2026 Workshop: Equatorial Aeronomy

Long title
Equatorial Aeronomy in Data Sparse Regions
Conveners
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Description

The equatorial ionosphere is home to a variety of unique phenomena, such as the Equatorial Ionization Anomaly (EIA) and Equatorial Plasma Bubbles (EPBs). Recent studies have highlighted the significant longitudinal variability of these phenomena, prompting a need for further research in regions with limited data. This workshop focuses on the equatorial ionosphere in data-sparse areas, including regions around islands, over oceans, or other locations with sparse measurement coverage. We are particularly interested in ionospheric research over the Pacific Ocean. In addition to studies conducted in these data-deficient regions, we also welcome any presentations on the longitudinal variability of equatorial ionospheric processes.

Agenda

Order of presenters subject to change

- Intro
- Alanah Cardenas-O'Toole - pyValEIA
- Deepak Karan- GOLD Nighttime Limb Observations: A New Data Set for Investigating the EIA variability at ~ 33deg E and ~ 128deg W longitudes
- Enrique Villalba- GNSS Peru
- Minjing Li - Neutral Wind Regulation of Equatorial Plasma Drift Variability: ICON Conjugate Observations
- Chirag Skolar - Extracting turbulence properties from high-rate scintillation data
- Isaac Wright - Low-Cost GNSS Scintillation Monitoring with ScintPi: Application of an Inversion-Based Approach for Irregularity Drift Estimation
- Rob Pfaff - E x B Plasma Drifts and Ionospheric Currents Observed at Low Latitudes by Instruments on the C/NOFS Satellite

- Maria Smirnova - Calibration and Fusion of GOLD-Inferred TEC Data With Ground-Based TEC

Justification

While the equatorial ionosphere and its associated processes have been extensively studied, many questions remain unanswered. The longitudinal differences in the equatorial ionosphere are not yet fully understood, largely due to the lack of dense measurements in many regions across the globe. This workshop aims to bring together datasets from these data-sparse areas to improve our understanding of this critical region. Additionally, equatorial plasma bubbles are known to disrupt communication and navigation signals, so gaining a deeper understanding of this phenomenon could help mitigate these impacts.

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