



Recalculating RTK Tides

By Mike Kalmbach

Both the single beam (SBMAX) and multibeam (MBMAX) editors have been modified to recalculate RTK tides from raw GPS information. Although the updates are ready now, they did not make the HYPACK® 2009 release.

Recalculation should be very useful to HYPACK® users. In the past, if the RTK tide setup for survey was incorrect, there was little anyone could do to fix it. Many will attest to this. And although John Lindberg's hair isn't graying, I think there are little pulled out patches attributable to RTK tide issues that are now easily solved with recalculation.

PRELIMINARIES

There is one thing to do in HYPACK® hardware configuration before survey, and two things to do before running the editor:

HYSWEEP® HARDWARE Configuration: The GPS or Network POS/MV driver will need to record raw records. That's the default setting – just don't turn it off.

FIGURE 1. Setting the GPS to Record Raw Messages

Before Editing: (1) Enter the appropriate geodetic parameters, including the geoid model (if used) and orthometric height correction. (2) Enable the KTD file in the HYPACK® shell if you are providing undulation values and correction to chart datum with a KTD file.



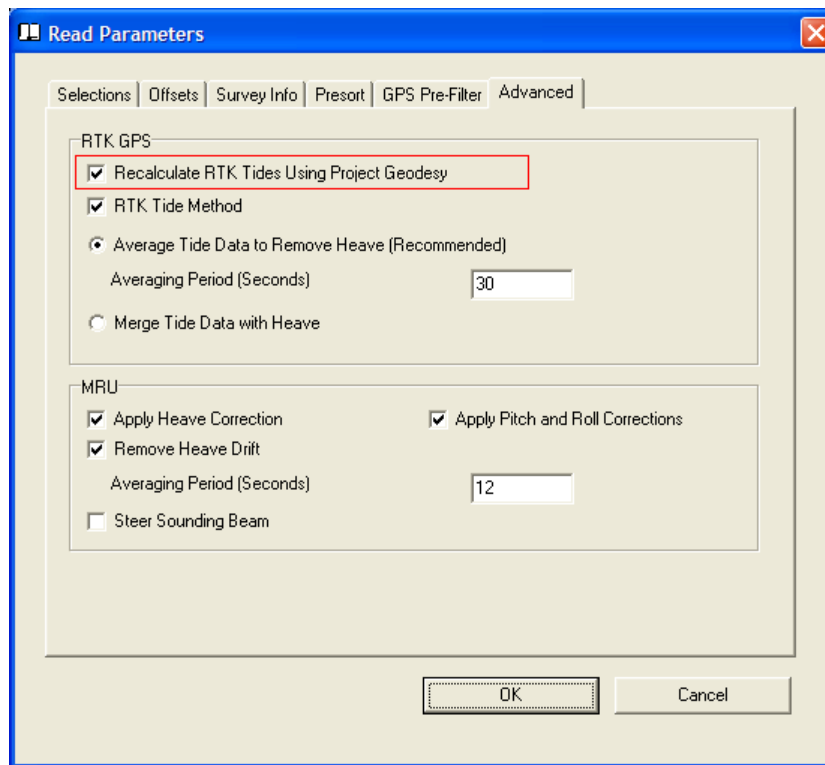
An added bonus for HYSWEEP® users is the ability to recalculate tides from POSpac post-processed GPS. (POSPac is a software suite available from Applanix). I've been told that RTK vertical accuracy levels can be attained from POSpac processed DGPS, but haven't seen it first-hand. If you agree (or believe the statement to be rubbish), let me know at mike@hypack.com.

Follow the simple editor steps below to recalculate RTK tides.

SINGLE BEAM EDITING

Very easy. In the Advanced tab of Read Parameters, check "Recalculate RTK Tides Using Project Geodesy".

