



Improved SF₆ and Age of Stratospheric Air data from MIPAS

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A new and improved retrieval setup for SF₆ together with a newly calibrated version of MIPAS-ENVISAT level 1b spectra (version 5) was used to obtain a new global SF₆-dataset covering the total MIPAS-period from July 2002 to April 2012 for the first time. Monthly and zonally averaged SF₆-profiles were converted into mean age of air using a tropospheric SF₆-reference curve. The temporal evolution of mean age of air was then investigated in 10° latitude and 1-2 km altitude bins. A regression model consisting of a constant and a linear trend term, 2 proxies for the QBO variation, sinusoidal terms for the seasonal and semi-annual variation and overtones was fitted to the age of air time series. The age of air trend over the total MIPAS-period consisting of the linear term was assessed and compared to previous findings of Stiller et al. (ACP, 12, 3311-3331, 2012). While linear increase of mean age was confirmed to be positive for the Northern mid-latitudes and Southern polar middle stratosphere, differences were found in the Northern polar upper stratosphere, where the mean age is now mostly increasing as well. The magnitude of trends in the Northern mid-latitude middle stratosphere is now slightly lower compared to the previous version. Negative age of air trends of Stiller et al. were confirmed for the lowermost tropical stratosphere and lowermost Southern mid-latitudinal stratosphere. Differences occur in the middle tropical stratosphere around 25 km, where the trend is now negative. Overall, the new distribution of trends in a latitude-altitude-plane appears to be less patchy and more coherent than the one derived by Stiller et al..