

ATS/CIRA Colloquium

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Hosted by Phil Klotzbach

3 p.m. Thursday, Sept. 15
ATS 101 and Microsoft Teams

Part 1: Saharan Dust Transport by African Easterly Waves

Saharan dust storms are among the most striking natural events on Earth. Born of land-atmosphere interaction, the storms emerge from complex processes that involve dust emission by an array of wind systems that operate over North Africa. In the first part of my seminar, I will present my recent research on the scale-dependent transport of Saharan dust by African easterly waves (AEWs). A theoretical framework based on a conservation equation for dust reveals that the AEW dust transports, which are driven by the Reynolds stresses acting on the mean dust gradients, are largest for the slowest growing AEWs. This surprising and non-intuitive result also is obtained in simulations carried out the Weather Research and Forecasting (WRF) model, which is radiatively coupled to an interactive dust model.

Part 2: Photography and the Advancement of Atmospheric Science

A “victory for science,” exclaimed an eyewitness to the public announcement of the invention of photography in Paris in 1839. Indeed, there is no tool that has aided in the discovery of more phenomena and that has advanced scientific knowledge across more disciplines than photography. And this is perhaps most evident for atmospheric science, where photography has been central to the discovery, measurement, and documentation of myriad phenomena, including the discovery of the ozone layer, the shattering of colliding raindrops, the crystalline structure of snowflakes, the forensic analysis of tornadoes, and the inexorable warming of Earth’s climate. In this second part of my talk, I will present the fascinating scientific story of the pivotal role that photography played in the discovery of atmospheric ozone.

Colloquia page: atmos.colostate.edu/colloquia