

Dear executive editor,

Here the information regarding code and data availability.

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WRF-Chem is an open-source community model. The source code of WRF-Chem model version 3.5.1 is available at http://www2.mmm.ucar.edu/wrf/users/download/get_source.html (last access: September 2020). The new scheme for ice crystals formation by heterogeneous nucleation described in this paper is implemented in WRF-Chem Version 3.5.1 and permanently archived at <https://zenodo.org/badge/latestdoi/295455287> (last access: September 2020).

Indirect and Semi-Direct Aerosol Campaign (ISDAC) data are available from the ARM data archive (online at <https://www.arm.gov/data/data-sources/cldmicroprop-51>)

Meteorological initial and boundary conditions use NCEP (National Centers for Environmental Prediction) Global Forecast System (GFS) Final Analysis (FNL) data is available at <https://rda.ucar.edu/datasets/ds083.2/> (last access: September 2020).

Chemical initial and boundary conditions are taken from the global chemical-transport model MOZART-4 (Model for OZone And Related chemical Tracers, version 4) (Emmons et al., 2010). <https://www.acom.ucar.edu/wrf-chem/mozart.shtml> (last access: September 2020).

The fire emissions inventory used is the Fire INventory from NCAR (FINN-v1) (Wiedinmyer et al., 2011) is available at <http://bai.acom.ucar.edu/Data/fire/>.

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