



2020a Release Notes

By Judy Bragg

It seems we just released HYPACK® 2020 and it's time to post the updates that have been completed during the first quarter. Our programmers have been hard at work on some nice upgrades for you in addition to some longer term development projects that are still in progress, and the usual bug fixes. (There will always be bug fixes!) The following highlights the majority of release items in the 2020 Q1 updates.

SHELL

- **Restored circle settings to the Shell settings dialog for default values.** If the attributes exist, they draw with the values assigned. If they don't, they draw the default settings.
- **Drawing HS2X Soundings for multitransducer sonars:**
 - > If there are two or fewer transducers, the soundings will draw.
 - > If there are three or more transducers, the soundings will not draw.
 - > HS2x files with SonTek M9 HydroSurveyor data draw the center beam soundings.
- **Corrected S57 drawing engine.** Unicode and case sensitive resulted in question marks in place of certain chart objects.

The screenshot shows a settings dialog box with three sections:

- Target Display:** Two radio buttons, 'Circle' (selected) and 'Alarm'.
- Circle Settings:** Two input fields: 'Number of Circles' with the value '1' and 'Circle Radius' with the value '50'.
- Alarm Distances:** Three input fields: 'Low (Green)' with the value '500', 'Medium (Yellow)' with the value '200', and 'High (Red)' with the value '50'.

PREPARATION

GEODESY

- **Updated g2018-CONUS.geo and g2018-PR_VI.geo** based on the updated NOAA data.
- **Support for ITRF2014 Time Varying Transformations** required for the Trimble RTX Correction Service.

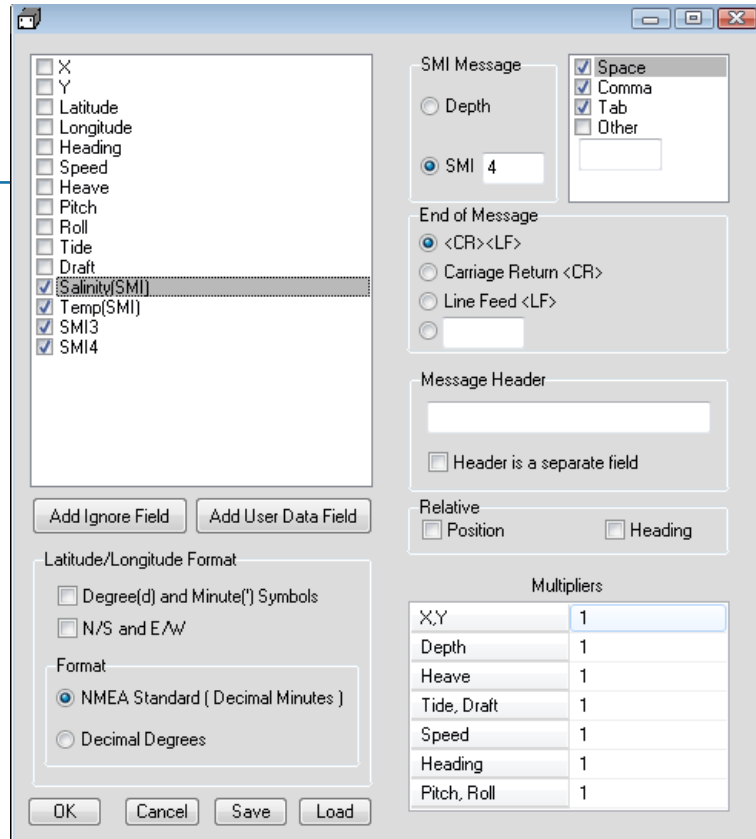
HARDWARE

HYPACK DRIVERS

- **GenDevParse.dll:**

FIGURE 1. *GenDevParse Driver Setup*

- > Expanded to support logging environmental data to HYPACK® SMI records. Specify the number and names of each recorded value in the driver setup dialog.
- > Added directional checkboxes when Lat/Lon is selected.



