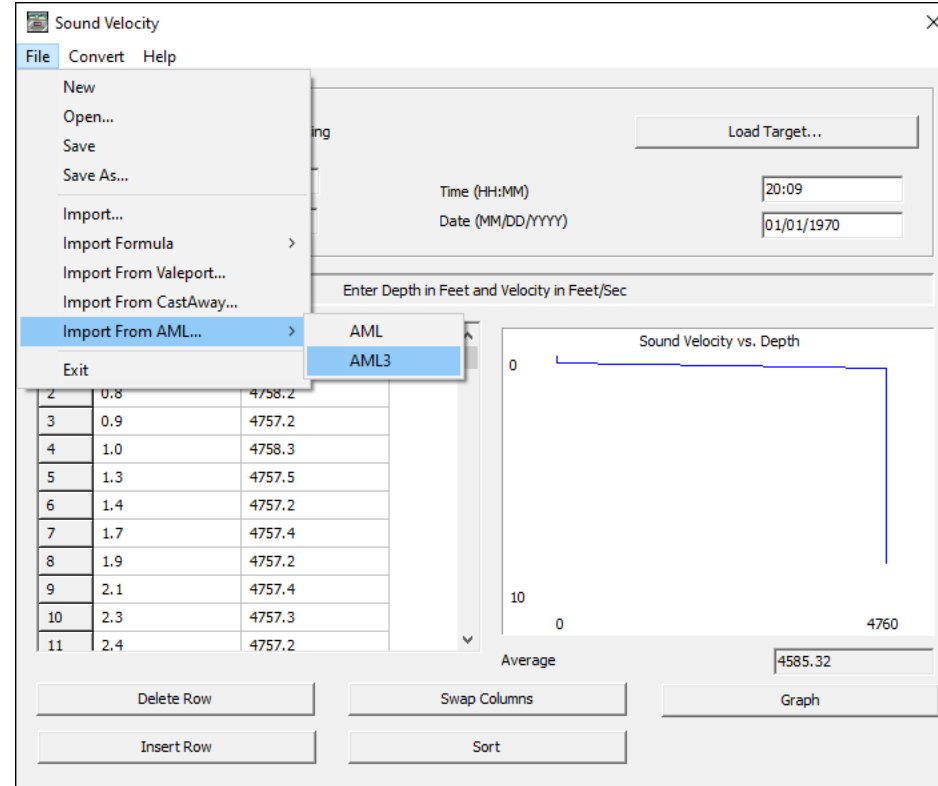
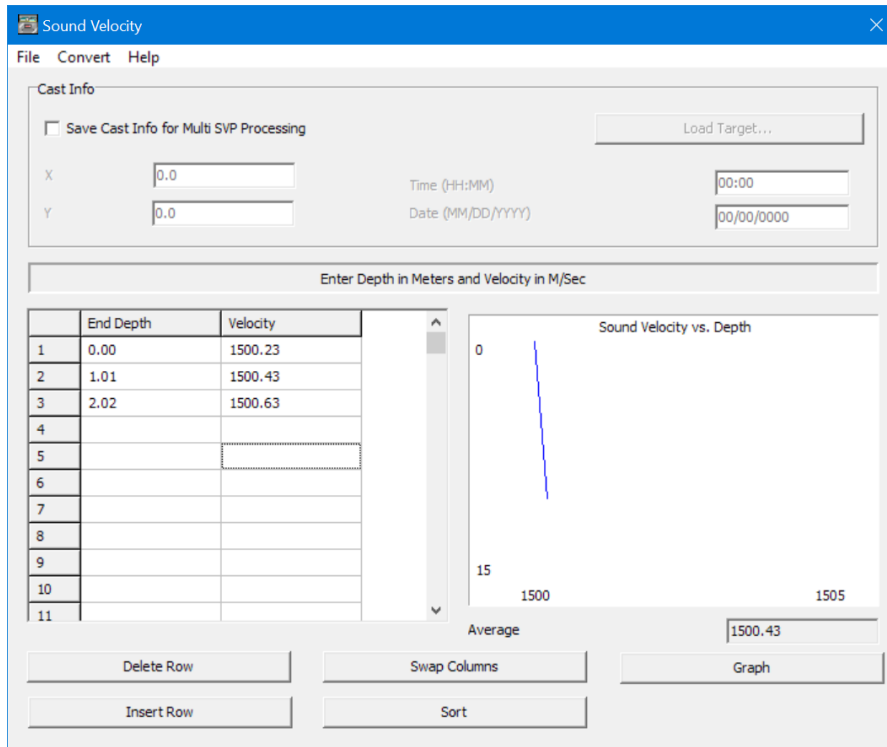
SIDE SCAN SURVEY

- Support for Edgetech 4205
- Upgraded to latest Klein SDKs
- New water column display



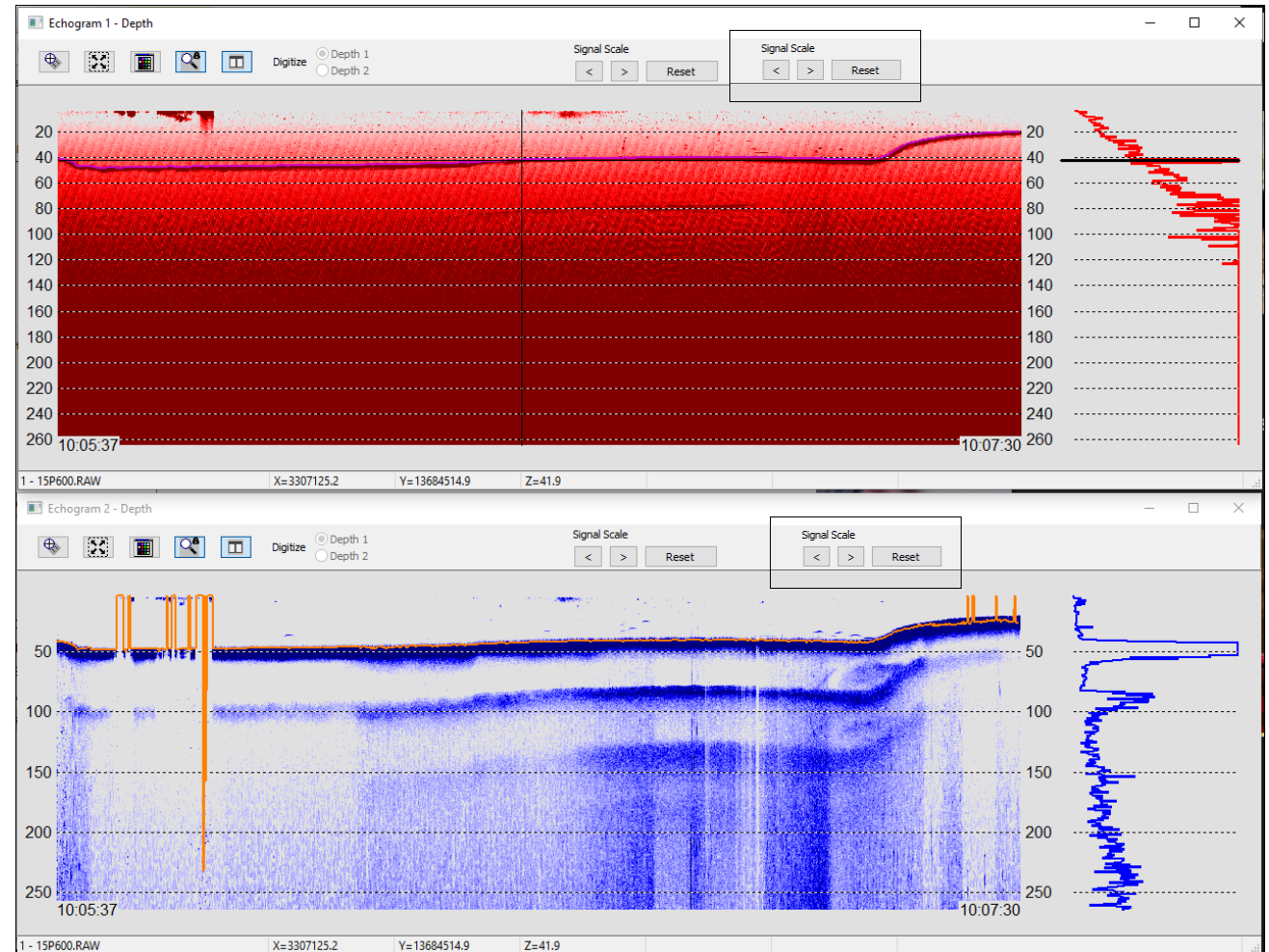
SOUND VELOCITY

- Added Support for AML-3 and AML-6 SVPs.
- Connects via WiFi
- Sound Velocity Profile imports with centimeter resolution, not decimeter.



