

## Longitudinal and Geomagnetic Activity Modulation of the Equatorial Thermosphere Anomaly

JUHOU, Lei<sup>1\*</sup>

<sup>1</sup>University of Science and Technology of China, Hefei, China (leijh@ustc.edu.cn)

Recent observations of thermosphere mass density from satellites have revealed new features of the Equatorial Thermosphere Anomaly (ETA) which enable much more in-depth investigation of its characteristics and its coupling to the more research-established Equatorial Ionosphere Anomaly (EIA). Our recent study (Lei et al., J. Geophys. Res., 2012) has revealed that the field-aligned ion drag mainly contributes to the ETA trough, but has little effect on the ETA crests. However, the formation of the ETA crests is attributed to plasma-neutral heating which has two peaks in the topside ionosphere aside the magnetic equator. This invited talk will highlight the simulated results from the thermosphere-ionosphere-mesosphere-electrodynamics general circulation model (NCAR-TIMEGCM) to demonstrate the relative contributions of the non-migrating tides and geomagnetic field configuration on the longitudinal variations between the ETA and the EIA. Meanwhile, the different longitude/UT dependence between the ETA and the EIA associated with geomagnetic activity is also presented.

Keywords: Equatorial Thermosphere Anomaly, Longitudinal Variation, Geomagnetic Activity Modulation, Lower Atmosphere Tides