Review of Mogo et al., In situ measurements of aerosols optical properties and number size distributions in a subarctic coastal region of Norway.

General comments:
This paper presents an interesting dataset on aerosol properties collected during summer 2008 at the Alomar site on the northwest coast of Norway as part of IPY POLARCAT. A very detailed description is presented concerning aerosol optical properties and size distributions. In certain respects this paper has been improved compared to an older version, in particular with the inclusion of the additional data on aerosol size distributions. However, it is not clear how the results presented here link to the studies of Montilla et al. (2011) and Rodriguez et al. (2011) since the results from these papers are not described in much detail.

Overall, there is a general lack of scientific interpretation of the data with rather dense text listing results and describing figures but little overall synthesis. This is not helped by having the discussion about air mass origins at the end of the paper. The paper is also long with many figures. In order for this paper to be published the authors need to make major revisions. I encourage them to do this since this is an interesting dataset which warrants publication in the literature.

1. Make it clear in the text what are the differences between the results presented in this work and Montilla et al. (2011), Rodriguez et al. (2011). Make additional references to the findings of these papers in the text and compare to their results.
2. Shorten the text and reduce the number of figures whilst retaining the important messages coming out of the analysis of the datasets. Some of the figures and very detailed discussion could be moved into Supplementary Material. I strongly recommend combining the air mass origin analysis with the discussion about optical properties and size distributions (e.g. move section 3.4 to beginning of section 3 and combine with section 3.1). It would also be more informative to show particular examples (events) of air masses containing different aerosol types such as dust aerosols (where do they come from?) or continental aerosols (be more precise about what this means). This would avoid many of the rather vague statements in section 3. Also, are there no differences between continental aerosols coming from sectors 1,2 or 3? The types of possible “continental” aerosols should be discussed in more detail.
3. The abstract and conclusions need to be re-written so that the main findings are clear to the reader. Rather than lists of numbers, more general characteristics and findings as well as wider implications need to be summarised.

Specific comments:

Page 32924, lines 20-25: refer to more recent references on soot deposition on snow.

Page 32926, line 26: it would be useful to include the paper layout here.

Page 32929: lines 10-13: explain why the gap in number size cannot be bridged.

Page 32932, line 6: define P25.

Page 32932, line 15: yes, but what do Montilla et al. (2011) show?

Page 32933, lines 5-14: this is an example of where it would be better to discuss these points together with the back trajectory analysis and highlight particular events.

Page 32924, lines 20-29: likewise, link to back trajectory analysis.

Page 32936, lines 2-6: it is unclear what is really meant by "northern European aerosol"? Are there no differences between coastal sites like Alomar and continental sites like Pallas? (biogenics, sea-salt etc.)?

Figure 8: in the text the implications of what is shown for Figs. 9 and 10 need to be described more clearly.

Figure 12: this figure is confusing and needs to be simplified. Combine with information presented in time series in section 3.1.

Acknowledgements: It is probably a question of wording but it sounds like the U. Helsinki was responsible for POLARCAT activities? The international POLARCAT-IPY activity was coordinated by Andreas Stohl (NILU) and Kathy Law (CNRS) with coordination based at NILU, Oslo, Norway.