



# Program Update for HSX Converter

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Since the release of HYPACK® 2014, a few changes have been made to the HSX Converter program.

## OUTPUT USING HS2 DATA

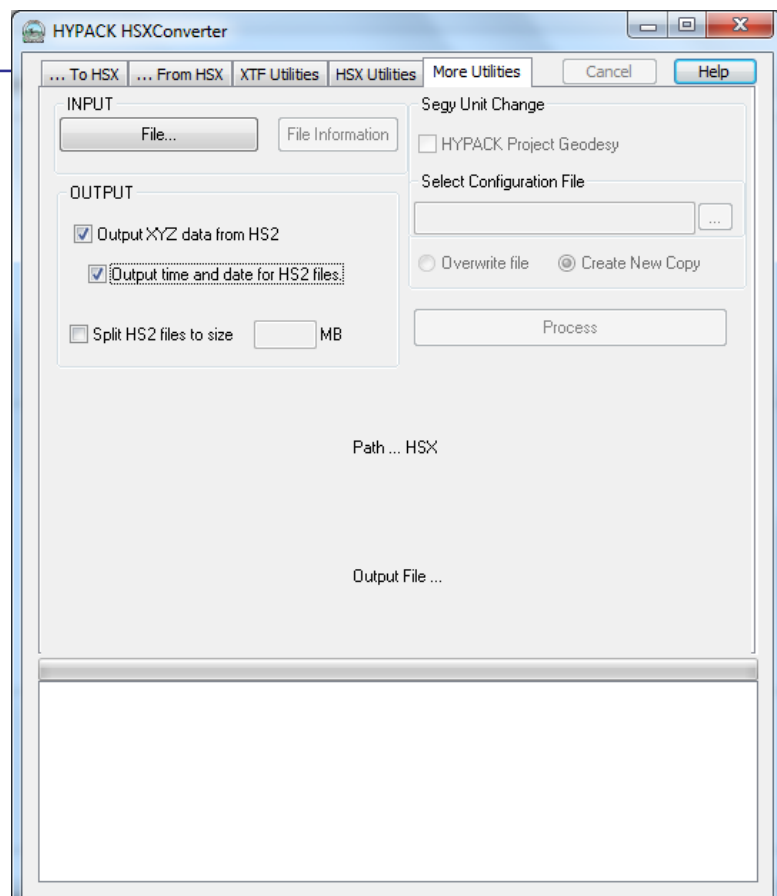
### MORE UTILITIES TAB

**FIGURE 1.** *Extracting Time and Date from Multibeam Data*

The HS2readr extracts data from HS2 files for all HYPACK® programs that read this format.

However, the limitation was that the date field was not accessible. A feature in the converter allows you to extract this information and output *X, Y, Z, time, date* records to an \*.XYZ. file.

The process uses the TND field of the RAW file to get the correct date. You enter the HS2 file from which you want to extract data. Then, during the conversion, if the raw HSX file is found, the program uses the TND field of that file to get the date. If there is no HSX file, the date defaults to that of the file creation.



## HSX UTILITIES

FIGURE 2. HSX Utilities

In the HSX Utilities tab, three features have been added:

- **File adjustment** added the ability to split the file evenly into 'n' parts. This was requested to handle large data sets. The option to split to a set file size has not been changed.
- **Update the Position record with time, Easting, Northing.**

This option removes all POS fields (if there are more than one POS, they are all removed) and replaces the position with a new POS line with time, easting and northing.

The format is fixed, comma delimited data: *time, X, Y*.

You can also replace position and heading. The format for this option is *time, X, Y, Heading*.

With this option, the POS and GYR are replaced with values found in the new file.

- **Scaled position offset** adjusts the X and Y by a fixed amount, and then works backward through the file to make a proportional position corrections.

