

ATS/CIRA Colloquium

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Visiting ATS from Oxford University

**Observational Constraints on Global
Aerosol-Cloud Interactions**

Hosted by Sue van den Heever

Friday, October 28, 2016

**ATS room 101; Discussion will begin at 11:15am
Refreshments will be served at 10:45am in the weather lab**

Aerosols arguably remain the single greatest uncertainty among anthropogenic perturbations of the climate system. In particular the effects of aerosol-cloud interactions on global and regional radiation budgets and the hydrological cycle remain highly uncertain.

In this presentation, I will critically review some of the achievements made towards quantifying aerosol-cloud interactions in models and observations with a focus on the role of observations in the evaluation of global aerosol-climate models.

Starting from the local scale, I will explore model-data synergies in the assessment of the representativeness of observations, the suitability of remote-sensing retrieved aerosol properties as proxy for cloud condensation nuclei, all the way to the difficulty to constrain meteorological co-variability in global satellite-based studies of aerosol-cloud interactions. I will also show that some of these limitations can be overcome through cloud life-cycle based approaches, strengthening the case for new geostationary satellites or CubeSat constellations with the ability to sample the diurnal cycle.

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