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The ERATOSTHENES CoE in the PollyNET:First observations of the PollyXT-CYP at Limassol, Cyprus

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A new generation PollyXT lidar system start on 27th of October 2020, continuous operation, at Limassol, Cyprus.

The lidar system will become a key component within the EXCELSIOR H2020 EU Teaming project coordinated by the Cyprus University of Technology. The mission of the EXCELSIOR project is to upgrade the Remote Sensing & Geo-Environment Lab, established within the Faculty of Engineering & Technology of the Cyprus University of Technology, into a sustainable, viable and autonomous Centre of Excellence, called the ERATOSTHENES Center of Excellence (ECoE).

The PollyXT-CYP will be hosted by the ERATOSTHENES CoE for its permanent operation aiming to link the Centre to ACTRIS and PollyNet. Its task will be to document the complex mixture of the different aerosol species and clouds over the Eastern Mediterranean.

The system is continuously running and since the first observations in Limassol, PollyXT-CYP demostrates the complex aerosol conditions over Cyprus. For eaxample, between the 27th of October to the 1st of November 2020, the lidar observed smoke plumes from the extreme wildfires on the west coast of the U.S. The smoke travelled over the Atlantic Ocean and triggered the heterogenous ice formation at the height of 10km. Saharan dust was also detected between 2-5km and liquid clouds were formed on the top of the dust layer.

In this study we will present selected cases of unique atmospheric structures from the first months of continuous operation over Cyprus as well as optical and geometrical properties of the aerosol layers.

The PollyXT-CYP will be a key research infrastructure of the Cyprus Atmospheric Remote Sensing Observatory (CARO). CARO will consist of two high-tech containers housing the PollyXT-CYP lidar and state-of-the art doppler lidar, cloud radar and radiometric equipment which will be used to measure the air quality, the dust transport, and the cloud properties over Cyprus. The CARO is planned to become National Facility of the Republic of Cyprus for Aerosol and Cloud Remote Sensing Observations.

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