- **SBG.dll:**

FIGURE 2. *SBG Driver Setup*

- > Accuracy is now combined with actual measurement field, e.g. "Long: 4°56'36.00"N (0.02m)".
- > In the setup, the alarm levels for GPS status now mimic the actual reported GPS statuses, *not HYPACK statuses*.
- > Records POS and SBG Solution status
- > Records Roll, Pitch, Yaw and SBG Solution status

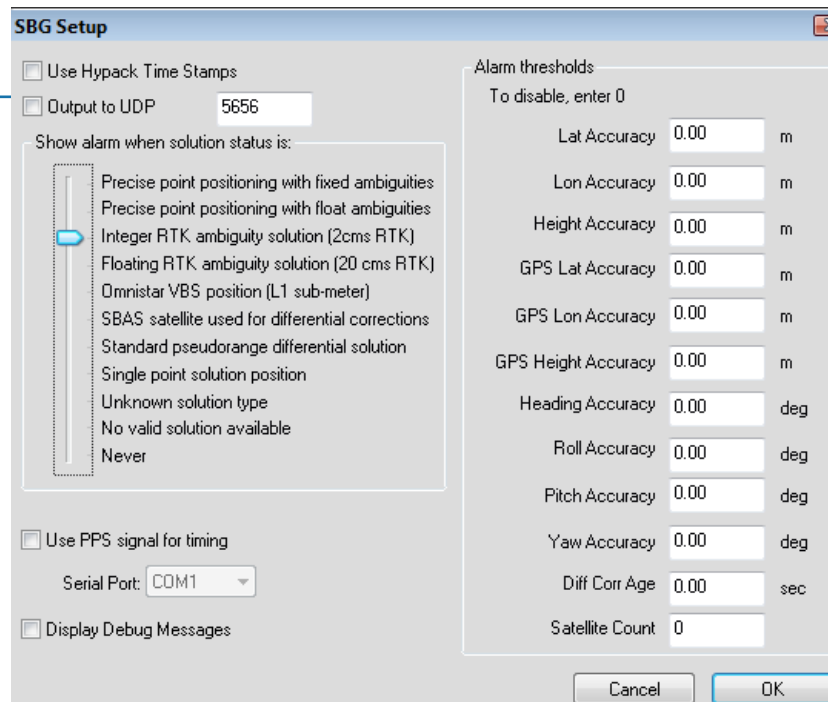


FIGURE 3. SBG Device Window

- > Records Heave and SBG motion Solution status
- > Handles SBG Invalid Mode.
- > Handles SBG Raw Datagram.
- > Expanded Data Display in the SBG Device window.

| Item | Value | Item | Value |
|-------------------------------|-------|----------------------------|-------|
| General | | | |
| Inertial Mode | N/A | Speed | N/A |
| WGS84 Latitude | N/A | Sync Error | N/A |
| WGS84 Longitude | N/A | Alignment | N/A |
| WGS84 Height | N/A | Internal Logging Status | N/A |
| Tide Corr | N/A | Time source | N/A |
| GNSS 1 Solution | | | |
| GNSS 1 Solution Mode (HYPACK) | N/A | GNSS 1 Lat Accuracy | N/A |
| GNSS 1 Solution Mode | N/A | GNSS 1 Long Accuracy | N/A |
| Diff Correction Age | N/A | GNSS 1 Height Accuracy | N/A |
| # Sats | N/A | | |
| RTK GPS | | | |
| Elevation | N/A | D= Draft | N/A |
| A= WGS84 height | N/A | K-N= Ellipsoid Ht above CD | N/A |
| H= Z offset | N/A | | |
| Motion | | | |
| Heading | N/A | Yaw | N/A |
| Roll | N/A | Heave | N/A |
| Pitch | N/A | Heave Solution Status | N/A |

- **Subbot.dll:** Supports new HMS-621.
- **SHOMMagnet.dll:**
 - > Support Gamma, Depth, and Altitude in the Data Display.
 - > Supports Seaspy output modifications (altimeter off).

HYSWEEP DRIVERS

- **NEW DRIVER:** Velodyne VLP-32

TARGET EDITOR

- Target positions exported with 2 or 3 decimal accuracy.
- S57 symbol displays restored.

