NCAR | ATMOSPHERIC CHEMISTRY OBSERVATIONS & MODELING

Virtual ACOM Seminar

Thermal variability in the tropical UTLS from COSMIC-2 radio occultation

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Links: https://operations.ucar.edu/live-acom

ABSTRACT

A new constellation of radio occultation satellites called COSMIC-2 (Constellation Observing System for Meteorology, Ionosphere and Climate-2) is providing unprecedented dense measurements of the tropical atmosphere, with on average more than 4,000 high quality observations per day over 40o N-S. We use these data to provide novel understanding of temperature variability near the tropical tropopause and lower stratosphere (~10-30 km). COSMIC-2 data reveal a rich spectrum of large- and small-scale waves, including eastward- and westward-propagating planetary-scale equatorial waves and diurnal tides. The measurements also identify localized regions of enhanced temperature variability tied to small-scale gravity waves. These new measurements are valuable for constraining global models and understanding water vapor and high-level clouds in the tropics.

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