

MICROGRAVITY SURVEYING

GEOPHYSICAL & NON-DESTRUCTIVE TECHNOLOGIES

Microgravity surveys are a valuable tool in the characterization of subsurface karst features. It can be utilized in urban areas where cultural features and noise can limit other techniques like seismic and resistivity. Gravity can map and identify preferential flow paths associated with fractures zones and large cavity systems. It can also be used for the identification and characterization of potential collapse features due to karst sinkhole activity or mine subsidence. Most potential collapse features have no recognizable surface

morphology until there is a catastrophic failure and a collapse occurs. Since air filled voids have sufficient lateral density contrasts from surrounding bedrock and soils,

microgravity can be a rapid, inexpensive means of identifying potential collapse features.

Microgravity surveys are used to identify lateral variations in the subsurface soil and rock density, which are influenced substantially by the size and depth of

the target. The infield gravity, elevation, and time data are processed and a Bouguer Gravity Anomaly map is produced. This map shows local relative gravity lows, which indicate areas of less dense materials (e.g., Potential voids, sinkhole throats).

APPLICATIONS

- Karst related cavities and solution channels
- Void Identification
- Sinkhole Delineation
- Mine Subsidence Mapping
- Buried Valley Identification

