

Plasmaspheric Content as Revealed by Spaceborne GPS Observations

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The FORMOSAT-3/COSMIC (F3/C) mission has been operating for more than seven years. The F3/C low earth orbit (LEO) satellites receive the signals from the global positioning system (GPS) for sounding of the atmosphere and the ionosphere of the earth, including the plasmasphere. The plasmasphere above ionosphere acts like a reservoir; it takes plasma from the ionosphere by day, stores it in a loss-free environment, and returns it to the ionosphere at night. For the non-radio occultation observation of the F3/C, we study the morphology of the plasmaspheric electron content (PEC) derived from F3/C raw observation data, which includes the diurnal variations of the time-series PEC, two-dimensional distribution and the interaction with the ionosphere.

Keywords: plasmasphere, FORMOSAT-3/COSMIC, GPS