



MBMAX64: Applying Tide Data

By Joe Burnett

Some questions have arisen on the priority of how tide data is applied in MBMAX64 (64-bit HYSWEEP® EDITOR), especially if RTK Tide data has been collected. When RTK tide has been collected, it is stored in both the *.RAW and *.HSX files for use in the editors—SBMAX and SBMAX64 for the *.RAW files and MBMAX and MBMAX64 for the *.HSX files. (The same is true for tides entered manually during SURVEY.)

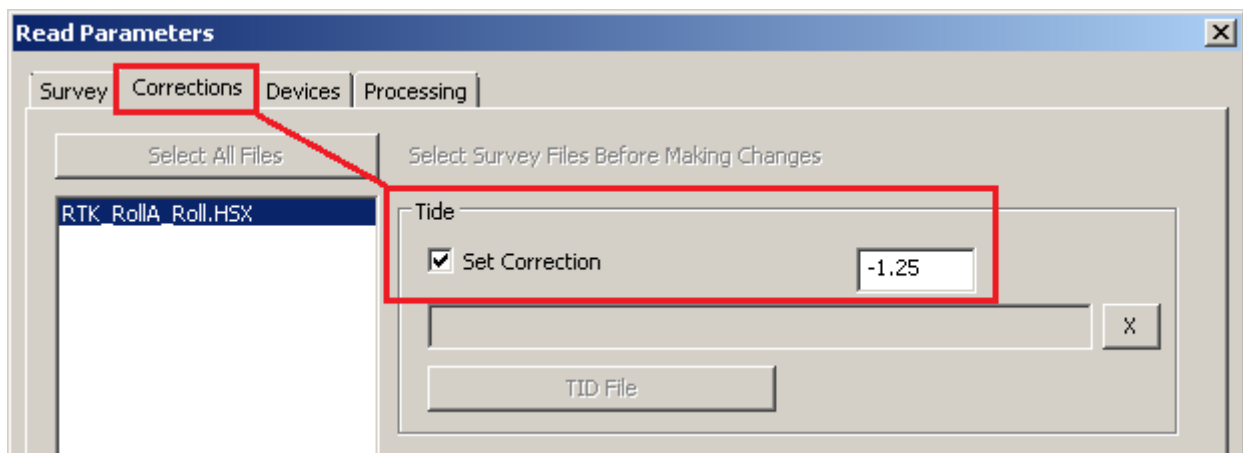
This article will deal with tide data in the MBMAX64 editor.

When you load the *.HSX files into MBMAX64 and the Read Parameters window appears, the Corrections tab will show you the options for selecting tide data:

Even though there may be RTK tide data stored within the *.HSX file, it does *not* have the first priority for the application of tide data for the files that are loaded.

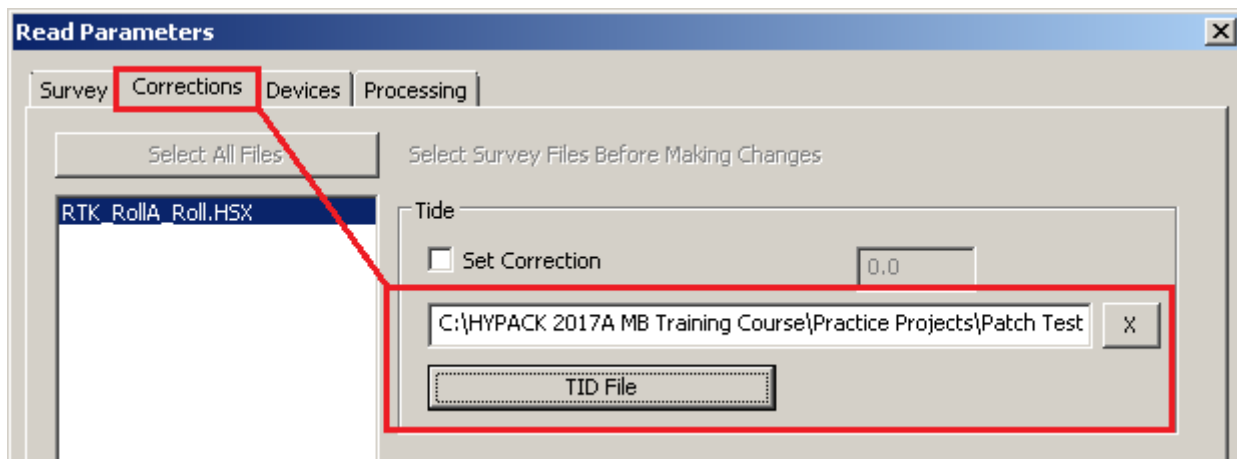
First Priority: In the Corrections tab of the Read Parameters window, when you enable the Set Correction option and enter a tide value in the box, this is the first priority; *it overrides any and all tide data* that resides in the HSX file.

