

Summary

The authors examine how clouds and precipitation influence aerosol lifecycles in a boreal forest in Finland. They conduct simulations with the two general circulation models UKESM1 and ECHAM-SALSA. The aerosols are represented with a modal scheme in UKESM1 and a sectional scheme in ECHAM-SALSA. They analyze their simulations in an Eulerian and Lagrangian manner and evaluate their results against in-situ observations. They find seasonal differences in the aerosol-precipitation trends of UKESM1 and ECHAM-SALSA. The paper provides valuable insights but should be revised before publication. There are two general comments and some specific comments.

General comments

- The authors should present their study in a more concise way. In its current form, the main part spans 49 pages and the supplemental part spans 26 pages. A more concise presentation would make it easier to grasp the main ideas.
- The authors often present normalized or relative values, for example, in figures 3, 4, 5, and 6. The author should provide absolute values instead or in addition. That would make it easier to interpret their results.

Specific comments

- Please make the font sizes in figures 1, 3, 4, 5, 9, and 11 a bit larger.
- In figure 6, please provide absolute numbers for removal pathways.
- In figure 7, please show the trajectory frequencies in separate, larger panels to better show of the spatial details.
- In figure 8, please show a histogram instead of a scatter plot to better show the different frequencies.
- Please show the time series in figures 3 and A2 with line instead of bar plots.