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Distributions of low molecular weight dicarboxylic acids in Mt. Fuji aerosols and their stable carbon isotopic ratios

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Aerosols, suspended particles in the atmosphere, are thought to affect climate and weather condition via scattering solar radiation and acting as a cloud condensation nuclei (CCN), which can be a nuclei to form clouds. Among them, water-soluble organic aerosols, including low molecular weight dicarboxylic acids, are thought to have a large effect on a climate. Water-soluble organic aerosols are composed of not only primary emitted materials to the air, but also chemical degradation products of organic precursor compounds. Our laboratory has done many campaigns to reveal chemical compositions and distributions of organic aerosols at many locations.

This study aim to reveal molecular distributions, origins and transport pathway of organic aerosols over East-Asia and North-East Pacific region by collecting filter samples at the summit of Mt. Fuji. Here we will present the results of the 2009 and 2010 campaigns for the study of water-soluble organic aerosols including dicarboxylic acids. We will also show the analytical results of stable carbon isotopic composition of individual diacids.

Keywords: aerosols, dicarboxylic acids, stable carbon isotopic composition, Mt. Fuji