

## 2.092 Fungal content in aerosols at the Caribbean region during African Dust incursions.

Early Career Scientist

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Abstract:

African Dust (AD) particles impacted the Caribbean region every year during the summer months causing an increase in particulate matter concentrations. Recent studies suggest that AD incursions have the ability to transport particles of biological origin through long distances. Fungal spores are a major component of primary biogenic aerosol particles, are ubiquitous in the atmosphere, and play an important role in the chemistry and physics of the atmosphere, climate, and public health. The relationship between AD incursions and the concentration of fungal spores in the Caribbean region is poorly understood. Preliminary results using a Burkard spore trap to determine spore's concentration at the tropical montane cloud forest of Pico del Este (PE) at El Yunque National Forest in Puerto Rico (PR), showed a considerably decrease (by as low as 75%) in the concentration of fungal spores during AD events. To have a better understanding of the effects of AD incursions on fungal spore's emissions, aerosol samples in the presence and absence of AD were collected using the stacked-filter units at the University of Puerto Rico's (UPR) atmospheric observatory of Cabezas de San Juan (CSJ), a marine site located in Fajardo, PR; and at an urban site, Facundo Bueso building, at the UPR. The use of satellite images of aerosol optical thickness, and the results from air masses backward trajectories calculated with the NOAA HYSPLIT model were used to determine the presence of AD incursions during the sampling periods. At the meeting we will present preliminary results on gravimetric analyses, ion speciation, and carbonaceous content (organic and elemental carbon (OC and EC)) together with culture-independent molecular analysis, i.e., amplicon sequencing of the ITS and LSU rRNA genes, to assess which fungal taxa are present and their dynamics in AD vs. non-AD samples.