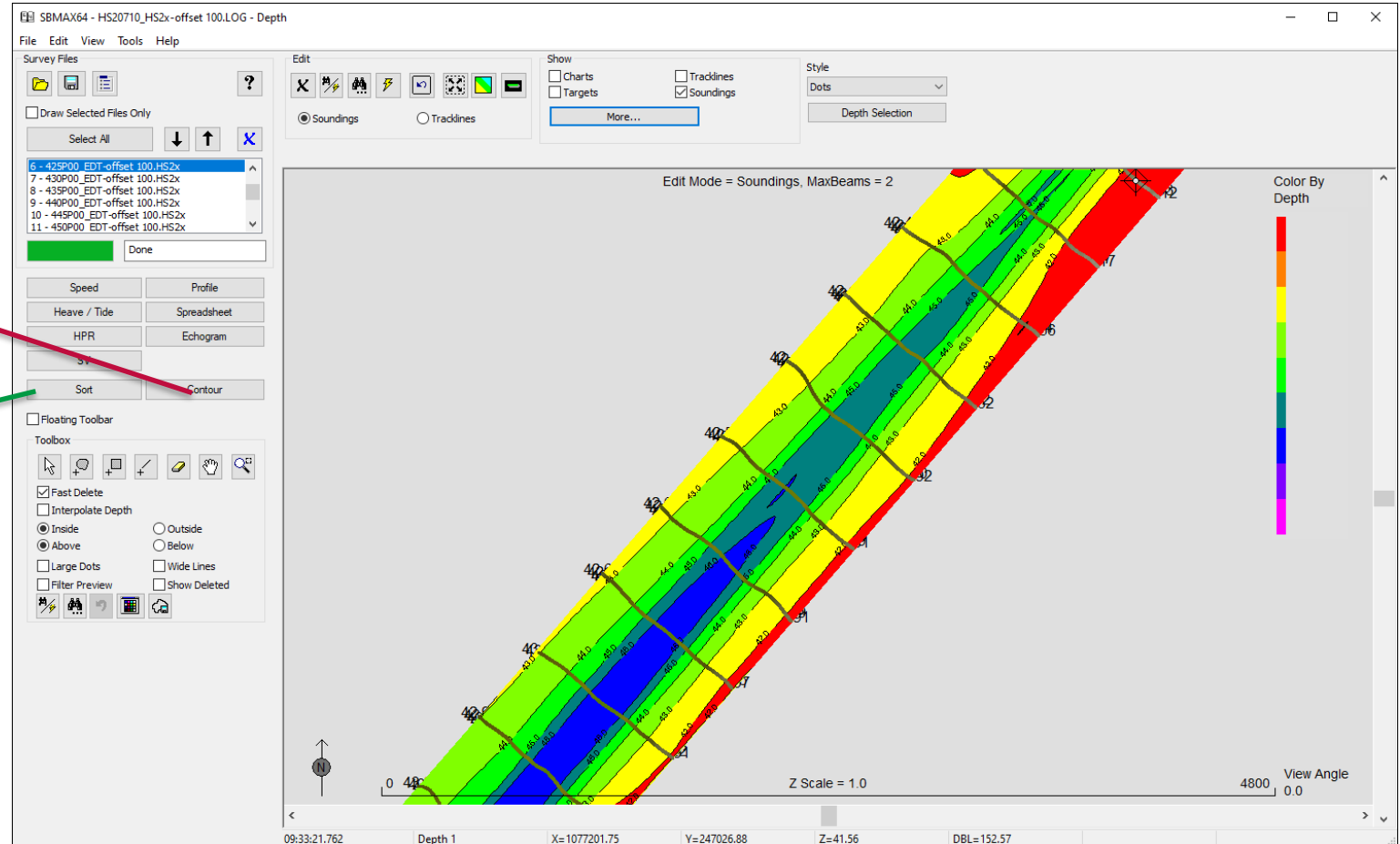
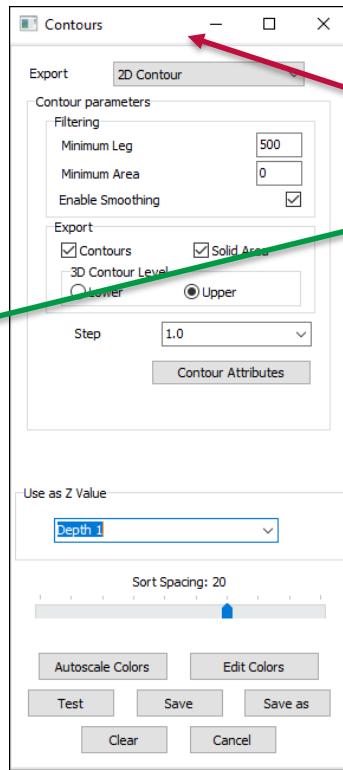
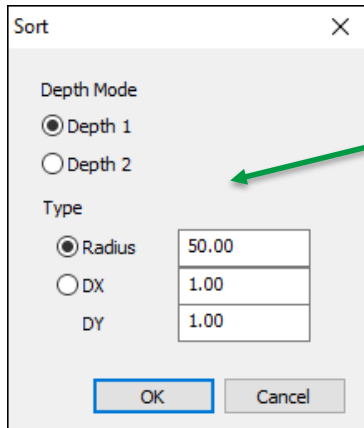
SBMAX64 – SINGLE BEAM EDITOR

- Updated to process the full-quality, 32-bit echogram data logged with the 21.2.x Echotrac E20 driver
- Faster echogram drawing!
- Signal Range buttons to adjust the display brightness.
- Split echogram into 2 windows!
- Many updates to the File Overlay options
- Reads up to 2000 raw files. (256 before)



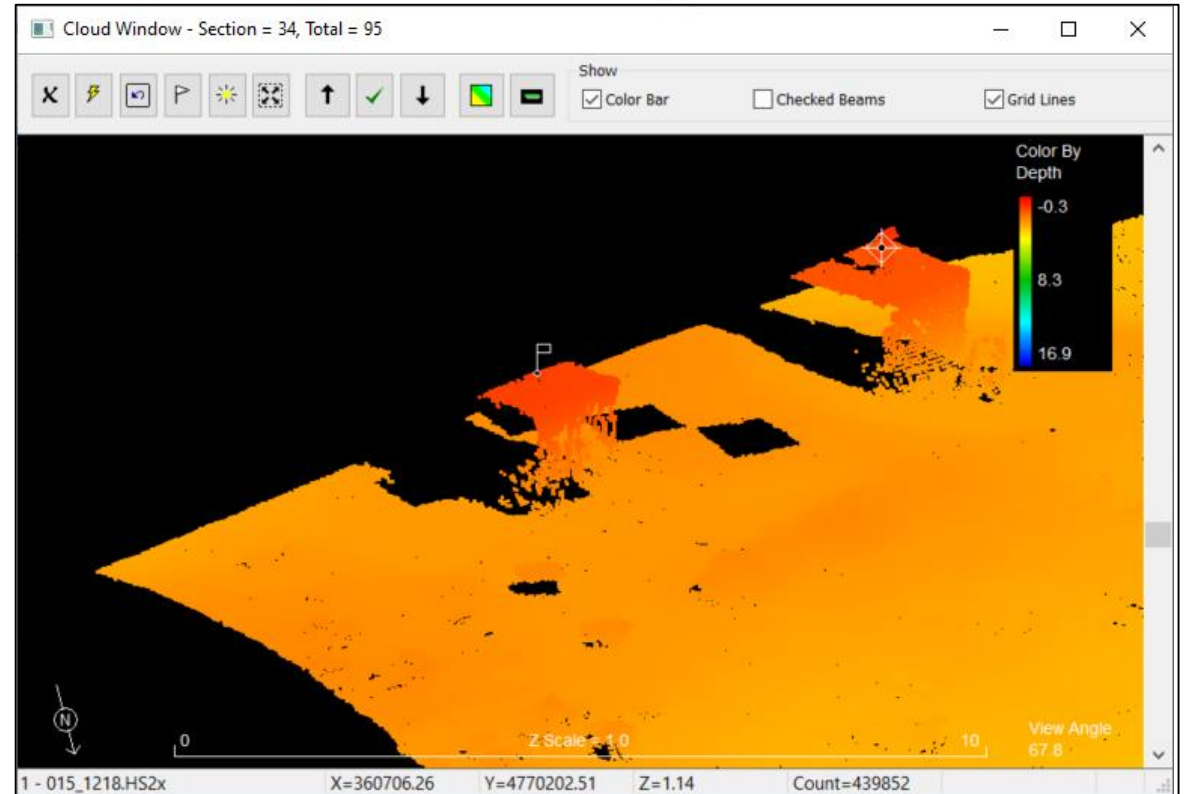
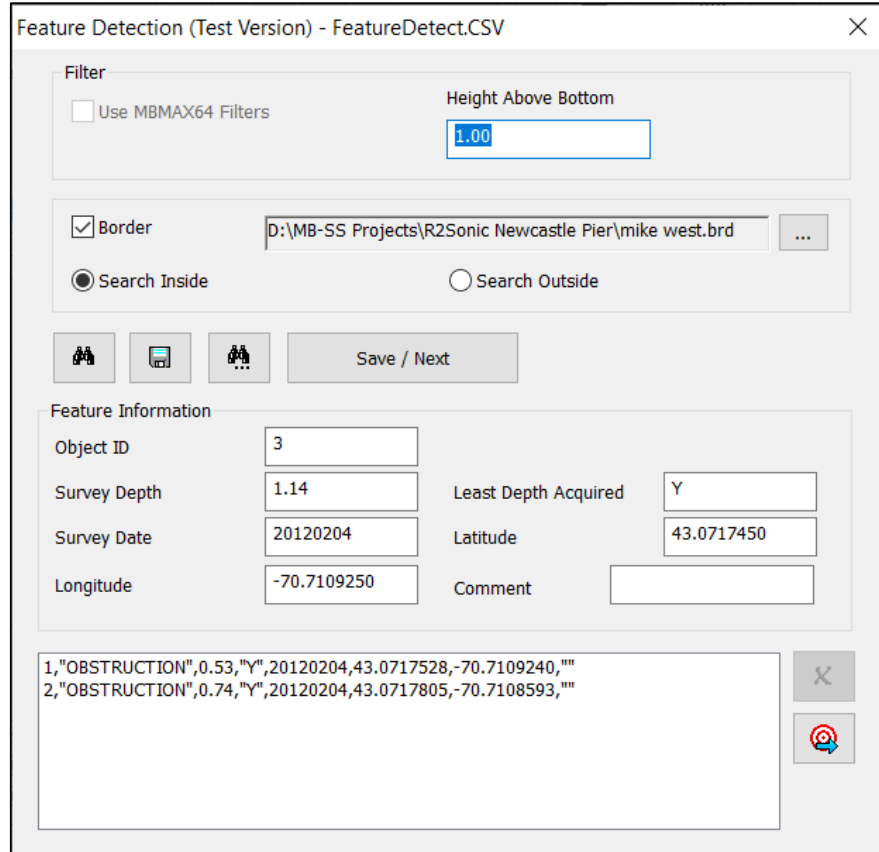
SBMAX64 – SORTING AND CONTOURING

- Sort and contour data right in SBMAX.
- Utilizes default sorting routine from Sort program.
- Utilizes contouring engine from TIN Model.



