

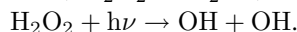
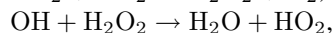
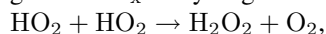


Comparison of H₂O₂ model results with different reaction rates to MIPAS observations

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H, OH and HO₂ (collectively called HO_x) are fast-reacting radicals in the middle atmosphere. These radicals are efficient catalysts for destroying ozone and play an important role in atmospheric chemistry. An important reservoir gas for HO_x is Hydrogen Peroxide (H₂O₂). The main reactions for H₂O₂ are:



Many of the corresponding reaction rates have high uncertainties. We performed model simulations with our CTM KASIMA with different sets of reaction rates for the main reactions. Mixing ratios from these simulations are compared to H₂O₂ observations of the Michelson Interferometer for Passive Atmospheric Sounding (MIPAS) for standard conditions and during the Solar Proton Event in Oct./Nov. 2003. The KASIMA model overestimates H₂O₂ concentration using the standard set of reaction rates, but can qualitatively reproduce H₂O₂ enhancements as observed after the SPE event. We further take a look at the differences in H₂O₂ mixing ratios in this time period using the different reaction rates.