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Assimilation of satellite information on mineral dust using dynamic relaxation approach

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To increase performance of numerical atmospheric dust model forecasts and to improve our understanding of the atmospheric underlying dust process, incorporation of available observed information on dust into modelling systems is required. Well established techniques used for atmospheric data assimilation in numerical weather prediction systems could be applicable for assimilation of observed aerosol parameters as well.

In this study, an assimilation method based on the Newtonian relaxation is applied using background dust concentration of the DREAM dust model and target fields of the Moderate Resolution Imaging Spectro-radiometer (MODIS) aerosol objective analysis. Sensitivity experiments were performed by testing different intensities of nudging and different periods of relaxation. Preliminary results demonstrating how the data assimilation affects the accuracy of dust forecasts will be reported.