



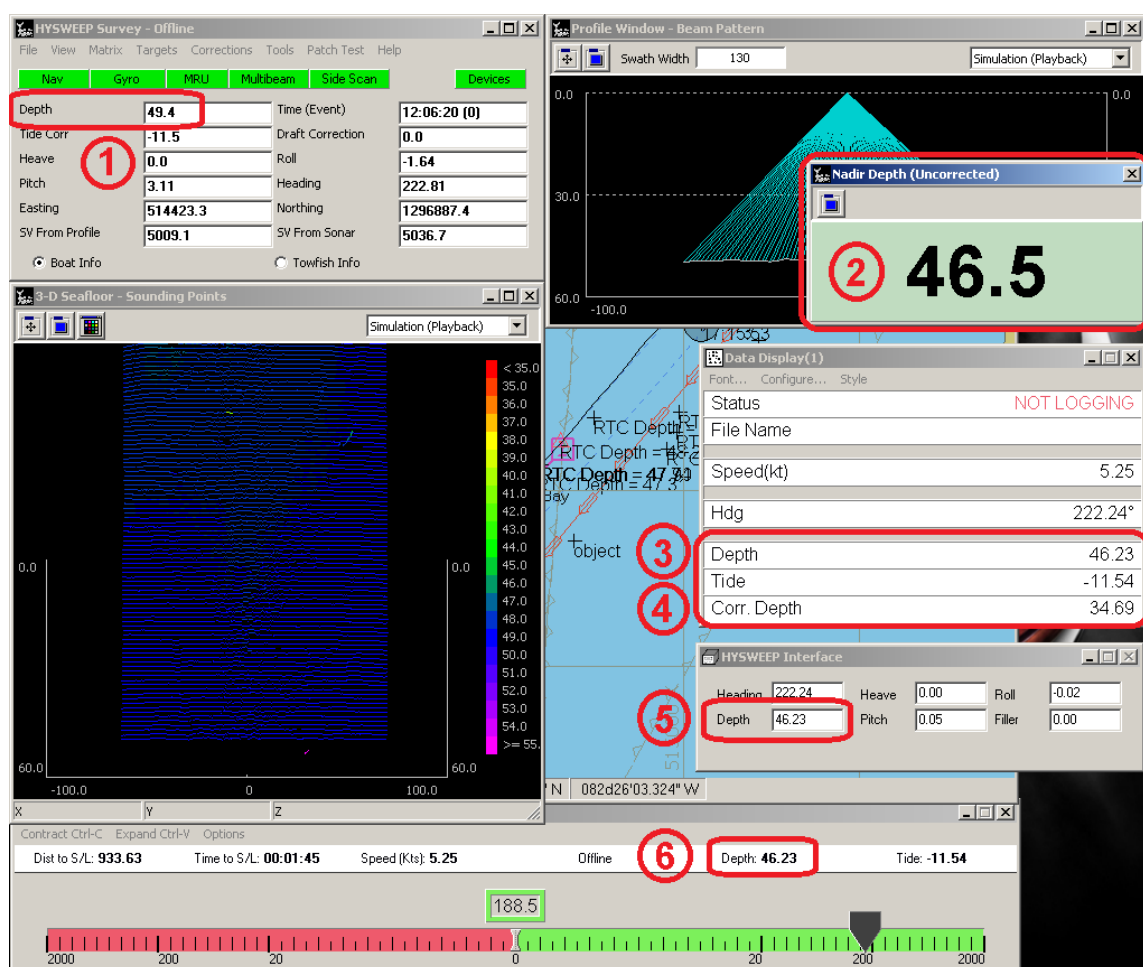
Multibeam Depth (Nadir Depth) Display Values

By Joe Burnett

Recently, we were asked what components were used in the display of the multibeam depth values, in both, the HYPACK® and HYSWEEP® SURVEY programs. There are several places where the depth (nadir depth) from the multibeam can be displayed, and, more than likely, they will display different values, even though they are all coming from the same multibeam device.

This article shows each location, what component values are applied to each of these values, and why you are seeing different values.

FIGURE 1. HYSWEEP® SURVEY (#1 & #2) HYPACK® SURVEY (#3, #4, #5 & #6)



HYSWEEP® SURVEY

HYSWEEP SURVEY MAIN WINDOW - DEPTH

***FIGURE 2.** Depth in the HYSWEEP® SURVEY Window*

The screenshot shows the 'HYSWEEP Survey - Offline' window. It has a menu bar (File, View, Matrix, Targets, Corrections, Tools, Patch Test, Help) and a toolbar with buttons for Nav, Gyro, MRU, Multibeam, Side Scan, and Devices. The 'Depth' field is highlighted with a red box and contains the value 50.1. Other fields include Tide Corr (-11.5), Heave (0.1), Pitch (2.67), Easting (514901.8), SV From Profile (5009.1), Time (Event) (15:37:47 (0)), Draft Correction (0.0), Roll (-1.64), Heading (222.92), Northing (1297156.1), and SV From Sonar (5036.1). At the bottom, there are radio buttons for 'Boat Info' (selected) and 'Towfish Info'.

