CA24135
European Atmospheric Research LIdar COoperation on Science and Technology
(OC-2024-1-27550)

SUMMARY
EARLICOST action aims to deepen our understanding on atmospheric composition and improve the capabilities of atmospheric lidars to address critical gaps in aerosol characterization, temperature, and water vapor profiling. The vertical distribution of these key atmospheric variables provides crucial insights on air quality, public health, weather, and climate. In particular, aerosols are among the most significant drivers of climate change, and one of the largest sources of uncertainty in climate models which stems from their complex interactions with radiation and clouds. Thus, it is widely recognized that the spatiotemporal variability of aerosol properties plays a major role in numerous atmospheric processes that affect our lives. Despite breakthroughs in atmospheric lidar design and capabilities, achieved by independent research groups and the industry, there is still a need to facilitate knowledge-sharing and collaboration between the different communities. The EARLICOST action aspires to address this gap by fostering a collaborative network that brings together academic researchers, industry experts, policymakers, commercial and scientific end-users. Through this multidisciplinary approach, EARLICOST builds on and extends the current state of the art in lidar technology, seeks to harmonize methodologies across measurement networks, standardize aerosol, water vapor, and temperature lidar retrievals, and develop new techniques to improve the accuracy of atmospheric profiling monitoring. EARLICOST will play a pivotal role in advancing lidar technologies, fostering technological innovation and improved data-sharing practices, and will enhance the understanding of atmospheric processes, ultimately delivering broad societal benefits through more accurate climate predictions, environmental policies and enhanced air quality monitoring.

SCIENTIFIC SCOPE

Areas of Expertise	Keywords
1. Environmental engineering: Remote sensing 2. Earth and related Environmental sciences: Meteorology, atmospheric physics and dynamics 3. Earth and related Environmental sciences: Atmospheric chemistry and composition 4. Earth and related Environmental sciences: Climatology and climate change 5. Environmental engineering: Air pollution	1. Atmospheric lidar 2. Technology and science 3. Cooperation and networking 4. Atmospheric profiling

COST Members
Main Proposer: Greece
Network of Proposers:
Full Member: Albania, Cyprus, Finland, France, Georgia, Germany, Greece, Italy, Netherlands, Poland, Portugal, Romania, Serbia, Spain, Switzerland, United Kingdom

Main and secondary proposers: 35,00% YRI / 42,50% Women / 50,00% ITC

International Cooperation
International Partner: Brazil, United States

Specific Organisations
European RTD Organisation: Institute of Methodologies for Environmental Analysis (IMAA) of the National Research Council of Italy (CNR); Institute of Methodologies for Environmental Analysis (IMAA) of the National Research Council of Italy (CNR); Institute of Methodologies for Environmental Analysis (IMAA) of the National Research Council of Italy (CNR)

Industrial Dimension
SMEs: France