

# **The effect of zonally asymmetric radiation perturbations in the stratosphere on the coupling of atmospheric layers**

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The boreal decadal changes of zonally asymmetric total ozone during the 60ies, 70ies, 80ies and 90ies of the last century showed a high variability. From a sensitivity study with different ozone distributions of the lower stratosphere, in the frame of the general circulation model ECHAM4, we know that a positive feedback process appeared which increased locally the radiative forcing of ozone by a factor of about ten linked with a strong influence on the dynamics and the coupling of the stratosphere and troposphere. In this paper, we report on a study with the GCM MAECHAM5 to examine the effect of radiation perturbations induced by zonally varying ozone in the whole stratosphere on the dynamics of the stratosphere and related coupling with the troposphere. Especially, the results reveal a shift in the polar vortex, which induce changes in the distribution of the process of Rossby wave breaking. As a further implication the jet induced generation of inertia gravity waves will be discussed.