Field	Value
Depth	50.1
Tide Corr	-11.5
Heave	0.1
Pitch	2.67
Easting	514901.8
SV From Profile	5009.1
Time (Event)	15:37:47 (0)
Draft Correction	0.0
Roll	-1.64
Heading	222.92
Northing	1297156.1
SV From Sonar	5036.1

Depth here equals **Nadir Depth + Vertical Offset + Corrections**.

The corrections are those selected from the View Options, Other Tab.

***FIGURE 3.** View Options, Other Tab*

The screenshot shows the 'View Options' dialog box with the 'Other' tab selected. The 'Sounding Displays' section contains several checkboxes. Three checkboxes are highlighted with red boxes: 'Apply Heave, Pitch, Roll Corrections' (checked), 'Adjust SV Profile Each Ping Using SV at the Sonar Head' (unchecked), and 'Apply Tide Correction' (unchecked). Other checkboxes include 'Black Window Background' (checked), 'Sidescan Display Has Highest Priority' (unchecked), 'Display Positions as Lat/Lon' (unchecked), and 'Nadir Depth Window Always On Top' (unchecked).

Option	Status
Apply Heave, Pitch, Roll Corrections	Checked
Apply Tide Correction	Unchecked
Black Window Background	Checked
Adjust SV Profile Each Ping Using SV at the Sonar Head	Unchecked
Sidescan Display Has Highest Priority	Unchecked
Display Positions as Lat/Lon	Unchecked
Nadir Depth Window Always On Top	Unchecked

NOTE: This is also the Depth that is used to paint the matrix in HYPACK® SURVEY Map windows.

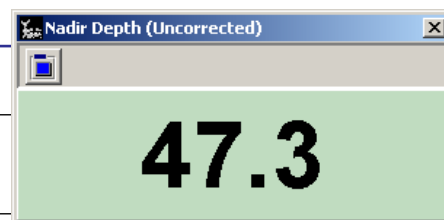
NADIR DEPTH (UNCORRECTED)

From each ping of the multibeam, this represents the depth of the beam with the closest beam takeoff angle to 0.0 degrees (or most vertical beam).

This '**Uncorrected Depth**' is important, as it lets the Boat Operator know the "**true clearance**" that the sonar head has, above the sea floor.

FIGURE 4. Depth without any Corrections

NOTE: This is also the depth that is sent through Shared Memory for the displays in HYPACK® SURVEY.



HYPACK® SURVEY

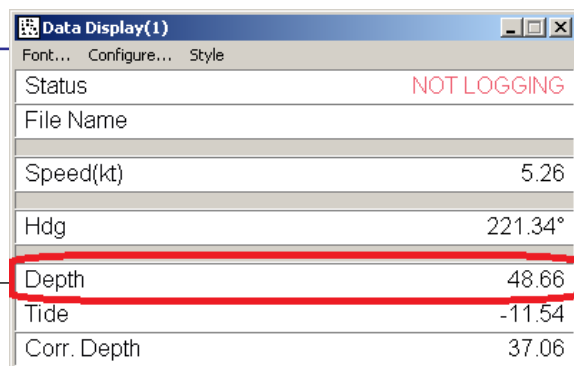
DATA DISPLAY - DEPTH

FIGURE 5. Uncorrected Depth

Depth here equals:

Nadir Depth (from HYSWEEP Survey) +
Vertical Offset (entered in the Hysweep Interface driver [Hysweep.dll])

IMPORTANT NOTE: This depth value can *only* be displayed in HYPACK® SURVEY, if you have added the HYSWEEP Interface driver (Hysweep.dll) to the HARDWARE program, and assigned it to the first mobile. (See [HYSWEEP Interface driver](#) below.)



