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Poster

In Global Navigation Satellite System Radio Occultation (GRO), the tropospheric temperature and humidity can only be retrieved separately from refractivity by co-using a priori humidity or temperature information.

Fortunately, the LEO-LEO (Low Earth Orbit) microwave occultation (LMO) exploits both the refraction and absorption of signals to solve the temperature-humidity ambiguity, and so it can retrieve the pressure, temperature, and humidity profiles independently. Furthermore, using LMO, ozone profiles can be retrieved by the signals around ozone absorption lines, and the liquid water and ice cloud variables can also be retrieved as by-products. In this paper, the measurement principle and capabilities of LMO technique are provided as an overview based on available literature; and then a pre-study of LMO including orbit design, frequency channels selection, performance analysis, and transmitter and receiver design/development is presented. The encouraging performance prospects of LMO give us confidence that it is highly worthwhile to pursue a space-borne demonstration mission.

OSTS session

Regional and Global CAL/VAL for Assembling a Climate Data Record

Meeting name

Joint COSMIC Tenth Data Users' Workshop and IROWG-6 Meeting

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