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Earth Observation Applications, Societal Challenges and Economic Benefits (5)

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DMSAT-1 ATMOSPHERIC ENVIRONMENTAL APPLICATIONS FOR THE UNITED ARAB EMIRATES

Abstract

DMSAT-1 (Dubai Municipality Satellite) is the first United Arab Emirates environmental microsatellite. DMSAT-1 is a collaboration between the Mohammed Bin Rashid Space Centre (MBRSC), Dubai Municipality and the Space Flight Laboratory (SFL). It is a high performance microsatellite designed to perform multi-spectral observations in the visible and near-infrared bands for aerosol and greenhouse gases monitoring. DMSAT-1 is equipped with three instruments that will provide significant data to be utilized for climate change and air pollution studies. The primary instrument on DMSAT-1 is a multi-spectral, dual polarization imager that will be imaging in Blue, Red and Near-Infrared bands at two polarization states (0^o and 90^o linear) to detect the aerosol (PM2.5 and PM10) content in the atmosphere. The two secondary instruments are spectrometers covering wavelengths from 1215nm to 2400nm to detect greenhouse gases (CO2, CH4, H2O) content in the atmosphere. It is anticipated that DMSAT-1 will complete development in Q2 of 2019 and is expected to be launched in Q1 of 2020. The main purpose of this paper is to introduce the DMSAT-1 mission and its applications.