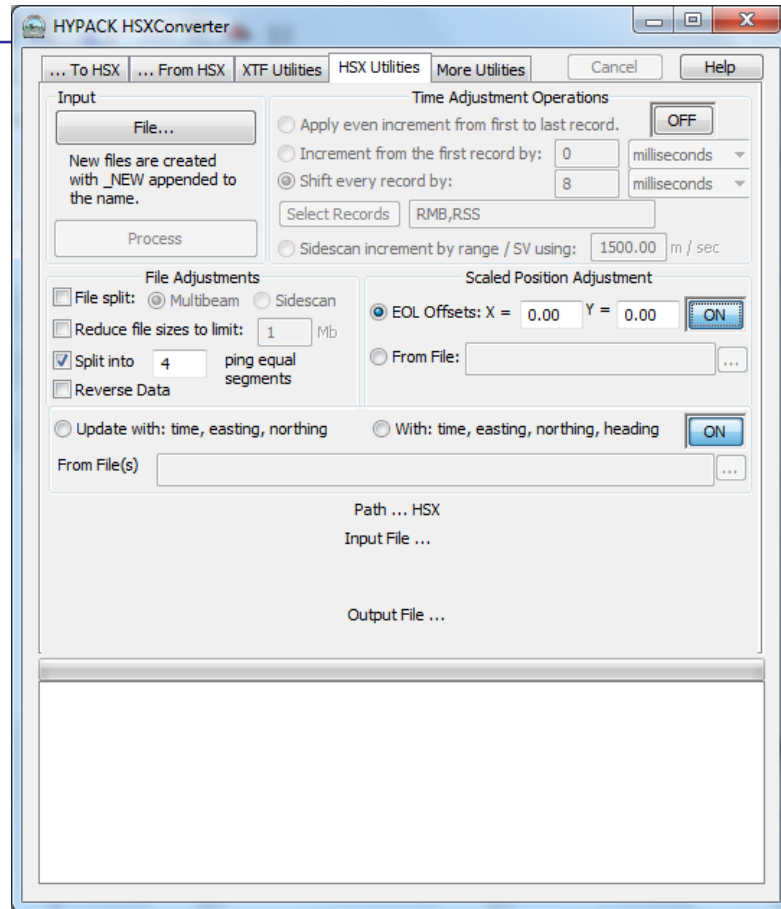
For example, you have a survey line 1000 meters long, with an X adjustment of 5.2 and a Y adjustment of 7.1. At 300 meters down line, the easting will be adjusted by 1.56 meters ( $300/1000 \times 5.2$ ) and northing by 2.13 meters ( $300/1000 \times 7.1$ ).

**To adjust a single line**, use the EOL Offsets.

**To adjust multiple lines:**

- a. **Prepare a text file with the adjustment instructions**—FileName, XAdjustment, YAdjustment. There should be one line (paragraph) for each survey line you want to adjust.
- b. **Load the text file to the converter** using the *From File* option.

We're running out of room on the dialog box, so we will need to do some rearranging next time with any new features.



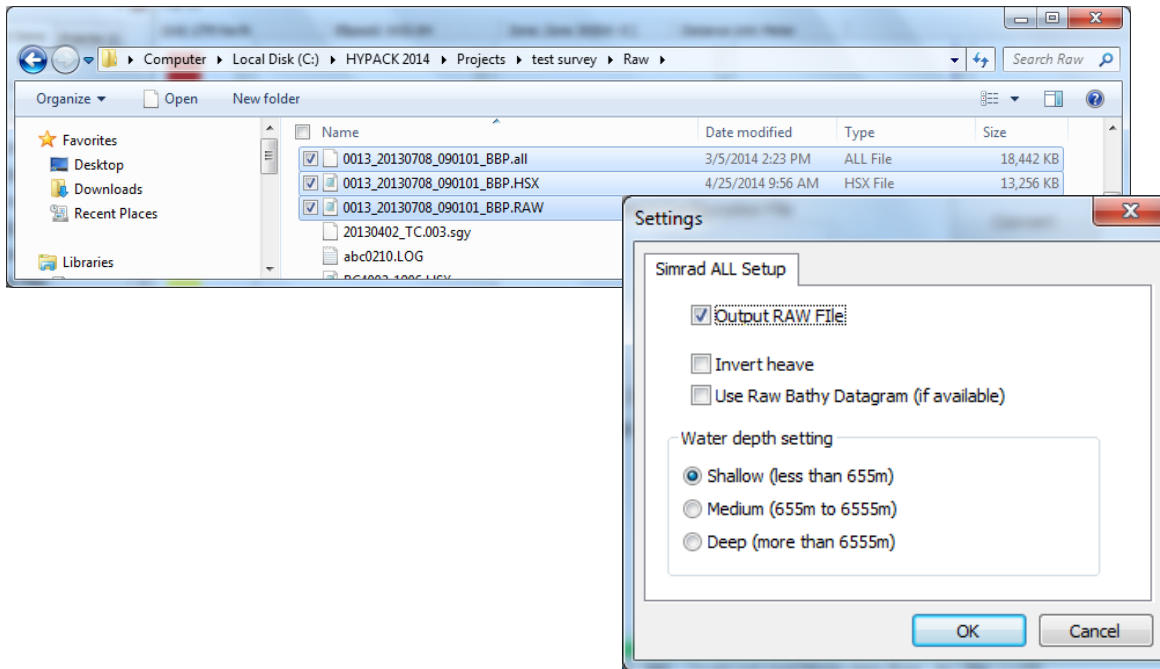
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## UPDATE TO KONGSBERG ALL FILE TO HSX CONVERSION

MBMAX64 (the 64-bit HYSWEEP® EDITOR) has a mechanism to recompute RTK tides. The process requires the HSX file to have an associated RAW file with the GPS parameters. The HSX CONVERTER has been updated to generate both HSX files and RAW files when converting from an ALL file. They will be located in the same directory as the original ALL file.

