COST Action CA16109 COLOSSAL Chemical On-Line cOmponentSition and Source Apportionment of fine aerosol


¹Institute of Environmental Assessment and Water Research (IDAEA), CSIC, Barcelona, Spain
²Institut National de l'Environnement Industrial et des Risques, Verneuil-en-Halatte, France
³Norwegian Institute for Air Research (NILU), Kjeller, Norway
⁴Institute of Chemical Technologies and Analytics, Vienna University of Technology, Vienna, Austria
⁵Faculty of Technical Sciences, University of Novi Sad, Novi Sad, Serbia
⁶Paul Scherrer Institute, Villigen, Switzerland
⁷Institute for Atmospheric Science and Climate, National Research Council, Bologna, Italy
⁸King's College London, London, United Kingdom
⁹National Institute of Research and Development for Optoelectronics, Magurele, Romania
¹⁰Institut Mines-Telecom Ecole Nationale Superieure des Mines de Douai, Douai, France
¹¹Jožef Stefan Institute, Ljubljana, Slovenia
¹²National University of Ireland Galway, Galway, Ireland
¹³Lund University, Lund, Sweden

More info at https://www.costcolossal.eu/ or email mariaclaudia.minguezon@idaea.csic.es

1 Background

On COST: COST is the longest-running European framework supporting trans-national cooperation among researchers, engineers and scholars across Europe. COST funds pan-European, bottom-up interdisciplinary research networks in a wide range of scientific topics in Europe and beyond, called COST Actions.

On fine aerosol: Atmospheric aerosols exert a negative impact on human health and affect the climate and the environment. These effects are dependent on the type, size and chemical composition of atmospheric aerosols, emitted by different emission sources and generated and influenced by different atmospheric processes.

2 Challenge and objectives

The main challenge of COST Action COLOSSAL is to consistently assess the spatial variability (across Europe) of fine atmospheric aerosols, their temporal variability (time scale from hours to years), chemical composition, and sources, especially trying to understand the underlying processes.

The main objectives are:
- to contribute to the production of guidelines for real-time chemical characterization and source apportionment of fine atmospheric aerosols to ensure consistent, reproducible and comparable results;
- to coordinate exchanges of scientific research among experts, researchers, and manufacturers;
- to promote the joint interpretation of results, while connecting to existing scientific and monitoring infrastructure on the European and national scale;
- to provide input for air quality models and policy makers;
- to contribute to capacity building across Europe.

3 Structure of the COST Action COLOSSAL

COST Action COLOSSAL started in March 2017 and is organized in four inter-related Working Groups (WG) focusing on the main components of fine atmospheric aerosols. Thus, WG1 deals with sulfate, nitrate, chloride, organic matter and ammonium, for which it mainly relies on Aerosol Mass Spectrometer technology. WG2 deals with source apportionment of organic aerosol. WG3 studies the refractory black and brown carbon, relying mainly on Aethalometers. WG4 aims to bring together all efforts for a joint interpretation of results.

Thirty countries have joined their efforts within this Action by April 2018, 29 of them in Europe (15 Inclusiveness Target Countries in darker purple in map).

4 Past and foreseen activities

Two Management Committee (MC) meetings took place. A scientific meeting, in which all four WGs were included, was celebrated in September 2017, generating already some documents serving as basis for future directions. Three training schools have taken place already, related to WG1, WG2 and WG3.

For the upcoming period, a workshop on source apportionment of organic aerosol is foreseen, as well as a meeting on air quality data across Europe. Instrument intercomparison exercises are planned related to WG1 and WG3, in coordination with existing European efforts. More training schools will take place to ensure the transfer of knowledge and capacity building.