



Aerosol fluxes in the marine boundary layer

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We present aerosol emission fluxes and concentrations calculated from in-situ measurement in the Nordic Sea from R/V Oceania. We compare vertical fluxes calculated with the eddy correlation and gradient methods. We use the results to test the hypothesis that marine aerosol emitted from the sea surface helps to clear the boundary layer from other aerosol particles. As the emitted droplets do not dry out in the highly humid surface layer air and because of their sizes most of them are deposited quickly at the sea surface. Therefore marine aerosol has many features of rain meaning that the deposition in the marine boundary layer in high wind events is controlled not only by the "dry" processes but also by the "wet" scavenging. We have estimated the effectiveness of the process using our own measurements of vertical aerosol fluxes in the Nordic Seas. This process could explain observed phenomenon of lower Arctic aerosol optical thickness (AOT) when the air masses moved over open sea than over sea-ice. We show a negative correlation between the sea-ice coverage in the seas adjacent to Svalbard and monthly AOT values in Ny Alesund.