



## **On the Modeling of Ship Plumes, Verification and their Impacts on Air Quality and Climate Change in EC 6FP Project QUANTIFY**

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The impact of emission from transportation on climate change is being quantified in EC FP6 Integrated Project QUANTIFY. In Activity 2 the analysis of the dilution and transformation of the emission from microscale at exhausts and plumes till mesoscale distribution will be provided from all modes of transportation. In this contribution the mesoscale simulations of ship emission impact on atmospheric pollution in selected region are studied with emphasis to compare the simulation with reality analyzed by means of flight measurement during the field campaign. The sensitivity of the impact on air quality and composition is analyzed as well with respect to ship emissions.

The couples MM5-CAMx and RegCM-CAMx, respectively, are used for this purpose, covering the domain of campaign planned for the project, i.e. the Channel, with outer domain with resolution 36x36 km, first inner one with resolution 12x12 km and the second nested domain with resolution 4x4 km placed with respect to the location of ship for individual ship plumes experiments. At this stage emissions from EMEP 50 km x 50 km database are interpolated and represent average ship emissions in the Channel, other emissions are combination of EMEP and UAEI (United Kingdom Atmospheric Emission Inventory). CB-IV chemistry mechanism is used in CAMx for this study in default settings, some changes are tested with regard to the ship emission in marine boundary layer to find and adopt proper setting in model chemistry applicable for campaign simulations and for study of the mesoscale impact of ship emissions on atmospheric composition.