Nitrate, sulfate and ammonium aerosol over Korea Southern Sea

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The distribution of nitrate, sulfate and ammonium aerosols were investigated over the Korea Southern Sea. Aerosols were collected on board using high volume aerosol sampler from November 1997 to May 1999 through seven research cruises. The concentration of nitrate, sulfate and ammonium aerosols showed the distribution of 1.1~10.7 (5.6±2.4), 2.8~19.7 (7.9±3.9) and 0.2~4.9 (2.2±1.1) μg m^{-3}, respectively. And non-seasalt sulfate (nss-sulfate) ranged 1.0~18.3 (6.8±4.0) μg m^{-3}. 0.02~72.1 (16.8±16.8) % of sulfate was contributed by sea salt. Nitrate and ammonium aeroslos showed the lowest concentrations in November 1997 among the surveyed periods. Nss-sulfate showed the highest concentrations of 9.2±18.3 μg m^{-3} during the period of yellow dust storm, April 1998. Aluminum concentration was also the highest with 25.7±14.0 μg m^{-3}, and had good linear correlation between nss-sulfate and nitrate (R^2 = 0.86 and 0.91) in the same period. There was a positive correlation between nss-sulfate and nitrate during the studied period (R^2 = 0.69). The nitrate/nss-sulfate ratios showed the range of 0.38~2.9, indicationg that the aerosols have several different sources seasonally in this region. The depositional flux of atmospheric nitrate, nss-sulfate and ammonium were estimated to be 3.62, 2.32 and 1.01 g m^{-2} yr^{-1} and the relative contribution by wet deposition was 60, 55 and 43%, respectively.