

## Longitudinal Structure of Ultra-Fast Kelvin Waves observed from Troposphere to Ionosphere

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Longitudinal structures of the planetary scale Ultra-Fast Kelvin (UFK) waves (3-5 day period) were studied by using observed temperature fields from the troposphere-stratosphere (UKMO) and mesosphere(SABER/TIMED), wind fields in the MLT region (MF radar) and in the thermosphere (OI 6300/ FPI ), and Total Electron Contents (TEC) in the ionosphere (COSMIC). Among the several UFK events identified in the year 2011, we observed one event, on August 3 (DOY 215), which propagated from troposphere over Indian Ocean to mesosphere to ionosphere taking almost 30 days of propagation. The vertical phase velocity was  $\sim 8$  km/day. The present work demonstrates the source, longitudinal structure of the UFK wave and vertical propagation features.