



An original method to determine the urban increment for primary PM_{2.5} using WRF/CHIMERE

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Since a major fraction of the population lives in urban areas, one crucial point concerned the correct characterisation of air pollution in those zones. PM_{2.5} found in large cities can be decomposed into two main components: a first fraction which corresponds to the urban background air pollution and a second fraction that can be identified as the pollution directly produced by the city itself. The last one corresponds to the so call “Urban Increment” (UI). In the “real world”, the UI is defined as the difference between a measured urban background value of a given city and a surrounded rural background measured value situated upwind of the urban area. In this case, urban background means a measured value that is not directly influenced by a local source of pollution such as traffic or industrial plume. The main hypothesis related to PM_{2.5} UI is that, the UI of a city corresponds to a local increase of air pollution only due to the city low-level primary emission itself. Indeed, the usual assumption is that most of the PM_{2.5} UI is due to low level Primary Particulate Matter emissions (PPM_{2.5}), the secondary aerosol fraction having a more regional origin. In the frame of EC4MACS (EU.LIFE project) which aims at developing and maintaining a comprehensive integrated assessment of the policy effectiveness of emission control strategies for air pollutants and greenhouse gases, we develop an original method to determine the PM_{2.5} UI using WRF/CHIMERE data. We describe the modelling system used for simulating the transport of PM_{2.5} over Europe during the year 2006, then we explain the methodology used to compute the PM_{2.5} UI and we present some results for different cities across Europe. Finally, we will discuss the results and give the perspectives of our work.