



New approaches for the emission of marine organic species based on Langmuir-Adsorption

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It was found in several studies that Chlorophyll-a may not be the best parameter to quantify the emission of organic material associated with sea spray from the oceans to the atmosphere. Thus, new emission parameterizations are necessary. Burrows et al. 2014 presented such a new approach by calculating the emission rates of the major organic compounds (Proteins, Polysaccharides, Lipids, Humics and Processed) assuming Langmuir-Adsorption at the boundaries of the bursting bubbles. The ocean surface concentrations of these substances were simulated with an ocean biogeochemistry model.

During September/October 2017 a measurement campaign took place at the Cape Verde Islands. The goal was to link the organic substances from the ocean to their concentrations in the aerosols and clouds. Several samples from the bulk water, the surface microlayer, the aerosols and clouds were collected. Here we present a modelling study to describe the transfer of the species from the ocean to the atmosphere and the clouds. In the first step, we applied a modified version of the parameterization by Burrows et al. 2014 to calculate the emission flux of the different organic substances. Thus, we are able to take the enrichment of the surface microlayer compared to the bulk water into account.

We will present a comparison of that approach to further other approaches from the literature based on Chlorophyll a and assuming constant fluxes. If already available we will replace the assumed input data by measurements from the campaign.