## Modelling of Saharan mineral dust

## Abstract:

Dust transported from the Sahara across the tropical Atlantic influences radiation fluxes and marine nutrient cycles. Assessing the dust fluxes into the tropical Atlantic together with characterizing the Saharan source regions by means of model studies and analysis of satellite data is one topic within the SOPRAN project (Subproject 'Modelling of Saharan dust export to the tropical Atlantic') funded by BMBF. It is planned to assess the main dust sources and meteorological situations responsible for dust export to the tropical Atlantic together with the model's ability to reproduce these sources (mountain sides); develop improved model parameterisations for those sources. To assess the effect of dust aerosol in the climate system including changes in dust in a changing climate requires dust simulation as interactive tracer in a climate system model. While models simulating Saharan dust emission, transport and deposition processes have been considerably advanced in the recent years, it remains an open question, which meteorological processes and surface characteristics are mainly responsible for dust transported to the tropical Atlantic. The simulation of dust in global climate models is usually limited by coarse model resolution. However, it is crucial that the atmospheric processes that lead to dust emissions are correctly reproduced by the models if future dust projections or assessments of dust variability in the historic climate records by models should have any reliability. It is planned to test whether the processes controlling dust emissions in the ECHAM-HAM model agree with those identified in the regional studies, implement new parameterizations if needed and test the impact of the new dust parameterization on dust deposition fluxes into the tropical Atlantic for different model resolutions.