

Technical Gems

GEM works hard to make sure that its technologies continue to develop and that new information and discoveries are communicated effectively to our client base. In this issue, we provide you with information on Cell Phones, Sensitivities, UTM's, Datums, Internet Upgrades, and GPS.

Cell Phones – Not a Great Idea for the Field

Thinking of taking your cell phone in your field? You may want to consider leaving it some distance away from where you are conducting your survey. Idle cell phones have a signal magnetic signal that increases significantly when the phone is turned on.

To see the effect of your cell phone, you may want to perform a simple test of setting your magnetometer to base station mode and then moving the cell phone to various locations around the unit.

It used to be that we only had to consider magnetic items as a source of noise ... however, new technologies that we sometimes take for granted can have an effect on acquiring high quality data as well!

UTM Resolution is Increased from 1 m to 1 cm

GEM's software engineering team has recently increased the resolution of UTM meaning that every magnetic field reading is stamped to 1cm resolution.

Note that this is not necessarily the real precision of positioning as this will depend on the GPS system used. However, this functionality does give you the option of surveying to very high precision with a corresponding GPS capable of resolving positions to 1 cm.

1 cm resolution also means that there are no repeated readings (i.e. with the same position). This is especially important in fast magnetometers running at 0.2 seconds and GPS running every second.

In this case, we use interpolation so that there are no repeated readings with the result that software programs will not encounter problems in dealing with data.

What Earth Datums Does GEM Support?

GEM currently supports the WGS-84 and SAT-69 datums.

For a nominal fee, GEM can configure your magnetometer to support almost any earth datum.

An Easy Way of Updating Firmware via the Internet

GEM is the only manufacturer that enables you to update your firmware over the Internet.

This saves considerable time and money for shipping and customs delays. Functionality applies to version 6.0 and higher.

Reasons for upgrading include:

1. Your software is out-of-date (GEM continues to work on software so there is always new software)
2. You require extra options or functionality in the field (excepting hardware modifications). For example, you may want to upgrade a GSM-19T (slow version) to a GSM-19TW (fast version).
3. You want to change your earth datum

4. You need custom modifications to address your specific requirements
5. You want to change from 1m UTM to 1cm UTM