



Quasibiennial oscillation of the Southern Hemisphere tropopause observed in ERA-40 and IGRA data

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Among other dynamical mechanisms, the equatorial quasibiennial oscillation (QBO) is known to influence tropopause characteristics over the whole globe. In the present analysis, we compare the modulation exerted by the QBO over the southern hemisphere tropopause characteristics using two different data sources: ERA-40 reanalyzed data; and data from 22 observatories included in the Integrated Global Radiosonde Archive (IGRA). The QBO modulation of the tropopause characteristics from both databases is estimated through the application of the multitaper-singular value decomposition method (MTM-SVD) for the 1979-1999 period.

First, monthly data from both databases were used to characterize the evolution of tropopause characteristics through a QBO cycle. It is observed that the SH polar vortex gets slightly accelerated (decelerated) during the QBO west (east) phase. The acceleration of the polar vortex is accompanied by negative (positive) anomalies of the pressure at the tropopause at polar (subpolar) latitudes. In general, there is a good agreement between the results obtained from reanalyzed and from sounding data.

A second analysis was done using only November data, since it is during this month when the extratropical influence of the QBO over the SH is most intense. The new analysis shows anomalies more intense but of the same sign as those obtained with the complete monthly series, where the acceleration (deceleration) of the polar vortex that occurs during the QBO west (east) phase is accompanied by a higher (lower) polar tropopause. But even when the comparison between reanalyzed and sounding data shows a good agreement, slight discrepancies are observed for two observatories

situated in the southernmost part of South America.