



Vertical profiles of SF₆ observed by MIPAS-Balloon: Determination of stratospheric age of air between 1995 and 2014

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Climate model simulations indicate an acceleration of the Brewer-Dobson circulation in response to global climate change. As a result a decrease of the mean age of air, which is a good indicator of the stratospheric transport, is predicted.

As a contribution to this topic, we present an analysis of measurements, obtained by the MIPAS-Balloon instrument that has been operated during 20 high-altitude balloon flights between 1995 and 2014. Our results can contribute to a more complete dataset for the analysis of the temporal development of the mean age of air. Focussing on the trace gas SF₆, vertical volume mixing ratio profiles were derived from measured limb emission spectra of selected flights. Based on the vertical volume mixing ratio profiles mean age of air profiles were calculated and compared to available in-situ observations, cryosamples and remote sensing data from MIPAS-Envisat.

We will present first results of mean age of air profiles and their development in the polar latitudes (flights from Kiruna) and the mid latitudes (flights from Aire sur l'Adour and Timmins).