



Differences between the QBO in the first and in the second half of the ERA-40 reanalysis

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The representation of the quasi-biennial oscillation (QBO) is investigated in the ERA-40 reanalysis. In the lower stratosphere, where there is a good number of observations, the representation of the QBO is equally good throughout the record. However, strong differences between the first and the second half of the zonal wind data set are found in the upper stratosphere, with a typical offset of -10 m/s in the equatorial zonal wind in the earlier part versus the later part of the ERA-40 record. At the same time, the strength of the QBO is similar. The 7-year running means of zonal wind, wind shear and temperature reveal interesting structures with major changes occurring in the beginning and the middle of the 1980s. Possible explanations are discussed. The identified change of the reanalysed wind profiles over time in ERA-40 demands for a careful use of equatorial upper stratospheric winds from the reanalysis e.g. for model validation purposes.