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STATUS UPDATE FOR THE GNSS REFLECTOMETRY MISSION OF TRITON SATELLITE IN
TAIWAN

Abstract

Due to the success of FORMOSAT-3 (FS-3) and current operating FORMOSAT-7 (FS-7) global navigation satellite system (GNSS) radio occultation missions, the remote sensing application of GNSS becomes an important research topic. In addition to the radio occultation, the other major GNSS remote sensing application is reflectometry (GNSS-R). In a GNSS reflectometry mission, the reflected signals are processed to form delay Doppler maps (DDMs) so that the properties including roughness, ocean wind speed, and soil moisture can be retrieved. Space capable GNSS-R technique for the measurement of ocean surface wind speed has been demonstrated in UK DMC, SSTL TechDemoSat-1, and NASA CYGNSS satellites. In this paper, the design and development of NSPO in-house built GNSS-R receiver for the upcoming Triton mission are presented. Some unique features of NSPO GNSS-R receiver are then highlighted. In addition, some airborne flight experiments have been conducted to verify the design and performance of NSPO in-house built GNSS-R receiver. The conclusions and updated status of the Triton mission are described in the end.