



# GPS Adjustments in MBMax64

By Rob Baird

When MBMax64 (64-bit HYSWEEP® EDITOR) was debuted just over a year ago, it made an immediate splash with HYPACK® users. Programmer Mike Kalmbach utilized his 10+ years of MBMax experience in completely re-writing how HYPACK® handles multibeam editing, while speeding up and simplifying the process for you. While MBMAX64 is a much-improved tool, we still hear from legions of users devoted to the original, 32-bit MBMAX that are not yet sold on making the switch.

I recently encountered another example of how MBMax64 both speeds up and simplifies editing. MBMAX64 can handle both Raw File Adjustments and Post-processed GPS Adjustments simultaneously (within the GPS Adjustment program), eliminating a step that was necessary in its 32-bit predecessor.

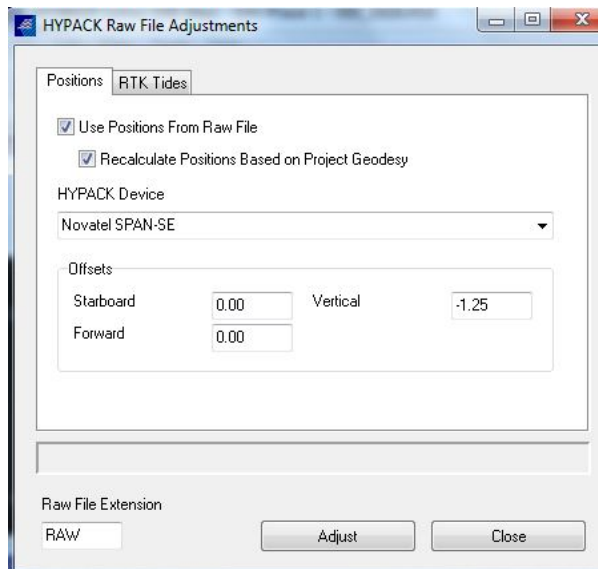
And now, another tale from the Tech Support archives...

A user called in and wanted to post-process GPS data by applying a PPK file, but did NOT collect Tide data during the initial survey. Subsequently, when he tried to perform a GPS Adjustment in MBMAX, he received a “Missing Tide information” error. While his 32-bit computer limited him to good ol’ reliable MBMAX, we were still able to find a workaround to use the data. However, it made me appreciate the ease and power of MBMAX64 that much more!

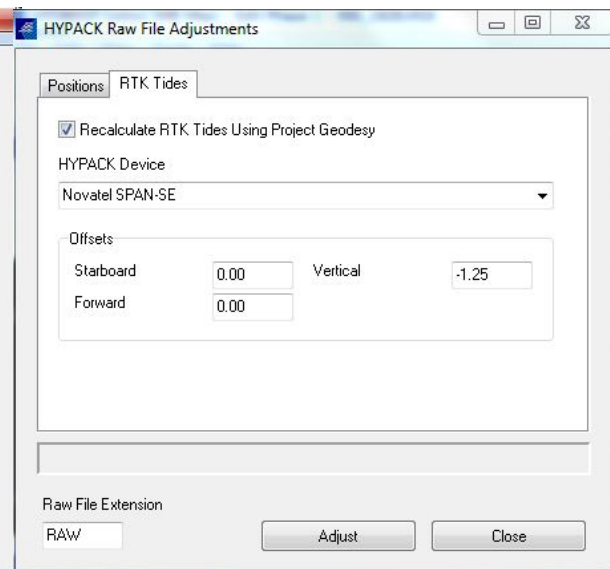
First, with original MBMAX, we had to do the HYPACK Raw File Adjustment:

1. **Loaded the HSX files into MBMAX and converted the Raw to Corrected to move into Phase 2.**
2. **In the MBMAX “Tools” menu, selected “HYPACK Raw File Adjustments” and ran the process.**
  - **To adjust the positional data:** In the Positions tab, selected “Use Positions From Raw File” and “Recalculate Positions Based on Project Geodesy” (Figure 1).
  - **To use the recorded tidal info from the raw file that did not make its way into the HSX file:** In the RTK Tides tab, selected “Recalculate RTK Tides Using Project Geodesy” (Figure 2).

**FIGURE 1.** Adjusting positions in 32-bit MBMAX



**FIGURE 2.** Adjusting tides in 32-bit MBMAX



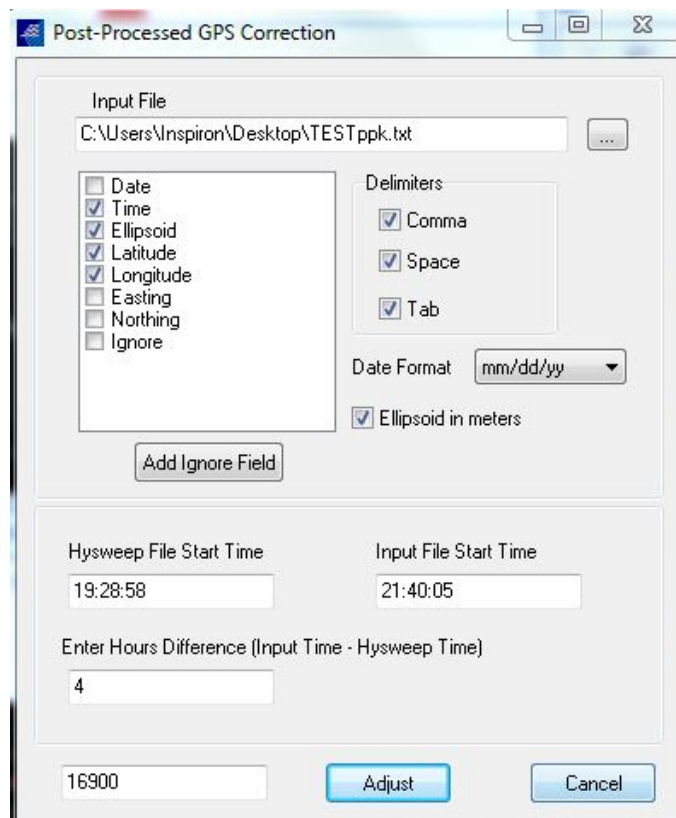
After performing this adjustment, you see tide info populate the Tide and Draft Corrections Window (Figure 3).

