

Does HO_2 React with H_2O_2 in the Atmosphere?

by

Kyle D. Bayes
Jet Propulsion Laboratory
Pasadena, CA 91109

There is a possible conflict between the observed concentrations of H_2O_2 in the atmosphere and those calculated by current models. This conflict could be resolved if there were an additional reaction destroying H_2O_2 . The possibility that HO_2 reacts with H_2O_2 was investigated by photolyzing dilute $\text{Cl}_2/\text{H}_2\text{O}_2$ mixtures and comparing the loss of H_2O_2 with the formation of HCl . No evidence for a reaction between HO_2 and H_2O_2 was found; the upper limit for this rate constant shows that this reaction is not significant in the atmosphere.