

Atmos. Chem. Phys. Discuss., referee comment RC2  
<https://doi.org/10.5194/acp-2021-66-RC2>, 2021  
© Author(s) 2021. This work is distributed under  
the Creative Commons Attribution 4.0 License.

## Comment on acp-2021-66

Anonymous Referee #2

---

Referee comment on "Overview of the SLOPE I and II campaigns: aerosol properties retrieved with lidar and sun-sky photometer measurements" by Jose Antonio Benavent-Oltra et al., Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2021-66-RC2>, 2021

---

### General comments

The paper offers an overview of the remote sensing, in situ and aircraft measurements done in SLOPE campaigns at Granada. In addition, it is aimed at testing GRASP performance, using the configuration combining photometer and lidar, in determining microphysical and optical aerosol properties. These retrievals have been validated against in situ and aircraft measurements. The validation results confirm the feasibility of GRASP to characterize the aerosol properties in different aerosol conditions and show its potential to analyze high-load aerosol events (dust and biomass burning).

These results provide significant information for the operative use of GRASP retrievals in climate studies.

The paper is well written and structured. It is well written and structured and fits perfectly with the aims and scope of the ACP journal and the research interests of its readers.

### Specific comments

#### Instrumentation

At the beginning of the site and measurements section (Sect. 2) the authors assert that airplane measurements on board of Partenavia P68 airplane were done (L132). However the instrumentation described in sect. 2.3 is referred to flights carried on by a Piper PA 34 Seneca airplane. As far as I know they are two different types of airplane. Can you explain this or correct it, if needed?

#### Results

L372. There are different papers in the literature that revealed larger absorption in the UV for mineral dust in the Mediterranean region, that is not observed in this work. Do you have any explanation about it?

L382. Apparently there is contradictory information in this paragraph. First, in L174 the authors assert: ...relative large values of SSA for all wavelengths indicate important fraction of non-absorbing aerosol particles. And then in L382. "GRASP has

revealed the large contribution of aerosol absorption in total aerosol optical depth during SLOPE I and II field campaigns even for cases with relatively low AODs"  
Please, explain it better.

L426. The sentence: " ..GRASP retrieval...." should be rewritten for a better understanding.

L93. Please change "allow" by "allows"

L132. Please change "allow" by "allowed"

#### Figures

Fig. 6. Since the figure represents a time serie, please add stright lines joining the markers to an easier view of the evolution.