

Underway Geophysics Lab Cookbook

MAGNETOMETER

THE EG&G Geometrics proton magnetometer is one of the devices being recorded by WINFROG. There has been a hiatus in a display of the data stream when security was added to the software. Version 2.652_20 was loaded on Leg 183 restoring this feature.

At sea and a magnetometer sensor deployed, turn on the magnetometer deck unit by turning the white power unit on. There is a trick switch on the top back.

Give the unit 5 minutes to warm up and begin the tuning sequence below.

On the WINFROG computer screen with a I/O DEVICE window displayed on the upper right, toggle the device button until the magnetometer is listed; click the configure radio button. In the window that appears, click manual. Look at Figure 3-4, a map contouring the earths magnetic field and posted on the cork bulletin board. Check your location and a round value for the contour in your area and add 10. Enter this number in the manual window and click OK. (see WinFrog Cookbook, Configuring Magnetometer)

Go to view in the top menu bar under VIEW and click Calculations; then select Magnetometer. Click the configure button presented in this window and select time sequence. Click OK. FIELD in red should be displayed near the top of this window. If not, toggle the small blue lined icon which moves through some other parameters that can be calculated and displayed. A sprinkling of red dots should be visible in the window after a few second.

The more scattered the display the more noise there is from the sensor or it is a reflection poor tuning.

Back to the right and the I/O DEVICES window is a magnetometer parameter list, including Gammas (earths total magnetic field strength units), Signal Level (SL) and Tuning Value (TV). The effort is to change the TV manually to optimize the Signal Level. From the TV initially entered, record a dozen iterations of the SL as it cycles. Then change the TV manually + 5.0, OK, and after a cycle, you will see that number replace the original TV.

Do not pay attention to the number that mysteriously shows up in the manual TV cell.

Again record a stream of SL values. If they are higher numbers, continue in that direction or reverse the direction if the original SL were better. Soon you can be changing the numbers by one increment. When you have the instrument tuned the scattering of red dots should coalesce into a tight band of data points.

If the dots are still scattered, switch sensors and repeat to see if it is a sensor related problem.