

Human Impacts on Geological and Cultural Heritage in the Coastal Zone West of Alexandria to Al-Alamein, Egypt

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Abstract A combination of remote sensing and field surveying is used to detect changes within the coastal zone west of Alexandria towards Al-Alamein. The satellite images used are Landsat Thematic Mapper and SPOT images acquired in 1984, 2003 and 2007. The results show considerable changes due to human impacts. The research reveals that seven land cover features (seawater, salt marshes, sabkha, agricultural land, road, bare land and urban land) can be identified in the Landsat data sets. The unplanned urban and agricultural growth that was detected from 1984 to 2007 has been by 309.3 and 445.4 km², respectively, in the vicinity of coastal areas rich in natural beauty, geological interests and cultural heritage. Most of the coastal ridge, which records Holocene shorelines and yields Neolithic pottery and bones, has been obliterated due to the increased construction of tourism and recreational facilities. Such a case was also observed for the Abu Sir ridge, where the remains of Graeco–Roman villages (e.g. Taposiris Magna) are bordered with resorts. Recently, the Bahig drain which cuts the Gebel Maryut ridge has been partially damaged. The drain cut is unique because it demonstrates outcrop of the Last Interglacial highstand (Oxygen Isotope Stage 5e). During this stage the sea level reached more than 8 m above the present level. The construction of the Marina Resort to the east has caused the accelerated erosion of the shoreline and the removal of Holocene platforms and evidence of sea-level highstands. The relevance of this northwestern coast as a geological and cultural heritage resource site is proposed.