Detecting subsurface voids using the microgravity method – A case study from Kuala Lipis, Pahang

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The gravity method is one of the more popular geophysical methods to detect subsurface voids. The voids, whether they are filled with air or water, will give anomalous gravity lows above their localities. The gravity pattern is also related to subsurface topography of the bedrock. A borehole drilled earlier indicated a possibility of a cavity. This study was conducted to see if the suspected cavity could also be detected by gravity method. Based on the borehole information, the lithology of the area comprises sandy clayey silt with limestone bedrock. A total of 42 observations were made in four profiles bearing east-west and north-south along the bunds (*batas*) of a paddy field. The survey area measured 50 m by 40 m. Readings were made at 5 m spacing, using a LaCoste-Romberg Model D gravimeter. This instrument was chosen because of its capability for detecting minute changes in the earth gravity field caused by local anomaly. The results indicate the possibility of cavities at four locations at depths varying from 3.77 to 6.50 m. The depth to the center of each anomalous body was calculated using the half-width method. The depth of the cavity interpreted from the borehole turned out to be shallower when the field gravity data is inverted using that method. The cavities were probably filled with wet sediments of densities between 1.85 to 2.05 g/cm^3.

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