University of Notre Dame
College of Science
Department of Physics

COLLOQUIUM

Studying the Atmosphere as a Physicist: a Contemporary Account

Dr. David W. Fahey
Chemical Sciences Division
NOAA Earth System Research Laboratory

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(Refreshments at 3:30 p.m. NSH 202)

Studying atmospheric science is a highly suitable occupation for a physicist. The problems and instrumentation are complex and unique, and there remains much to be done. Atmospheric scientists are motivated to advance our understanding of the present day atmosphere with observations and to project its future state with numerical models. Some of these results will feed directly into policy decisions regarding the protection of the ozone layer and mitigation of potential climate change. Here, my approach is described for studying two key atmospheric components in the upper troposphere and lower stratosphere related to climate change: black carbon aerosol and water vapor. Both components influence climate in important ways. Black carbon is measured with laser-induced incandescence and water vapor will be measured with chemical ionization mass spectrometry. These instruments will operate or have operated autonomously on high-altitude research aircraft. Black carbon data comparisons with models indicate significant improvements in atmospheric models are required. New water measurements and evaluation of existing techniques are expected to help resolve systematic discrepancies in previous water vapor observations.

Host: Jonathan Sapirstein

ALL INTERESTED PERSONS ARE CORDIALLY INVITED TO ATTEND