



## **Sand dunes hazard assessment in El-Kharga Oasis, Egypt**

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### Abstract

The remote sensing and GIS data are here analyzed for sand dunes hazard assessment at El-Kharga Oasis. This work is supported by the Science and Technology Development Funding (STDF), Ministry of Scientific Researches, Egypt. It presents a geo-hazard map that allows the planners and decision makers to take the necessary precautions and measures to minimize the sand dunes hazard impact on the monumental sites (e.g., Hibis, El-Nadura, El-Ghueita, El-Zayyan), roads and agricultural fields at El-Kharga Oasis and lead to a sustainable development plan.

Remotely sensed satellite data are used to update the land use map. Digital Elevation Model (DEM) data were obtained from Shuttle Radar Topography Mission (SRTM) and ASTER integrated with geographic information system (GIS) for modeling the vulnerable locations and studying the terrain characteristics. The elevation, slope angles, aspect are considered here. A ranking is performed to identify the most vulnerable sectors of the study area due to the sand dunes movement. The model output is verified using a high-resolution images and field investigations.

**Key words:** Remote sensing and GIS, Natural hazards, Sand dunes movement index, El-Kharga.