Does $HO_2$ React with $H_2O_2$ in the Atmosphere?

by

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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 $Cl_2/H_2O_2$ mixtures and comparing the loss of $H_2O$ 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.