ATS/CIRA Special Seminar

Christine Chiu

Visiting ATS from the University of Reading

Using remote sensing observations to advance understanding of cloud-aerosol-precipitation-radiation interactions

Hosted by Chris Kummerow

Thursday, March 2, 2017

ATS room 101
Discussion will begin at 2:45 p.m.
Refreshments will be served at 2:15 p.m. in the weather lab

Currently, the scientific community is unable to identify how characteristics of clouds will alter as the climate warms in response to emissions of greenhouse gases from human activities, and to what extent changes in cloud characteristics will feed back on surface temperature responses. In particular, models disagree substantially in the magnitude of cloud feedback for the regimes of subtropical marine boundary-layer clouds. Common, longstanding model deficiencies in cloud and drizzle properties call for the need of observations with sufficient accuracy, temporal and spatial resolution for understanding cloud-aerosol-precipitation-radiation interactions at process levels. Capitalizing on new scanning cloud radars/lidars and shortwave spectrometers, I will show detailed cloud/drizzle properties and demonstrate how they may help constrain warm rain formation and aerosol impacts on precipitation. Capitalizing on a technology revolution in small satellites and sensor miniaturization, I will also show a novel, viable and sustainable strategy to globally monitor the Earth's radiation, which will allow us to study how fast evolving phenomena, such as clouds and aerosols, aggregate to affect our climate system.

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