



## **Quasi-Biennial Oscillation signals independently found in temperature, meridional wind and in subtropical zonal wind shear**

R. Glowienka-Hense

Universität Bonn, Meteorologisches Institut, Bonn, Germany (rita.glowienka@uni-bonn.de)

Model hindcast experiments with MiKlip b1-MR and merged ERA-interim and ERA40 (ERA) reanalysis data (1962-2012) are used to filter quasi-biennial oscillation (QBO) signals of temperature and meridional wind and in the tropical zonal wind as well as in the subtropical to mid-latitude shear wind. For each variable on each of 7 levels between 70-7hPa the QBO signature is determined independently. The method used is principal component analysis of deseasonalized horizontal fields separately for model ECHAM6 and ERA data. Mode 1 of zonal wind is the QBO signal in the inner tropics at all levels for both data sets. It is in phase with the QBO in the vertical shear (difference of mode 2 amplitudes of two levels) of the zonal winds in the subtropics to midlatitudes in the ECHAM6 runs however not in the ERA data. The meridional wind signal in ERA data is largely disguised by data flaws. The ECHAM6 series are consistent over time and the QBO pattern shows at each level the asymmetric pattern projecting on anomalous convergence or divergence at the equator. The temperature QBO patterns - always mode 2 in both data sets - have significant amplitudes up to 30S/N and are nearly constant between 10 S/N where they change sign. The volcano signal of the ECHAM6 and ERA data is associated with temperature mode 1 and thus has a pattern separate from the QBO.