Abstract Details

Corresponding Author : Dr. Ho-Fang Tsai (hftsai@nspo.org.tw)
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Title: Simulation of ROCSAT-3/COSMIC Occultation Distribution

Abstract:
ROCSAT-3 mission, also known as COSMIC project, is a constellation of six microsatellites equipped with GPS occultation receivers in low Earth orbits to collect the GPS signal as passing through the atmosphere. As GPS signal passing through the atmosphere, it is retarded and bent. The information of atmospheric pressure, temperature, and water vapor can be then retrieved from the bending angle. To ROSCAT-3 radio occultation experiment, one occultation event corresponds to one profile of atmospheric sounding. Therefore, the spatial distribution of occultations indicates how uniform the atmospheric sounding data are to improve the accuracy of global weather forecast. The number of the occultations is mainly determined by the effective field of view (FOV) of payload antennas, which is related to the altitude of microsatellites and the antennas FOV characteristics. This study simulates global distribution of atmospheric sounding with the constraint of the effective FOV to reveal its time variation.

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Co-Authors

No.	Title	First Name	Family Name	Organization
1	Dr.	Vicky	Chu	National Space Program Office
2	Dr.	Bor-Han	Wu	National Space Program Office
3	Ms.	Li-Hsueh	Chang	National Space Program Office