

Interactive comment on “Optical properties of Central Asian aerosol relevant for spaceborne lidar applications and aerosol typing at 355 and 532 nm” by Julian Hofer et al.

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The paper presents optical properties of dust in the Central Asian region. This region has been relatively understudied – this is the first comprehensive data set for this region in a series of papers by the same group of authors. While the authors should be commended for providing this data set, I think it is important to note that the data set is for only one year and may not be universally representative for this region. The authors have engaged local scientists (co-authors on the paper) that will help to build the capacity to do this work, so I hope that we will get a longer data set over many years. The dataset is important for identifying aerosol types using objective criteria

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and will be a useful resource for future space-based lidar missions.

There is a ground station in Dushanbe that has been making some measurements in the past. Does this station have any in-situ measurements that includes filter-based measurements? If there are filter based measurements at Dushanbe, these may reveal the composition of the particles in the region and can definitively identify salt particles as the particles with high depolarization ratios and low extinction to backscatter ratios. Otherwise, there is no direct evidence of salt particles beyond the circumstantial evidence in Section 4 of the paper.

In addition, trajectory studies may help identify the source of the particles and trace them back to the desiccating salt lakes that the authors have identified as possible sources of the salt particles.

The Polly technique measures extinction unambiguously at 355 nm and 532 nm. Does it also retrieve extinction at 1064 nm? If it does not, why is the paper referring to 1064 nm backscatter. What method is used to retrieve particulate 1064 nm backscatter. If the method is in another paper, it may be useful to include it in this paper.

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