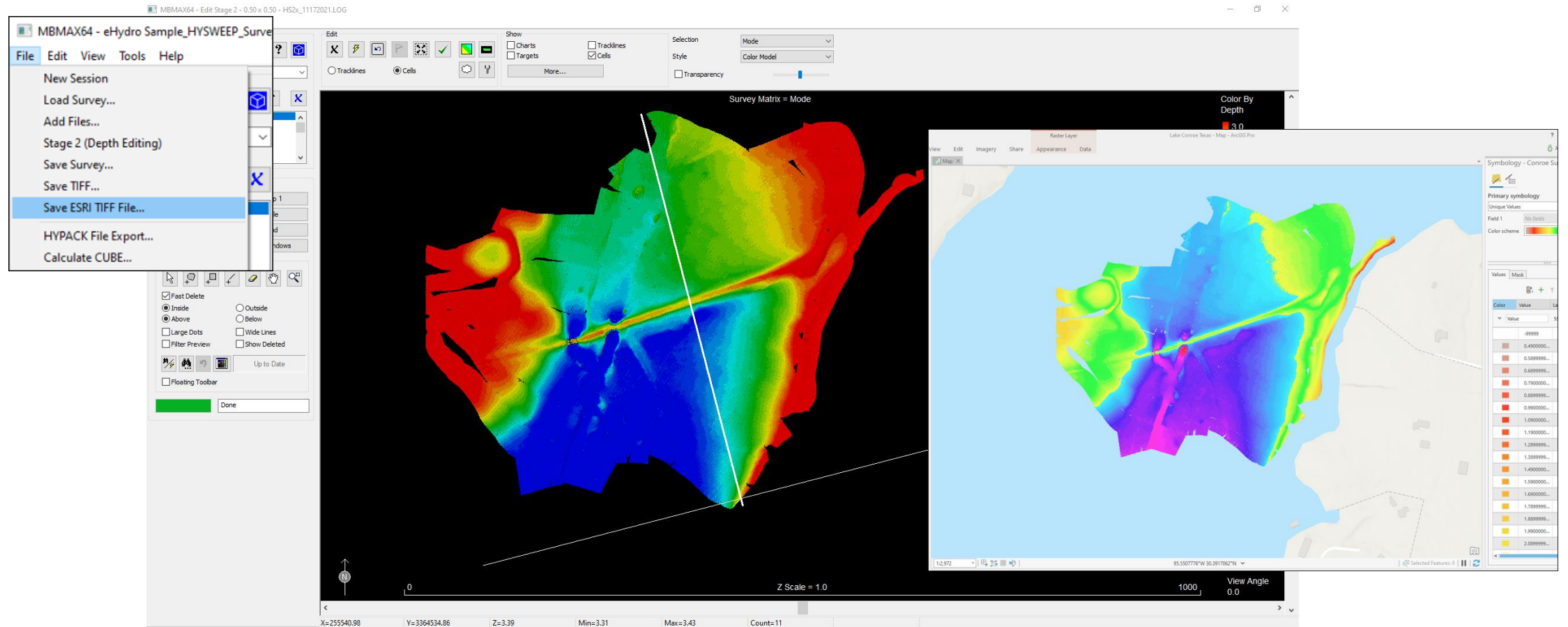
MBMAX64 – Feature Detection

- New tool detects objects located at user define height above bottom.
- Limit search to within a border file.
- Saves to a CSV file (FeatureDetection.CSV) that is suitable for submission to eHydro.



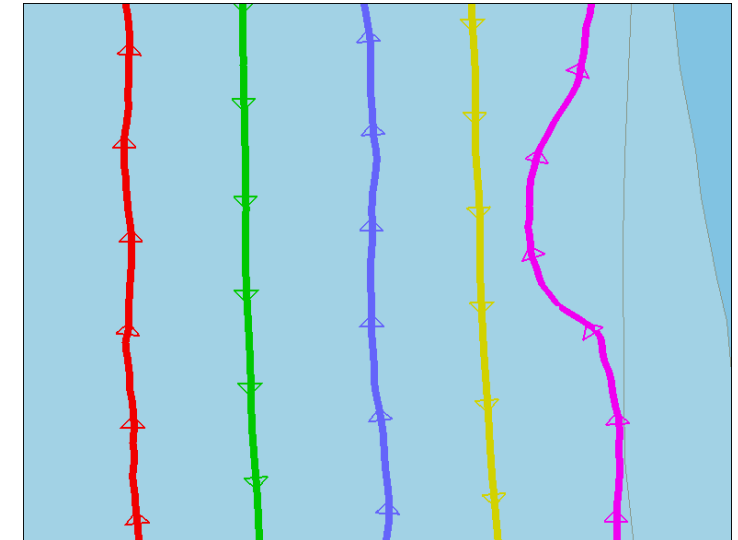
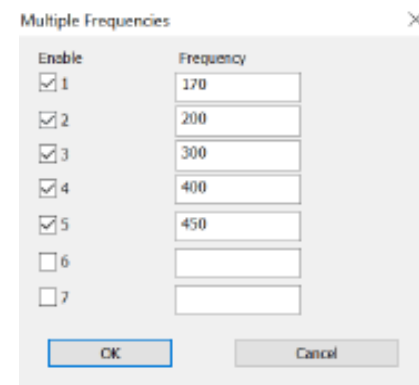
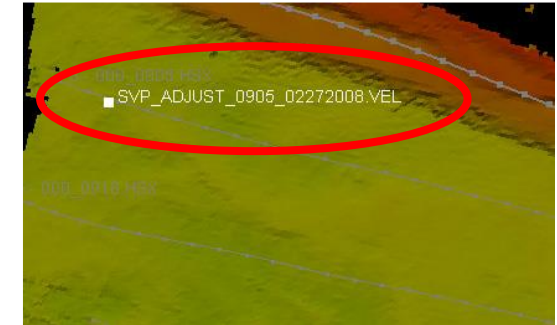
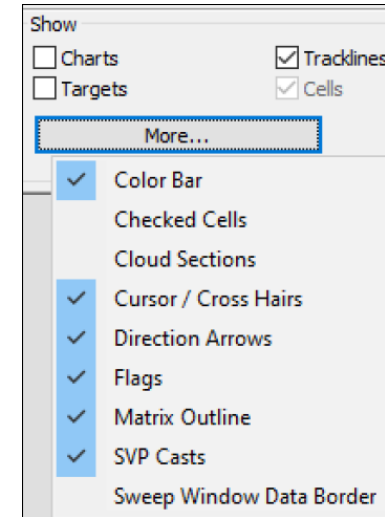
MBMAX64 – Direct Export to ArcGIS

- **Save ESRI TIFF file** – creates a Geotiff of the Multibeam Data in a format acceptable to Arc GIS for easy input to their tools



