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The Influence of the QBO on longlived chemical Tracers in the CCM ECHAM5/MESSy1 and in Satellite Data

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The quasi-biennial oscillation modulates the concentration of chemical tracers inside the tropical pipe directly via changes in the ascent rate (e.g. CH_4) and indirectly via chemistry (e.g. NOx and O_3). In the used middle atmosphere setup of the model the QBO is calculated internally. We show an analysis of a nine-year model simulation with tropospheric meteorology nudged to ECMWF analysis, and corresponding satellite data like HALOE on UARS and MIPAS on ENVISAT, separating the two QBO phases. The nudging allows point-to point comparisons of simulation and observation in the middle stratosphere. One focus of this study is the tightness of the subtropical barriers in the different QBO phases.