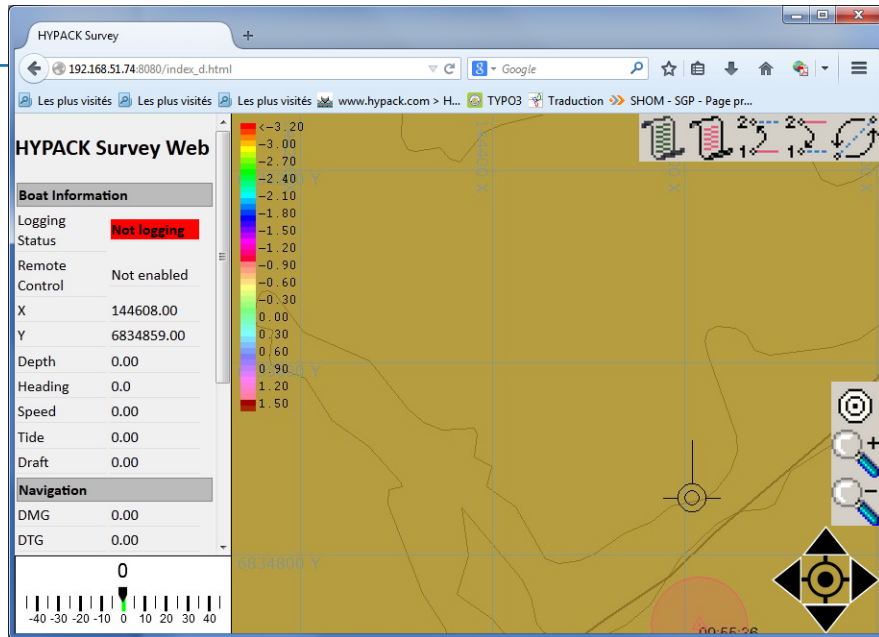
DATA ACQUISITION

SURVEY

- **Survey Remote View:** The survey controls (top right) show only if permission has been granted on the survey computer. In the Remote Access setup, the Allow Remote Users to Start/Stop Logging option must be checked.

FIGURE 4. Survey Remote View

- **Layer Manager:** Arrows enabled only when a display item is selected.



HYSWEEP

- Increased NORBIT S7K beam limit to 1024 in HYSWEEP and MBMAX64.
- Corrected time tag in Kongsberg KMALL datagrams.

WGS POSITION AND UTC TIME LOGGED IN RAW HSX

For each GPS update, we also record a RAW record with the WGS-84 position and UTC time stamp. The format is identical to GPS logging in HYPACK RAW files:

RAW d t 4 latitude longitude height utc_time

Where:

- > d is the HYPACK device number,
- > t is the HYPACK time tag,
- > 4 is 4,
- > latitude is DDMMM.MMMMM,
- > longitude is DDMMM.MMMMM,
- > height is ellipsoidal elevation is meters,
- > utc_time is HHMMSS.SSSSS past midnight.

Sample String:

```
RAW 0 51248.150 4 413561.17194 -724341.79081 1.67920 181408.15000
```

This data can be used in the 64-bit HYSWEEP® EDITOR to recalculate position or tide corrections in the HSX data using [GPS Recalc](#) in place of the Raw File Adjustments routine which uses the GPS data in the corresponding RAW file. Reach the same results more efficiently!

POST-PROCESSING

MBMAX64

- **Increased support for NORBIT S7K data.**
 - > Reads S7K files directly. No converter routine!
 - > Increased beam limit to 1024 in HYSWEEP and MBMAX64.
 - > Supports Autoprocessing.
- **Option to omit cursor crosshairs from the Survey window display.**

GPS RECALC: CORRECTING POSITIONING/TIDE USING WGS84 DATA IN RAW STRING

New in this release, for each GPS update, HYSWEEP® logs a RAW data string in the raw HSX file. When the 64-bit HYSWEEP® EDITOR detects the RAW strings, you can use the new GPS Recalc routine in the Tools menu to correct positioning and tide:

