

***\*\*Please note the special time and date\*\****

**ATS/CIRA Colloquium**

**Lorraine A. Remer**

**JCET-UMBC**

**Aerosols and Climate Forcing:  
New Thoughts, Future Direction**

**Hosted by Jeff Collett**

**Tuesday, January 26, 2016**

**ATS room 101; Discussion will begin at 3:30 pm  
Refreshments will be served at 3:00 pm in the weather lab**

Everybody has heard about climate change or global warming, and most people can link this change to the forcing elements of either carbon dioxide or greenhouse gases. It is simple to understand how greenhouse gases trap outgoing long wave radiation to keep the planet's surface warmer than it would be otherwise. It is also simple to understand how human-enhanced emissions have increased over time, increasing the forcing that leads to warming. Supposedly atmospheric aerosols, those suspended liquid and solid particles like smoke, dust and particulate pollution, are also acting as climate forcing agents. There is no doubt that aerosols affect the Earth's radiation balance, either directly or through their influence on clouds, but is this forcing?

In this talk I will question what 'aerosol climate forcing' means through an exploratory tour of 15 years of satellite remote sensing of the global aerosol system. It will become clear that unlike greenhouse gases, aerosol concentrations have not monotonically increased since the beginning of the industrial era, that much of the aerosol radiative effect is not forcing because much of the effect is due to natural aerosols, and that aerosol effects on clouds can lead to both positive and negative radiative effects. I will also lament the coming end of the Earth Observing System era and the anticipated demise of the flagship satellites: Terra and Aqua, but promise to end on a happy note.

Link to colloquium videos and announcement page: <http://www.atmos.colostate.edu/dept/colloquia.php>