



Equatorial Plasma Density Irregularities Observed by Advanced Ionospheric Probe Onboard FORMOSAT-5 Satellite

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A FORMOSAT-5 satellite was launched on 25 August 2017 CST into a 98.28° inclination sun-synchronous circular orbit at 720 km altitude along the 1030/2230 local time sectors. Advanced Ionospheric Probe (AIP) [1], a piggyback science payload developed by National Central University for the FORMOSAT-5 satellite, has measured in-situ ionospheric plasma concentrations at a 1,024 Hz sampling rate over a wide range of spatial scales for more than 7 years. In this presentation, global plasma density irregularities in the pre-midnight sector had been seasonally selected from FORMOSAT-5/AIP data during 2018 to 2024. Yearly variations of these irregularity patterns with solar cycle could be clearly observed and compared with those [2] by Ionospheric Plasma and Electrodynamics Instrument (IPEI) onboard ROCSAT-1 satellite last two decades ago.

1. Z. W. Lin, C. K. Chao, J. Y. Liu, C. M. Huang, Y. H. Chu, C. L. Su, Y. C. Mao, and Y. S. Chang, “Advanced Ionospheric Probe scientific mission onboard FORMOSAT-5 satellite,” *Terr. Atmos. Ocean. Sci.*, 2017, doi: 10.3319/TAO.2016.09.14.01(EOF5).

2. S. Y. Su, C. K. Chao, and C. H. Liu, “On monthly/seasonal/longitudinal variations of equatorial irregularity occurrences and their relationship with the postsunset vertical drift velocities,” *J. Geophys. Res.*, 113, 2008, A05307, doi:10.1029/2007JA012809.