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Solar System Exploration including Ocean Worlds (5)

Author: Mr. Ahmad Jalil
The National Space Science and Technology Center (NSSTC), United Arab Emirates,
ahmadjalil@uaeu.ac.ae

# IDENTIFICATION OF LINEAR FEATURES AND CRATERS AT THE MID LATITUDES OF ENCELADUS SATURN'S MOON USING OBJECT BASED IMAGES ANALYSIS

**Abstract**

New image processing techniques like (OBIA) Object Based Image Analysis can help to accelerate and automate the identification and extraction of targeted objects from available images. Creating a map to showcase the surface features of Enceladus will be an important task to unify all the resources in one place. Cassini orbiter encountered the icy moon Enceladus during its mission to Saturn, and captured hundreds of pictures with different spatial resolutions which makes it difficult to produce uniform outputs. In this paper, the mid latitude of Enceladus is chosen for the study. Available captured images by the imaging Subsystem (ISS) mounted on Cassini will be utilized. Mapping different linear features and craters are the main objectives of this paper. E-cognition software will be used to process the images and extract geometrical information such as: area, direction, roundness, length. etc. Mapping icy moons can be very beneficial for future missions planning, it will allow scientists to track the changes on Enceladus surface if new missions are planned.