



Mapping Sea Water/Fresh Water Interface at the Northwestern Coast of Egypt by 2-D Resistivity Imaging and Transient Electromagnetic Soundings

Mamdouh Soliman

NRIAG, Geoelectric and geomagnetism, Cairo, Egypt (amsoliman2001@hotmail.com)

ABSTRACT

The seawater intrusion is a very common environmental problem at the majority of the Egyptian coastal aquifers. This problem affects the fresh groundwater aquifers which is the only source for drinking, agriculture and other domestic use in many areas in Egypt. The current study aims to map seawater intrusion into the coastal aquifers using 2-D resistivity imaging and transient electromagnetic (TEM) soundings. DC resistivity and TEM data were acquired from a coastal area located 70 km east of Matrouh city and occupies the northwestern Mediterranean coastal zone between latitudes $31^{\circ} 06'$ and $31^{\circ} 15'$ N and longitudes $27^{\circ} 40'$ and $27^{\circ} 54'$ E. The acquired geophysical data has effectively succeeded in identifying the subsurface litho-stratigraphic succession in the study area and mapping zones of seawater invasion at different depths.