



The NH winter 2005/06 from the tropical tropopause to the polar mesosphere: How unusual was it?

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This paper will give a complex overview of the NH-winter 2005/06 from tropical to polar latitudes from the tropopause to the lower mesosphere.

In the tropical tropopause layer (TTL) the Arctic winter 2005/06 was extremely cold. Tropical cold point temperatures reached absolute minima under 180 K. As two different operational ECMWF analyses (T511/L60 and T799/L90) are available simultaneously for this winter, they are compared with each other and with available radiosonde measurements. How unusual this cold TTL winter was, will be clarified with the long term climatology of available ECMWF analyses.

The Arctic winter 2005/06 was also unusually disturbed and warm at polar regions with an exceptionally long lasting major midwinter warming, which occurred at the end of January 2006. Due to the residual circulation these two phenomena are closely linked with each other. This NH winter will be also used as an example to investigate polar processes as they are represented in assimilation systems and in observations. Different available assimilation systems (op ECMWF (L60/T511), op ECMWF (L91/T799), NCEP/REA, NCEP/CPC, MetO, and GMAO) and measurements (Aura MLS) will be used to highlight the dynamical evolution of the polar winter atmosphere.