



Sinkhole area recognition with gravimeters

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Sinkhole area is underlain by thick alluvial deposits that cover bedrock. Karst cavities of the bedrock filled by alluvial materials so one reason for sinkhole Catastrophes can be deep collapse of a cave in the bedrock.

Karst aquifers are often protected by a thin mantle of unconsolidated sediment so soil pipes & sinkhole may breach this protective barrier & cause containment of aquifers so we need to recognize the sinkhole areas & causes of that.

Since sinkhole catastrophe can come with decrease of mass & also because of the influence of mass on gravity value we can use an accurate gravimeter for recognizing the formation & evolution of sinkholes in the area.

But the important matter that should be considered is calibration of the gravimeter there is a special apparatus for calibration that the errors concerning the determination of the gravity effects of the mass like temperature, moisture, magnetic, pressure & etc are included in calibration process of that & can get us our essential accuracy (0.1% to 0.2%) in calibration.

The results so far confirm this apparatus with this accuracy fulfils our main target (recognition of sinkhole areas).