Planning smartcities, optimizing transport and improving human health are key aspects of a sustainable urban development. In this sense, having air quality information is a core aspect for optimal decision making and planning.

Summary

Air quality is an issue of major concern, especially in urban areas, where the impacts on health caused by exposure to air pollution are the highest. At the regulatory level, air quality models are useful tools to obtain
forecasts and assess the dynamics of regulated air pollutants. They also help decision-makers to assess the effect of management strategies and alert the population before health-related episodes. This aligns with the idea of smart cities, in which innovative solutions are sought through the integration of technology and innovation, with real-world applications that improve the quality of life of citizens.

Air quality impact assessments provide a detailed diagnosis of areas with pollution problems and are useful to identify the main factors that lead to exceedance of air quality standards. By means of a complex air quality system applied at high temporal and spatial resolution, we quantify the future impacts on air quality in urban areas. This is useful to evaluate the impact of a desired installation (power, incineration or biomass plants, cement industries, etc.) as well as to analyze its interactions with the other sources. The methodology also allows assessing the effect of management strategies directed to reduce atmospheric emissions, such as the reduction of the number of cars circulating on conurbations, the use of alternative fuels or new technology vehicles or the change in the speed circulation patterns.

BSC manages the CALIOPE air quality forecast system for Europe and Spain. An open, operational, detailed 24 and 48-h prediction aimed at air pollution managers and any citizen interested in the quality of the air we breathe. Short term forecast systems for air quality can work as early-warning systems for the public and for those groups vulnerable to air pollution, enabling them to take action in the event of increased air pollution.

Objectives

The strategic services for urban development are:

1. Air quality forecast systems
2. Air quality impact assessments
3. Environmental impact assessments
4. Mineral Dust assessments for transportation, health and early warning systems

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