Contribution ID: **38** Type: **Talk**

Influence of Aerosol Perturbation Duration on the Organization of Stratocumulus: Large Eddy Simulation and Heuristic Dynamical Modeling

Monday, 16 May 2022 11:00 (30 minutes)

Marine boundary layer stratocumulus clouds tend to occur in two distinct organizational states: the closed cell, high cloud fraction state and the open-cell, low cloud fraction state. The selection of the state is determined by the amount of precipitation, which is in turn strongly influenced by the aerosol concentration. Natural and anthropogenic aerosol perturbations have characteristic durations, along with concomitant changes in meteorology and associated cloud conditions. In this talk we will explore the effect of the timescale of aerosol perturbations on the cloud system organization using idealized large eddy simulation as well as a heuristic model. We will explore the extent to which the amount and duration of aerosol perturbations influence transitions between states, in order to obtain insights into potential climate effects.

Primary authors: FEINGOLD, Graham (NOAA); Dr HOFFMANN, Fabian (LMU, Munich); Dr ZHANG, Jianhao (NOAA); Dr PRABHAKARAN, Prasanth (NOAA); Dr ZHOU, Xiaoli (NOAA); Prof. KOREN, Ilan (Weizmann Institute); GLASSMEIER, Franziska (TU Delft)

Presenter: FEINGOLD, Graham (NOAA)

Session Classification: Convective concepts