ATS/CIRA Colloquium

Vernon Morris

Visiting from Howard University & NOAA NCAS-M

Microphysical and Chemical Processes on Saharan Dust Aerosols during Their Atmospheric Life Cycle

Hosted by Emily Fischer

3 p.m. Thursday, Oct. 10
ATS room 101

The Saharan Desert is responsible for one of the largest contributors of natural aerosols emitted worldwide and has numerous implications on climate, health, and regional weather systems. For well over a decade, the Saharan Dust Aerosols and Ocean Science Expedition (AEROSE) cruises have collected in-situ data of Saharan dust plumes as they enter the marine boundary layer above the tropical Atlantic Ocean and as they propagate across towards the Caribbean. The AEROSE cruises support the National Oceanic and Atmospheric Administration (NOAA) mission of satellite and model improvement over the tropical Atlantic. Dust particle size influences aerosol lifetime, its efficiency as an ice nuclei, solar radiation interactions, and inhalation efficiencies when it comes to human/animal health. The objective of this seminar is to present some of the findings regarding microphysical evolution and chemical variability within dust plumes as a function of particle size during transport across the Atlantic Ocean. Saharan dust particulate are measured using a battery of particle detectors and collected using two-stage and six-stage stage Staplex ™ Microbial Air Samplers, sequential air samplers, and cascade impacts of microphysical and micro chemical analysis. This talk will focus on several major events in 2004, 2007, 2015, and 2019. I will also discuss some of the profiling measurements and their implications on improved NOAA operations.

About Vernon Morris and NOAA NCAS-M

Vernon Morris is the Principal Investigator and Director of the NOAA Cooperative Science Center in Atmospheric Sciences and Meteorology (NCAS-M) since 2001. This multidisciplinary research and education organization is a thirteen-member academic research consortium that NCAS-M partners with NOAA's National Weather Service (NWS), the National Satellite and Environmental Data Service (NESDIS), and Oceanic and Atmospheric Research (OAR) to advance scientific knowledge about the world's atmosphere and societal responses to weather, climate, and air quality phenomena. NCAS-M works in collaboration with numerous other academic and research institutions, government agencies, NGOs and community organizations. Through these collaborations, NCAS-M is able to support the development of research applied to improved environmental stewardship and extend this research and expertise to serve the widest possible regional, national and global community interests.