



Splitting MRU Data in HYSWEEP®

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INTRODUCTION

HYSWEEP® SURVEY and processing normally use MRU data (heave, pitch and roll) from a single device. For example, the Applanix POS MV is a commonly used inertial system providing heave, pitch and roll corrections along with position and heading. The TSS DMS 05 is a popular heave compensator providing heave, pitch and roll. There are many similar devices.

Not so common are systems that provide pitch and roll but not heave, and vice versa.

But they exist. The Applanix POS LV provides pitch and roll but not heave. The Teledyne TSS DMS-H provides heave but not pitch and roll.

Heave may be split from pitch and roll in post processing as well. The most common example is POSpac post processing. POSpac creates a file that contains pitch and roll (with adjustments) but no heave.

This article explains hardware configuration and processing for POS LV and DMS-H and like systems. Plus a few processing notes for POSpac users.

HYSWEEP® HARDWARE CONFIGURATION

For the POS LV (pitch and roll) and DMS-H (heave) example:

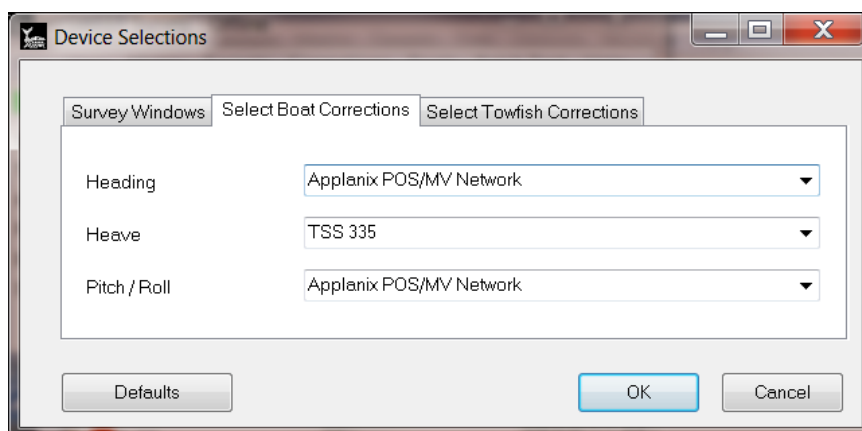
- **POS LV:** Use the Applanix POS MV Network driver as described in our interfacing notes (\HYPACK 2014\Help\HYSWEEP® Interfacing.pdf).
- **DMS-H:** Use any driver supporting the TSS1 message. The TSS DMS driver is the obvious choice. TSS 335 driver will also work and is used in the examples that follow.

A 1PPS box is likely required for this application. 1PPS is needed when some devices communicate via network (POS LV) and others use a COM port (DMS-H).

HYSWEEP® SURVEY CONFIGURATION

Applying the proper corrections (for survey display) requires device selection (Figure 1). Use the View menu, Device Selections then Select Boat Configuration tab.

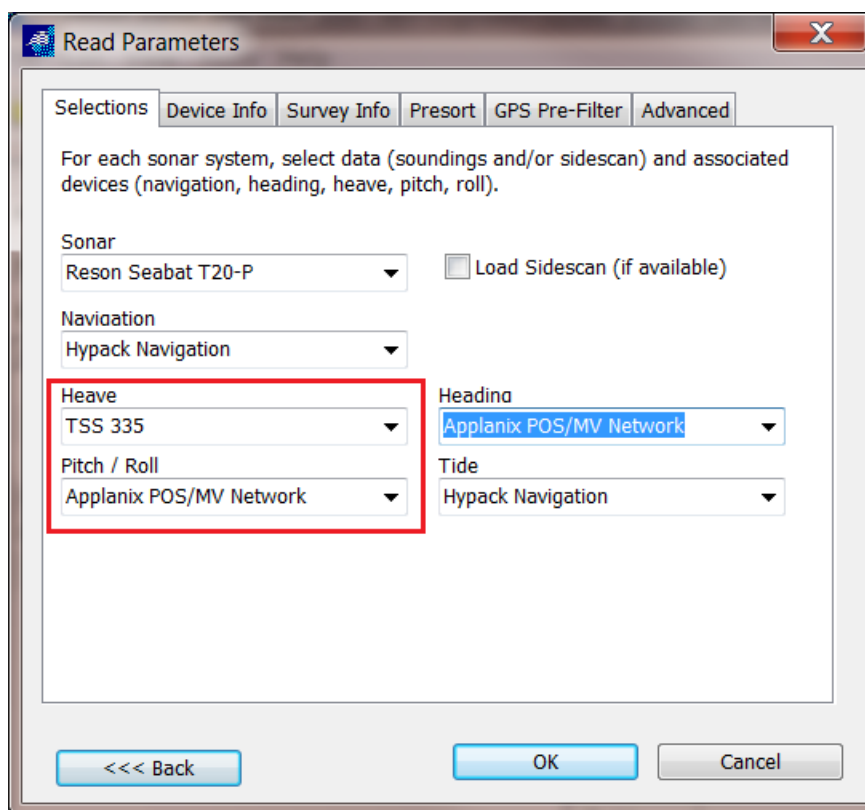
FIGURE 1. HYSWEEP® Survey Device Selections for Split MRU Data



