Geophysical Research Abstracts, Vol. 7, 00427, 2005
SRef-ID: 1607-7962/gra/EGU05-A-00427

Effects of the baroclinic activity on the mean tropopause height

A. Dell'Aquila (1), P.M. Ruti (1) and A. Sutera (2)

(1) Progetto Speciale Clima Globale, ENEA, Rome, Italy, (2) Department of Physics, University of Rome "La Sapienza", Rome, Italy (alessandro.dellaquila@casaccia.enea.it / Fax: +39-06-30484264 / Phone: +39-06-30481072)

The mechanisms which concur to maintain and modify the tropopause structure constitute a relevant issue in the investigation and understanding of the climate system.

Moreover, the tropopause height has recently been proved to be an useful fingerprint for global climate change. In this context, we analyse the mean observed tropopause structure in the framework of a theory of baroclinic adjustment, focusing on the impact baroclinic eddies have on mean tropopause height.

In order to investigate the effects of such perturbations on mean tropopause structure we introduce an appropriate global index to determine events of high baroclinic activity in winter periods.

We therefore individuate the developing and decaying phases of baroclinic waves in winter periods, and we composite the tropopause mean structure before and after a baroclinic event. We find out that baroclinic disturbances cause, on average, the zonally averaged midlatitude northern winter tropopause height to rise and that they also influence the eddy field of the midlatitude tropopause structure.