

Deriving the Environmental Problems and Solutions Using Satellite Images Analysis around the Archaeological Mosque of Sultan Al-Zahir Baybars At Cairo, Egypt

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Abstract

Series of great Islamic buildings has been built by Sultan Baybars (1260-1277). His mosque in Cairo is an example of the magnificent Mamluks architecture. This mosque follows the design of traditional mosques, with an open courtyard surrounded by four porticos, the Qibla portico is the largest one. Recently, many of the monuments of Cairo suffer from damages and deterioration according to groundwater. Due to many physical and chemical effects, a valuable historic mosque stone faced serious damage. The rising groundwater due to the overloading of the subterranean hydraulic and sewage systems. Also, the urban crawling has become a universal problem in the developing countries like Egypt. Nowadays; the new technology e.g., remote sensing techniques play an important role in cultural heritage management. The hydrological analysis and satellite data interpretation alongside the historical and survey archaeological studies are important applications in studying the cultural heritage management. This study deals with the band indices, changed detection, and spatial characterization over times. The environmental changes will detect using satellite Images indices in Multispectral Scanner System (MSS), Thematic Mapper (TM) imagery, and Sentinel 2-A. The past and current urban will extract using consolidated remote sensing and GIS techniques. Finally, the integration between the remote sensing and GIS techniques will help us to create some of the models to protect the archaeological site.

Keywords; Environmental problems, Satellite Images, Sultan Al-Zahir Mosque