

Global Ion Density Distributions Observed by Advanced Ionospheric Probe Onboard FORMOSAT-5 Satellite

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A FORMOSAT-5 satellite has been 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. The orbital coverage provides a great opportunity to survey terrestrial ionosphere from equatorial to polar region every two days. Advanced Ionospheric Probe (AIP) is a piggyback science payload developed by National Central University for the FORMOSAT-5 satellite to measure ionospheric plasma concentrations, velocities, and temperatures. It is also capable of measuring ionospheric plasma density irregularities at a sample rate up to 8,192 Hz over a wide range of spatial scales. In this poster, global ion density distributions observed by FORMOSAT-5/AIP in the pre-midnight sector can be averaged monthly and seasonally from in-situ measurement since November 2017. Wave-3 and wave-4 patterns are clearly detected from the distributions and varied with season and solar cycle. It is adversely indicated that FORMOSAT-5/AIP can provide high quality data to identify long-term ionospheric ion density variations.

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