

IAF SPACE EXPLORATION SYMPOSIUM (A3)
Interactive Presentations - IAF SPACE EXPLORATION SYMPOSIUM (IPB)

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STUDY ON PLANUM BOREUM MARTIAN ICE-COLUMN DISTRIBUTION USING A
COMBINATION OF MID-UV AND RGB BAND FROM EMIRATES EXPLORATION IMAGER (EXI)

Abstract

The Emirates Exploration Imager (EXI) on board the Emirates Mars Mission (EMM) provides both regional and global imaging capabilities for studies of the Martian atmosphere. EXI data focuses on detecting details on dust, ice water bodies and ozone. This study focuses on acquiring data about Mars water bodies that affect the energy balance and water transport on the planet. Hence, the data to be acquired are water bodies concentrated in the Planum Boreum (North Pole), depth of ice, CO₂ concentration in the ice caps, and finally the discovery of buried lakes. Using the XOS2 data, the water ice caps locations can be detected and with the combination of XOS4 the depth of the ice can be specified and a higher image resolution can be achieved. Additionally, the determination of CO₂ concentration based on the water acidity rate can be determined by the infrared sensor. The data will be analyzed using spectral software for imagery analysis based on the EXI data exported from EMM.