



Asian dust and cloud ice over the North Pacific: Comparison of ECHAM5-HAM simulations and PACDEX observations

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Mineral dust particles are efficient ice nuclei, and may affect clouds and the radiative properties of the atmosphere over large areas and at great distances from the dust source regions. Meteorology, land use, and vegetation, which play a key role for the distribution of atmospheric dust are expected to change in the future due the natural and man-made variations in the Earth system. Global models and their implementations of dust processes need therefore to be validated. In this study, we use the MPI-M aerosol-climate modeling system ECHAM5-HAM with its most recent implementations of mineral dust emissions and cloud ice formation. We perform simulations for the April/May 2007 Pacific Dust Experiment (PACDEX), nudged towards ECMWF operational analysis data. Simulated dust and ice particle number concentrations and their correlations are compared with PACDEX observations.