

Title: Absorbing aerosol in the troposphere of the Western Arctic during the 2008 ARCTAS/ARCPAC airborne field campaigns

Comments:

Lines 168 – 178.

The presentation of the vertical profiles of BC mass in Figure 2 is certainly a useful data-set for the scientific community. In your comments, you provide evidence of the fact that the concentration values found in the middle-troposphere absorbing aerosol peak are reduced by a factor 4 at levels close to the surface. In addition, you states that median values are about half the mean values. This implies a skewed distribution due to a limited number of strong episodes. Also in discussing the results shown in Figures 9 and 12, attention is paid to the fact that the distribution features are quite different within the first 2 km atmospheric depth and within the depth from 2 to 6 km altitude. This information is very useful for applications of the present results to aerosol-induced radiative forcing modelling. For this reason, I suggest to add a figure in the text presenting the relative frequency histograms (similar to those shown in Figure 5) giving the decadal logarithm of BC mass concentration within the 0-2 km layer and the 2-6 km layer (also of the upper region > 6 km, possibly) to provide evidence of their (differently ?) skewed distributions, and of the differences between mean and median values.

To address this issue we have added two tables, one summarizes aerosol masses, the other aerosol optical properties. These tables include mean, median and stdev, values of use to modellers or other members of the community interested in comparing their results to those from ARCTAS/ARCPAC.

Line 188:

Please, specify the meaning of BB (biomass burning): it is the first time that it is used in the text (?).

amended

Line 260:

Please, take out one of the two “the” written in the text.

Line 314:

Please, use preferably the term “single scattering albedo” in place of “single scatter albedo”.

amended

Line 352 and the following ones, and in the legends of Figures 7 (twice) and 8 (twice):

Please, write Ångström in place of Angstrom.

replaced