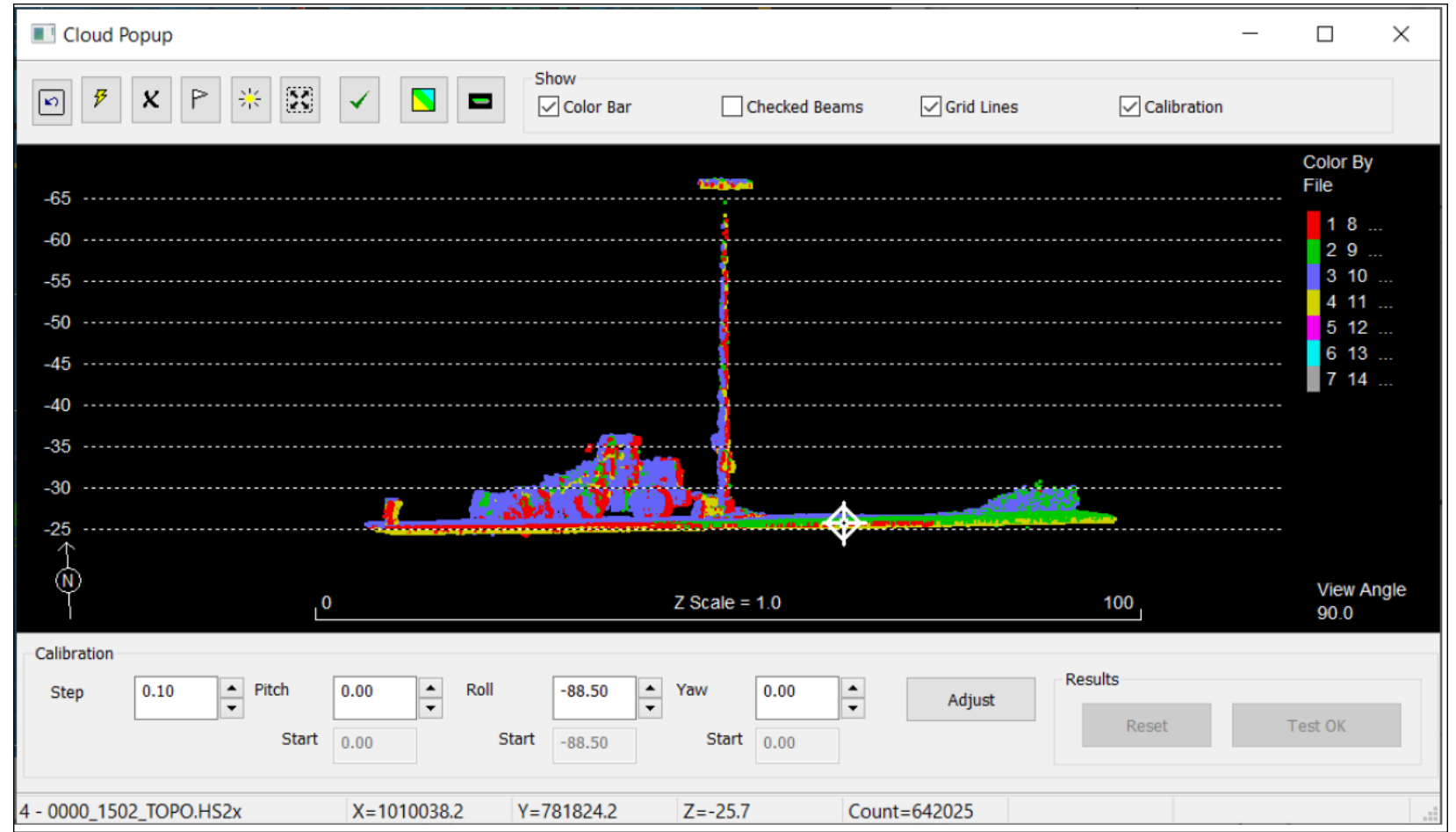
MBMAX64 - continued

- **Improved (faster!) drawing!**
- Additional SHOW Options for Survey Map:
 - Direction Arrows draws survey direction arrows on the track lines. (Phase 1)
 - Matrix Outline shows the border of the matrix. (Phase 2)
 - SVP Casts tagged with location. (Phase 1)
- Reads sonar frequency from both RMB and SNR records, as drivers may log the data to either location.
- Saves WGS84 positions (when available) to the HS2x position datagram (These positions can be omitted in HYSWEEP® SURVEY in the Logging Options dialog.)
- Improved S7K data loading.
- Now supporting Kongsberg KMALL files!
- Supports now 7 frequencies (4 before)



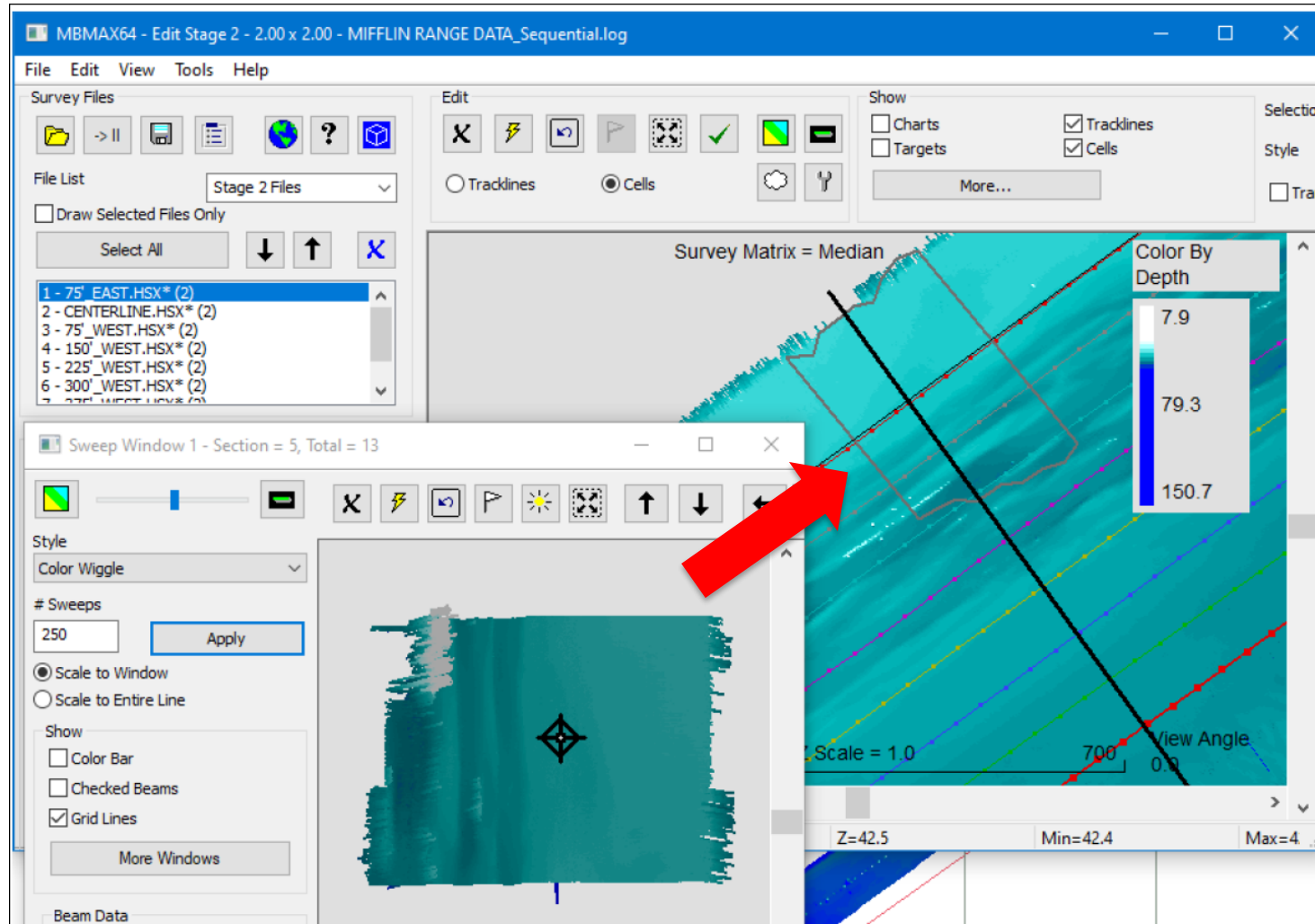
MBMAX64 - continued

- LiDAR Calibration in Pop-up Cloud window.
- Uses cloud points instead of the cross section of our traditional patch test.
- Better suited to LiDAR systems



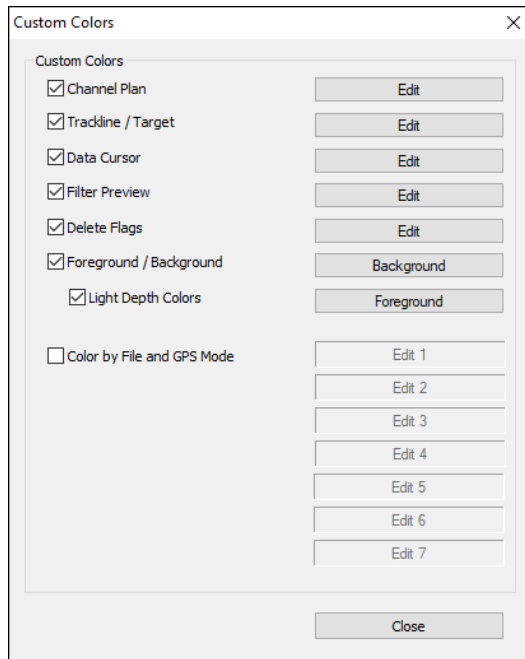
MBMAX64 - continued

- **Sweep Window Data Border:** outlines the area shown in the Sweep Window.

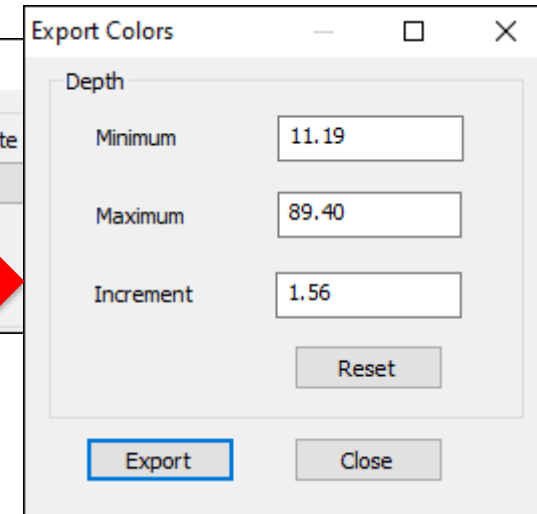
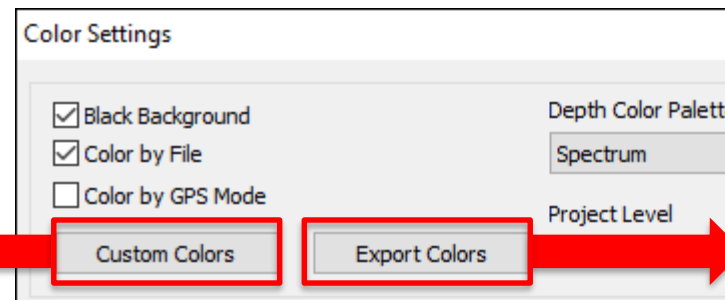


MBMAX64 - continued

- **Custom Colors:** Define your own colors for various items.

