



## **Changes in European surface ozone air quality: past, present, future**

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Surface ozone is known as important pulmonary irritant. Most recent figures for the European Union show that ozone concentrations in surface air regularly exceed the  $120 \mu\text{g}/\text{m}^3$  daily maximum 8-hourly average (MDA8) target value. Exceedances are most frequent in summer months, when high temperatures and abundant solar radiation leads to efficient ozone formation in the presence of VOCs and  $\text{NO}_x$ . Here we investigate changes in surface ozone concentrations in Europe for the recent past and derive future projections based on chemistry-climate model (CCM) simulations. The ability of the CCM to represent surface ozone concentrations is evaluated based on measurements included in the European Environment Agency's Airbase database. Despite good structural agreement the model overestimates surface ozone abundances, thus we apply a suite of bias correction methods. To provide an envelope for the uncertainty resulting from projections utilizing a high-biased CCM we utilize correction methods and forecast strategies that target both the grid and the individual site level. Building on bias-corrected model data for selected transient (2006-2100) sensitivity simulations, we present forecasts for surface ozone air quality under the Representative Concentration Pathways (RCP's) for the European domain.