

GRAVITY METHOD



The gravity method involves measuring the gravitational attraction exerted by the earth at a measurement station on the surface. The strength of the gravitational field is directly proportional to the mass and therefore the density of subsurface materials. Anomalies in the earth's gravitational field result from lateral variations in the density of subsurface materials.

The gravity method is typically used during hydrogeologic and engineering investigations to:

- Map regional geologic structure
- Map basement topography and sediment thickness
- Map basement faults
- Locate underground caverns
- Locate abandoned mine shafts



LaCoste and Romberg Model D gravimeter

Gravity data is reduced using software developed in-house, and various commercial software packages. These computer packages apply the following corrections to gravity data:

- Tide corrections
- Drift corrections
- Latitude corrections
- Free-air corrections
- Bouguer corrections
- Digital Terrain corrections

After reduction of the gravity data, a Bouguer gravity contour map or profile is generated. Once the regional and residual gravity fields are separated, the data can then be modeled using forward and/or inverse modeling techniques.

