



Measurement of air-sea exchange of marine aerosols using the dissipation technique

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It is widely recognised that interactions between oceans and the atmosphere play a major role in climate, via exchanges of heat, CO₂, trace gases and particles. The atmospheric aerosol particle concentration is affected by the production of primary marine aerosols, particle deposition and air sea exchange of gases that can produce secondary particles. The atmospheric aerosol particles can affect climate directly by scattering and absorbing solar and terrestrial radiation and indirectly by acting as cloud condensation nuclei (CCN).

Parameterizations of production of primary marine aerosols are improving (Mårtensson, E.M., et al., 2003), however there is still a need for validation using data of sea spray fluxes from field measurements. Data of fluxes from open sea can only be obtained from platforms or ships. It is not an easy task to obtain fluxes of sea spray from a ship due to the motion of the ship, which is influencing the spectra of vertical velocity. Here we present a technique to measure fluxes using the higher frequency area of the spectra, which is not disturbed by the motion. We present data of fluxes estimated by this technique and compare to filtered covariance fluxes. The fluxes are measured at the Galathea III cruise which is a world wide Danish research-cruise carried out from August 2006 to April 2007.

(Mårtensson, E.M., et al., 2003, J. Geophys. Res. 108,4297, doi:10.1029/2002JD002263),