



Influence of the 11-year solar cycle on the effects of the equatorial quasi-biennial oscillation, manifesting in tropopause height, tropopause temperature and surface pressure in the extratropics.

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On the basis of ozonesonde measurements obtained in the period of 1966-2005 at 14 sites located in Europe Japan and Canada the comparative analysis of the responses on the equatorial quasi-biennial oscillation, manifesting in tropopause height, tropopause temperature and surface pressure during the periods of maximum and minimum of the 11-year solar cycle was carried out. The analysis has revealed essential differences between the QBO effects: in the opposite phases of solar cycle the QBO related signals of tropopause height at the Japanese and European stations and those of surface pressure at the European and the high-latitude Canadian stations are found to be in the opposite phases. At the European and Canadian stations in both the phases of the solar cycle the amplitudes of the QBO related signals in tropopause height are proportional to the amplitude differences of the temperature QBO signals manifesting in the upper troposphere and those in the lower stratosphere. Another pattern is found out at the Japanese stations during solar minima: the strongest QBO signals of tropopause height and those of tropopause temperature manifesting here are accompanied with rather small differences between the lower-stratospheric and upper-tropospheric temperature QBO effects. The QBO related signals in the tropopause height reveal positive correlation with the ozone QBO signals in the lower stratosphere.