

**STUDY ON THE CHLORINE LOSS AND RICH IN MARINE ATMOSPHERIC AEROSOLS -
RESULTS OF INVESTIGATION
DURING THE CRUISE OF BOSEI-MARU**

T. Matsuo, Y. Sekine, H. Masujima, M. Tsuchiya
Chemistry, School of Science, Tokai University, Hiratsuka, Japan

Sea salt particle is one of the emission sources of chlorine species in the atmosphere and major components of marine atmospheric aerosols. In order to investigate behavior of sea salt particles in the marine atmosphere and influence of anthropogenic air pollutants on the chemical composition, observations of water soluble ions in the particulate matter and gaseous components were conducted during the Pacific Ocean cruises of Tokai University education and research vessel, Bosei-maru in 2002 and 2003. In the aerosol samples, when air trajectories came from Asian continent, relatively higher amounts of non-sea salt sulfate were found with significant Cl loss. This means air contaminants transported from Asian continent react with sea salt particles and release volatile chlorine species even in the marine atmosphere. On the other hand, we found larger Cl/Na ratio than those of sea salt in several marine samples collected on the ocean where air trajectories suggested a less influence of continental air pollutants on these aerosol samples. Excess amounts of Cl against seawater composition resulted in the range of 0.1-1.2 μ mol per daily sample and equivalent to estimated emission of Cl₂ from sea water by oxidative reactions previously proposed. Corresponding gas sampler recorded higher concentrations of ozone. These results show a possible emission of Cl species from surface of seawater and deposited onto the aerosol particles with Cl enrichment.