



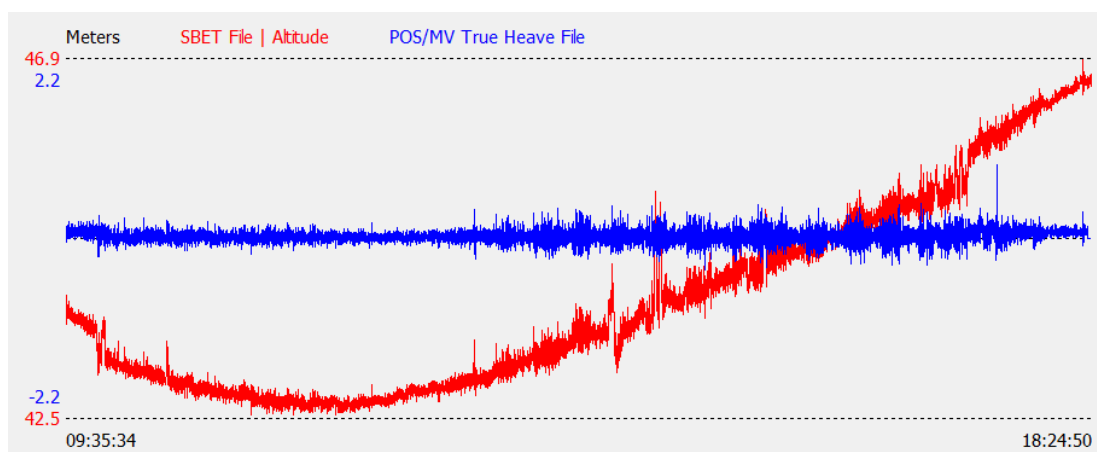
SBET Editor

By Mike Kalmbach

The SBET editor allows you to fix elevation errors in SBET files. In case you are unfamiliar, SBET (Smoothed Best Estimation of Trajectory) is the output format of POSPac post processing. POSPac is a popular Applanix program that post processes GPS and inertial data into a combined, high accuracy solution. But sometimes SBET suffers from vertical drift and that's the reason for the editor.

Figure 1 shows the elevation data used in editing. SBET elevation (corresponding to water level) is shown in red. SBET elevation is typically referenced to the WGS 84 ellipsoid. Boat heave (dynamic elevation) is shown in blue. True heave is taken from POS MV logging.

FIGURE 1. SBET elevation (red) and boat heave (blue) are both used in editing SBET files. ("Elevation" and "Altitude" here refer to Z values and the words are used interchangeably.)



RUNNING THE SBET EDITOR

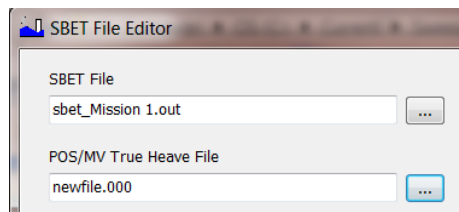
From the MBMAX64 tools menu, run SBET File Editor. It can also be run from Windows Explorer; Sbet_Editor.exe. Or added to the HYPACK® Shell in the normal way. Additional run options will come in the future.

LOADING FILES

Load a single SBET file first. File type is *.OUT. Elevation vs. time is shown in red.

Load one or more true heave files next. File type is normally *.000, but 001, 002, etc. may have been logged. Heave vs. time is shown in blue.

FIGURE 2. Select a single SBET file and one or more true heave files.

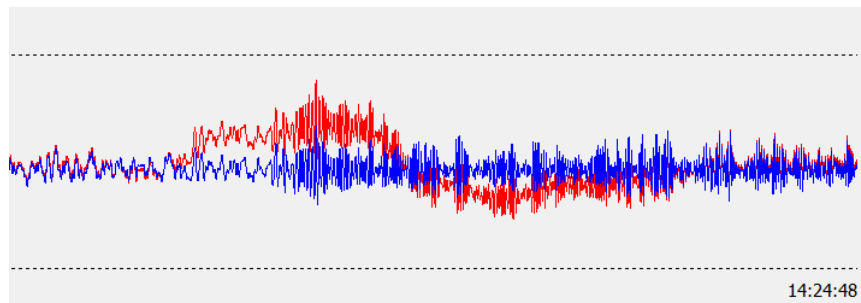


ZOOM, PAN, INTERPOLATE

Editing is done with the mouse. Some of the mouse operations match MBMAX64 and other HYPACK® programs. Some are unique to SBET editing.