**FIGURE 3.** Generating RAW and HSX Files from Kongsberg ALL Files



To use the tides in MBMAX64:

1. **Select TOOLS-RAW FILE ADJUSTMENTS.**

**FIGURE 4.** Opening the Raw File Adjustments Routine in MBMAX64

2. **Select the RTK Tide Device and Offsets option for recalculating RTK tides.**
3. In the dialog box, **make any offset adjustments as needed and click [Adjust].**

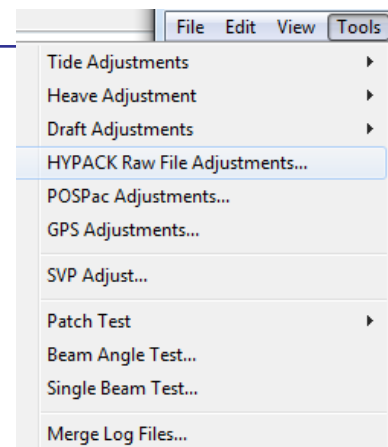
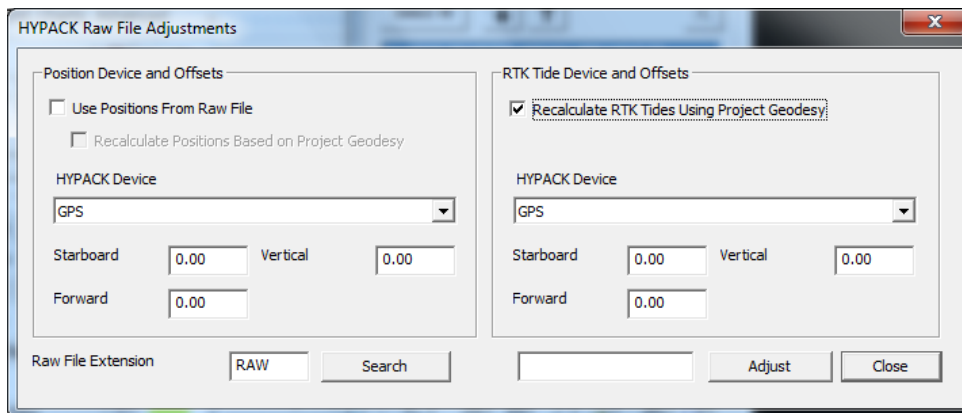
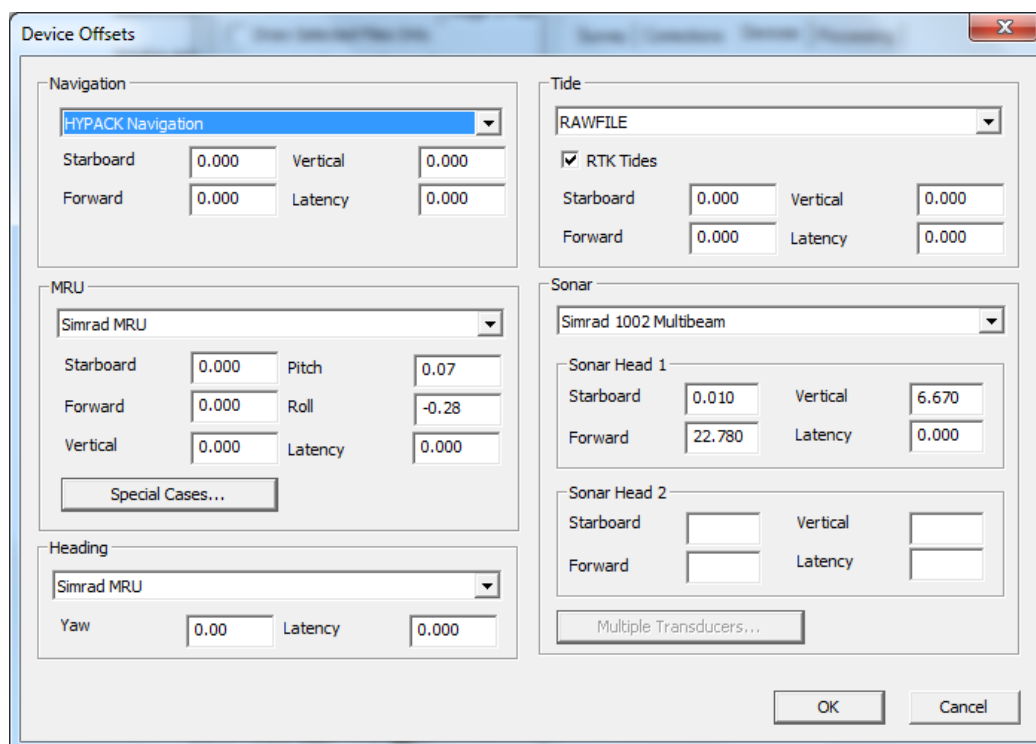


