

Interannual variabilities of diurnal tide in the tropical mesopause region: A signature of the El-Nino Southern Oscillation

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Long-term MLT radar observations of the diurnal tide at 86 km over Jakarta (6.4 S, 106.7 E) and Tirunelveli (8.7 N, 77.8 E) during the years 1993-1999 are presented in this work. Monthly estimates of tidal amplitudes in the meridional direction over these sites exhibit a pronounced seasonal cycle that is modulated in the interannual time scales. The satellite derived Outgoing Longwave Radiation (OLR) is used as a proxy for deep tropical convection in this study. Removal of composite seasonal cycle yields 'anomalies' in the diurnal tide over Jakarta and Tirunelveli that are correlated with the OLR anomalies in the interannual time scales. The correlations are most significant during the El Nino-La Nina years of 1997-1999. It is suggested that the dynamics of lower atmospheric large-scale convective systems across the Pacific in response to the El Nino Southern Oscillation (ENSO) provides a mechanism for the observed time lags between the tidal anomalies over the two radar sites.