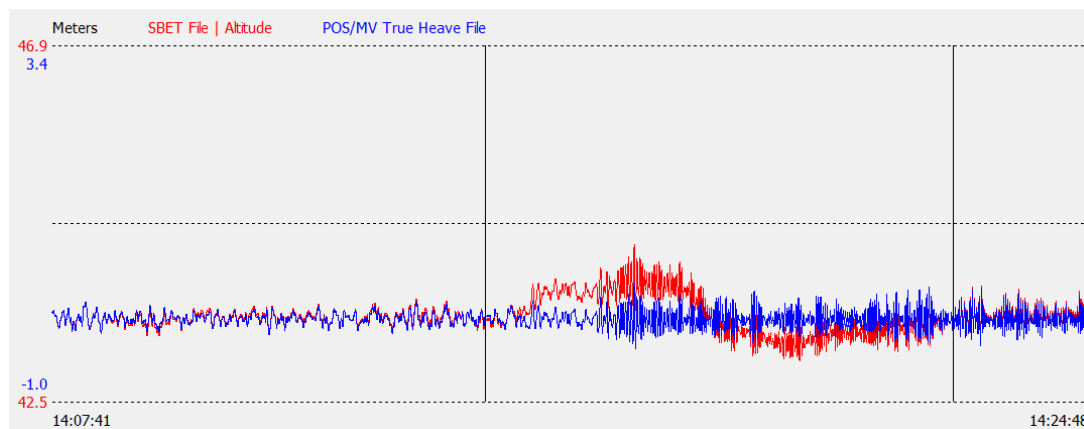
- **Mouse Wheel:** Zoom in or out.
- **Right Button Drag:** Pan.
- **Shift Right Button Drag:** Vertically pan only the heave graph. This is useful in that it overlays heave, which is by definition centered at zero, with SBET elevation, which shifts with water level.

FIGURE 3. Heave overlay shows a potential glitch in SBET elevation. Under normal conditions, heave and SBET will align over short time intervals.



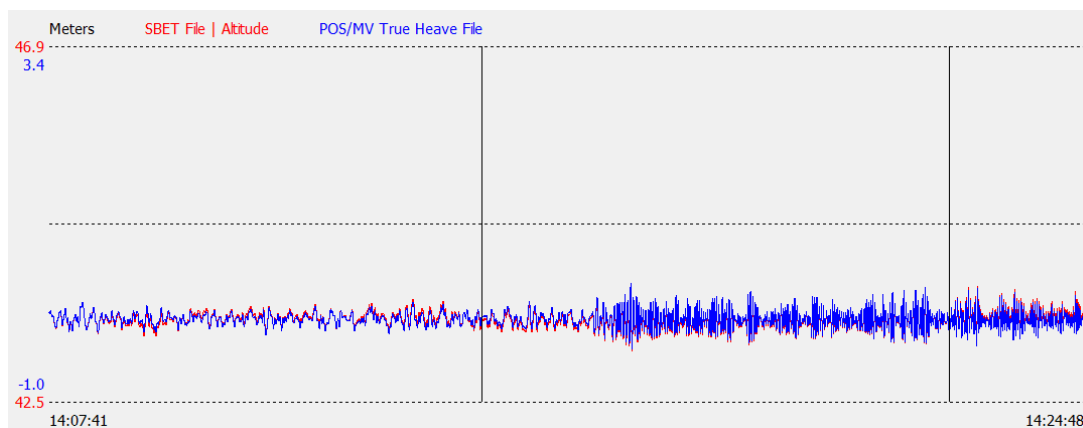
- **Left Button Drag:** Drop interpolation limits (figure 4).

FIGURE 4. The two vertical bars are interpolation limits from left mouse drag.



With interpolation limits on screen, click [Interpolate] to modify SBET elevations (figure 5).

FIGURE 5. Figure 5: Modified SBET elevations after interpolation. This is the point of the editing.



SAVE

After all the SBET glitches have been removed, click [Save As] to save results. Probably best to choose a new file name and avoid overwriting the original SBET.

After saving, you can run POSPac Adjustments from the tools menu of MBMAX64 and load the edited SBET file.

NOTE: You can reach an equivalent HYPACK® result without the SBET Editor. Use POSPac adjustments in MBMAX 32-bit or MBMAX64 and edit tides there. The alternative for MBMAX64 is written up in July 2015 “Sounding Better” – [Fixing POSPac Tides](#).

A couple of advantages of the SBET Editor:

1. **Creates an accurate SBET file that may be used multiple times.**
2. **View and edit SBET data for the entire day.** In the HYPACK® editors you only see the SBET data during HYPACK® logging.