FIGURE 5. Setting Offset Adjustments



**TIP:** You can verify the change in the device set-up, as the HYPACK Tides now shows RAWFILE from HYPACK NAVIGATION.

FIGURE 6. Device Offsets After Raw File Adjustments



**To show that the tides were adjusted**, I examined the first point in the file:

The corrected depth is 34.09. Removing the tides (set tide to 0), the value is 39.64. The tide is shown to be 5.55 (the difference between  $39.64 - 34.09$ ).

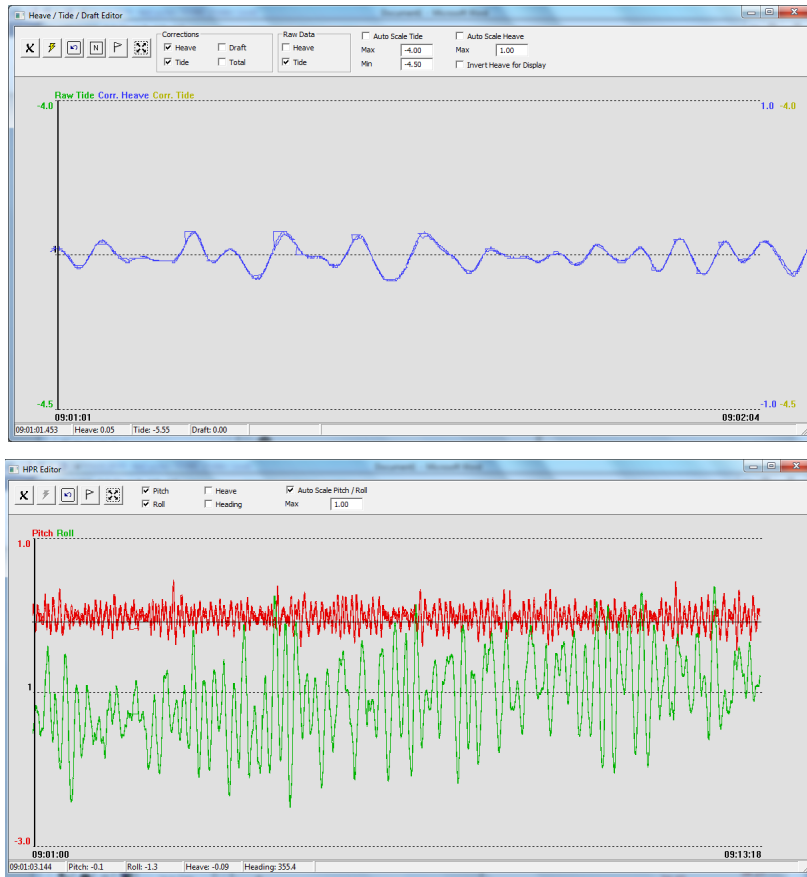
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## CHECKING THE MATH

- **Tide = KTD + GPS height + Heave + pitch correction + roll correction**  
In the Geodesy settings, I had set a KTD file, and computed the correction at that point to be 3.52.
- The **vertical height**, from the GPS sensor = 1.96.  
POS 0 32461.880 567881.91 5508000.02  
RAW 0 32461.880 4 494324.02700 -20349.52600 1.96000 90101.79700  
MSG 0 32461.880  
INGGA,090101.797,4943.24027,N,00203.49526,W,2,20,0.9,1.96,M,,5,0120\*09
- **Motion correction:**
  - Heave is 5cm
  - Pitch and roll are small, but add slightly to the computation.

*FIGURE 7. Heave Correction (top), Pitch and Roll Correction (bottom)*



**Tide = KTD + GPS Height + Heave + Pitch Correction + Roll Correction**

**Tide = 3.52 + 1.96 + 0.05 + 0.01 + 0.01**

**Tide = 5.55**