



PROGRAMME OF THE
EUROPEAN UNION



In a nutshell

CAMS AERosol Advancement (CAMAERA) is a Horizon Europe Project to support the development of the Copernicus Atmosphere Monitoring Service (CAMS). CAMS provides consistent and quality-controlled information about atmospheric composition relevant for air pollution, solar energy, greenhouse gases monitoring and climate forcing. CAMAERA aims to improve the modeling of aerosols and precursor gases in the regional and global CAMS systems. The objective is to investigate pathways to improve CAMS products at the horizon of a few years. Another objective of CAMAERA is to foster the collaboration of regional and global CAMS partners to improve the representation of aerosol processes.

Objectives

Improve aerosol modeling capacities of regional and global CAMS systems:

- Online ammonia emissions
- Forecast of fire emissions
- Machine learning based desert dust and sea-salt emissions
- Dry deposition intercomparison and development

Assimilation of new sources of data:

- Lidar and ceilometer assimilation
- Infrared radiance assimilation
- Inversion of dust emissions with 4Dvar
- Inversion of dust emissions using ensemble approach

Better representation of biogenic aerosols (primary and secondary):

- Offline emission of biogenic and anthropogenic precursors
- Representation of primary biological aerosols
- Improved secondary organic aerosol production schemes



Accomplishments

The CAMAERA project already yielded significant results, including:

- Implementation of a modal aerosol scheme in the global CAMS system,
- Offline inversion of dust emissions,
- First use of machine learning techniques to estimate whitecap fraction and sea-salt aerosol emissions
- Implementation of an online ammonia emissions module in a regional CAMS system

Learn more