FIGURE 1. Setting a Constant Tide Correction



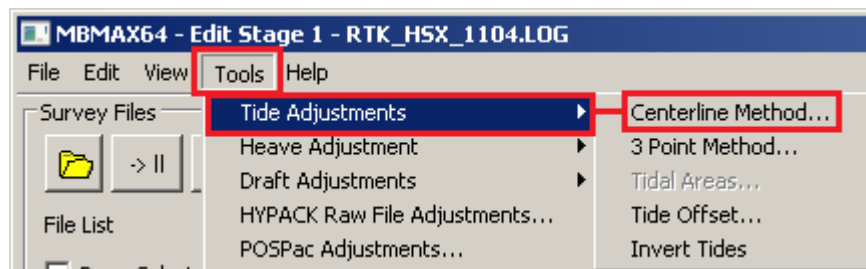
Second Priority: If the first priority correction value is not set, the second priority is the tide correction file (*.TID). In the Corrections tab of the Read Parameters window, when you enter a tide file using the TID File button, *it overrides any and all tide data* that resides in the HSX file.

FIGURE 2. *Entering a Tide Corrections File*



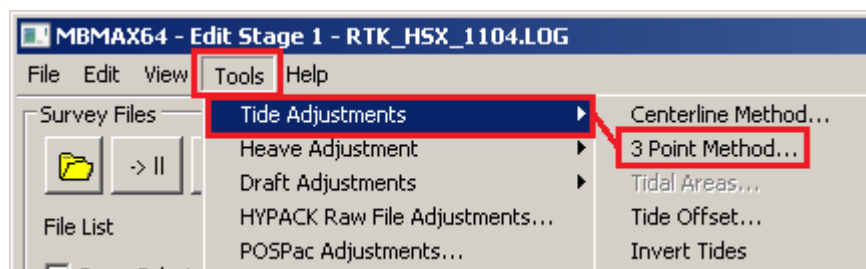
Third Priority: If neither the first two priorities are used, the Centerline Method of Tide Adjustments is the third. Select TOOLS-TIDE ADJUSTMENTS-CENTERLINE METHOD...

FIGURE 3. *Launching the Centerline Tide Adjustments Dialog*



Fourth Priority: If none of the first 3 priorities are used, the Centerline Method of Tide Adjustments is the fourth. Select TOOLS-TIDE ADJUSTMENTS-3-POINT METHOD.

FIGURE 4. *Launching the 3-Point Method Tide Adjustments Dialog*



Fifth Priority: If none of the first 4 priorities are used, in the Read Parameters Devices Tab, MBMAX64 will default to the 'HYPACK Survey' device and use the tide data in the TID records that reside within the HSX file, *regardless of whether the RTK Tides box is enabled.*

FIGURE 5. Configuring the Tide Device in the Devices Tab. Click [Edit] to modify the current options.