FIGURE 2. Recalculating RTK Tides in the SINGLE BEAM EDITOR

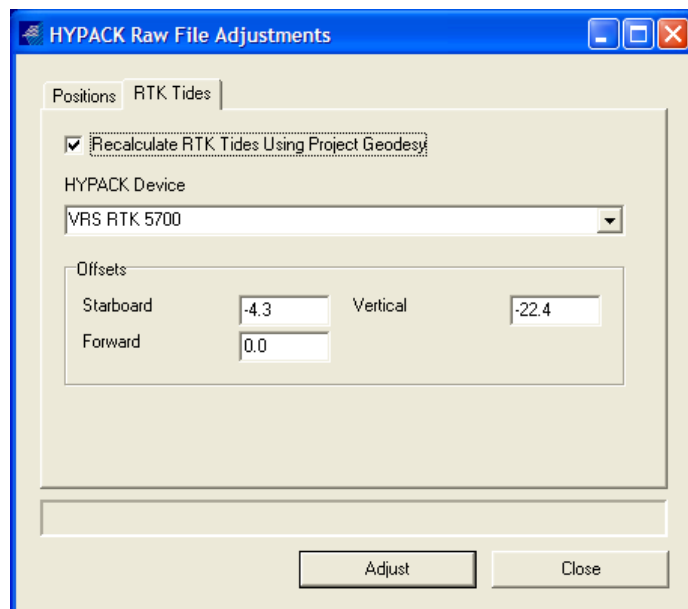


MULTIBEAM EDITING

Although you edit HYSWEEP® HSX or HS2 files for multibeam, detailed GPS information is saved in HYPACK® RAW files. So to recalculate RTK tides, you will need RAW files. That's usually not a problem, as the RAW files are recorded to the same folder containing the HSX files. If you copy an entire project, the RAW files come along.

In the Raw Data phase of editing (edit phase 1):

1. Select TOOLS- HYPACK RAW FILE ADJUSTMENTS.
2. Choose the RTK Tides tab, then check on "Recalculate RTK Tides Using Project Geodesy".
3. Select the device and optionally modify GPS antenna offsets.
4. Click [Adjust] to recalculate tides.

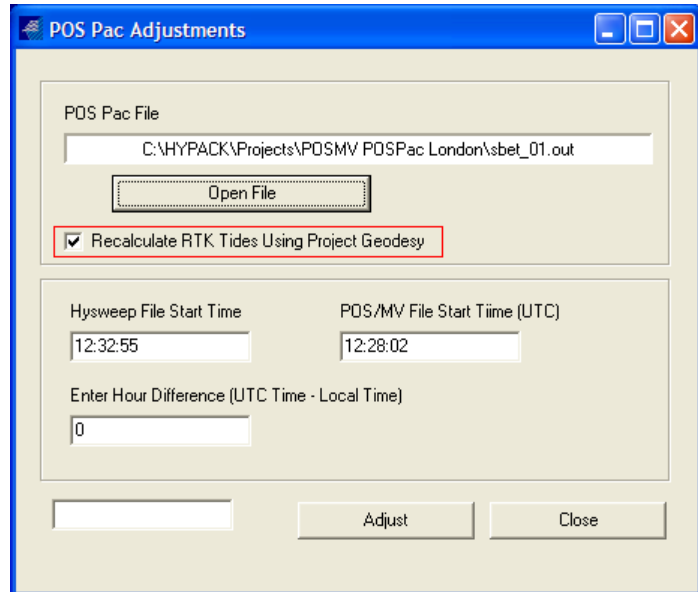


Another bonus! You may now load positions from the RAW file if that will improve the quality of your survey. Use the Positions tab.

MULTIBEAM / POSPAC

When using POSPac, the HYPACK® RAW files are not required for detailed GPS information. The POSPac .OUT file contains all the GPS anyone could ever use.

Along with position, boat motion and heading refinements always made using POSPac adjustments, you can optionally select “Recalculate RTK Tides Using Project Geodesy” to replace tides based on POSPac ellipsoidal elevations.



The screenshot shows the "POS Pac Adjustments" dialog box. It has a title bar with standard Windows window controls. The main area is divided into two sections. The top section, titled "POS Pac File", contains a text box with the path "C:\HYPACK\Projects\POSMV POSPac London\sbet_01.out" and an "Open File" button below it. Below this is a checkbox labeled "Recalculate RTK Tides Using Project Geodesy" which is checked. The bottom section contains two time input fields: "Hysweep File Start Time" with the value "12:32:55" and "POS/MV File Start Time (UTC)" with the value "12:28:02". Below these is a label "Enter Hour Difference (UTC Time - Local Time)" and a text box with the value "0". At the bottom of the dialog are three buttons: an empty text box, an "Adjust" button, and a "Close" button.