



Long-term EARLINET dust observations

Lucia Mona (1), Vassilis Amiridis (2), Aldo Amodeo (1), Ioannis Binietoglou (3), Giuseppe D'Amico (1), Anja Schwarz (4), Nikolaos Papagiannopoulos (1), Alexandros Papayannis (5), Michael Sicard (6), Adolfo Comeron (6), and Gelsomina Pappalardo (1)

(1) Consiglio Nazionale delle Ricerche, IMAA-CNR, Tito Scalo (PZ), Italy (mona@imaa.cnr.it), (2) Institute for Space Applications and Remote Sensing, National Observatory of Athens Greece, (3) National Institute of R&D for Optoelectronics, Magurele, Ilfov, Romania, (4) Leibniz Institute for Tropospheric Research, Leipzig, Germany, (5) National Technical University of Athens-NTUA, Physics Department, Athens, Greece, (6) RSLab – IEEC-CRAE, Universitat Politècnica de Catalunya, Barcelona, Spain

Systematic observations of Saharan dust events over Europe are performed from May 2000 by EARLINET, the European Aerosol Research Lidar NETWORK. EARLINET is a coordinated network of stations that make use of advanced lidar methods for the vertical profiling of aerosols. The backbone of EARLINET network is a common schedule for performing the measurements and the quality assurance of instruments/data. Particular attention is paid to monitoring the Saharan dust intrusions over the European continent. The geographical distribution of the EARLINET stations is particularly appealing for the dust observation, with stations located all around the Mediterranean and in the center of the Mediterranean (Italian stations) where dust intrusions are frequent, and with several stations in the central Europe where dust penetrates occasionally. All aerosol backscatter and extinction profiles related to observations collected during these alerts are grouped in the devoted “Saharan dust” category of the EARLINET database. This category consists of about 4700 files (as of December 2013).

Case studies involving several stations around Europe selected from this long-term database have been provided the opportunity to investigate dust modification processes during transport over the continent. More important, the long term EARLINET dust monitoring allows the investigation of the horizontal and vertical extent of dust outbreaks over Europe and the climatological analysis of dust optical intensive and extensive properties at continental scale.

This long-term database is also a unique tool for a systematic comparison with dust model outputs and satellite-derived dust products. Because of the relevance for both dust modeling and satellite retrievals improvement, results about desert dust layers extensive properties as a function of season and source regions are investigated and will be presented at the conference. First comparisons with models outputs and CALIPSO dust products will be presented.

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