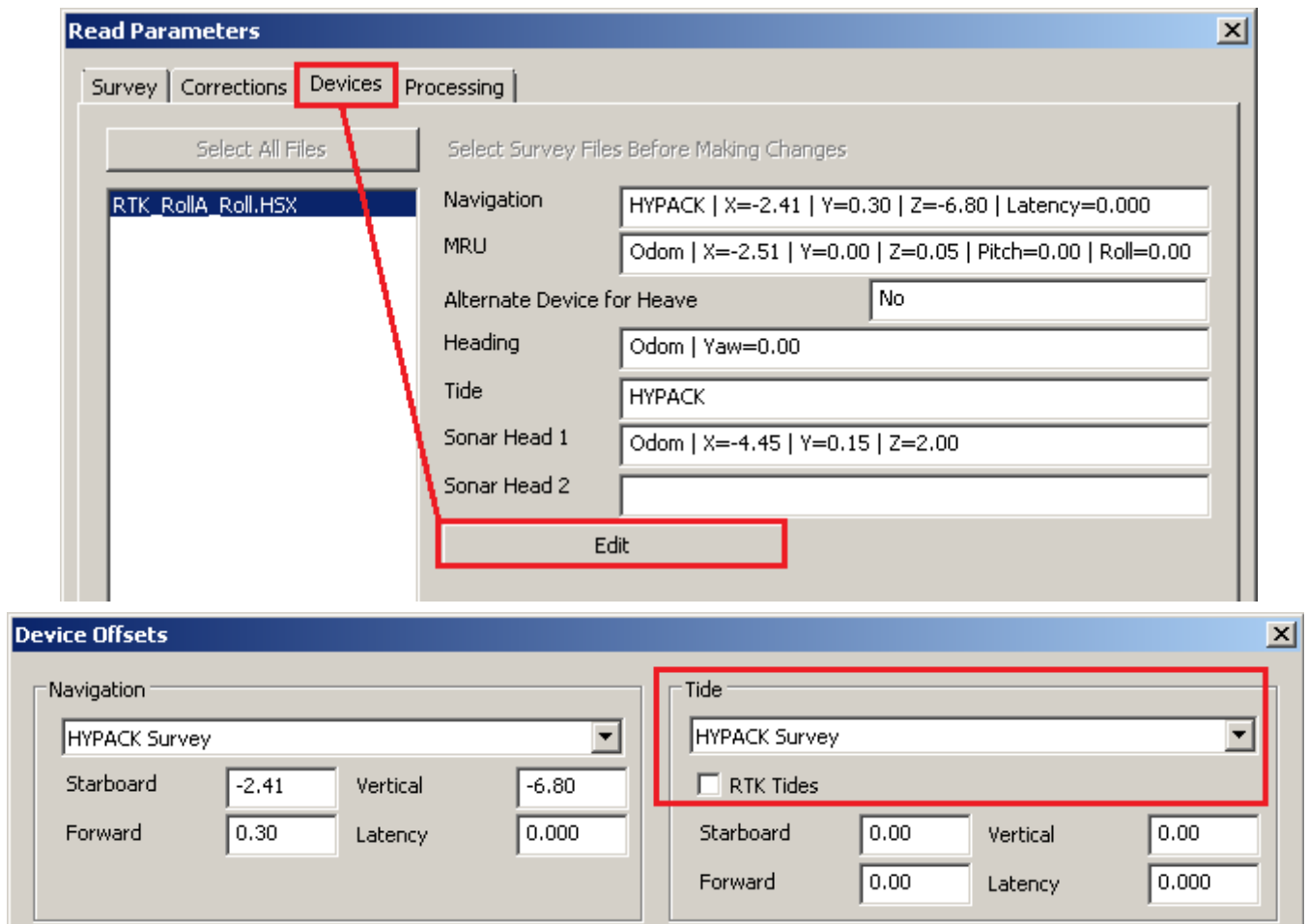


FIGURE 6. Sample TID Record in the Raw Data

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POS 0 54351.000 2315778.3 526540.8
GYR 0 54351.000 235.01
EC1 0 54351.000 18.3
TID 0 54351.000 -565.3
HCP 1 54350.803 0.00 4.57 1.28
RMB 1 54350.939 2 0 81 240 1442.30 157954

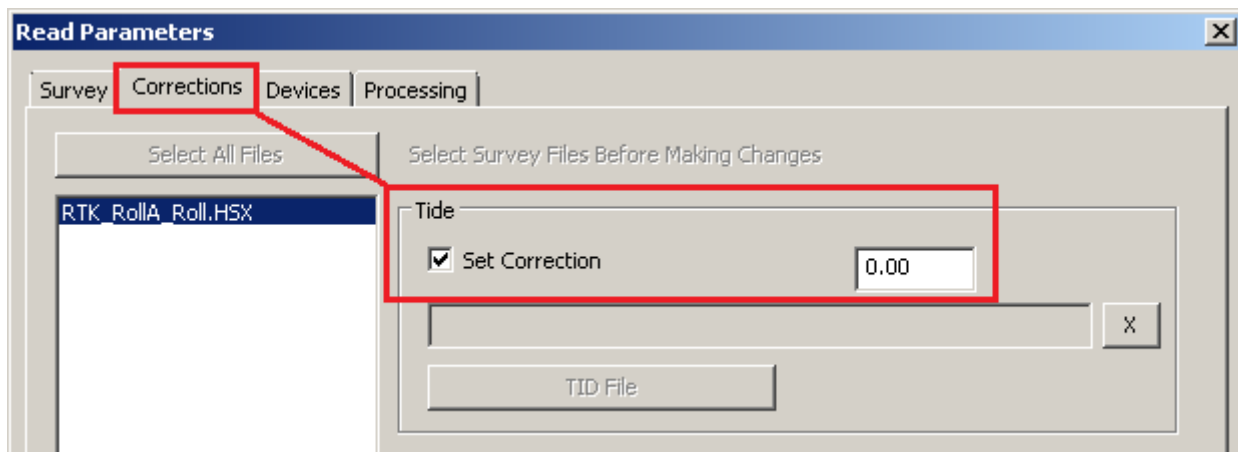
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IMPORTANT: It is here where the confusion has arisen. Most users were under the impression that if the RTK Tides box was *not selected*, the RTK tide data that resides in the HSX file *would not be used*; however, *this is not the case*.

