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## Improved global distributions of SF<sub>6</sub> and mean age of stratospheric air by use of new spectroscopic data

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The first and only global data set of mean age of stratospheric air (AoA) with dense day and night coverage has been derived from MIPAS observations by analysis of the spectral signature of SF<sub>6</sub> (Stiller et al., 2008, 2012; Haenel et al., 2015). Since SF<sub>6</sub> is a tracer with no sinks in the troposphere and stratosphere and an almost linearly increasing atmospheric abundance, it is often used to derive information on stratospheric transport and mixing due to the Brewer Dobson Circulation, quantified usually as mean age of stratospheric air (AoA). The global data sets of AoA derived so far from MIPAS observations, on basis of spectroscopically measured absorption cross sections by Varanasi et al. (1994), had a high bias in the middle to upper stratosphere compared to balloon-borne in situ observations from the 1990s. By applying a new spectroscopic data set measured in the laboratory recently (J.J. Harrison, to be published), we show that part of the high bias in AoA can be removed, and the residuals between measured and modelled atmospheric spectra can be decreased significantly. In this presentation we discuss the new SF<sub>6</sub> and AoA distributions, variabilities and trends, and compare to previous versions and independent in situ observations.

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