MBMAX PROCESSING (32 BIT EDITOR):

Easy. Simply select devices as shown in Figure 2.

FIGURE 2. MBMAX 32-bit has Always Allowed Split MRU Data.



MBMAX64 PROCESSING:

Not as easy to split heave from pitch and roll in the 64-bit editor. But starting with version 14.0.12 it can be done. All relevant selections are under Read Parameters, Devices tab. Figure 3-5 captions explain the process.

FIGURE 3. The TSS is selected as the heave device while pitch and roll remain with the Applanix. Click the Edit button to set it up -> figure 4.

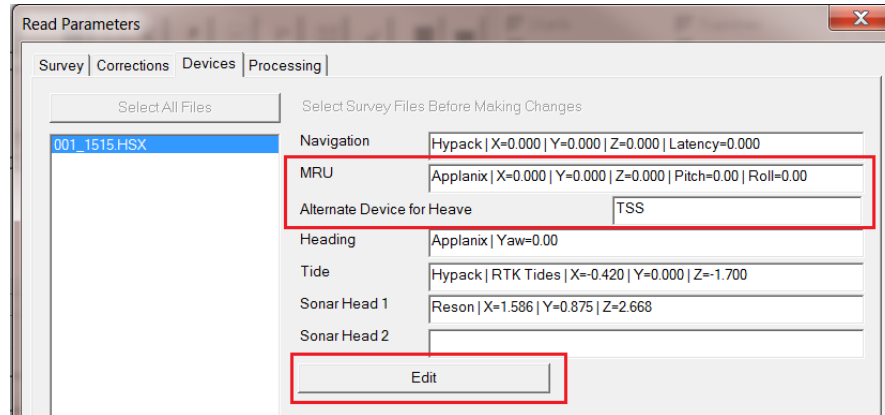


FIGURE 4. Click MRU Special Cases to separate heave from pitch and roll -> figure 5.

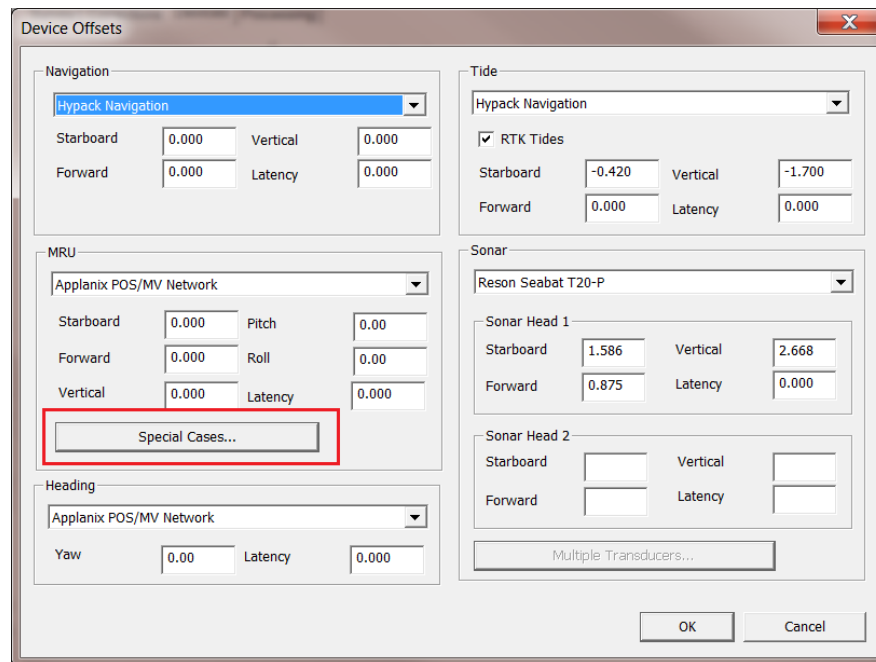
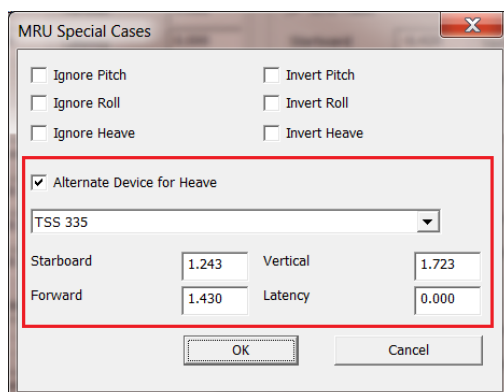


