

Evaluation of air pollutant emission reduction strategies in the context of climate change

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Climate change resulting from greenhouse gas emission changes is expected to have a significant impact on air quality. The main meteorological parameters influencing the transport and transformation of pollutants will experience significant changes in the future. The impact of climate change alone was shown to have a significant impact on ozone levels in Europe by the end of the twenty-first century (Langner et al. 2005; Meleux et al., 2007). This project aims at gathering a climate and air quality research community in order to provide a common, robust and sustainable framework for the assessment of air quality in the context of climate change. The results will be most relevant for decision makers to determine the optimum emission reduction strategies to tackle long-distance pollution in Europe. A first part of the project is dedicated to the development of detailed anthropogenic emission scenarios (a baseline and a "stringent" scenario) in Europe for the year 2050 that are consistent with the energy demand trajectories (hence the climate projections). A second component is devoted to the study of sources of uncertainties related to the methodology implemented to study the evolution of pollutant concentrations at the regional level. A third component will be dedicated to the simulations of air quality in Europe in the context of climate change. The regionalization of the global climate fields will be addressed in the framework of the CORDEX program. Based on the simulation results, the computation of costs attributed to atmospheric pollution will be performed in a final part of the project. The architecture of this complete air quality/ climate modeling platform will be presented.