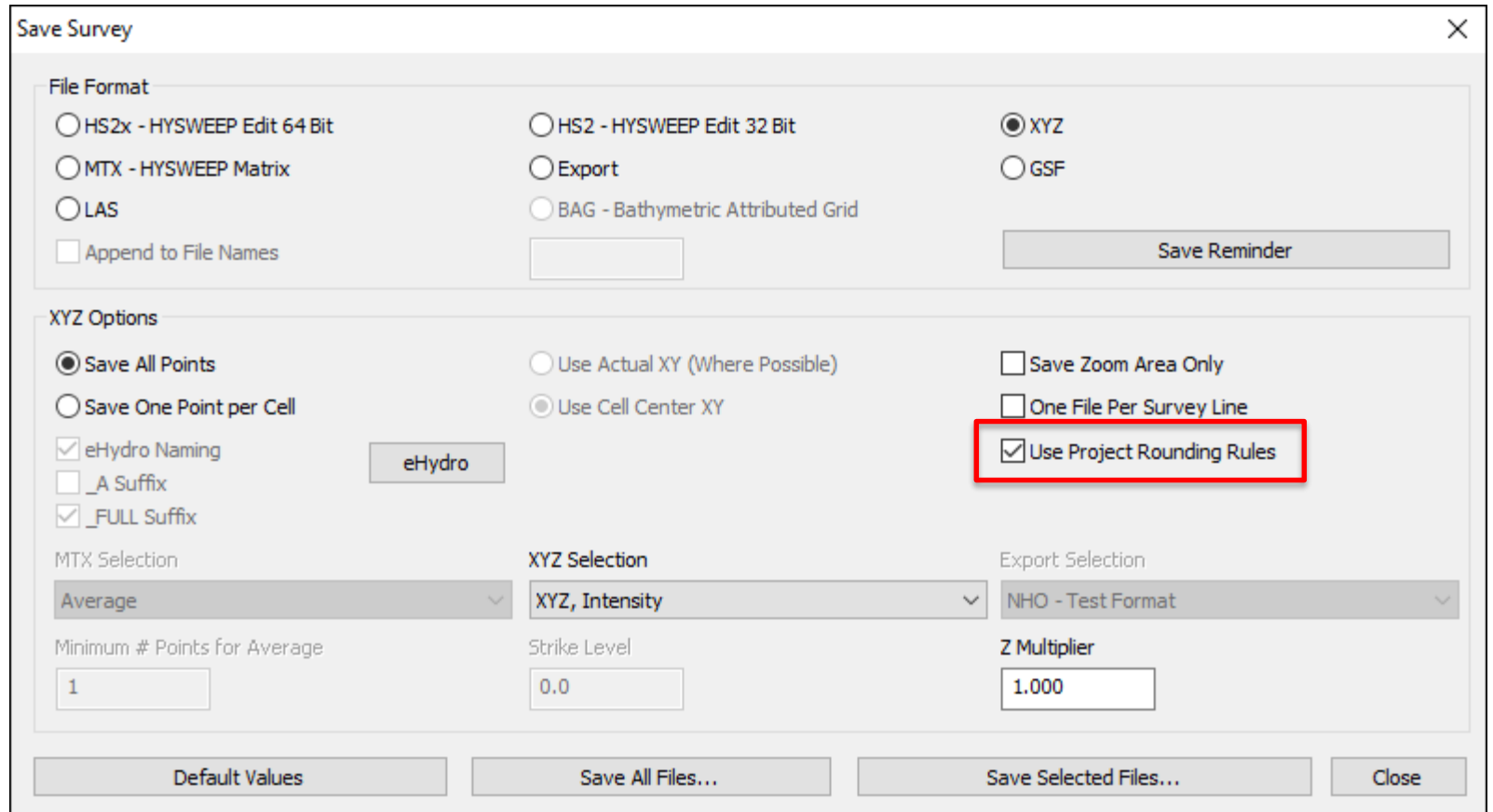
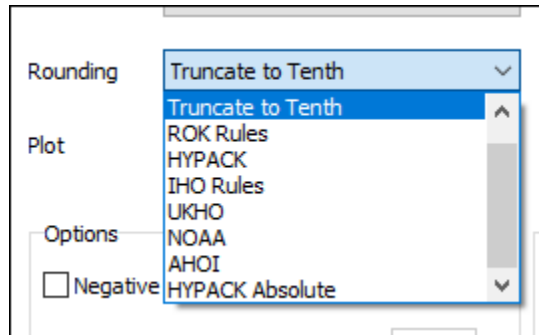


- **Export to Color File:** Exports MBMAX64 depth colors to HCF files.
- Use in other HYPACK programs.

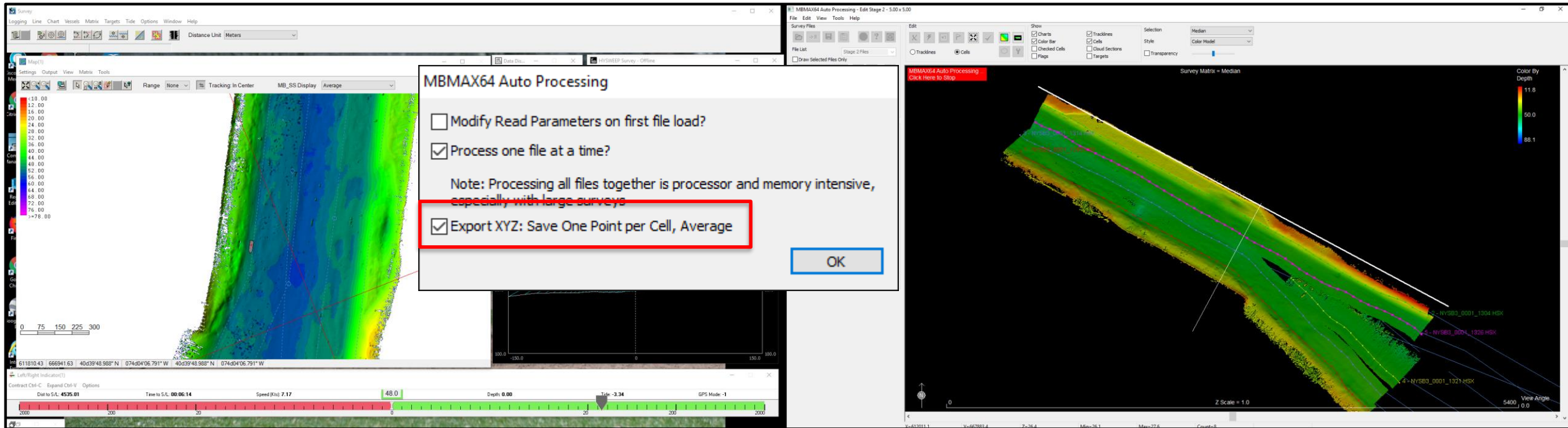


MBMAX64 - continued

- **Use Project Rounding Rules:**
Use rounding rules as defined in the HYPACK Shell Settings when exporting to XYZ file.



