

# **The potential impacts of dust and associated airborne microbes on the SE Mediterranean surface seawater**

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Atmospheric dust events function as a net supplier of macro and micronutrients (N, P, Fe and other trace metals) to the Low Nutrient Low Chlorophyll (LNLC) SE Mediterranean Sea (SEMS) and may as well inject a wide variety of airborne microorganisms (bacteria, algae, fungi and viruses). On-board microcosm and land-based mesocosm experiments indicate for a significant impact in the SEMS surface (surface microlayer and/or the subsurface water) ambient microbial populations, triggering an increase in several rate and state parameters as bacterial production and abundance, primary production rates and chlorophyll-*a* (or other phytopigments), abundance of certain pico and nanophytoplankton groups and dinitrogen (N<sub>2</sub>) fixation rates. Here we will report preliminary observations on airborne microbial diversity, activity and function from representative dust storm events in the SEMS and their potential impact. The following aspects will be discussed: 1) biogeography is important when considering the diversity, abundance and activity of airborne microorganisms; 2) airborne bacteria contribute to both the carbon (via bacterial and primary production) and the nitrogen (via N<sub>2</sub> fixation) cycles and 3) airborne bacteria can/may outcompete/kill ambient *Prochlorococcus* populations and potentially other species. Our results show that the role of airborne bacteria should be considered when assessing the impacts of aerosol inputs into the SEMS and potentially in other oceanic LNLC areas as well.