

Magnetometer Report For September 28, 2002

This survey was conducted on September 28, 2002 by
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Objective

The objective is to accurately map the magnetic field of the main overshoot area of Battery Wagner and Battery Gregg sites using a highly sensitive computer enhanced cesium magnetometer. Then compare the data collected with known target locations to try and locate any ferrous material, which may still lay undiscovered on the seafloor.

This site contains many known iron artillery projectiles and other ferrous targets that can be used to calibrate the Magnetometer to the navigational equipment used on board the tow vessel. By comparing the locations of the known artillery projectiles with the latitude and longitude generated by the magnetometer software a margin of error can be calculated and new targets if any can be located and identified.

Equipment

The equipment used to conduct this survey:

Geometrics G-881 cesium magnetometer

Cycle rate 10 pulses per second

Leica MX421-B DGPS

The DGPS antenna provides accurate, sub-meter position data to the logging computer

Toshiba Laptop

The logging computer creates a file and records the data generated by the DGPS and Magnetometer simultaneously. After the survey is complete the data is then post-processed and compiled into a workable format.

Software:

MagLog NT

This program brings together the navigational data and the magnetometer data and stores it on a file.

MagPick

This program creates the contoured charts of the magnetometer data.



Aerial photograph of Schooner Bay site

Track Plot

This chart represents the actual lines the tow vessel made while conducting this survey. The distance between each line is approximately 12 feet but because of winds and currents steering a straight line is very difficult to maintain. With this chart the exact coverage of the survey area can be determined and gaps or dead zones can be identified and filled in at a later date.

