

Technical Data Information Report

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7673	Kryder	Nye County NWRPO	QARC	Nye County NWRPO	Magnetic

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Document Title/Subject Data collected during magnetic survey conducted at Amargosa Valley, Jackass Flat, and Crater Flat

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Data Description Data package includes electronic copies of raw and processed magnetic data from Fortymile Wash and adjacent areas. Contains raw magnetic data sets with xls filenames: 012608_EW, 020408_F2, 020508_S1, 012608_NS (north of 95), 020508_S4, 013008_F3, 020408_S5, and 012608_NS (south of 95); location shapefiles, each with dbf, prj, sbn, sbx, shp, shx filenames: 012608_F3, 012608_FX, 012608_NS, 012608_NS_Export, 013008_SX, 020408_F2, 020408_S5, 020508_S1, and 020508_S4; processed data sets with text, xls, dat files, and configuration settings for each of the following filenames: 012608_F3, 012608_FX, 012608_NS, 013008_SX, 020408_F2, 020408_S5, 020508_S1, and 020508_S4. Package also includes: MagLines.mxd, F3_CoordSys.docx, and a copy of the G-859 Magnetometer Users Manual in pdf format. Posted data include only position, raw magnetic, and drift-corrected magnetic data. Graphed data and filtering information are available at the QARC. File names for data posted on website (with censors removed): 012608_F3_censored.xls, 012608_FX_censored.xls, 012608_NS_censored.xls, 013008_SX_censored.xls, 020408_F2_censored.xls, 020508_S1_censored.xls, 020508_S4_censored.xls, 020408_S5_censored.xls.

Data Collection Method All data collected in accordance with TPN-12.2 Rev. 0.

Data Collection Location Various locations in Amargosa Valley, Jackass Flat, and Crater Flat.

Data Collection Period 01/21/08 - 02/05/08

Data Sources G-859 Mining Mag Cesium Vapor Magnetometer, model # P/N 25309-OMM.
Supporting Data: Scientific Notebook #176 (Surface Geophysical Surveys), pages 33-37 and 40-41.

Data Censoring For graphed data available at the QARC: the data were filtered to remove values greater or less than 1% of the average magnetic value for each data set as described in the "Data Processing" section of the metadata. The number of data points filtered (and censored) is noted in each Excel spreadsheet.
Data posted to the website: rows containing 0 values, no values, incorrect positions, or other errors were deleted. Prior to deletion, row numbers for each dataset were noted on the included sheets (gridded paper). Files to be posted to the website include only position, date/time, raw magnetic, drift-corrected magnetic, and drift correction information. Note that the posted files do contain some apparently (possibly) anomalous values, but these were neither removed nor interpreted for this data transmittal.

Data Processing MAGMAP 2000 was used to create an ascii file from each .bin file downloaded from the magnetometer. The ascii file was then imported into an Excel spreadsheet. Each .bin file was edited with a text editor (Notepad++). Editing consisted of removing all lines of data that were preceded by the codes of type 3 (position event), type 6 (discontinuity event), type 9 (pause), and type 12 (unpause). The only code types remaining were 0 (magnetometer reading) and 21 (RS-232 string). After editing was complete, each .bin file was saved as a .dat file. Using MS Excel, each .dat file was converted to .xls format.
All of the above files and file formats were saved to folders in the "Mag Testing Data" directory. The raw data was preserved and saved in the RAW DATA folder located in the same directory. Also, all .bin and ascii files remain in the MAGMAP 2000 program.

The Excel files consist only of pertinent information such as Date, Time, Mag Data, Geographic Coordinates, and Elevation. All other impertinent columns were deleted in the spreadsheet but are still retained in the .dat files.

Geographic coordinates are presented in 2 systems: degrees minutes and decimal degrees.

Drift corrections were calculated for each file using the following equation: $md = ((mB2 - mB1) / (tB2 - tB1)) \times (t - tB1)$, where md is the magnetic drift term at time, t; mB2 is the observed magnetic reading at base station 2, mB1 is the observed magnetic reading at base station 1, tB2 - tB1 is the change in time (in minutes) from the first base station reading to the second base station reading, t - tB1 is the change in time from the measuring station (between base stations 1 and 2) and the first base station. This drift term was then subtracted from the observed data to find the drift corrected values.

GPS geographic location data was not used in drift equations if the location was associated with magnetic readings of 0.00, and conversely, magnetic data was not used that did not have location data associated with it. The only lines of data used were preceded by code types 0 (magnetometer reading) and 21 (RS-232 string).

Corrected values from data sets F2, F3, FX, NS, SX, S1, S4, and S5 were charted to produce a visual representation of each of the survey lines. Drift corrected values in units of nanoteslas (nT) were plotted against degrees of latitude and against degrees of longitude. It can be seen on these charts that the data sets contain large deviations in magnetic values that may result from a loose internal connection within the magnetometer and/or cultural background noise. Some of the small deviation is believed to be real. Four charts were prepared for each of the data sets noted above. The first chart presents the data unfiltered in order to preserve the large deviations in magnetic values. The second chart filters out all data greater than and less than one percent of the average nT value and notes the amount of data that was filtered out in the process. The third and fourth charts display the filtered data after a three-point and seven-point averaging computation had been applied.

Data Limitations

All mag lines, with the exception of two, begin and close at the start of each Mag Line and within the same line and file. The closure location for File 3 is found at the end of File 4. The closure location for File NS (north of 95) is found at the end of File NS (south of 95). And in this last case, the closure location does not coincide with the beginning of Line NS (north of 95) but rather at a location south of Site 24. This is due to the fact that there was magnetic interference at the beginning of the line possibly due to the Paintbrush Canyon fault and/or outcrops of strata in the vicinity. If there was more than one measurement taken during closure, as when the field operator stood in one place during closure and collected multiple readings, the multiple readings were averaged during post-processing and B2 was obtained from the average. In plan view the survey lines are displayed with discreet jogs back and forth with approximately 3 meter offsets. This results from the fact that the G-859 Magnetometer is mounted on a pack frame and the pack frame contains GPS units with a WAAS-capable receiver which is only capable of position accuracy better than three meters 95 percent of the time. Within the folder labeled "Location Shapefiles" all filenames that contain the letters NS are referring to the main east-west survey line.

Governing QA Docs:

WP-12.0 Rev. 0

Frequency of Transmittal

Once per survey

Direct Questions About Data To:

NWRPO QA Records Center