OZONE RECOVERY IN THE PRESENCE OF $O_2(a^1\Delta)$ FOR ATMOSPHERIC STUDIES

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Rapid quenching of $O_2(a^1\Delta)$ in $O(^3P)/O_2/O_3$ mixtures has been observed using 248 nm laser photolysis of ozone to produce oxygen atoms and $O_2(a^1\Delta)$ molecules. Collisional removal of $O_2(a^1\Delta)$ was found to be correlated with the presence of O atoms. The kinetics indicate that vibrationally excited ozone is an important $O_2(a^1\Delta)$ quenching agent in $O(^3P)/O_2/O_3$ systems. The impact of this quenching channel on the $O_2(a^1\Delta)$ and O_3 levels in the atmosphere will be discussed.