



Future changes in surface ozone over the Mediterranean region from the Atmospheric Chemistry and Climate Model Intercomparison (ACCMIP)

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The Mediterranean basin (MB), surrounded by three continents with diverse pollution sources, is a region favoring the stagnation of pollutants and air pollution, in particular during summer. This region is also particularly sensitive to climate change due to its location and diversity of ecosystems. We focused on surface ozone evolution over the MB during the next century as well as sources contributing to the increase of ozone in the MB which are varied and depending on the location.

In the framework of the ChArMEx (Chemistry and Aerosol Mediterranean Experiment) project, we focused on future changes in surface ozone from 2000 to 2100 above the MB using model outputs from the Atmospheric Chemistry and Climate Model Intercomparison (ACCMIP) project. We used the four different emission scenarios called RCPs (Representation Concentration Pathways) to highlight the impact and the evolution of different parameters contributing to surface ozone changes. .

In a first step, we will evaluate the ACCMIP model outputs using surface ozone observations from different ground-based networks (EMEP, WMO-GAW and Airbase) over the historical period (1990-2010). In the second step, the impacts of ozone precursors such as VOCs, Nox and CH₄ as well as those of meteorological parameters on the surface ozone are investigated. The ozone budget over the MB is also discussed. Three periods are considered: a reference period which corresponds to the 2000 time slices representing a combination of the best information available from existing regional and global inventories in the years 2008-2009 when the inventory was built and two future periods in both the short and long term, corresponding respectively to the 2030 and 2100 time slices from the RCPs.