

TIME SERIES SATELLITE IMAGERY ANALYSIS FOR DROUGHT HAZARD ASSESSMENT AND ENVIRONMENTAL CHALLENGES OF HAMOUN DESERT LAKE IN SISTAN REGION -IRAN

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ABSTRACT:

The Sistan area located in east of Iran enclosure to Afghanistan border. It is a densely populated enclave in the scarcely populated arid area of eastern part of Iran. In this area, life strongly depends on the shallow water of Hamoun Lake and wetlands in delta of the Helmand River flows from Hindukush Mountain in western Afghanistan. As the water resources are scarce in this desert region, availability of fresh water in Hamoun Lake caused a several socio-economic and environmental effect in study area during several years. Various categories of socio-economic criteria were defined that are influenced by the Hamoun wetland, namely; employment, economic value of fish catch, reeds harvests and bird hunts, food supplying and its influence on the micro-climate of the region and the severity of the sandstorms, health and finally provision of recreational opportunities in the region. In other hand, the high evaporation rates in a very dry region and climatic fluctuations makes very vulnerable ecosystem caused the several environmental challenge in to human and activates. Prolonged droughts due to decreasing the annual rainfall in the Helmand watershed based on climate change in last decade have accorded in this environmental hazardous area. Drying up of Hamoun Lake and dead reed system in wetlands had been monitor using time series of satellite imagery. The environmental effaces of drying Hamoun lake such as sandstorm and dust hazard, health damage in vulnerable air pollution, vegetation destroy, salty soil movement over the agriculture filed, etc. have been identified and come out as the resulted of this research.

TOPIC: Remote sensing applications

ALTERNATIVE TOPIC: Image processing and pattern recognition