If there are TID records in the *.HSX files, MBMAX64 will automatically use these values, even if the RTK Tides box is not selected.

To override (ignore) the TID records in the HSX file *without entering alternate tide data* using priorities 1-4, use the priority 1 option and set the tide value to 0.00.

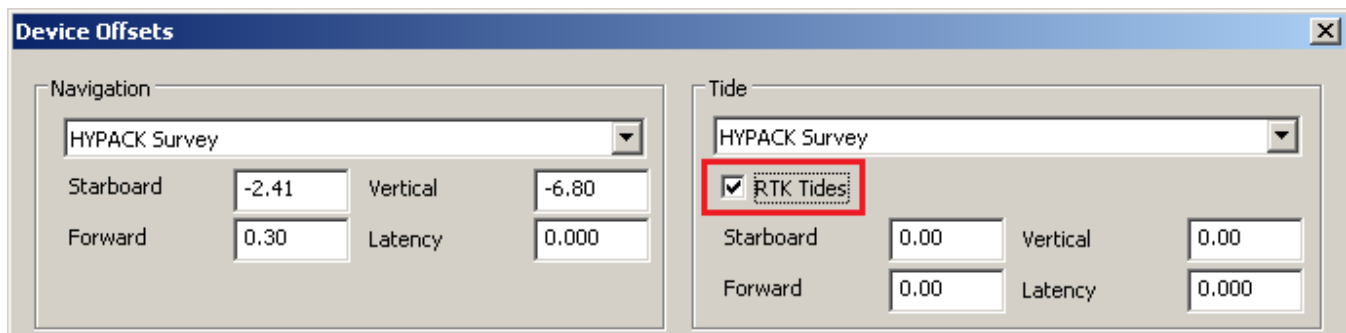
FIGURE 7. *Telling the Editor to Ignore TID Records in the HSX File*



NOTE: This would be the same as selecting None in the Tide area of the Devices Tab.

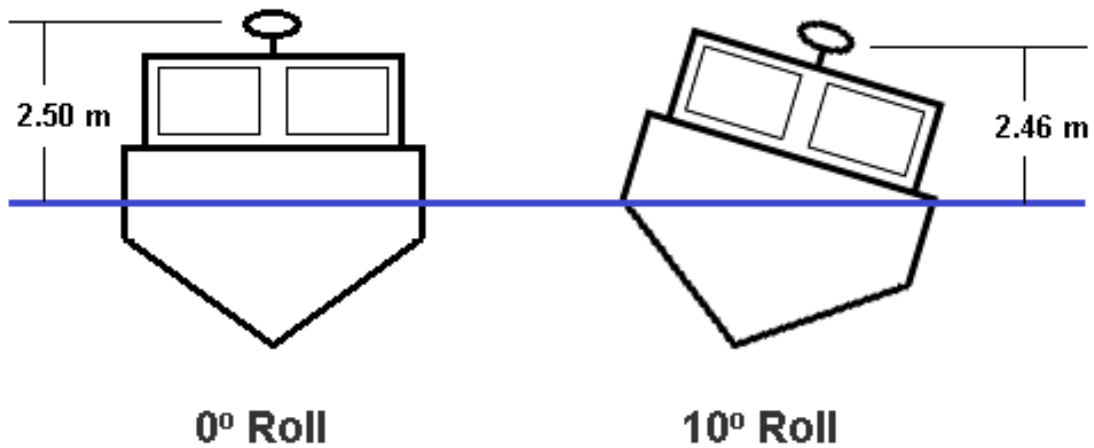
When you enable the RTK Tides box, you are telling MBMAX64 to correct the vertical offset for the device providing the RTK tide data for any roll or pitch induced lever arms.

FIGURE 8. *RTK Tides Option Corrects Tide for Lever Arm Effect of Pitch and Roll*



In this example, the vessel incurred a 10° roll, which caused the RTK GPS antenna to lower by 4 cm; therefore, the vertical offset must be adjusted, so that the RTK tide for the water surface can be correctly calculated and applied.

FIGURE 9. *Pitch and Roll Affects Antenna Height*



This is why I am adamant, during the Multibeam Training Courses, to explain each and every box and button of the Read Parameters window so that users understand what they are turning on or off. It is crucial to go through each tab and option of the Read Parameters window, when you are loading data into MBMAX64, so that everything is set correctly before you start processing.