

**ABSTRACT:**

Desert dust is an important component of the atmospheric aerosol that influence on climate, biogeochemistry, ecosystems and air quality. More than half of global dust emissions occurs in North Africa, these dust particles are regularly transported to the Atlantic and episodically to Europe. There is a growing interest on understanding how the direct man action and climate change is affecting the emission and transport routes of dust, and the processes in which dust is involved, and how it affects our life. I will present a summary of the recent studies that my group is developing with our collaborators. Our research is interdisciplinary; it includes the identification of the meteorology and the sources of Saharan dust that induce variability in dust composition, the study of the solubility of iron during the trans-Atlantic transport, the impact of dust on the cardiovascular disease, the influence of dust on fisheries and the occurrence of emerging desert dust super events. The overall results show that desert dust exert a notable influence on our regular day to day life and that an adaptation measure can be taken using these results.