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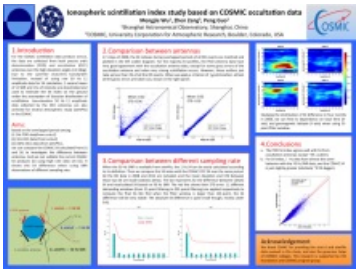
Since GPS signals received on COSMIC satellites are affected by ionospheric scintillation, they are used for estimation of the scintillation parameters: S4 (considered in this study) and sigma_phi. For the CDAAC scintillation data product scnLv1, the data are collected from both precise orbit determination (POD) and occultation (OCC) antennas over the high elevation angles (>2.5deg). However, due to the satellite downlink bandwidth limitation, instead of using raw 50 Hz L1 amplitude data for S4 calculation, 1-second mean of L1 SNR and rms of intensity are downlinked and used to estimate the S4 index on the ground under the assumption of Gaussian distribution of scintillation. Low-elevation 50 Hz L1 amplitude data collected by the OCC antennas are also archived for neutral atmospheric study (atmPhs) in the CDAAC. Based on the overlapped period among (i) 1Hz POD data, (ii) 1Hz OCC data (from scnLv1) and (iii) 50Hz OCC data (from atmPhs), we can compare the CDDAC S4 calculated from (i) and (ii) to investigate the difference. Furthermore, by de-trending 50Hz OCC SNR in different windows, we investigate the optimal de-trending window for scintillation study and validate the CDAAC S4 calculated from 1Hz L1 amplitude data.



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