ATS/CIRA Colloquium

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Visiting ATS from NASA Goddard

Dynamics of secondary eyewall formation observed in Hurricane Rita

Hosted by Emily Fischer

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

During the lifetime of some intense tropical cyclones (TCs), rainbands in the inner core of the storm coalesce to form a ring of convection around the pre-existing eyewall. The formation of this ring, known as the secondary eyewall, is followed by characteristic changes in storm intensity and structure known as an eyewall replacement cycle. While the general behavior of secondary eyewalls is known once they form, the dynamics of their formation remain unclear. The Hurricane Rainband and Intensity Change Experiment (RAINEX) of 2005 was a multi-platform campaign that sought to advance knowledge of TC intensity changes due to changes in the storm's internal structure. Here we explore the high-resolution observations of the secondary eyewall and inner core rainbands of Hurricane Rita collected by the NCAR ELDORA radar. With new insight into the kinematic and reflectivity structures of these internal features, we develop a hypothesis for secondary eyewall formation. This hypothesis explains essential dynamics behind the transformation of rainband convection into a secondary eyewall.

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