

Use of Ground Penetrating Radar to Map Subsurface Archaeological Features in Islamic City of Ayla, Aqaba, Jordan .

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Key words: Access to land; Land management

SUMMARY

Islamic city of Ayla was founded in the 8th century. The city is located adjacent to the beach and extends a few tens of meters north of the Gulf of Aqaba shoreline. The city which was a flourishing port and commercial communicate with ports in the Indian Ocean and the Far East. The city had land roads contact with Egypt, Iraq, Syria, and the Arabian Peninsula.

The excavated ruins and other features are considered as a part of one of the ancient Islamic cities. Continuous ground penetrating radar (GPR) survey was carried out in Ayla to target subsurface buried antiquities for forward excavations. Data were collected at two different sites along parallel profiles in the study area using 900 MHz and 400 MHz monostatic antennas. The GPR radargram profiles revealed different subsurface anomalies across most GPR profiles. The analysis of radar cross section (radargram) shows many targets their shapes and extension indicate they represent shallow buried walls. The diffraction hyperbolas recorded in the radar data may be caused by shallow small objects inserted in the medium.

The GPR anomalies are discontinuous and shifted which mean that the city located at a high liquefaction susceptibility zone.

Keywords: Islamic city of Ayla, Ground penetrating radar, Monostatic antenna, liquefaction, buried walls.

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