



Using GPR, ERT and SSR to Detect the Shallow Subsurface Structures in the New Administrative Capital, Egypt

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The New Administrative Capital City in Egypt is located 45 kilometers east of Cairo. In line with the Egyptian government strategies, the city will be the new governmental and economic metropolis of Egypt. It is planned to house the key government ministries and sectors. Its total area is approximately 700 square kilometers. It is estimated to be populated with five million people; however, such estimation can increase to seven million. The study area covers the skyscrapers region of the new administrative capital city whose area is about

This study uses GPR, ERT and SSR to detect the shallow subsurface structures in the New Administrative Capital City in Egypt. The combined results obtained by GPR, ERT and SSR methods show that the study area can be divided into four different layers. The first upper layer consists of sandy limestone (Upper Miocene) which lies above the second layer that consists of silty shale. The third layer is composed of silty to gravely sandstone (Upper Miocene) which lies above the fourth layer that consists of weathered to joint Basalt (Oligocene).

The three-dimensional representation of the derived results shows that the study area is affected by several structures; the most distinctive structures are the normal faults in the directions of WNW and ENE associated with minor cracks between them. The interpreted results show close agreement in the shape and the thickness of the interpreted layers.