A screenshot of a software window titled "Data Display(1)". The window has a blue title bar and menu options: "Font...", "Configure...", and "Style". It contains a table with the following data:

Status	NOT LOGGING
File Name	
Speed(kt)	5.26
Hdg	221.34°
Depth	48.66
Tide	-11.54
Corr. Depth	37.06

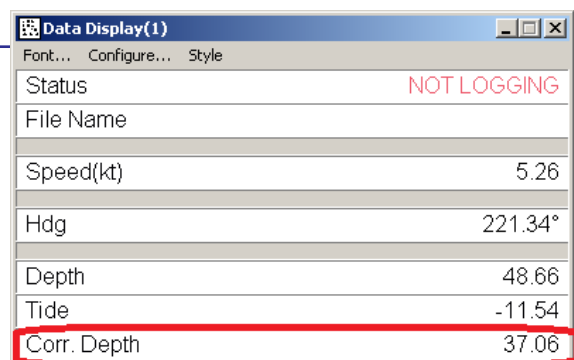
The "Depth" row is highlighted with a red rectangular border.

FIGURE 6. Data display - Corrected Depth

Depth here equals:

Nadir Depth (from HYSWEEP® SURVEY) +
Vertical Offset (for the Hysweep Interface driver [Hysweep.dll]) + Corrections.

Corrections include Tide, Heave, and Dynamic Draft Corrections.



A screenshot of a software window titled "Data Display(1)". The window has a blue title bar and menu options: "Font...", "Configure...", and "Style". It contains a table with the following data:

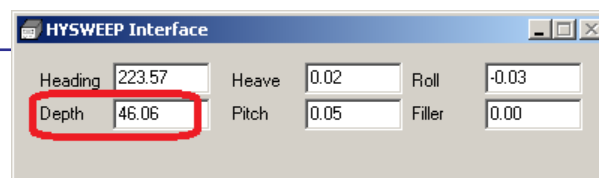
Status	NOT LOGGING
File Name	
Speed(kt)	5.26
Hdg	221.34°
Depth	48.66
Tide	-11.54
Corr. Depth	37.06

The "Corr. Depth" row is highlighted with a red rectangular border.

HYSWEEP INTERFACE DRIVER (HYSWEEP.DLL)

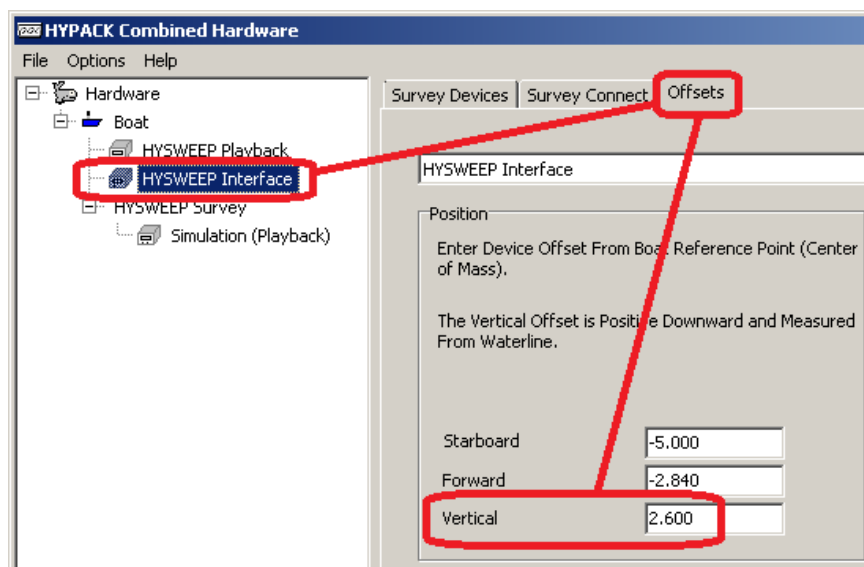
FIGURE 7. HYSWEEP.dll Device Window

Depth here equals the **Nadir Depth** (from HYSWEEP® SURVEY).



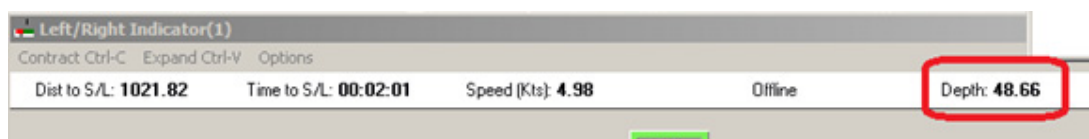
NOTE: The depth in this display does not include the vertical offset from the HYSWEEP Interface driver.

FIGURE 8. Hysweep Driver Offsets



LEFT/RIGHT INDICATOR - DEPTH

FIGURE 9. Left/Right Indicator Status Bar



Depth here equals the **Nadir Depth** (from HYSWEEP® SURVEY) + **Vertical Offset** (for the HYSWEEP Interface driver [Hysweep.dll])

IMPORTANT NOTE: Several of the above displays use the exact same values, however, during real-time displaying, it may appear that the values are different. This is due to the fact that some of the displays 'update' faster than others, and will cause them to appear as if they are displaying different values.