



Detection of linear dicarboxylic acid monoamides in marine aerosol particles

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Marine aerosol contributes significantly to the global aerosol load and consequently has an important impact on the Earth's radiative budget. Organic species within a marine aerosol may potentially alter the aerosols physical and chemical properties. For example polar compounds are hypothesized to make aerosol particle surfaces hydrophilic which enhances its ability to serve as a cloud condensation nuclei. In 2003, two North-South cruises of the Atlantic were performed on which aerosol filter samples were taken. These were investigated using an LC-MS-TOF system for dicarboxylic acids, to deduce the concentration of these compounds as a function of latitude at various times of the year. During the analysis a series of additional, unexpected peaks were observed and further characterized by MS-MS experiments. These mass peaks corresponded to a homologous series of monoamides of the corresponding linear dicarboxylic acids, similar to the homologous series of the identified dicarboxylic acids. In this study we investigate: 1) the identity of these peaks; 2) the latitudinal distribution on the two cruises; and 3) the possible sources of these species. In conclusion we will speculate on the role played by these compounds in the atmosphere-ocean boundary layer region.