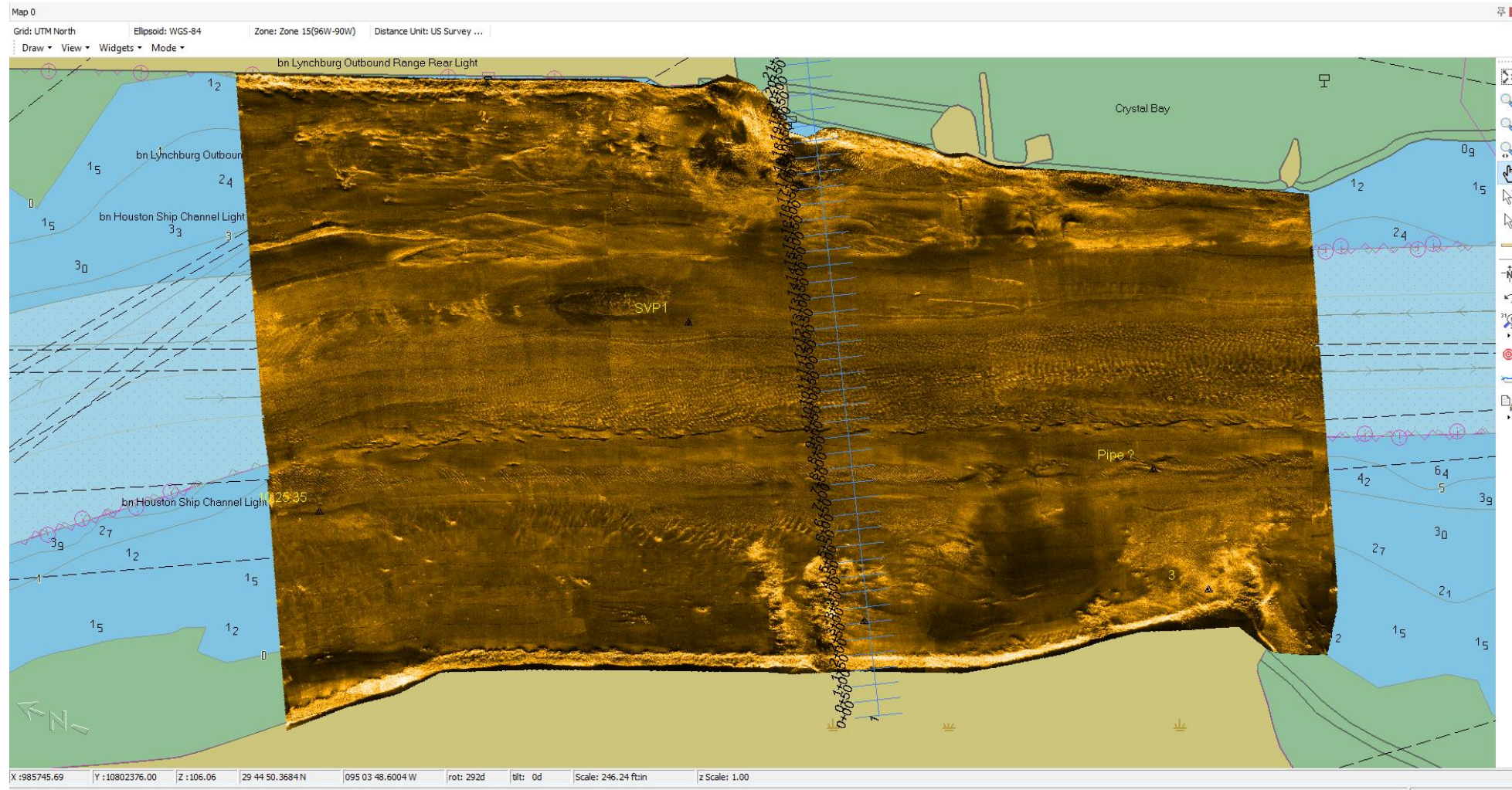
MBMAX64 – AUTO-PROCESSING



- Auto Process – Export to XYZ as part of the Auto Process output

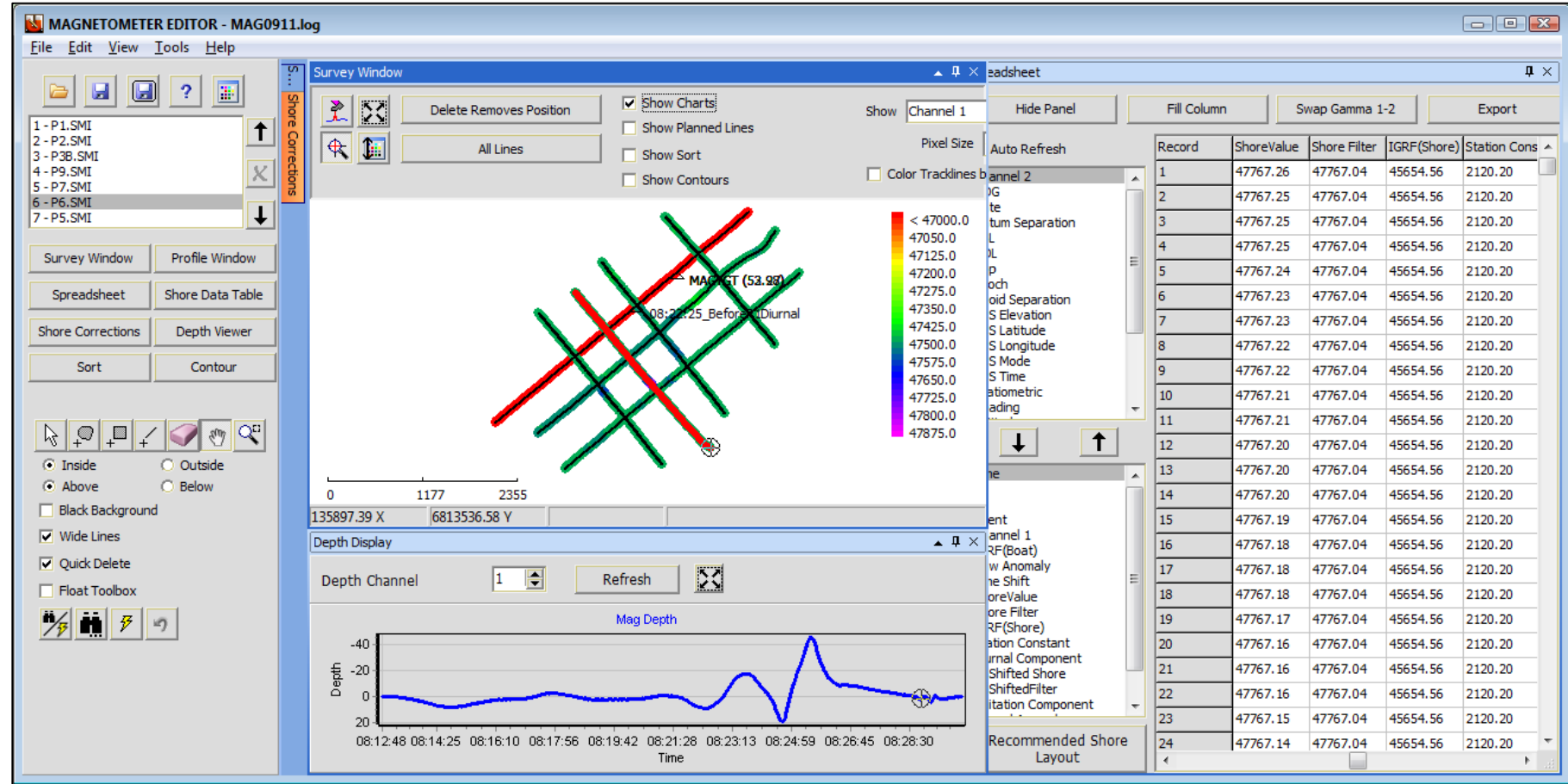
Side Scan Processing

- Various internal improvements to enhance mosaics!



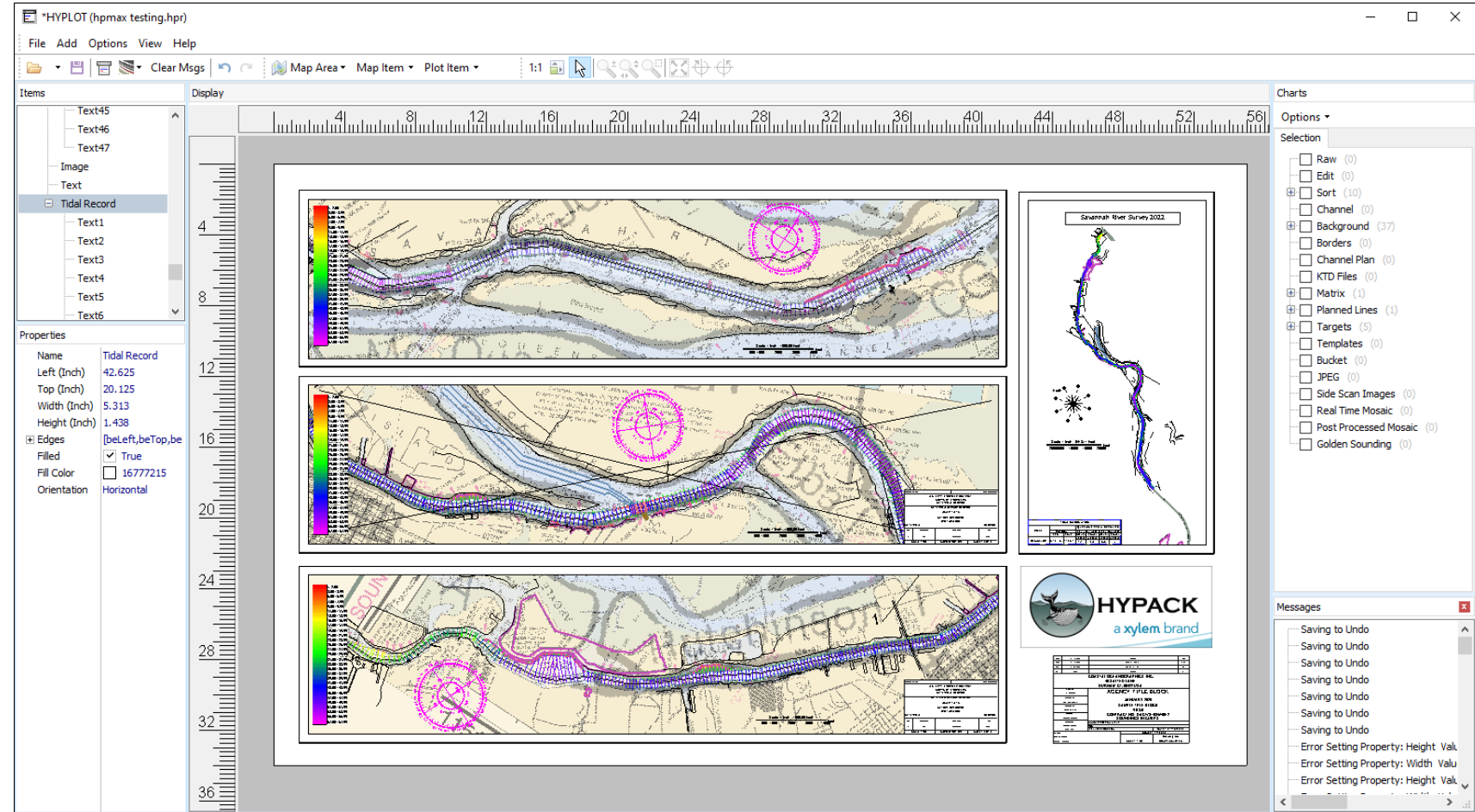
MagEdit

- New Interface!
- Dockable windows
- Sort and contour data without exiting MagEdit!
- Adapted for the processing of environmental and water quality data (SMI records).



