

The Use of Satellite Data to Map Active Faults (Case Study, Saudi Arabia)

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The main purpose of this study is to verify the use of satellite data for detection of active faults. The area chosen for this study was the eastern coastal area of the Gulf of Aqaba, northwest Saudi Arabia, in the mobile belt of gulf of Aqaba-Dead Sea transform fault system. The long term and continued systematic tectonic activities in the study area can be recognized from the large scale displacement in the topography and geological structure.

Structural, geological, earthquake and topographic analysis of satellite data (LANDSAT Thematic Mapper (TM), Synthetic Aperture Radar (SAR) of Japanese Earth Resource Satellite (JERS-1) and SPOT stereoscopic data) were used. The satellite data were compiled with a short filed-trip as well as other exiting reference data (geological and geophysical maps and reports) covering the study area. Geological / structural interpretation using satellite data have been performed taking into account the geological and tectonic factors.

Satellite data are especially effective for detecting clear active geological structure in this area. The production of preliminary active tectonic map have been done.