

Aerosol optical properties as observed from an ultralight aircraft over the Strait of Gibraltar

by Patrick Chazette

Response to the referee #1 comments

General comments This paper reports observations using a lidar on an ultralight aircraft and a ground-based Raman lidar. The subject is interesting, and the manuscript is generally well written. However, it requires minor revisions.

Specific comments Page 4, line 7: "(See Figure 1, .." should be "(See Figure 2, .."

Agree. The correction has been done.

Figure 2: What is the definition of the angle of the line of sight? (What is the angle mentioned in line 20 of page 5 "+- 10deg"? What is the definition?).

This definition is now better explained in the text and given in the caption of Figure 2: "Flight plan of the ULA above the Strait of Gibraltar on 13 August 2011. The colour bar represents the angle of the line of sight (with respect to the true horizon)."

Figure 4: It would be more impressive if the vertical distributions along the aircraft path are discussed in more details.

Agree. An explanation of the evolution of the profiles along the aircraft path has been added: " Unlike the evolution of VDR profiles along the ULA path, the layered structure of the ABC evolves significantly. The upper aerosol layer is more intense in the western part than in the eastern part of the strait of Gibraltar. There also appears to be more aerosol around 1 km AMSL on the west side."

Page 7. 3.3 Cross-calibration: The legend of Figure 5 "Airborne lidar" is confusing. It is not airborne. It should be clearly described that both lidars are pointing vertically from the ground.

Agree. The caption has been modified in this way using the name of the lidar.

Figure 7 and the figure caption: "NITENDO"? "SUSIE" isn't it?

It's a mistake, the correction has been made in both the caption and Figure 9.