

EARLINET for long term observations of aerosol over Europe

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Lidar networks are fundamental to study aerosol on large spatial scale and to investigate transport and modification phenomena. These are the motivations why EARLINET, the European Aerosol Research Lidar Network, was established in 2000, as a research program funded by the European Commission in the frame of the 5th framework program. After the end of the project, the network activity continued on the base of a voluntary association.

At present, EARLINET consists of 25 lidar stations: 10 single backscatter lidar stations, 8 Raman lidar stations with the UV Raman channel for independent measurements of aerosol extinction and backscatter, and 7 multiwavelength Raman lidar stations for the retrieval of aerosol microphysical properties.

On March 2006, the EC Project EARLINET-ASOS (Advanced Sustainable Observation System) started on the base of the EARLINET infrastructure. This infrastructure project will enhance the operation of the network.

EARLINET observations are performed on a regular schedule of one daytime measurement per week around noon, when the boundary layer is

usually well developed, and two night-time measurements per week, with low background light, in order to perform Raman extinction measurements. In addition to the routine measurements, further observations are devoted to monitor special events such as Saharan dust outbreaks, forest fires, photochemical smog and volcano eruptions.

Data quality has been assured by instrument intercomparisons using the available transportable systems. The quality assurance also included the intercomparison of the retrieval algorithms for both backscatter and Raman lidar data. Moreover, tools for the continuous quality check of the instruments and algorithms used have been developed.

EARLINET data can contribute significantly to the quantification of aerosol concentrations, radiative properties, long-range transport and budget, and prediction of future trends on European and global scale. It can also contribute to improve model treatment on a wide range of scales and to a better exploitation of present and future satellite data.

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(<http://www.earlinetasos.org>)