

## 2.108 Kinetic study of OH radical uptake onto deliquesced NaCl particles with a combination technique of a laser flash photolysis and a laser induced fluorescence detection.

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Abstract:

OH radical uptake onto sea salt particles is expected to be one of choline emission sources in the coastal region and marine boundary layer (MBL). However, its uptake coefficient has never been directly confirmed due to experimental limitation thus its contribution is still not unclear.

We developed a novel technique for kinetic measurement of OH uptake with a combination technique of laser-flash photolysis and laser-induced fluorescence detection (LP-LIF), which enabled us to measure the uptake coefficient directly. In the system, sample air containing aerosols, water vapor and ozone were introduced to a reaction cell, followed by pulsed laser irradiation to produce OH through the photolysis of O<sub>3</sub> and sequential reaction. A part of sample air is introduced into a detection cell and time variation of OH is monitored by laser-induced fluorescence detection. By analyzing OH decay, the uptake coefficient can be obtained.

In this study, we applied the LP-LIF to kinetic measurement of OH uptake onto deliquesced NaCl particles. The results showed higher uptake coefficient than those previously reported and suggested that the OH uptake onto sea salt particles has a significant contribution to the choline chemistry in the coastal region and MBL.