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Atmospheric Chemistry and Physics Discussions

Interactive comment on "The effect of local sources on particle size and chemical composition and their role in aerosol-cloud interactions" *by* H. Portin et al.

Anonymous Referee #1

Received and published: 29 January 2014

1 General

This paper contains original material from two field studies, referring to aerosol properties and particle activation in eastern Finland. The topic is within the scope of ACP. As written below, the manuscript is on some occasions unclear; it is suitable for publication after responding to the following comments:

2 Detailed comments

- Titel: It should be taken into account to add the location of the study, e.g. in eastern Finland, Puijo etc. or the frame (PuCE)
- Abstract:
  1.) Very important information is missing. There is not a single word about the framework of the study, the location and site type nor about the measurement period (length, year,. . .).
  2.) Give numbers! Terms as “contained more”, “were quite similar”, etc. should be replaced by concrete numbers. Also give number of GFs.
- Section 1 (and title): Specify “clouds” - this manuscript considers only one fraction of cloud types namely liquid water clouds.
- Section 2.1: Add when data was taken and length of campaigns, if necessary modify section 2.4 etc. accordingly.
- Section 2.3.5: Says the Htdma was connected to the total inlet and on scan is 15 min long. Before you mentioned that the total and interstitial inlet were alternated in 6 min intervals. I’m confused, please explain.
- Section 3.2.1 and elsewhere: You mention “air masses with marine characteristics” but you write in Section 2.3.4 that there is no chloride in aerosol. Does this exclude? Otherwise explain.
- Section 3.2.2 and Figure 4: How significant are the differences, how large are uncertainties?
- Sectiom 3.3.3: How reliable is the Htdma data (15min scan) for this period (30 min)? How many com-plete scans do you have for the interval? It should be underlined, that there are that there are significant uncertainties.

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- Section 4: Again give numbers, avoid expressions as “higher”, “more”, etc.
- Figure 1: Little information; leave or combine with Figure 2.
- It is very difficult to read Figure 8, please change, e.g. use different markers for the different sizes or add a line.
- In general: When you mention fractions in the text (e.g. inorganic fraction), why not as %?

Interactive comment on Atmos. Chem. Phys. Discuss., 13, 32133, 2013.