

(1) UCLALES-SALSA - University of California, Los Angeles Large Eddy Simulations Model coupled to Sectional Aerosol Module for Large Scale Applications

(2) FMI-ISI - Atmospheric Research Centre of Eastern Finland, Finnish Meteorological Institute, Finland

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(3) Available modes for the model runs: Research

(4) Components & processes: Atmosphere & Physical, Chemical

(5) Brief model description

UCLALES-SALSA is a Large-Eddy model coupled with a detailed sectional microphysics module for aerosol, clouds and precipitation. The model aims towards a compromise between numerical detail and computational cost. The model includes a fully sectional description for aerosol, cloud droplets and rain, as well as the more recently added cloud ice crystals and snow. The model is suitable for investigating the aerosol wet removal processes in detail as well as to other topics related to aerosol-cloud interactions. The composition of the aerosol particles is currently modelled using 7 chemical compounds. These now include the semivolatile nitrate and ammonia aerosols, whose gas-particle partitioning is treated dynamically. The model is currently applied in a number of investigations, including the topics of wet removal of aerosols, Arctic mixed phase clouds and precipitation formation.

Tonttila, J., Maalick, Z., Raatikainen, T., Kokkola, H., Kühn, T., and Romakkaniemi, S.: UCLALES-SALSA v1.0: a large-eddy model with interactive sectional microphysics for aerosol, clouds and precipitation, Geosci. Model Dev., 10, 169-188, doi.org/10.5194/gmd-10-169-2017, 2017.

<https://www.geosci-model-dev.net/10/169/2017/>

Model development platform can be found at:

<https://github.com/UCLALES-SALSA/UCLALES-SALSA>