

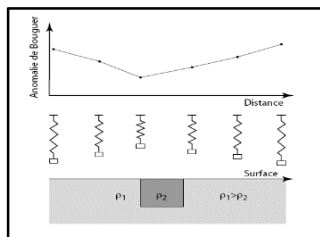
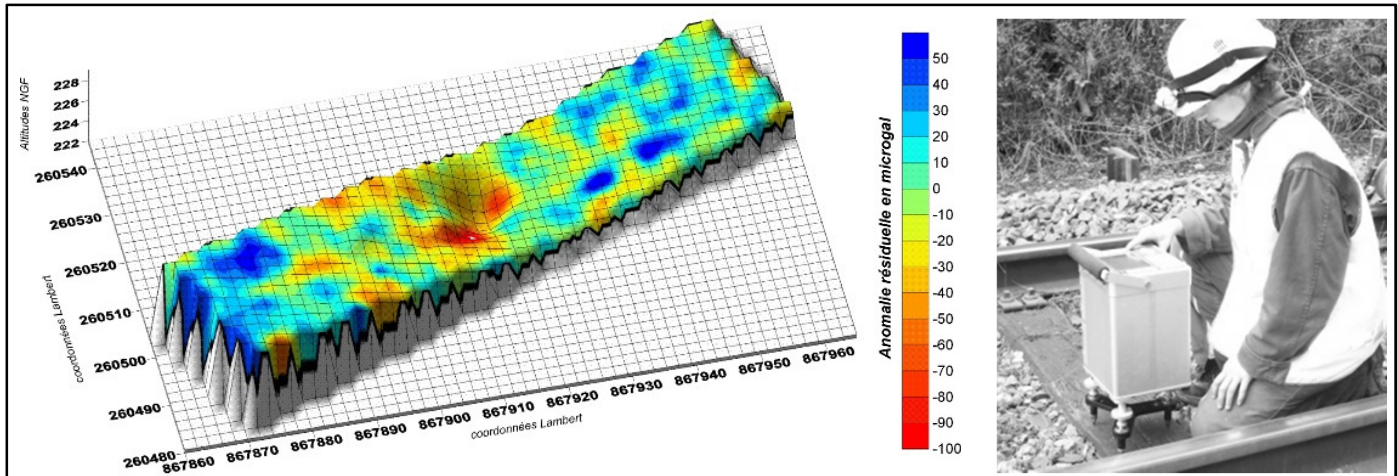


**SOLDATA**  
GEOPHYSIC

# MICROGRAVIMETRY



**AGAP Approval of Quality: Gravimetry**  
**ASTM Standard D6430**



Microgravimetry is a non-destructive method of exploring the subsurface, allowing the detection of anomalies that correspond to a deficient or excessive mass.

### Applications

- The identification of natural and anthropogenic cavities within urban developments, subway or tunnel projects, road or rail transport infrastructure, studies of mining sites or quarries;
- The study of the risk of cavities (marl, etc.);
- Geological studies.



The principle of microgravimetry relies on the variation of the gravity field:

- A variation in the density of the ground induces a variation in the force of gravitational attraction.
- A deficit of mass indicates the presence of a cavity, a less dense field or the presence of decompression.
- Excess weight indicates the presence of geological variations such as variation of the level of substratum, or the presence of more dense material.

The measurement points (stations) are located on the ground and levelled with centimeter accuracy using dedicated survey equipment (total station, laser, GPS).

The measurements are taken using microgravimeters and the raw data is processed using software developed by SOLDATA Geophysic (TMG®, @ and Topocor Damier®), with the aim of correcting external influences on the nature of the ground (lunisolar influence, instrument drift, ground corrections, buildings, cellars, embankments, etc.).

The final result is presented as profiles (sections) and/or a map of anomalies. At the end of the study, SOLDATA Geophysic is able to make recommendations regarding control drilling investigations to be carried out to determine the nature of any anomalies that have been identified.



### Legend

1. Microgravimetric measurements & 3D map of anomalies on a rail project
2. Principle of microgravimetric measurements
3. Photo of a site investigated by microgravimetry

### Key figures

- Depth of investigation 0m to 50m depending on the geology of the site, generally used for investigation of the first 10-15m
- The unit used is the microgal
- Readings obtained within a few microgals (billionth of 'g') and measurement to the nearest hundredth of a milligal (10 microgals)

### SDG Equipment

- Gravimeters (Lacoste & Romberg D / Scintrex CG5)
- Total station for the installation and levelling of points
- Survey equipment, laser and GPS