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The use of remote sensing and GIS to determine changes in land use: Causes of land degradation in Barka Province, Oman

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Many studies indicated the increase of the proportion of urban areas over the arable land in many provinces of the Sultanate of Oman, this came as a result of urban growth and development processes taking place since the era of the renaissance which started in 1970. Consequently, spatial variation in land use is an important issue to be taken in to consideration, because lands may be converted to be less productive, due to the lack of raw soil, vegetation and water. Moreover, the human exploitation of the limited resources in different ways, in addition to the natural factors of droughts and floods and urbanization all that will eventually lead to land degradation. Barka province (Wilayat) in Al Batinah Governorate is one of provinces which have been affected by land use, changes due to several reasons. Therefore, this study will focus on determination of land use changes, whether commercial or residential that has been occurred in the province, in addition to the loss of agricultural areas and fertile land during the period from 2010 to 2014. Remote sensing and geographic information system (GIS) were utilized in order to delineate and to determine the cause of shrinking in the arable land and fertile land. Satellite images were used to detect the change in land use/land cover by applying selective digital image processing techniques such as supervised classification and change detection. Thematic maps were prepared using GIS software with attribute data about the land uses in the study area, which highlight and show the impact of urban growth on land degradation.

Biography

Eyad H R Fadda is working at Department of Geography, Faculty of Arts and Social Sciences, Sultan Qaboos University, Muscat, Sultanate of Oman. His research area includes the application of GIS and remote sensing in geosciences, natural geo-hazards and environment. He is a member in many national and international committees and journal Editorial Boards. He has been involved in many applied research projects, in various areas of Jordan, Saudi Arabia and Oman. He has more than 40 scientific papers and articles in international scientific journals and in international conferences.

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