

Overview of the AIRUSE project: Testing and Development of air quality mitigation measures in Southern Europe

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Air pollution due to particulate matter (PM) is a multi-effect problem with detrimental consequences for human health and the environment. The current policy efforts, at EU and national level, have not fully delivered the expected results. Many urban areas especially in Southern Europe do not meet the air quality standards (2008/50/EC Directive). The AIRUSE project aims to test existing and future mitigation measures and develop new strategies for the improvement of air quality in Southern European countries (www.airuse.eu). The project involves public and private institutions of Spain, UK, Portugal, Italy and Greece.

Typical anthropogenic source contributions in PM, widely affecting European urban air quality are: road transport, biomass burning and industrial emissions. In Mediterranean cities there is an important contribution of urban dust from deposited dust arising from brake, tyre and road abrasion, construction/demolition, diffuse industrial emissions, and soil dust resuspension (Karanasiou et al., 2011 and 2009; Amato et al., 2009). Other specific features of Southern European cities are: high population and car density, low vegetation cover, high levels of urban ammonia (giving rise to high fine PM levels), high photochemical activity, and elevated shipping emissions. Based on the above, measures to reduce ambient PM concentrations and protect human health in Southern European cities require a different approach from those measures applied in central Europe.

AIRUSE will firstly harmonize PM monitoring and modelling methods to determine the contribution of air pollution sources in Spain, Portugal, Italy and Greece. Four urban areas have been selected for this purpose: Barcelona (Spain), Athens (Greece), Porto (Portugal), Florence (Italy).

The measures to be tested and developed during the lifetime of the project AIRUSE are:

1. Use of Calcium Magnesium Acetate (CMA) solution, MgCl₂ and CaCl₂ as dust suppressants given their binding properties for particles deposited on roads.
2. Road wetting/moistening to reduce road dust resuspension from urban paved roads. Road wetting

will be tested at different rates and frequencies in order to estimate the best cost-benefit approach.

3. The optimization of solid fuel combustion for domestic heating by introduction of continuously controlled conditions (automatic fuel feeding, distribution of combustion air) and modification of the fuels granulation. The use of catalytic converters or filter technologies.
4. Best available techniques for industries that exceed the threshold limit values in the AIRUSE implementation area

AIRUSE aims to:

- Support Southern Europe member states in implementing the Directive 2008/50/EC
- Improve existing air mitigation measures
- Recommend new measures for the improvement of air quality, based on innovative approaches
- Supply the decision makers in Southern Europe member states with a valuable tool for environmental planning
- Stimulate the allocation of European funds for the implementation of new mitigation strategies

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