



GEM Systems Advanced Magnetometers
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Performing High Sensitivity Surveys – Experiences from the Field

Following is a set of guidelines that you may want to consider for your next high sensitivity survey. These guidelines were developed from a mineral exploration example but apply as well to other types of ground surveys as well.

For optimal results:

- Ensure that the operator is completely free of magnetic influences (clothing, belts, walki/talki, cell. phone, compass, etc.)
- Ensure that the sensor orientation is always East - West
- Always position the sensor on the same relative side of the line (ex. operator holds pole in right hand exactly on survey point for one line and on return line in left hand exactly on survey point)
- Make sure the sensor is always the same distance from the operator for consistency in readings
- Avoid putting base mag near magnetic rocks; make sure the base mag sensor is at the same height all the time. This will reduce magnetic and diurnal effects related to nearby magnetic rocks.
- Always put base mag at same relative location (ex. 300m from bottom left corner point)
- Use a base station adjacent (i.e. very close) to the grid at high latitudes to effectively fight the diurnal effects
- Use one operator per grid for consistency in readings.
- Use the same magnetometer of the same grid if possible.
- Use sensor pole with same number of sections for all surveys



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- Do not shake or move the sensor during the reading. For walking surveys, movement is required; however, the operator should attempt to keep the position of the sensor constant and with as little shaking as possible.
- Attention must be paid to the data when collecting it. If in doubt of a reading, use the repeat command to ensure validity of the reading (large variation from one station to the other). If quality (99 on the upper right corner of the display) goes low (96, 94, 89, 86.....) reinitialize the unit. Come back to main menu and press "A" for survey, "A" to start and "1" to repeat the reading if you do not want the station value to change.

Many of these effects can be tested quite quickly in the field; our recommendation is to proceed carefully and your survey will generate the high sensitivity required for your particular application.