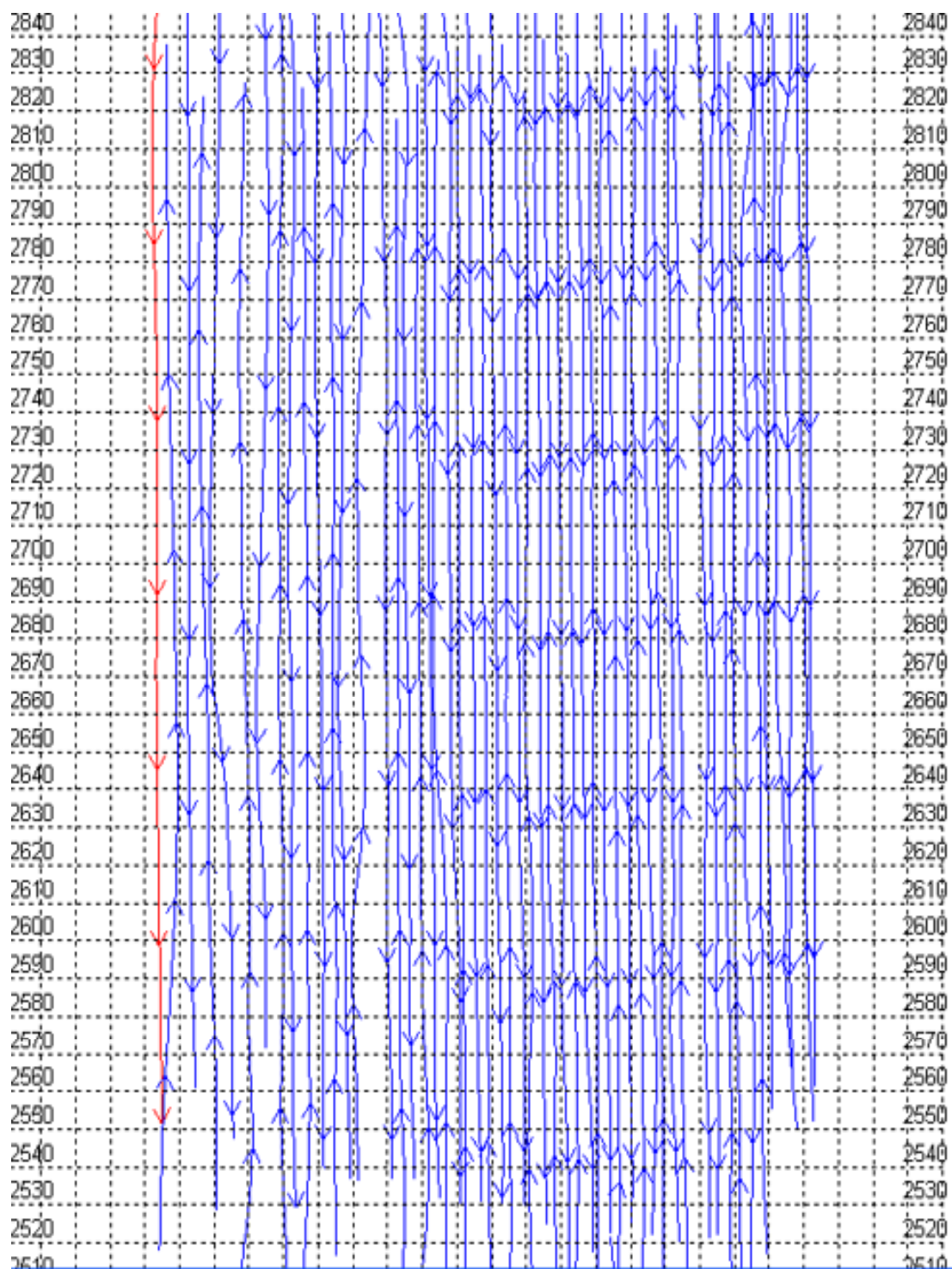
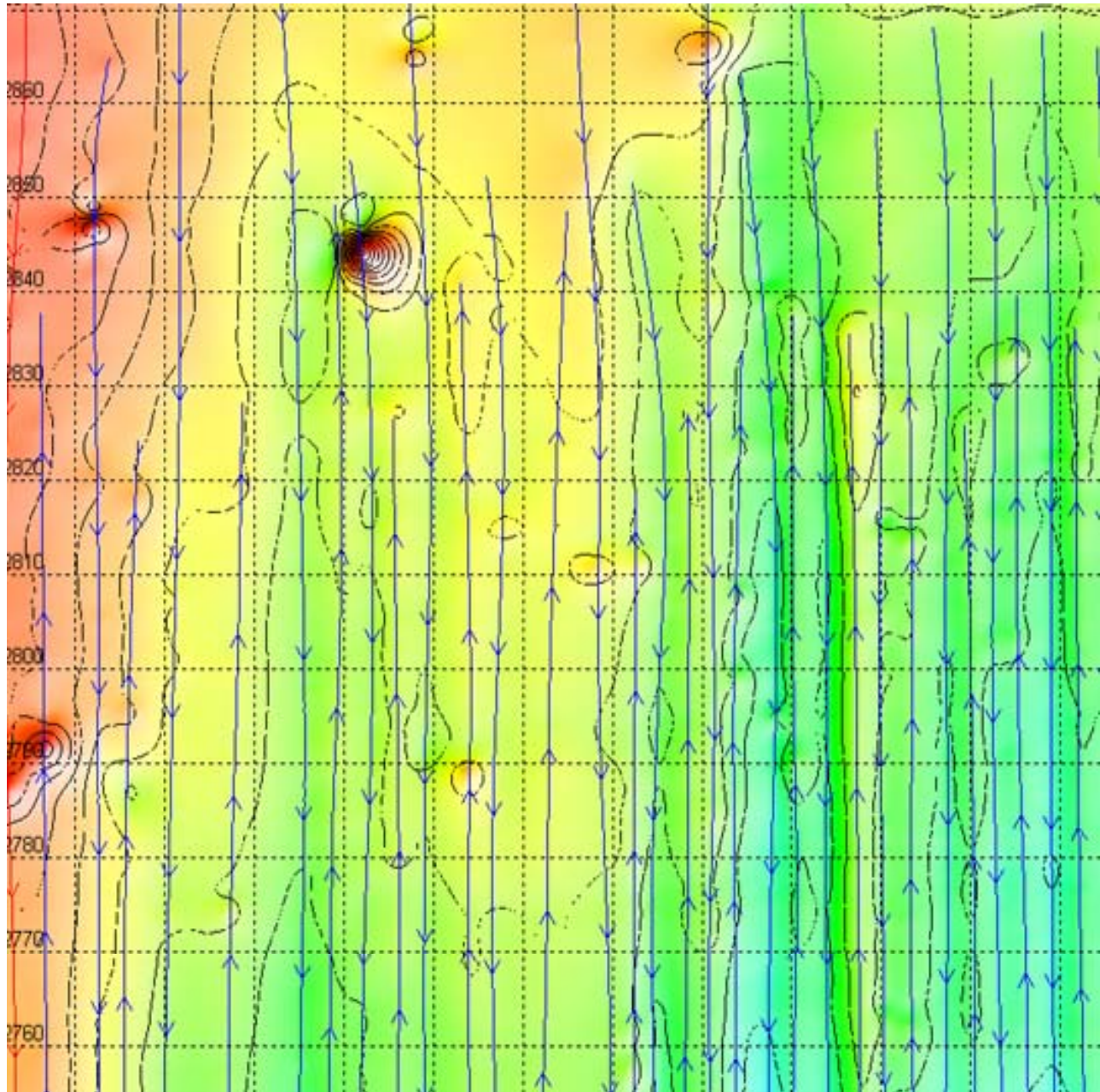


Chart plotting track of 53 magnetometer lines on Schooner Bay site

Contour Chart

This contoured chart represents the magnetic field of the search area. Each line represents a change in the magnetic field or gamma. Where the lines become warped indicates a rapid change in the magnetic field produced by a ferrous target. The larger the target the larger the more warped the contour lines become. To find the position of a target simple correspond the anomaly with the latitude and longitude tick marks around the chart. The largest anomaly is the target we recovered.



Contour chart of Schooner Bay anomalies

Conclusion

After conducting the survey, and processing the data, several large anomalies were discovered. By comparing the locations of these anomalies with previous surveys of the known ferrous objects many of these new targets can be identified.

Below is the actual target that was recovered by the R/V Carolina Skiff crew.

200 Pounder Parrott:

32 44.3010, 79 53.2208



This GPS position matched the location recorded on the ferrous chart within a reasonable distance. This proves the magnetometer and the navigational equipment together can produce a very accurate survey. With this equipment, targets are more readily located and identified.