**FIGURE 3.** Tide Information (from the RAW files) has now been Added to the Data



3. We were then able to move onto the GPS Adjustments:

**FIGURE 4.** 32-bit Post-processed GPS Adjustments



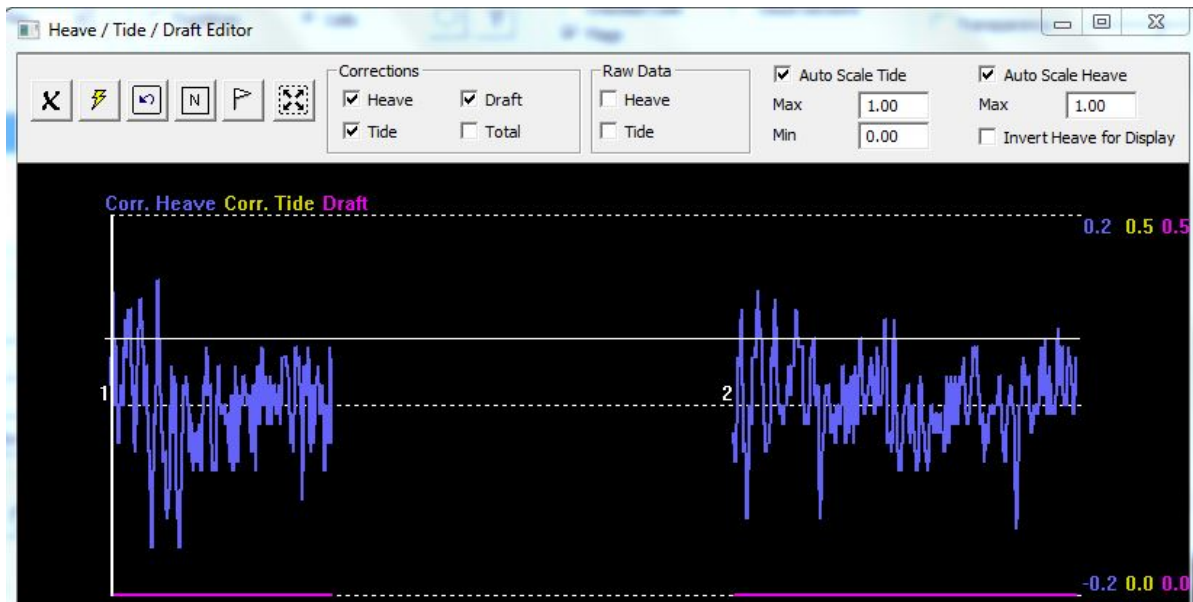
Eventually, the data was properly adjusted and ready to be further processed. But I couldn't help but think how much easier it would be in MBMAX64... so I gave it a try.

## ***THE PROCESS IN MBMAX64***

**1. I loaded the data into MBMAX64 and went straight into Phase 2.**

I opened up the Heave/Tide/Draft Editor to see the files before performing the GPS Adjustments. Keep in mind that there was NO tide info in the HSX files, which is what prompted the HYPACK Raw File Adjustment in the 32-bit HYSWEEP® EDITOR. Note the absence of tide data in Figure 5.

**FIGURE 5. No Tide Corrections**



2. **I opened up the GPS Adjustments window and loaded the PPK file.** With the PPK file, plus the HSX and their respective RAW files loaded in the Raw Files Directory of the project, I now had all the necessary tools for the job. It was time to let MBMAX64 do the rest.

**FIGURE 6. MBMAX64 Post-processed GPS Adjustments**

The screenshot shows the 'GPS Adjustments' window. It has several sections: 'PPK File' with a text box containing 'C:\Users\Inspiron\Desktop\TESTppk.txt'; 'Delimiters' with checkboxes for 'Comma', 'Space', and 'Tab' (all checked); 'Units' with checkboxes for 'Ellipsoid In Meters' and 'XY In Meters' (both checked); 'Format' with dropdown menus for 'Time' (set to 'HH:MM:SS.MMM (AM/PM)') and 'Latitude / Longitude' (set to 'DECIMAL DEGREES'); 'HYSWEEP File Start Time' with a text box containing '19:28:58'; 'PPK File Start Time' with a text box containing '21:40:05'; 'Enter Hour Difference (PPK Time - HYSWEEP Time)' with a text box containing '4'; and buttons for 'Test', 'Adjust', and 'Close'. At the bottom, there is a text box containing '21:40:05.00 45.198657628 -64.010665025 -20.007' and a 'Done' button.

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The post-processed GPS tide info has now been populated in the files (Figure 7), even though there was absolutely NO tide info in the original HSX files. The original positions have also been replaced by post-processed GPS positions.

**FIGURE 7.** *Updated Post-processed GPS Tides in Just One Step*

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While the original, 32-bit MBMAX still remains a solid editing tool, MBMAX64 has once again proven to be a vastly updated and improved program, making multibeam editing easier and quicker than ever!