

Interactive comment on “Characterization of African dust over southern Italy” by A. Blanco et al.

A. Blanco et al.

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On behalf of all authors I wish at first to thank both Referees and dr. F. Dulac for their kind and useful comments that will allow improving the paper.

Referring to the first comment of Referee #1, I wish to mention that the detailed description of the North Africa dust sources reported by Prospero et al., in Rev. of Geophysics, 40, 2002, will be considered in the revised manuscript. Lidar depolarization measurements are quite helpful to directly evaluate the presence of non-spherical dust particles but, this capability was not available in the lidar system of Lecce when the rain samples have been collected. Moreover, the lidar cannot operate with rain and with low altitude clouds.

Referring to the comment of Referee #2 I wish to mention that the figures concerning size distribution and roundness factor will be normalized to the total number of particles,

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in the revised manuscript. Moreover, the total number of analyzed particles, listed below, will be reported in the caption.

Sample No. of total particles

120402 913 130502 1025 240502 1182 070602 802

Referring to the comments of Dr. F. Dulac I wish to mention that several rain samples have been collected on rectangular glass collector of about 25x40 cm², during every dust event. The rain collectors have been exposed only during rainfall (4-8 h) and care was taken to avoid contamination by local sources. Unfortunately, we do not have data on the amount of rainfall during the analyzed events. The dust settled on the pan bottom has been used to characterize the particle size distribution. Similar procedures have been followed by the authors mentioned in the paper. We have analyzed in every dust sample, randomly selected areas of about 0.3x0.3 mm² using a computer-assisted statistic technique. Indeed, the analyzed particles have at first been identified by the SEM operator. Then, a fully automated technique has been used to characterize each particle. This methodology was necessary to better recognise partially or fully superimposed particles. The total number of analyzed particles is reported above for each sample. The particles with diameter $d > 5 \mu\text{m}$ have been analyzed by using a magnification 500x, those with $1 \mu\text{m} < d < 5 \mu\text{m}$ by a magnification 1000x and those with $d < 1 \mu\text{m}$ with a magnification 3500x. Some of these comments will be added in the revised manuscript.

Referring to last comment of Dr. Dulac I wish to mention that the papers of Moulin et al., 1998, and Hamonou et al., 1999, will be considered in the revised manuscript. We have performed dust analysis during spring and late spring, the most favourable periods for the development of Sahara lows, in accordance to Fig. 2 (not Fig. 4) of the paper of Moulin et al., 1998. We have not been able to find out a copy of the paper by Brooks et al., 2000.

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