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Comment

## ***Interactive comment on* “Continuous observations of synoptic-scale dust transport at the Nepal Climate Observatory-Pyramid (5079 m a.s.l.) in the Himalayas” by R. Duchi et al.**

### **Anonymous Referee #1**

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Review of manuscript ‘Continuous observations of synoptic-scale dust transport at the Nepal Climate Observatory-Pyramid (5079 a.s.l.) in the Himalayas

#### General comments

I have read this paper. My general feeling is that this paper does not advance the existing knowledge of dust transport to Himalayas except merely a reporting of 2-year of data which is also not presented as a time series to assess its quality, specifically the optical properties- AOD and SSA. For AOD sometime level 2.0 data is presented and other times level 1.5 which makes us to suspect the data quality. For the quality control of aeronet product please see Holben et al. (1996) and Dubovik et al. E.g. Table

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3 shows, for monsoon season, during Dust Transport Events (DTE), AOD at 500 nm being significantly smaller than that during Dust free cases. The authors must explain this discrepancy given that their Fig 5 clearly shows higher concentration of coarse particles during DTEs. In the same Table SSA during Dust free monsoon season is reported as  $0.75 \pm 0.15$ . What could be the reason for such highly absorbing aerosol existing at altitude  $> 5000$  m. The authors explain it in terms of preferential scavenging of hygroscopic particles relative to black carbon during monsoon time which is far from convincing.

Asides the data no implications of these dust transport to higher Himalyas have been discussed. My recommendation is to reject the paper.

In addition the size distribution measurements by GRIMM OPC has several issues compared to other techniques notably TSI APS etc. (see e.g. a classical paper by Reid et al. (JGR, 2003, Comparison of size and morphological measurements of coarse mode dust particles from Africa). The authors should have at the least discussed the potential limitations of their data set. No information is given

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Interactive comment on Atmos. Chem. Phys. Discuss., 11, 4229, 2011.

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