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Global Teleconnections between QBO Dynamics and ITM Anomalies

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The importance of the realistic predictions of the climate variability in the whole atmosphere system, vertical and horizontal teleconnections between the stratospheric QBO and SAO and ITM dynamics are now well recognized. The paper presents a brief summary of the QBO impact on the MLT neutral dynamics seen from the last decade of ITM observations and predictions by two whole atmosphere models constrained in the lower atmosphere by GEOS meteorology of NASA/GMAO. We present the initial modeling and observational evidences that the QBO-related variations in the MLT thermal tides can modulate the equatorial ionospheric anomaly wave-4 and wave-3 longitudinal structure affecting the ITM system on regional scales. Several hypotheses about the influence of the stratospheric QBO on the ionosphere due to the combined influences of migrating and non-migrating tides will be suggested based on the preliminary multi-year observational analysis of TEC data.