

THE CITYZEN PROJECT – BRIDGING THE SCALES WITH FOCUS ON MEGACITIES

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The CityZen project (megaCITY – Zoom for the ENvironment) is funded through the 7th Framework Programme of the European Commission and started in September 2008. During three years air pollution distribution and change are determined in and around selected megacities and emission hotspots over the last decade from extensive satellite and in-situ observations, and a series of different scale models (local-regional-global) is employed in order to analyze the impacts of air pollution hot spots on regional and global air quality and potential future changes for various climate scenarios. The focus is on ozone and particulate matter and their precursors. The Eastern Mediterranean, the Po Valley (Italy), the BeNeLux region, the Pearl River Delta (China) and the hot and polluted European summer 2003 are chosen for intensive case studies. A set of chemical transport models connecting the most important spatial and temporal scales is developed and used to quantify how the observed air pollution arises. Climate change may cause changes in air pollution in and around emission hotspots, and hotspot pollution can change precipitation, temperature and albedo. These feedbacks are studied in scale-bridging model systems based on global climate model scenarios, and in coupled high resolution chemistry-climate models. The model systems evaluated in the project are applied to analyse mitigation options in and around hotspots, taking into account climate change. Best available technologies and sectoral changes are studied. This paper reviews first results from the CityZen project with emphasis on climate-air quality interactions, and presents opportunities for collaboration with its sister project MEGAPOLI and potential collaboration with other partners.