

Review of manuscript number: acp-2016-354

Extreme dust storm over the eastern Mediterranean in September 2015:
Satellite, lidar, and surface observations in the Cyprus region

September 14, 2016

1 General comments

This article describes an exceptional dust event observed in Cyprus. The authors combined remote sensing from ground and space with ground-based in-situ aerosol measurements to give a comprehensive overview of the dust plume. I would recommend the paper to be published in ACP due to the extreme conditions described. However, there are some points that need to be addressed before publication. My specific comments and technical corrections are given below.

2 Specific comments

I found some parts difficult to follow. There were results mentioned in the methodology part and vice versa. It would be beneficial if you could work on the structure of the manuscript.

Some more specific comments:

page 2, line 35 Consider including *Preißler et al.* (2011).

page 4, line 5 What output does MODIS provide for AOT>5? Are those data points set to 5? Please include this information here (it is mentioned in the results section).

page 4, line 5 move "On 8 September, this value was frequently exceeded." to results section

page 4, line 12-13 move "We found ... September)." to results section

page 5, line 1-3 move "During the strong dust ... can be neglected." to results section

page 5, line 25 Could you please explain why you chose a point 160 km East of Limassol over the sea as trajectory end-point? Is it because the trajectories ending over the island failed to capture the observed dust transport?

page 5, line 25 Do you mean between 8 and 9 UTC on 8 September? How do you know without lidar observations and radiosounding profiles at 6 and 12 UTC?

3 Technical corrections

abstract Please provide full name for MODIS and EARLINET.

page 1, line 10 "close to 8000 $\mu\text{g}/\text{m}^3$ " or "near 8000 $\mu\text{g}/\text{m}^3$ "

page 1, line 21 remove ">"

page 3, line 8 change "belongs to" to "is part of"

page 3, line 16 remove last "and"

page 5, line 20 change "a coarse idea information" to "a rough idea" or "an impression"

page 5, line 22 figure and caption give arrival height of 2.5 km, text gives 1.5 km for lower dust layer

page 5, line 23 add space after "(RH)"

page 5, line 20-25 I find it hard to follow this part due to a number of parentheses (and at least one too many if I'm not mistaken). Please rephrase, incorporating the information in parentheses in the text.

figure 5, caption change "at the roof" to "from the roof"

figure 6, caption move everything from "The AOTs are..." to main text

figure 6, map in panel c increase font size, it is very hard to read

page 8, line 15 "Kandler et al., 2011" in parentheses

page 9, line 4 use either "wrong visibility estimations" or "a wrong visibility estimation"

page 9, line 4 change "unusual very" to "very unusual" or just "unusual"

page 9, line 7-8 there is a verb missing after "... so that the..."

page 9, line 7 change "volumne" to "volume"

page 9, line 23 change "visbility" to "visibility"

page 9, line 31 change "oberved" to "observed"

page 10, line 17 change "A more ... profiles" to "More ... profiles"

page 11, line 8 change "keeping" to "taking"

page 11, line 16 change "a variety optical" to "a variety of optical"

page 11, line 20 replace "strength" by "intensity"

page 11, line 27 change "improved" to "improve"

page 11, line 34 remove "profile"

References

Preißler, J., F. Wagner, S. N. Pereira, and J. L. Guerrero-Rascado (2011), Multi-instrumental observation of an exceptionally strong Saharan dust outbreak over Portugal, *Journal of Geophysical Research: Atmospheres*, **116**, D24,204, doi: 10.1029/2011JD016527.