

Interactive comment on “Aerosol optical properties and radiative forcing in the high Himalaya based on measurements at the Nepal Climate Observatory – pyramid site (5100 m a.s.l.)” by S. Marcq et al.

Anonymous Referee #1

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General:

This paper presents an analysis on aerosol optical properties and resulting direct radiative forcing at a high-altitude site located in Himalaya. The paper is original, well-structured and clearly written. I have a few minor suggestions for improvements, after which the paper can be accepted for to publication in ACP.

Comments:

1. The authors correctly point out the uncertainties related to i) the relative humidity

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dependencies of the scattering and absorption coefficients and ii) unknown mass absorption efficiency needed to calculate the value of the absorption coefficient. How do these uncertainties affect the value of the single scattering albedo and corresponding uncertainties in radiative forcing calculations. Please discuss shortly in the paper.

2. The definition of special events (SE) remains a bit vague. The authors mention that SE are related to long-range transportation, yet it seems that SE are simply some sort of high-concentration cases selected by the criteria not explained here. Please be more specific.

3. The SMPS is mentioned on page 5638 (line 16) and some data are given in Table 1. Yet, SMPS is not described in section 2, nor is a reference given where the instrument has been described.

Technical comments:

p. 5631, line 27: Can BC concentration measured as ppb?

p. 5633, lines 19 and 21: Please define the meaning of NCO-P explicitly here when mentioned for the first time.

p. 5634, line 5: this figure is missing from the manuscript.

p. 5641, line 12: less 5 Mm?

It seems that figure captions are missing from the manuscript.

Finally, I would recommend that the figures will be presented in the roughly same format.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 5627, 2010.