

Evaluation of five Scintrex gravimeters

Mituhiko Sugihara[1]

[1] GSJ

Five Scintrex CG3M gravimeters which have been used for geothermal reservoir monitoring were calibrated and compared one another and with an absolute gravimeter.

Two main experiments were carried out.

First, a calibration of the five Scintrex CG3M meters on a baseline of the three points, spanning a range of about 400 mGal. It is shown that Scintrex meters provide results similar to within 0.010 mGal.

Scintrex instruments are expected to drift for the first few months of use and then to stabilize. The calibration of the instrument appears to have stabilized after this time, with a standard deviation of about 200 ppm.

Second, a series of continuous records (each of an overnight or a few days) was carried out with an FG5 absolute gravimeter and the Scintrex meters at a few adjacent points in two geothermal fields. A repeatability of better than 0.005 mGal was obtained for the meters subtracting drift trend.

These results confirm that the Scintrex meter is suitable for measuring small gravity differences in geothermal fields with careful measurement procedures involving periodical calibration checks, and drift correction.

One of the gravimeters sometimes became unstable in internal temperature. It is now on the upgrade path to the CG5.