Aluminium in an ocean general circulation model compared with the West Atlantic Geotraces cruises

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The distribution and cycling of aluminium (Al) in the ocean has received attention for a variety of reasons. Firstly, if the Al cycle is understood well, Al surface concentrations can be used to constrain atmospheric dust deposition fields. These can then be used to predict aeolian iron addition to the photic zone. Secondly, there is evidence that Al inhibits the solubility of sedimentary biogenic silica, which would have an effect on the availability of silicic acid to diatoms.

To constrain dust deposition fields and to study the hypothetical effect of the inhibition of biogenic silica dissolution, we simulate the Al distribution in the ocean. The basic patterns of dissolved Al are reproduced by the model in the ocean surface. However, in the water column in the West Atlantic Ocean there are significant deviations from observations. In this presentation it will be hypothesised which processes might be improved or which processes might be missing in the model.

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