

Interactive comment on “Long-term profiling of mineral dust and pollution aerosol with multiwavelength polarization/Raman lidar at the Central Asian site of Dushanbe, Tajikistan: Case studies” by Julian Hofer et al.

Anonymous Referee #2

Received and published: 4 September 2017

The authors show case studies from lidar measurements of dust at Dushanbe in Central Asia. The paper is well structured and written and the results presented are very useful for global studies of dust and thus the paper should be considered for publication in ACP. There are few points that the authors should consider before publication.

Title: The authors mention “long term” and then “case studies”. I believe that this is contradicting. There are no long-term measurement shown in the paper (18 months is not long-term), only case studies. It is not clear from the paper if this station will indeed be operational for many years to form a long-term record. I would suggest to remove

C1

the term long-term from the title.

Introduction, Page 2, lines 20-28. Are there any studies on the mineralogical composition of dust in the area? Is the composition affected-related by the glacier shrinking?

Page 7, section 3.1 Overview. Why is it relevant to discuss in this section the dust events in the Mediterranean? I guess that the authors want just to use and cite a methodology for characterizing strong and extreme events. Since the paper does not make a global overview of strong dust events, is the comparison meaningful?

Section 4.3 and 4.2 A table would be very helpful to summarize the results for LR and depolarization ratios and eventually in this table the authors could include values from other studies with indication for the origin and the purity of dust or mixture status. Do the authors finally claim that they observed also pure dust at Dushanbe? Is it possible then to separate for the other cases the dust component?

Does the agreement with the LRs measured for West-Asian dust indicates similar mineralogical composition? Please comment on this.

Page 11, line 24, check the wavelength it is mentioned as 335nm.

Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2017-559>, 2017.

C2