

# ACROSS: Validation of EarthCARE products towards their homogenization with CALIPSO for consolidating the 3D long-term ESA-LIVAS aerosol climatology



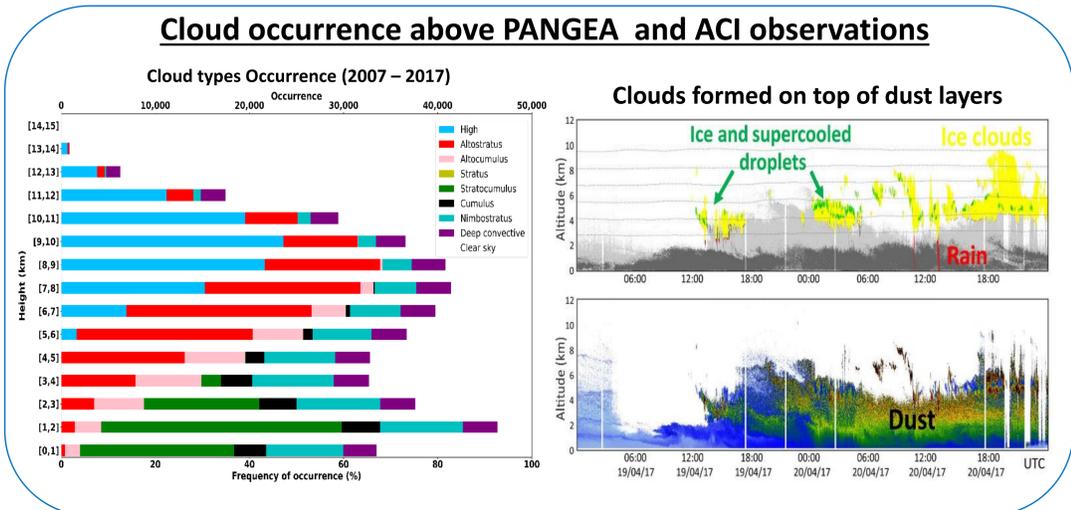
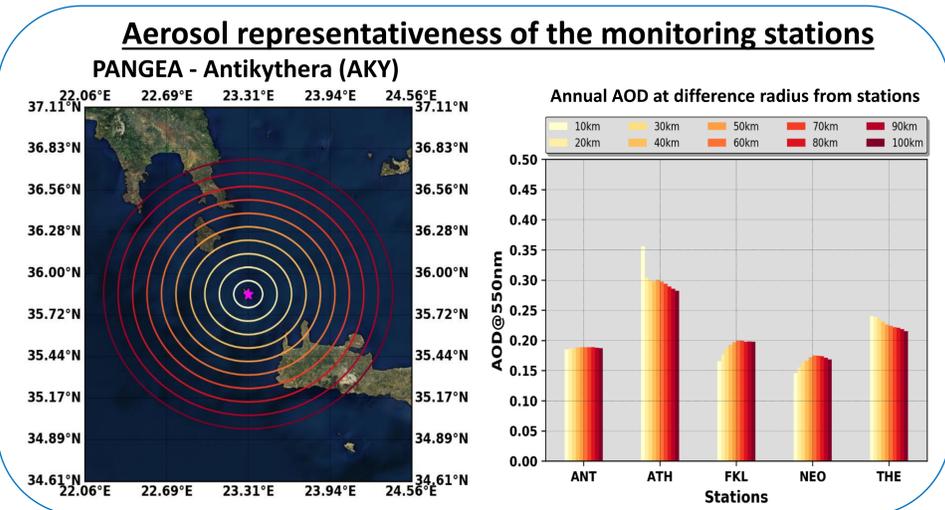
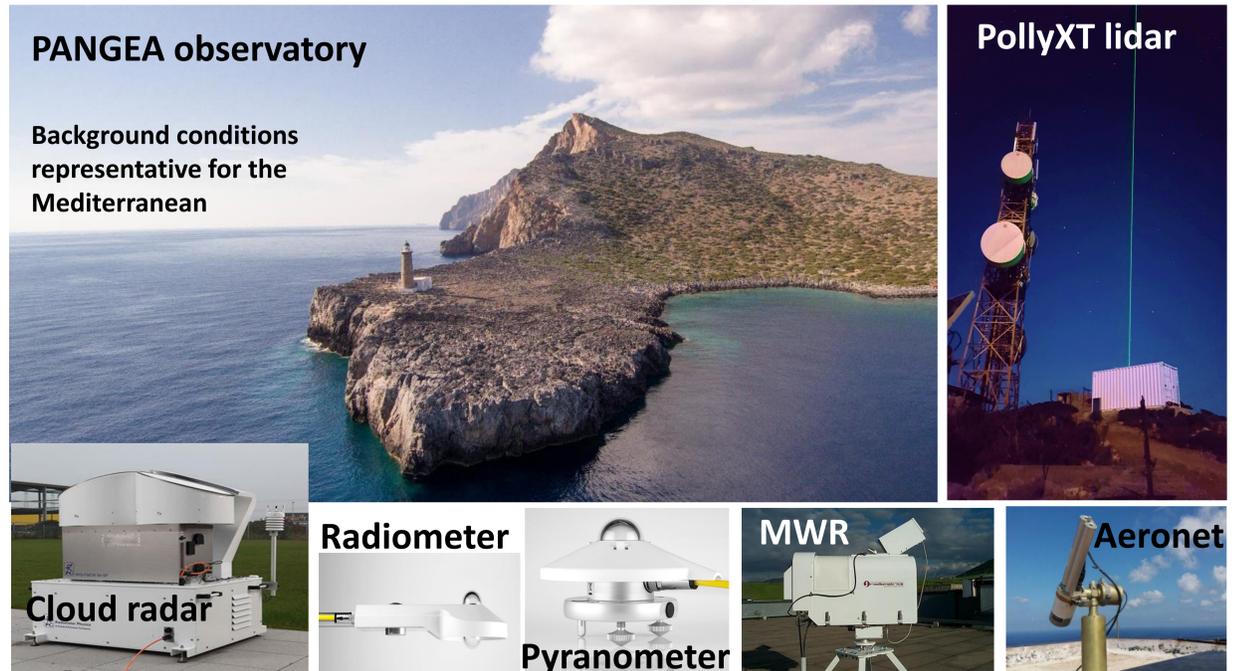
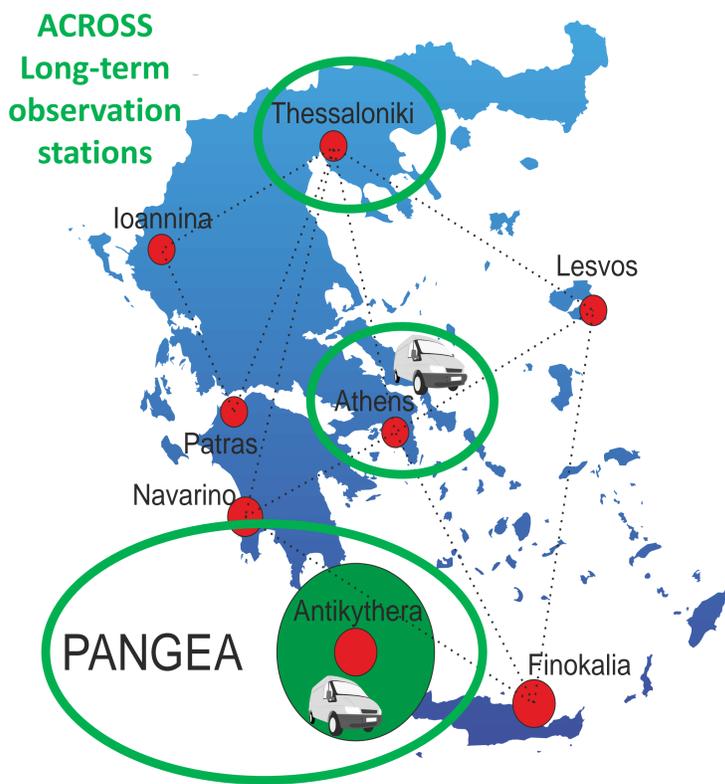
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The overarching objective of **ACROSS** is to perform thorough cal/val investigations on EarthCARE products over Greece, a region well-known for its complex atmospheric environment. The validation activities will involve the following:

- **A continuous cal/val activity at three monitoring sites in Greece** (Thessaloniki, Athens, Antikythera).
- **Three Intensive Observational Periods (IOPs)** of 3 months each, including targeted large-scale field experiments in Greece.
- On-demand **operation of mobile facilities** that will be deployed at **EarthCARE orbital crossing points** in Greece.

The experiments will be designed such as to achieve the following core objectives:

- (1) to perform a thorough **validation of the EarthCARE stand-alone aerosol and cloud products** employing ground-based active and passive remote sensors and space-borne observations derived from satellites.
- (2) to utilize the validated aerosol and cloud products in Radiative Transfer Model (RTM) simulations for depicting radiation and further **intercompare with high-quality solar irradiance measurements at the surface from ground-based actinometry and at TOA from the BBR.**
- (3) to **expand ESA-LIVAS dataset to include EarthCARE.**



## ACROSS Instrumentation:

**Long-term observations:** ACTRIS Multi-wavelength lidars, ESA's reference lidar eVe, Aeronet sun-photometers, Longwave and Shortwave radiometers. In 2025 PANGEA will upgrade with Cloud radar, distrometer and microwave radiometer.

**Campaigns:** enhanced observations including additionally ACTRIS cloud radars, microwave radiometer, distrometer, radiosondes.

**eVe lidar upgrade:** to a multiwavelength linear polarization-Raman-water vapor lidar with 24/7 capabilities. The new eVe setups is shown here.