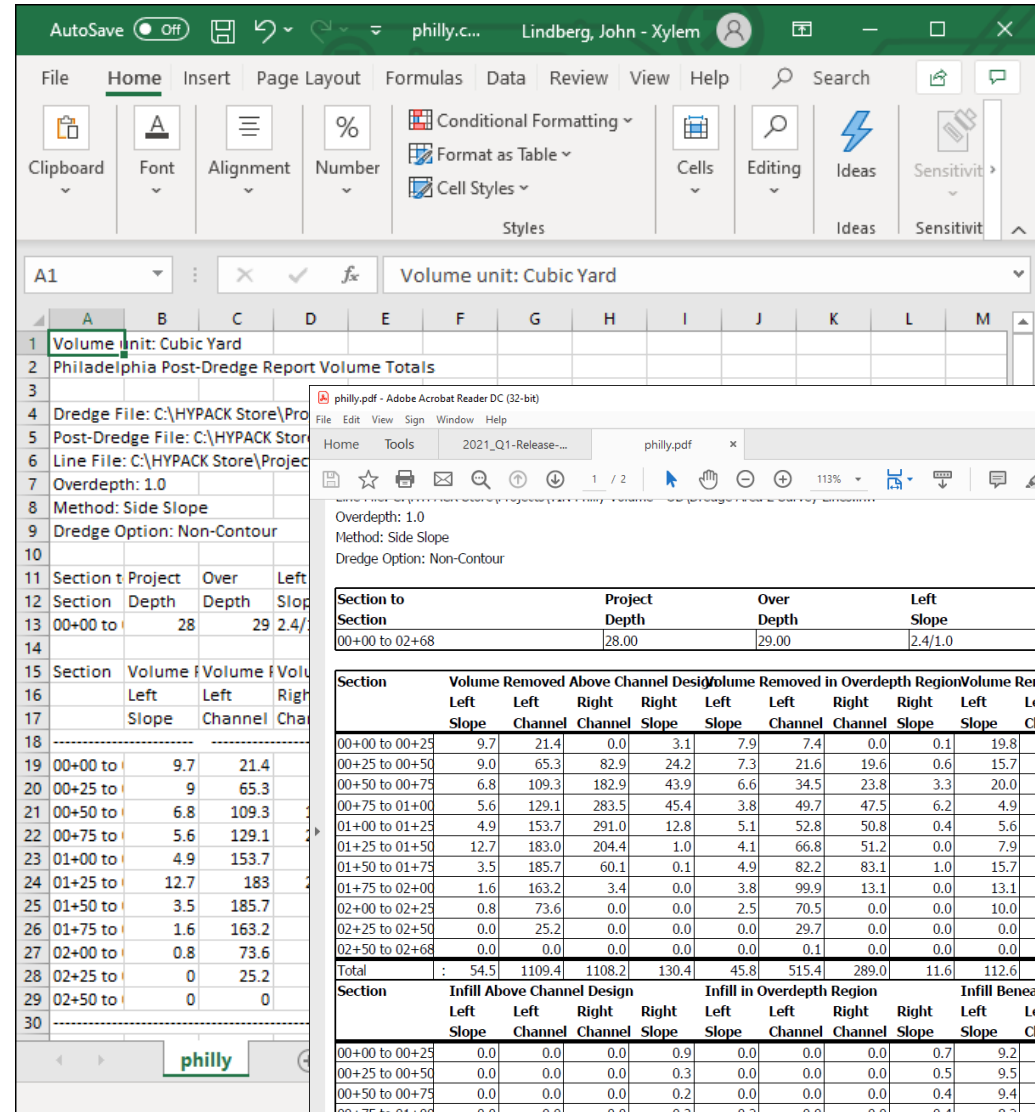
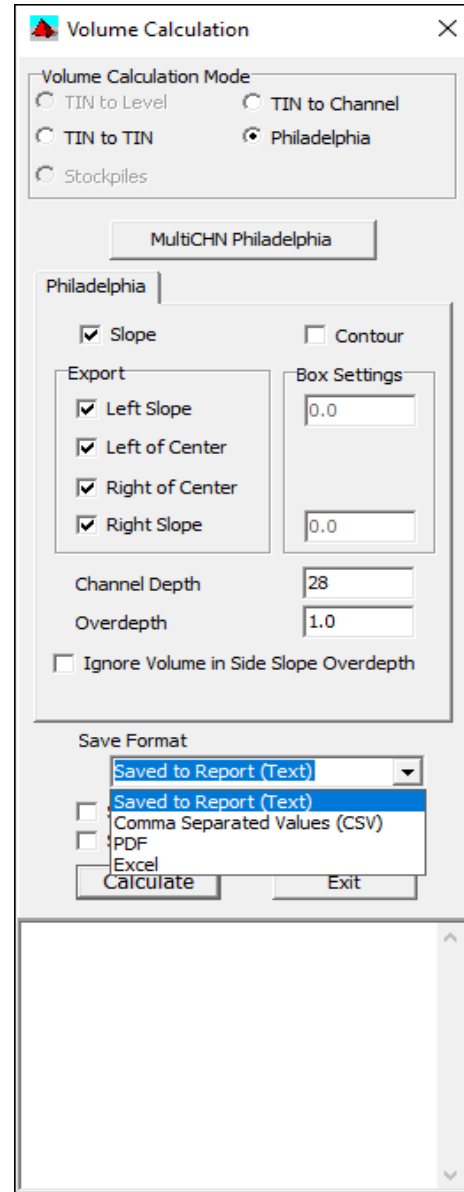
HYPLOT MAX

- New for 2022!
- Uses paper space.
- Plot multiple maps to one sheet!
- Create plot area without PLT file.
- Plots all background files.
- Lock items to prevent editing.
- Multiple undo's.
- Define settings in main window.



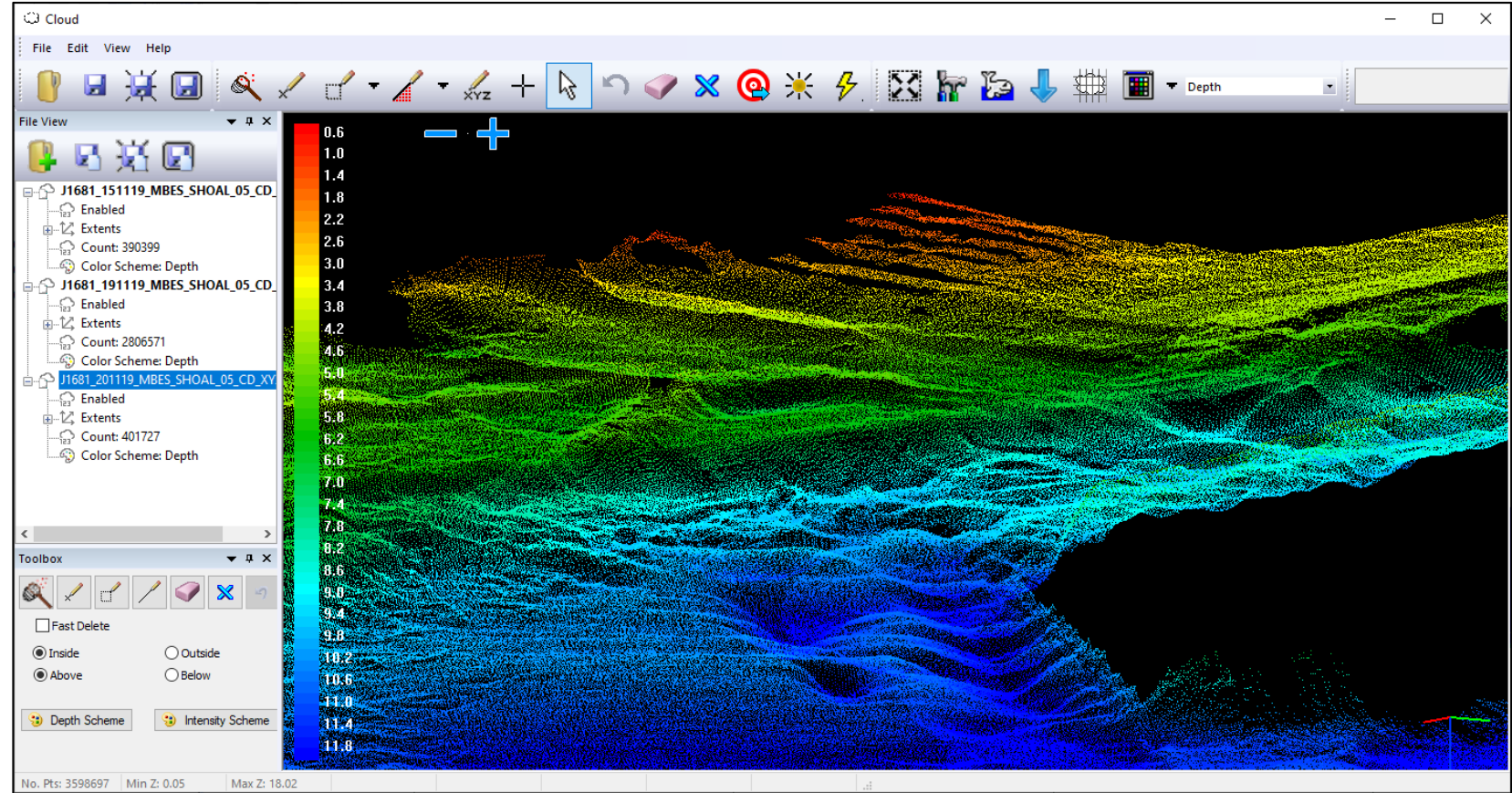
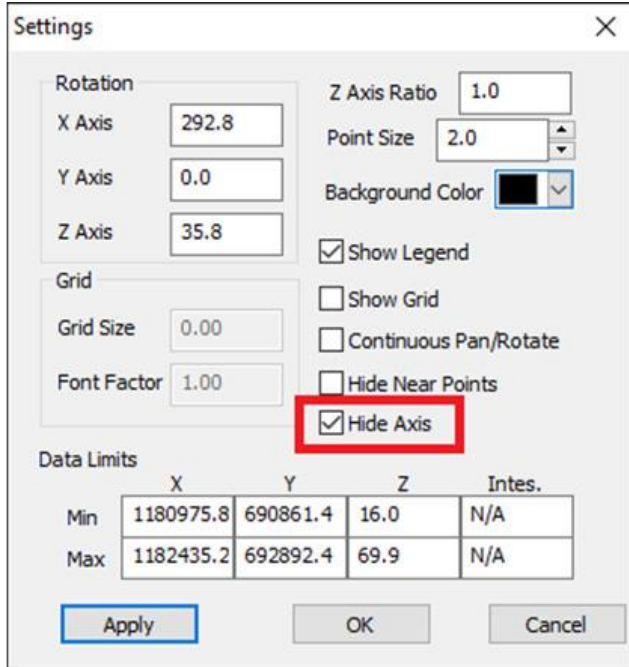
TIN MODEL

- Improved 2D drawing
- New volume report options
 - PDF
 - CSV
 - XLS



CLOUD – Enhancements

- Toolbox - similar to MBMAX64 and SBMAX64
- Toggle off axis and perimeter display
- File list view to enable/disable files without unloading them



