

Salt water intrusion in Kudat peninsula, Sabah using geophysical subsurface interpretation techniques

ABSTRACT

The presence of saltwater intrusion is important to be monitored to avoid potential contamination on fresh groundwater. Therefore, the measurement of saltwater intrusion is crucial in determining the extent to which land has been contaminated by seawater. The region within Kudat Peninsula has a potential for saltwater intrusion due to the area surrounded by coastal line. Kudat Peninsula was formed by the ophiolite basement, Chert-Spilite Formation, Kudat Formation and alluvium deposit. Geo-electrical resistivity imaging survey were carried out to characterize the subsurface by using Wenner configuration. Two different survey lines were carried out with total length of 200 m for each survey line which gives up to 39 m depth of subsurface information. The collected data were processed using RES2DINV software to produce geo-electric subsurface model. The preliminary results of the geo-electrical resistivity imaging indicates that saltwater intrusion detected at depth of 1.25 m to 36.90 m and intruded up to 213.00 m towards mainland. Further investigation should be carried out to evaluate the impact of saltwater intrusion towards groundwater in the study area.