

Seasonal variation of sea spray aerosol size-distribution in Noto Peninsula

*Ayano Matsumoto¹, Daishi Onizuka¹, Masami Huruuchi², Mitsuhiro Hata², Yayoi Inomata³, Naoto Sasaki¹, Koichi Watanabe⁴, Atsushi Matsuki³

1. Graduate School of Natural Science and Technology, Kanazawa University, 2. Faculty of Geoscience and Civil Engineering, Institute of Science and Engineering, Kanazawa University, 3. Institute of Nature and Environmental Technology, Kanazawa University, 4. Faculty of Engineering, Toyama Prefectural University

Sea spray aerosol (SSA) is one of the most abundant aerosols in nature. Recently, presence of submicron-sized particles of SSA have been identified, which is important in terms of their potential as additional source of CCN.

In this study, we investigated how the particle size of SSA behaves with season at NOTOGRO (NOTO Ground-based Research Observatory), located at the tip of Noto Peninsula, Japan, for a period of about one year, from July 2014 to June 2015. Weekly aerosol sample were collected using a Nanosampler, a sampler that can classify particles into 6 size bins including $D_p < 100$ nm. After collection, samples were extracted analyzed by ion chromatography for water soluble inorganic constituents including Na^+ and Cl^- . The results showed that seasonal variation in SSA components differed significantly for particles $D_p > 2.5$ μm and particles $D_p < 100$ nm; for fraction $D_p > 2.5$ μm , SSA concentrations increased especially during the period when a typhoon passed; for the fraction $D_p < 100$ nm on the other hand, SSA concentrations did not increase markedly during the typhoon passage, but increased from 2/25 to 3/18. Comparison with the seawater temperature during this period showed that the seawater temperature during the period was the lowest in the year, suggesting possible relationship between seawater temperature and fine submicron-sized SSA in the coastal area around Noto Peninsula.