Intensive air monitoring campaign in the port area of Thessaloniki

In lines of APICE project, a monitoring campaign has already started concerning two sampling points in Thessaloniki's region, an urban background and a site nearby the port.
Thessaloniki (40° 62'E, 22° 95'N) is one of the most densely populated cities in Greece accounting for approximately 16,000 inhabitants/km2 and one of the most polluted in Europe concerning atmospheric particles since PM10 levels exceed systematically the European standards. Vehicular traffic all over the year and residential heating in winter are major urban sources of particles. In addition, particle emissions from the extended industrial area located west/northwest of the city approximate 32,000 tones/year. The climate in the area is temperate with weak prevailing winds (sea breeze) and frequent calms resulting to inefficient dispersion of atmospheric pollutants and short–range transport.
The sampling period started on June 2011 and will last for one year including 322 sampling days.
The results are going to present the values of PM2.5 gravimetric analysis and chemical characterization (ionic species, PAHs, OC/EC and trace elements). The sampling took place simultaneously at two different sites: the port and the center of the city of Thessaloniki in northern Greece. In addition, Positive Matrix Factorization (PMFv3.0) model was applied on mass and chemical analysis data, in order to identify the main sources contributing to the particles concentration in the air of the city of Thessaloniki.
Results from gravimetric analysis of PM2.5 and their chemical characterization for PAHs, ionic species OC/EC and trace elements indicate a more aggravated atmosphere in the port area. In addition, from the PMF analysis, in both sites five groups of sources were identified: a marine-origin source, a traffic-related source, a secondary particles source, a combustion-related source and a soil/dust source.

Projet cofinancé par le Fonds Européen de Développement Régional
Project co-financed by the European Regional Development Fund