



## **1 Intensive lidar measurement campaign in Potenza during ICARTT**

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An intensive lidar measurement campaign was carried out at the Istituto di Metodologie per l'Analisi Ambientale of the National Research Council (IMAA - CNR) in Tito Scalo (Potenza, South Italy) during the summer 2004 in the frame of the International Consortium for Atmospheric Research on Transport and Transformation (ICARTT). ICARTT was formed as a collaboration of many institutions in North America and Europe by planning and performing coordinated experiments to study formation, chemical modification and removal processes of the aerosols and ozone precursors during intercontinental transport.

Two lidar systems are operative at IMAA, one devoted to measure aerosol backscatter coefficient at two wavelengths (355 nm and 532 nm) and extinction coefficient in the UV in the troposphere and the other devoted to study both tropospheric and stratospheric aerosol in the UV and water vapor up to the tropopause. Since May 2000, aerosol lidar measurements are being systematically performed, three times a week, at IMAA within the European lidar network EARLINET (European Aerosol Research Lidar Network). During the summer 2004, besides the EARLINET lidar measurements, we performed measurements in corrispondence with the alerts, based on the trajectory forecasts based on the Global Forecast System (GFS), relative to the presence over Europe of forest fires smoke or pollution plume transported from Alaska, Canada and North America. During the ICARTT field campaign, we collected more

than 230 hours of lidar measurements, together with about 15 launches of radiosonde equipped with sensors for measurements of humidity, temperature and pressure, by using a radio-sounding system located close to the lidar systems.

During this period we often observed aerosol layers in the free troposphere at altitude ranging from 3 km to 9 km above sea level. The backtrajectory analysis provided by the German Weather Service showed different patterns for the air masses ending over Potenza. In particular, we observed aerosol load in the free troposphere related to air masses coming from the North Atlantic and from the North and Western Europe, where CO plumes, due to the large forest fires burning in Alaska and Canada in summer 2004 have been observed during the ICARTT field campaign.

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