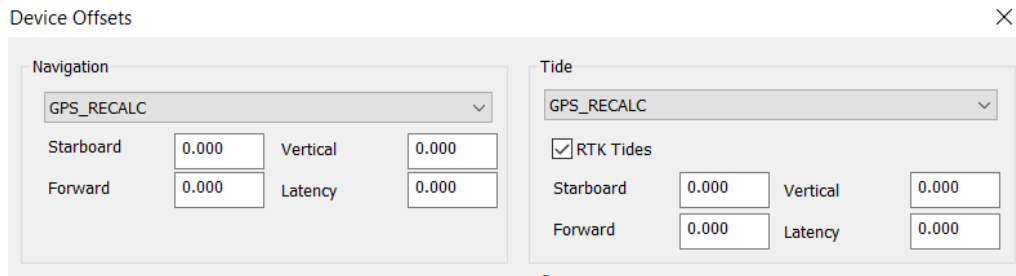
Figure 3: GPS Recalc Settings.

| GPS Recalc | | | |
|--|----------|-----------|------------|
| <input checked="" type="checkbox"/> Recalculate Positions Based on Project Geodesy | | | |
| <input checked="" type="checkbox"/> Recalculate RTK Tides Using Project Geodesy | | | |
| Offsets | | | |
| Starboard | 0.000 | Vertical | 2.700 |
| Forward | 0.000 | Latency | 0.000 |
| First | | | |
| Latitude | 45.60324 | Longitude | -122.62329 |
| Height | -20.19 M | UTC | 21:26:57 |
| Done | Adjust | Close | |

The data under “First” shows the GPS data from the first position as a preview test.

The adjusted data is stored to records assigned to a pseudo-device “GPS_RECASC” so, in the Read Parameters, you can choose to use either the original or recalculated data by selecting the appropriate device name in the Device Offsets dialog.

Figure 4: GPS Recalc Pseudo Device in Read Parameters.



SAVE AND RESTORE SEARCH AND FILTER OPTIONS

When you open the 64-bit HYSWEEP® EDITOR, it loads the most recent set of filter options used by the editor, *not necessarily in the current project*.

Reusing the same filter set is useful if your projects use the same sensors in similar survey areas and with similar survey specifications; however, that is not always the case and your filter settings vary between projects or even datasets within the same project,

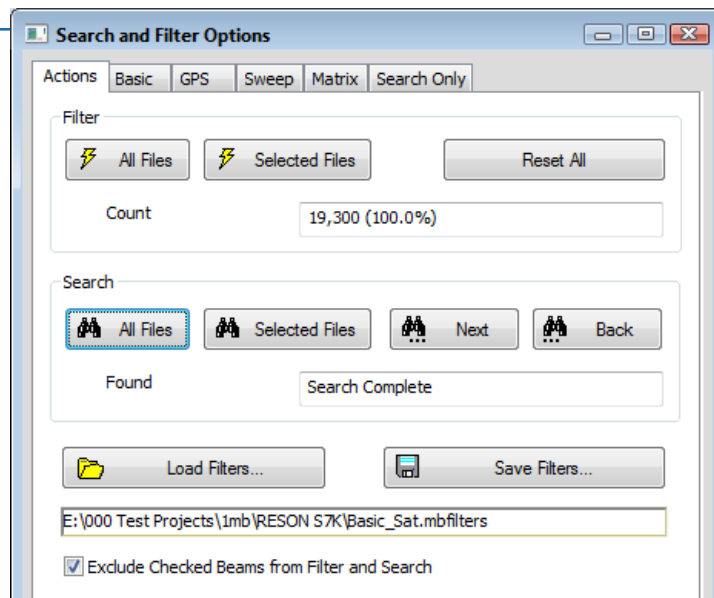
In the Action tab of the Search and Filter dialog, you can save and quickly restore complete sets of filter options according to your needs instead of manually choosing each option for each editing session.

