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DEVELOPMENT OF A COMPLETE TOOLBOX FOR VALIDATION ACTIVITIES OF DMSAT-1
USING PYTHON AND PYQT

Abstract

The paper presents a Toolbox developed using Python and PyQt for the validation activities to be performed on images captured by the primary instrument (polarimeters) on DMSAT-1 microsatellite. DMSAT-1 (Dubai Municipality Satellite) is a high-performance small microsatellite designed to perform multispectral observations in visual and near-infrared bands for aerosol and greenhouse gas monitoring. PyQt is a Python binding of the cross-platform GUI toolkit Qt, implemented as a Python plug-in. The proposed toolbox is user friendly and interactive. It supports the validation of signal to noise ratio(SNR), band alignment (band-band registration and polarizer-polarizer registration), non-uniformity correction (NUC) algorithm, ground sampling distance (GSD) and modulation transfer function (MTF). This toolbox is a one-stop solution for validation activities of DMSAT-1 .