Heterogeneous reaction of HO2 radical: RH dependence for HO2 uptake to levoglucosan aerosol particle

Fumikazu Taketani[1]; Yugo Kanaya[1]; Hajime Akimoto[1]

[1] FRCGC/JAMSTEC

HOx(OH+ HO2) radical plays a central role in the tropospheric chemistry. The total concentration HOx radicals are determined by the balance of sources and sinks. Recently, the heterogeneous loss of HO2 by aerosol particles is a potentially important HOx sink in the troposphere from observation study. However, there have been few studies for loss of HO2 by aerosols. In our group, we developed an aerosol flow tube coupled to a laser induced-fluorescence technique for measurement of uptake coefficient of HO2 radical with aerosol particles We had already reported uptake coefficients of HO2 radical with (NH4)2SO4 and NaCl particles which are typical aerosol particle at urban and marine area, respectively. In this study, we measured the uptake coefficient of HO2 radical with levoglucosan aerosol particle at various relative humidity(RH). Levoglucosan is known as major products of biomass burning aerosol. Measured uptake coefficient of HO2 by levoglucosan particle was increasing in RH. This result suggests that RH is significant to HO2 uptake to levoglucosan.