REMOTE SENSING TECHNIQUES AND GIS APPLICATIONS IN DETECTIG GEOHAZARDS IN THE JAZIRA AREA, WEST IRAQ

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Received: 20/ 8/ 2008, Accepted: 30/ 11/ 2008

ABSTRACT

Remote sensing techniques and GIS applications, with other available different geological data are essential tools in detecting different types of geohazards. Landsat 7ETM+, aerial photographs, topographic, geologic and geophysical maps of different scales were used to detect geohazard areas caused by karstification in Jazira vicinity, western part of Iraq. Different combinations of many bands like 7, 4, 2 and 5, 4, 2 and GIS extensions are used to achieve the best results, in this study.

The Jazira vicinity, West Iraq, is characterized by a dense karstification, due to exposure of gypsum beds within the Fat'ha Formation (Middle Miocene). Different forms of karst (sinkholes and dolines) with different shapes and sizes are developed, some of them form salt marshes and the largest one is called Ashqar Salt Marsh. Two main lineaments of NE – SW trend and length of more than 100 Km, with escarpments of heights (8 – 15) m are developed. Collapses in different phases, changing the trend of a main branch of wadi Tharthar and controlling the trend of many valleys are characteristic features within the study area in which a big site is located. Three main phases of karstification are indicated, the latest phase is still active, which may cause many problems to any existing structure or those, which will be build in future. Many potential areas for active karstification and abandoned valleys are detected too.

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