Abstract

Remote sensing data represented by satellite visualizations and DME is a tool for a major transformation in the field of maps and its transition from old-fashioned paper maps to digital maps of a modern and contemporary nature, which gave a clear picture of Badra District by adopting satellite visualization techniques and using Geographic Information Systems (GIS) programs after the advent of The concept of Geographic Information Systems (GIS), which contains systems and programs with high-accuracy analysis and techniques specialized in the field of drawing maps, updating them, and dealing with them with greater flexibility, especially after the focus became on building layers (raster, line, and cadastral) and using remote sensing (Rs) with the aim of preparing maps of the natural aspect. To the study area and explain the distribution of phenomena therein.

The Badra district was chosen because of its diversity of land use, as well as its being a distinctive border region linking Iraq to Iran and its important geographical location, which is suitable for tourism and commercial use. Badra district is located to the east of the city of Kut, at a distance of (٧٤ km), and it borders Iran on its eastern side. Its area is (١٧٩٤ km٢), and astronomically, it is located between two longitudes (٣٠°٤٥' - '١٢°٤٦') to the east. And between two latitudes (٢٩°٣٢ - '٣٨°٣٣) north,

The study aims to prepare geographical maps that take into account accuracy and modernity by using satellite data to produce maps using digital methods based on Geographic Information Systems (GIS) techniques and remote sensing data (RS).

The study included four chapters concluded with conclusions and recommendations. The first chapter included the theoretical and practical framework. The second chapter dealt with the spatial analysis of the natural geographic characteristics in the region. The third chapter included spatial modeling of the chemical and physical characteristics of groundwater in the study area. The fourth chapter focused on producing land cover maps for Badra district using indicators. Spectrophotometry.

The study reached a set of results, the most important of which are: It was found that the natural factors of Badra district have an impact on showing the distribution of geographical phenomena cartographically, and the adoption of spectral indicators in measuring and distributing geographical phenomena gave accurate results, the most important of which are: the vegetation index, the water index, the soil index, and urban

infrastruct ure. The use of Linesat satellite visuals (٨-٩) contributed to detecting land cover change and classifying it according to the US Geological Survey's Anderson classification, which adopted two time periods to detect land cover change for the period (١٩٧٢-٢٠٢٢) and adopted (Marcon's) theory to detect change in land cover. Ground cover..

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Cartographic representation of natural phenomena in Badra district using Rs remote sensing and geographic information systems (GIs)..

To

Council of the College of Education for Humanities

It is part of the requirements for obtaining a Master's degree in Geography the student

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١٤٤٥ A.H. **٢٠٢٤ A.D.**