

IAF EARTH OBSERVATION SYMPOSIUM (B1)
Interactive Presentations - IAF EARTH OBSERVATION SYMPOSIUM (IP)

Author: Ms. Alya AlMaazmi

Mohammed Bin Rashid Space Centre (MBRSC), United Arab Emirates, alya.almaazmi@mbrsc.ae

Ms. Anood Shalwani

United Arab Emirates, anoodshalwani@gmail.com

Mrs. Hessa AlQassimi

United Arab Emirates, g00062126@aus.edu

Ms. Meera AlShamsi

Mohammed Bin Rashid Space Centre (MBRSC), United Arab Emirates, Meera.AlShamsi@mbrsc.ae

Ms. Fatima AlMarzouqi

Mohammed Bin Rashid Space Centre (MBRSC), United Arab Emirates, Fatima.AlMarzouqi@mbrsc.ae

Mr. Saeed Al Mansoori

Mohammed Bin Rashid Space Centre (MBRSC), United Arab Emirates, saeed.almansoori@mbrsc.ae

Ms. Shaikha AlBeshar

Mohammed Bin Rashid Space Centre (MBRSC), United Arab Emirates, Shaikha.albeshar@mbrsc.ae

UNDERGROUND WATER DETECTION AND ANALYSIS USING REMOTE SENSING AND GIS
TECHNIQUES IN THE UAE

Abstract

The assessment of the potential underground water recharge areas is significantly required for the protection and management of water quantity and quality in the United Arab Emirates(UAE). While old methodologies of land surveying cost money and time, remote sensing and GIS techniques aid in analyzing and estimating the existence of underground water accurately and more efficiently. Synthetic Aperture Radar (SAR) images from ALOS-2 were used to generate high resolution Digital Elevation Model (DEM) with 10-m resolution layer, whereasDubaiSat-2 images were used to generate vegetation layer. These layers we reused as an input to ArcMap Hydrology model to simulate underground water recharge potential areas in 2018 in Khatt area,Ras AlKhaima City. The model used to simulate flow direction, calculate flow accumulation, create stream networks, and finally delineate watersheds. The simulation results show an increment in vegetation greenery areas, indicating a possible underground water storage.Moreover,the simulation results suggest that Khatt area topography is a strong candidate for underground water reservoirs.