

Title : Atmospheric lunar tide observed by meteor radar at middle and low latitudes in Brazil

Session: S3: Wave propagation between low/middle atmosphere and ionosphere

Preferred type of presentation: Poster

Abstract:

Using meteor radar data from three Brazilian stations [São João do Cariri (7.4° S; 36.5° W), Cachoeira Paulista (22.7° S; 45.0° W) and Santa Maria (29.7° S; 53.8° W)], the atmospheric semidiurnal lunar tide in the mesosphere and lower thermosphere has been studied from January 2005 to December 2008. Monthly tidal amplitudes and phases were determined using hourly mean winds in seven layers of four kilometer thickness each, centered in 81, 84, 87, 90, 93, 96 and 99 km of height. Most of the amplitudes and phases profiles of the lunar tide showed characteristics of vertically propagating waves in the atmosphere. Over São João do Cariri, during almost all year, the amplitudes of the meridional component were greater than the zonal one, and the phases presented equatorial characteristics of Southern Hemisphere. Over Cachoeira Paulista, the mean amplitudes were greater in meridional component and the phases also presented characteristics of Southern Hemisphere. Santa Maria presented meridional amplitudes greater than zonal between November and April. In several aspects, the three sites have similarities with the Vial and Forbes (1994) atmospheric semidiurnal lunar tidal model.

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