Search and Filter Dialog—Actions Tab

To save your filter options, click [Save Filters], name your filter set and click [Save]. All of the current Search and Filter options are stored to that file with an MBFILTERS extension in your project folder.

Tip: Use a name that is meaningful so you know which set to load in future sessions.

To load a filter option set, click [Load Filters], select the appropriate MBFILTERS file and click [Open].



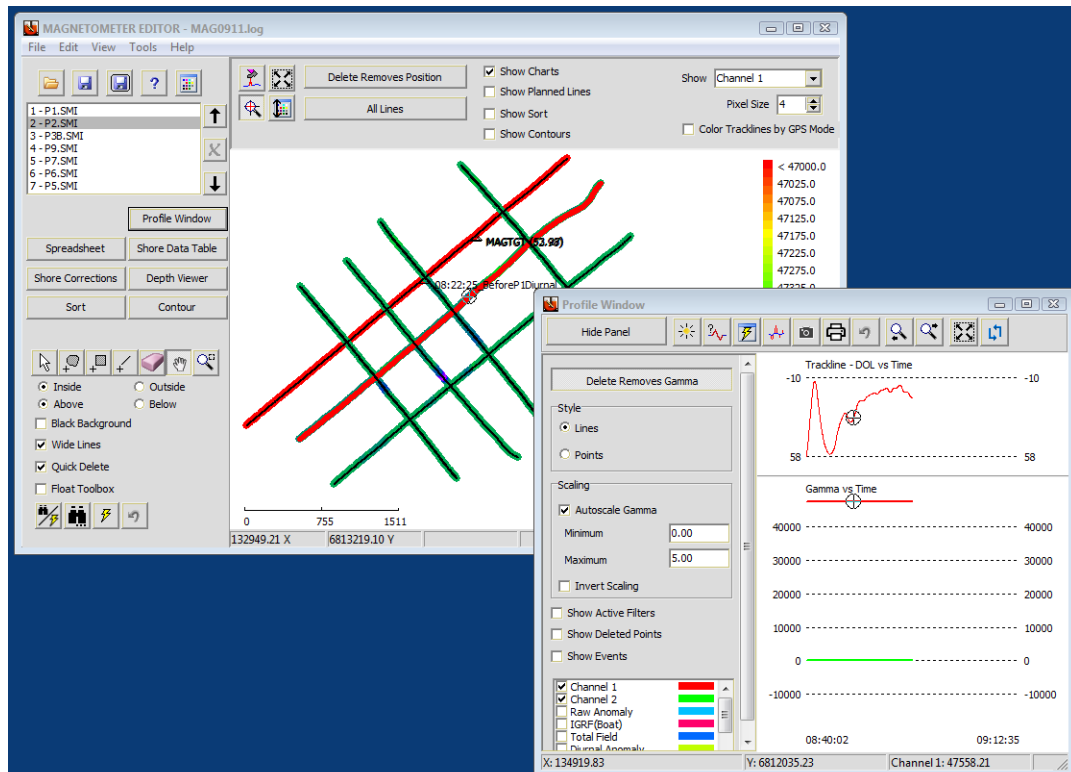
TARGETING AND MOSAICKING (HYSCAN)

- **TVG** equation changes now correctly update the signal display.
- **Screen capture in the Scan View** display captures the entire length of the current line to JPG, TIF or BMP format. These captures are *not geo-referenced*.
- **Target Images can now save to the Target Classification database** as they should.