FIGURE 5. Use the check box for an alternate heave device. Select the device from the drop down list and edit offsets if necessary.

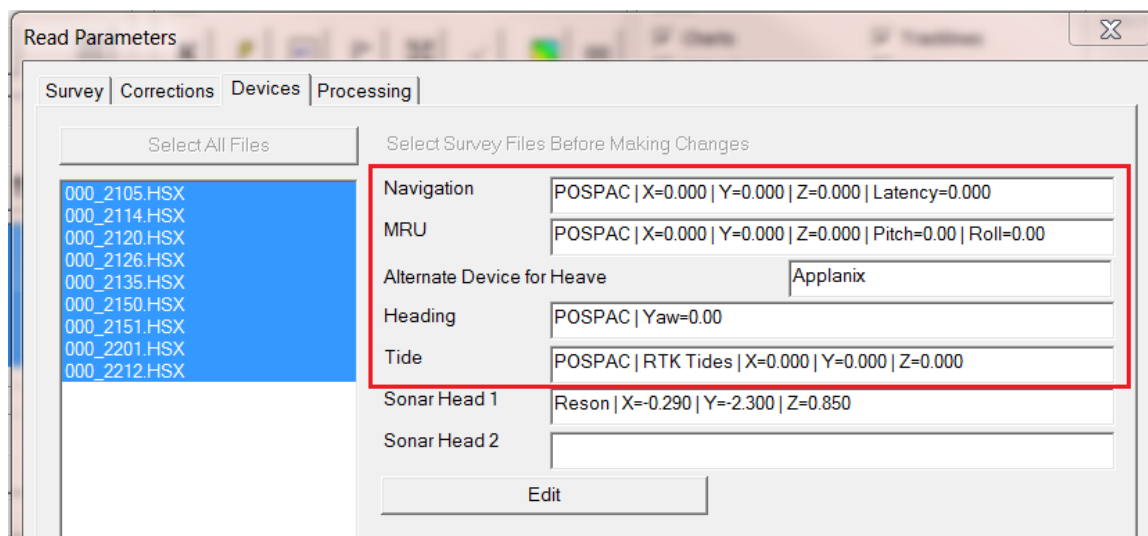


Yeah, it's not the cleanest user interface. But again, hardly anyone does this.

MBMAX64 POSPAC RESULTS:

If you use POSPac post processed files the results show up clearly in Read Parameters. POSPac adjustments can replace real time navigation, motion reference, vessel heading and tide measurement with more accurate (or adjusted) values. The only thing not replaceable with POSPac is heave.

FIGURE 6. Read parameters shows how all device data (except heave) is replaced by a POSPac SBET file



SUMMARY:

With HYSWEEP® setup and selections, it's not hard to separate heave data from pitch and roll. Device selections in HYSWEEP® SURVEY and MBMAX and MBMAX64 editing guide the programs to the proper devices for split MRU data.

This capability is new in MBMAX64 version 14.0.12. The HYPACK® 2014 release versions of the other programs (HARDWARE and HYSWEEP® SURVEY, MBMAX 32-bit editor) already support split data.