

Meteor radar temperatures at 7.4°S and 22.7°S

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Mesospheric temperatures at 90 km height have been estimated from meteor radar measurements obtained at Cachoeira Paulista (22.7°S, 45°W) and São João do Cariri (7.4°S, 36.5°W). The temperatures were estimated using local models for temperature gradient and pressure and showed a good agreement with temperatures from Sounding of the Atmosphere by Broadband Emission Radiometry (SABER) over both sites. The temperatures by gradient technique show larger day to day variations than those estimated by pressure method and from SABER data. Spectral analysis have revealed the presence of annual (AO), semiannual (SAO) and quadrennial (QAO) periods on temperatures estimated by two techniques and from SABER data at both sites. The amplitude of the SAO over Cachoeira Paulista on temperatures by pressure method exceeds those estimated by gradient technique as well as the SABER temperatures. Over São João do Cariri, the SAO amplitude on temperature by pressure method also exceeds those derived by gradient technique and from SABER data. The SAO temperatures are in phase with each other, with maximums around equinoxes, just when the phase of SAO on mean zonal winds around 81 km is westward over both sites, however, the maximums in the westward winds happens before the maximum temperatures.

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