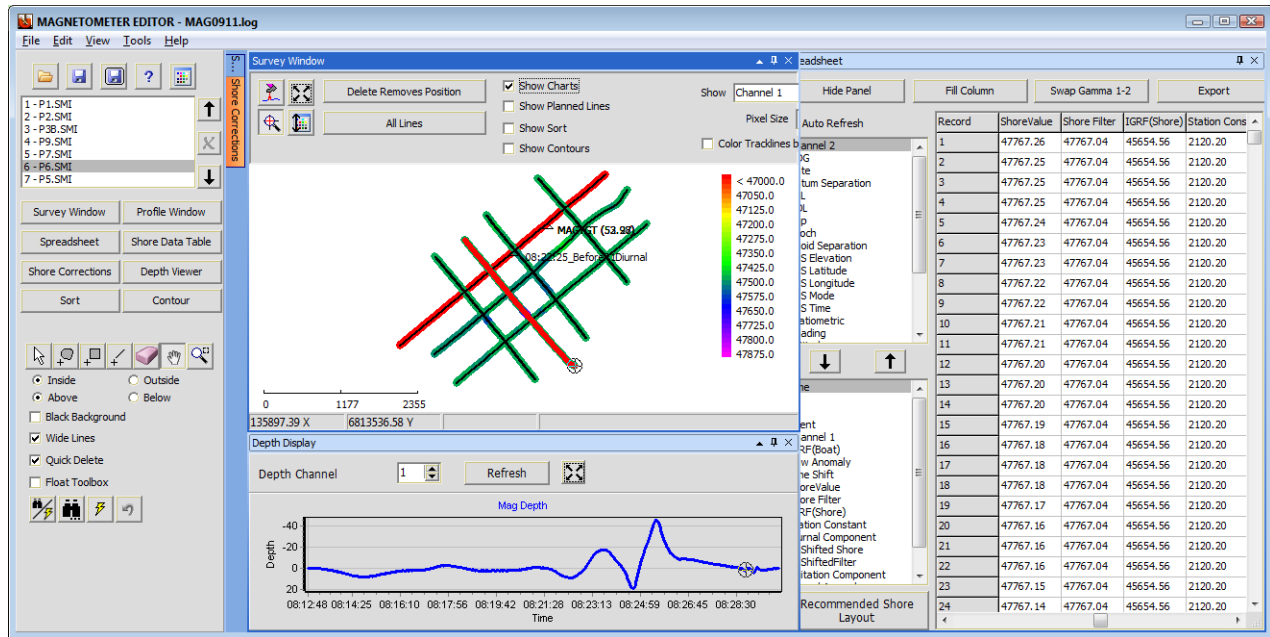
MAGNETOMETER EDITOR

- **Updated IGRF Model** based on new NOAA data.
- **Added Quick Delete editing mode.**
- **Window Modes:** The program offers two window display modes that you select through the VIEW-WINDOW MODES menu item.
 - > In **Basic Mode**, the Survey window is built into the shell. All other displays are free floating and you can resize and position them individually.

Basic Mode



- > In **Advanced Mode**, all windows can be free floating and you can resize and reposition them into any layout you want, but you can also dock and pin them in the MAGNETOMETER EDITOR shell.
 - **To dock a window**, drag the toolbar of any window. The interface displays "landing pads" where you can dock your window.
 - **To pin a window**, click the tack in the window title bar. When you pin a window, it "slides out of view" leaving a 0.25 inch (0.5 cm) tab on the side of the window where it is docked. When you want to access the pane, click its tab and it slides into view. When you move your cursor to a different window, HYPACK knows you have finished in the pinned window and it slides back out of view and out of your way, providing a larger map view display area.



MANUAL TIDES

- Supports unlimited number of days, but only one tide/minute. (If you import a text file with more than one tide/minute, the later one overwrites the earlier one.)

FINAL PRODUCTS

CROSS SECTIONS AND VOLUMES

- Export Beach and Beach Centroid Pre- and Post-dredge volumes reports to an Excel spreadsheet. Click the Export to Excel icon on the toolbar in the Volumes tab, name your output file and click [Save].
- Correct clipping data to a border file.

TIN MODEL

- Improved PDF output of volumes reports.

UTILITIES

DATA CONVERTER

- Converts FUGRO Starfix GSF format to HYPACK *.RAW format for the single beam data that the Starfix GSF file contains.

NOTE: GSF conversion for single beam is also available in the "...to HSX" tab. This method should be used with combined multibeam and single beam files. It will work with single beam only, but will also create an unusable HSX file. With this method, you must select the "Output RAW File" option under "Setup."

PROJECT CONVERTER

- **Works even when you have all local projects.** (All projects are in \HYPACK 2020\Projects.)