



Large-Eddy Simulations of Hurricane Boundary Layers: A Tale of Two Techniques

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Certain aspects of the hurricane boundary layer (HBL) are closely tied to overall hurricane intensity and structure. However, observations within the HBL of strong hurricanes are rare, primarily because conditions in the HBL are hazardous. Numerical simulations offer an opportunity to help interpret these few observations and, in principle, simulations can provide datasets for applications that need high-resolution depictions of the HBL. This talk will describe two techniques developed in MMM to study the HBL using large eddy simulation. For one technique, the numerical-model domain encompasses the entire inner core of a hurricane, including the hurricane eye, eyewall, and primary rainbands. This technique provides the most complete picture of HBLs, and can be used to study the strongest gusts within hurricanes (i.e., those in the eyewall). However, this “complex” technique is very expensive computationally, and thus only a small part of the parameter space of hurricane sizes and intensities can be studied. More recently, a second technique was developed that uses much smaller domains encompassing only a portion of a hurricane. For this “simple” technique, the mesoscale structure of the hurricane needs to be specified, by the model user, using a small number of input parameters. Efforts to evaluate these two techniques are hampered by the aforementioned lack of observations in the HBL, although comparisons of model output with NOAA P3 data are encouraging.

This seminar will be webcast live at:
<http://www.fin.ucar.edu/it/mms/fl-live.htm>

Recorded seminar link can be viewed here:
<https://www.mmm.ucar.edu/events/seminars>

Thursday, 11 February 2016, 3:30 PM
Refreshments 3:15 PM
NCAR-Foothills Laboratory
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