



Normalization of Magnetometer Data in 2013

By Roy Goyette

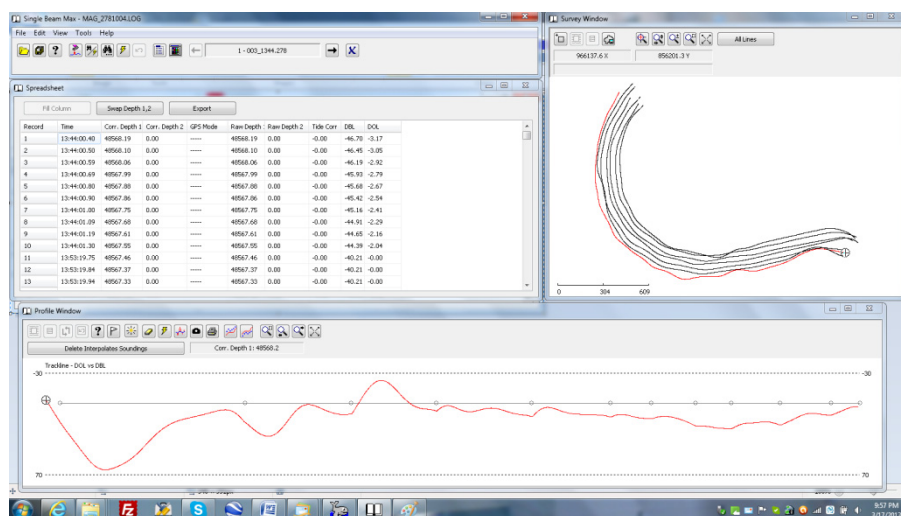
HYPACK® 2013 provides you with two methods of determining the difference between magnetometer median, minimum and maximum gamma readings more commonly referred to as normalization.

You can still manually normalize the data employing the same steps and methods used in previous versions of HYPACK® or choose to use the new routine in 2013 which employs the International Geomagnetic Reference Field (created by the International Association of Geomagnetism and Aeronomy or the IAGA for short). This new method gives you the added advantage of not removing legitimate spikes due to user error.

Both methods are used in the SINGLE BEAM EDITOR.

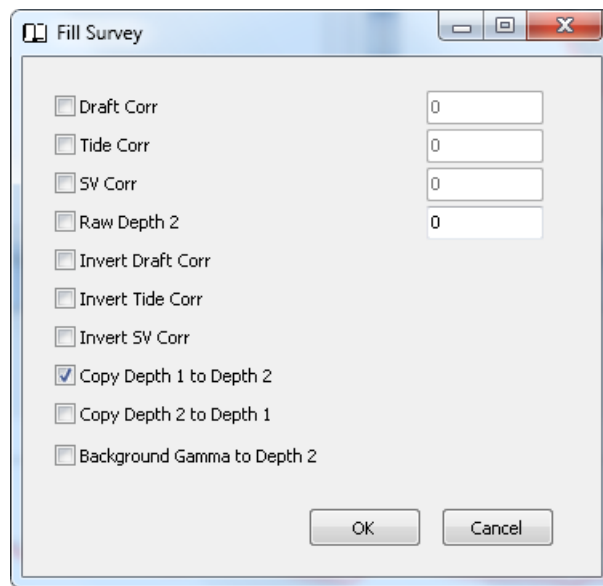
Let's review the steps to complete the process manually. This method which gives you the advantage of eliminating interference while highlighting the targets.

FIGURE 1. Loading your Magnetometer Data in the SINGLE BEAM EDITOR



1. **Load your gamma data into the SINGLE BEAM EDITOR** all the way to the editing windows.
2. **Select EDIT-FILL SURVEY** and place a check mark in one of the **Copy** choices. Be careful to use the correct copy function, when filling the survey. In almost all cases, you will copy Depth 1 into Depth 2.

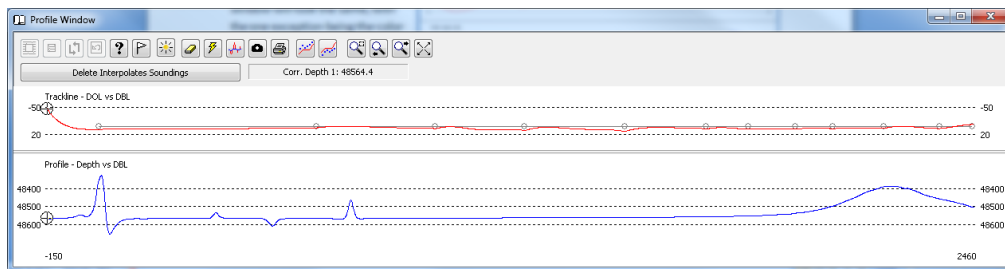
FIGURE 2. Copying Depth 1 to Depth 2



3. **Change your display to show only Depth 2.**
 - a. **Open the View Options dialog (F9).**
 - b. **Remove any check mark for the Show Depth 1 option.**
 - c. **Select the Show depth 2 check box.**

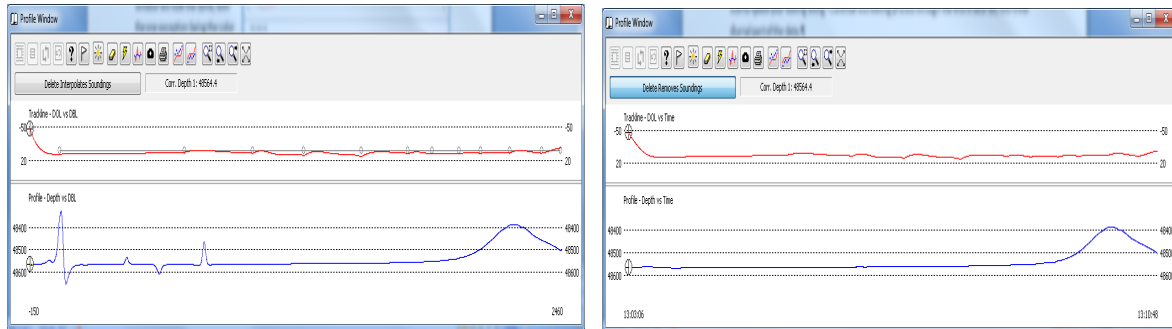
Note: Your Profile window will look the same except the color changes to blue.

FIGURE 3. Profile Window Display



4. **Ensure that your editor is set to Delete and Interpolate the soundings.** If you editor is set to Delete and Remove the soundings this procedure will not work.
5. **Delete each target** indicated in the Profile window.
 - a. Drag a box the target (spike) in the data. This is the diurnal part of the data.
 - b. Delete and interpolate using the Delete In icon.
 - c. Continue this editing process through the entire data set.

FIGURE 4. Before (left) and After (right)



6. **Subtract Depth 1 from Depth 2.** This replaces the Depth 1 values with the difference thereby removing the gamma average and interference.
7. **Save your data.**

Note: Use a different file extension so you can distinguish this normalized data from your depth data.

IGRF NORMALIZATION

In HYPACK® 2013, you can use the IGRF to normalize the data.

1. **Load your gamma data into the SINGLE BEAM EDITOR.**
2. **In the Fill Survey dialog, fill your Depth 2 with the IGRF data.**
3. **Subtract Depth 2 from Depth 1.** Select EDIT - DEP 1-DEP 2 DIFFERENCE
4. **Save your data.**

