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Poster
The validation of Ionospheric Connection Explorer (ICON) satellite measurements of neutral and plasma parameters is critical for understanding the complex dynamics of the Earth’s upper atmosphere. This study leverages simulations from the Whole Atmosphere Model coupled with the Ionosphere-Plasmasphere Electrodynamics (WAM-IPE) model to validate ICON observations, focusing on both climatological patterns and day-to-day variabilities. By comparing ICON measurements with WAM-IPE outputs, we assess the accuracy and reliability of the satellite data in capturing key thermospheric and ionospheric parameters, such as neutral winds, densities, and plasma densities. The analysis reveals both similarities and differences between the observed and modeled datasets, highlighting the strengths and limitations of each approach. Such validation is essential for improving the fidelity of space weather models, enhancing our understanding of the coupling between the neutral and plasma environments, and refining predictive capabilities for space weather impacts on communication and navigation systems. This study underscores the importance of cross-validating observational and modeling frameworks to advance our knowledge of upper atmospheric processes and their variability.

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