



## **Future Euro-Mediterranean climate sensitivity to aerosols**

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Aerosols are known to interact with shortwave and longwave radiation, provoking a negative radiative forcing at the surface with ensuing cooling. They have therefore an important role in the Mediterranean climate system. In order to estimate the impact of aerosols on future climate, we use the ALADIN-Climat regional climate model which incorporates a prognostic aerosol scheme (TACTIC). It includes desert dust, sea salt, organic, black carbon, sulphate, ammonium and nitrate particles (Drugé et al., ACPD, 2018). The aim of this work is to study the future evolution of the different aerosols over the Euro-Mediterranean area, as well as the future climate sensitivity of this region to anthropogenic/natural aerosols. We realised a historical simulation (1971-2000) and two CMIP6 scenarios (SSP 5-8.5; 2021-2050), one using evolutive aerosols and the other constant anthropogenic emissions. This protocol allows us to identify the role of aerosols in the scenarios. First results show an additional increase in surface radiation and temperature over the future period due to aerosols, more precisely due to the drop in anthropogenic (notably sulfate) emissions. The future evolution of aerosols has also consequences on atmospheric circulation, precipitations and cloud cover that will be discussed in this presentation.