Atmos. Chem. Phys. Discuss., 14, C1933–C1934, 2014
www.atmos-chem-phys-discuss.net/14/C1933/2014/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Transport of aerosol to the Arctic: analysis of CALIOP and French aircraft data during the spring 2008 POLARCAT campaign" *by* G. Ancellet et al.

Anonymous Referee #2

Received and published: 29 April 2014

The manuscript: "Transport of aerosol to the Arctic: analysis of CALIOP and French aircraft data during the spring 2008 POLARCAT campaign" by G. Ancellet et al., present the results of Lidar and in situ measurement on board of an aircraft over the Northern part of the Scandinavia peninsula and Svalbard during the POLARCAT campaign in April 2008. The Lidar results are compere with CALIOP retrievals as well. PLEXPART model was used to provide information about the air-mass origin during the field campaign period. Aerosols in the arctic have been an important topic because of their effect on climate change. The importance of this paper reside in been one of the first who present results about CALIOP retrievals and LIDAR measurement together over

the Arctic. The objectives of the paper and the structure are well defined but English has to be checked. The results presented here are scientifically relevant making the manuscript suitable for publications after realized some minor modifications.

When you are talking about R(z) can you show an example of how it was calculated to make it more understandable. Probably to include a table with the general parameters of the lidar will help to make it more understandable as well.

Pag.5728, Para.5-10 “The homogeneity of the results between the different flights has also been verified by dividing the lidar data into three subsets: one corresponding to the beginning of the campaign, the second one to the end, and the third to the 5 overall campaign.” add here the dates from where to where you are making the division.

Pag.5729, Para.20-25 “high correlation is nevertheless observed between lidar backscatter ratio and aerosol particle concentration, as expected” Give here the percentage of the correlation between both measurements.

Pag.5734, “Assessment of the 1064 CALIOP calibration” have to be rewritten, the explanation is somehow confused, please add more details about the effect of the cirrus clouds in the CR after apply the recalibration you are proposed here.

Pag.5741, Para.10-15 Change “serosol” for aerosol.

Pag.5761, Add the Regression line to the figure 7, it is mention in the caption but is not include in the graph.

Pag.5763, Fig. 9 Change the scale for the aerosol color ratio LNG, use the same that for CALIOP and how is mention in the text.

Interactive comment on Atmos. Chem. Phys. Discuss., 14, 5721, 2014.