عنوان مقاله:

Implementation of Space-Borne Optical Data and Field Investigation for Geo-structural Mapping of an Interior Rift Basin: A Case Study from Kharit Area, Southeastern Desert, Egypt۱۰۳۷

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نویسندگان:

.Ahmed Abdelhalim - *Geology Department, Cairo University, Faculty of Science, Giza, Egypt*

.Islam Abuelella - *Quality standard information technology, Egypt*

.Shawky Sakran - *Geology Department, Cairo University, Faculty of Science, Giza, Egypt*

.Said Said - *Geology Department, Cairo University, Faculty of Science, Giza, Egypt*

خلاصه مقاله:

Kharit basin is an interior Cretaceous rift basin hosted in a Precambrian basement complex of the Arabian-Nubian shield. Satellite images and potential geophysical data previously outlined the basin without a detailed field study. Kharit area is a remote and hyper-arid area; therefore, the application of remote sensing is essential for completing the process of its geo-structural mapping. A multi-spectral optical dataset of the Landsat-۸ and high-resolution images of Google Earth was integrated with the field investigation to classify the lithological units and define structures. That integration between analyzed satellite images and field investigations led to a geological map of a minimum scale of ۱:۵۰,۰۰۰ for the lithological rock units and a maximum scale of up to ۱:۷۰۰۰ for the structural mapping. The map shows an elongated NW-oriented rift basin filled by a thick deposit of Cretaceous sequences bounded from the east, west, and south by Proterozoic igneous and metamorphic rocks. Additionally, rift-related volcanic rocks were mapped along the western border fault system of the basin. The main mapped faults were delineated in three trends, NW-SE, WNW-ENE, and N-S, while several folds of NW orientations are developed as a normal drag of the main bounding faults. The Early Cretaceous extension along inherited Precambrian lineaments propagated this fault pattern and its associated folds. These structural elements configured the studied area architecture as several grabens with thick .Cretaceous sequences

کلمات کلیدی:

Kharit basin, Landsat-۸, rift structure, cretaceous tectonics, multispectral optical dataset