**Simulating the iron mobilization of mineral dust during its atmospheric transport**

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Iron is the most abundant trace metal in the earths crust and in atmospheric aerosols. Like other trace metals it can control cloud chemistry due to its catalytic effect on the atmospheric HOx cycle or it can influence bio-geochemical cycles in the oceans. The biggest source of naturally emmitted iron to the atmosphere are dust storms emanating from the worlds deserts. The content of dissolved metal compounds in dust particles determine their environmental effects. Though, most of the iron content is bound in a crystal lattice and is not immediatlely available for chemical and biological processes. Thus for a deeper understanding of the role of desert dust and its impact on atmospheric chemistry the dissolution process of dust particles and the production of soluble metal compounds during transport in the atmosphere is focus of many investigations. For our purposes we use the chemical trajectory model SPACCIM with a newly implemented dissolution and precipitation scheme accounting for a variety of solid species in atmospheric particles in order to estimate the amount of soluble material produced, especially by means of dissolved iron. For comparison we use results of measurement campaigns at the Cape Verde Atmospheric Observatory, whose location is quiten often hit by dust storms originating from the Saharan Desert and crossing the Atlantic ocean.