ADCP PROFILE

Information Window

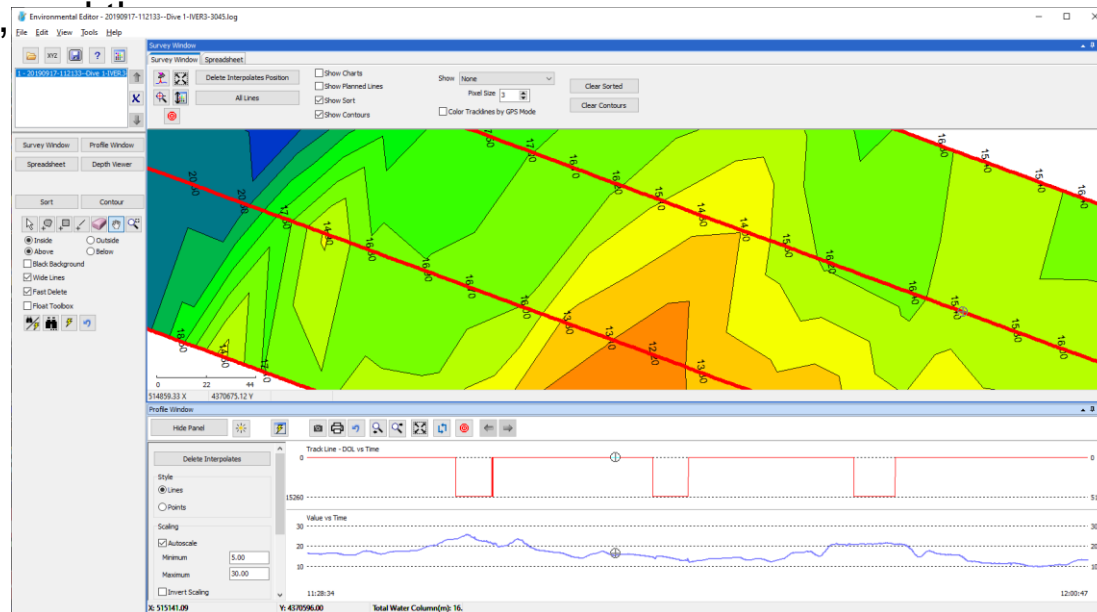
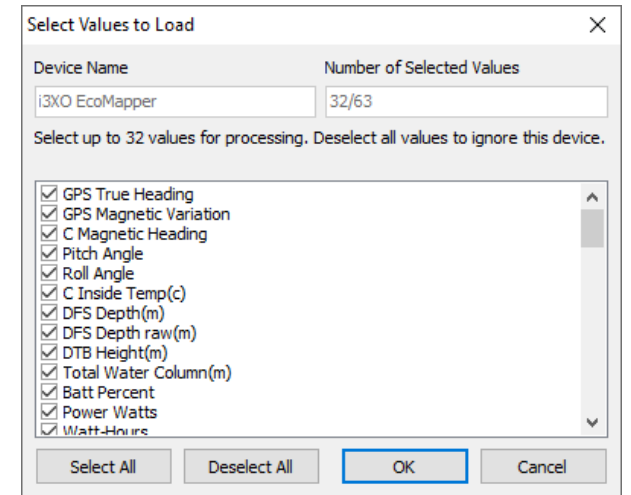
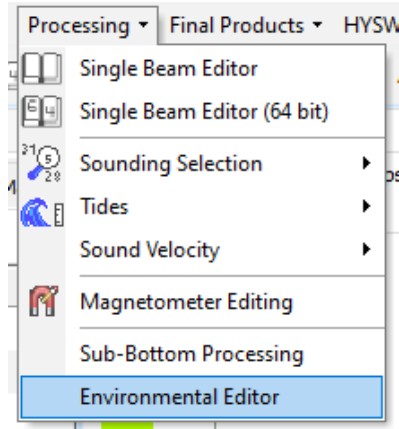
More extensive Information display: Added Ensemble Depth, Bin Size, Max Bin/Ensemble., Distance to First Bin. Bin Depth and Final Bin Depth.

- **Corrected off-screen dialog problem.**

Information x				
Ensemble / Bin	258	0	Ens. Depth	43.26 ft
Time	10:01:16		Bin Size	3.28 ft
X	356562.06		Max Bins/Ens.	33
Y	264522.98		Dist to First Bin	0.33 ft
DBL	1712.94		Bin Depth	0.49 ft
Heading	202.83		Final Bin Depth	105.48 ft
Pitch / Roll	-4.36	6.67	East	0.136 m/s
Magnitude	0.311 m/s		North	-0.280 m/s
Direction	154°		Vertical	0.002 m/s
			Error	0.002

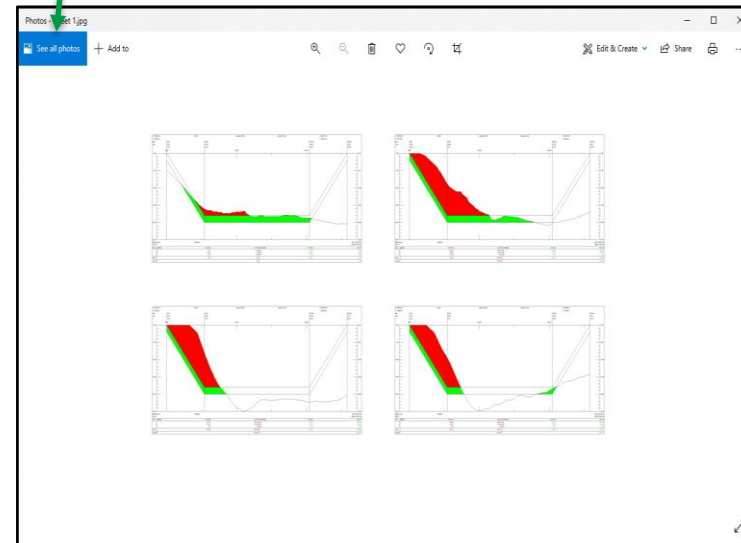
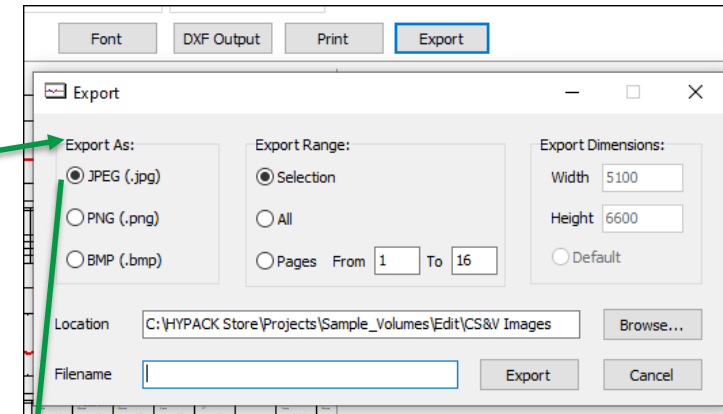
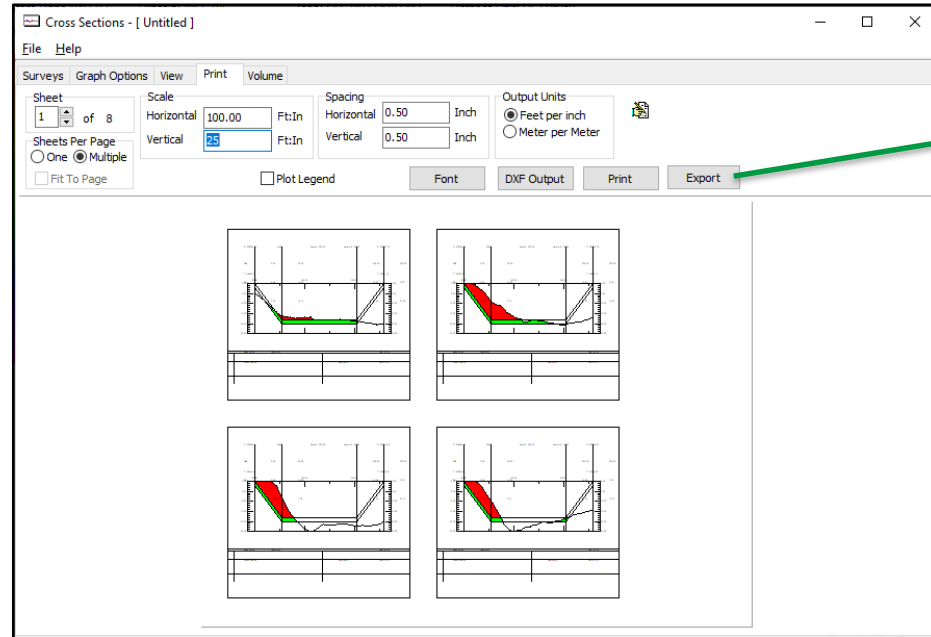
NEW ENVIRONMENTAL EDITOR

- Provides tools to process your environmental data stored to SMI record
- Launches from PROCESSING – ENVIRONMENTAL EDITOR
- Supports directly loading EXO Bin Files. All files must contain the same data combination logged in the same order in each record.
- Load up to 32 values!
- Clean bad data using point and block editing tools, Search and Filter options.
- Generate contour maps of each value.
- Generate reduced XYZ files for plotting.
- Built in sorting and contouring.



CROSS SECTIONS AND VOLUMES

- Export sections to image files (*.jpg, *.png, *.bmp)
- Images stored in your project's \Edit\CS&V Images folder.



Sounding Better!

- Quarterly Newsletter
- What is new in the HYPACK world!

The screenshot shows the HYPACK website's 'Sounding Better Newsletter' page for July 2021. The page features a navigation bar with links for Products, Applications, Training, Customer Support, and About HYPACK. The main content area is titled 'Sounding Better! - July 2021' and includes a large graphic with the text 'Sounding Better! A Quarterly Newsletter From HYPACK'. Below the graphic, there is a section titled 'What's Happening?' with several news items, and an 'Update Notes' section. A sidebar on the right contains a menu with links for About Us, Blog, Find an Agent, Sounding Better Newsletter (with sub-links for Current Issue and Archives from 2017 to 2021), Careers, Xylem Sustainability, and Xylem Watermark.

Thank You !

Links to more information:

[HYPACK on Youtube.com](#) (Historical Sessions)

[HYPACK on Youtube.com](#) (Newer Sessions)

[HYPACK SUPPORT Site](#)

[HYPACK Live Chat](#)

[HYPACK Ustream](#)

[HYPACK Website](#)

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HYPACK 2022