

Ensemble Simulation of GOES-R Proxy Radiance Data from CONUS Storm-Scale Ensemble Forecasts, Product Demonstration and Assessment at the Hazardous Weather Testbed GOES-R Proving Ground

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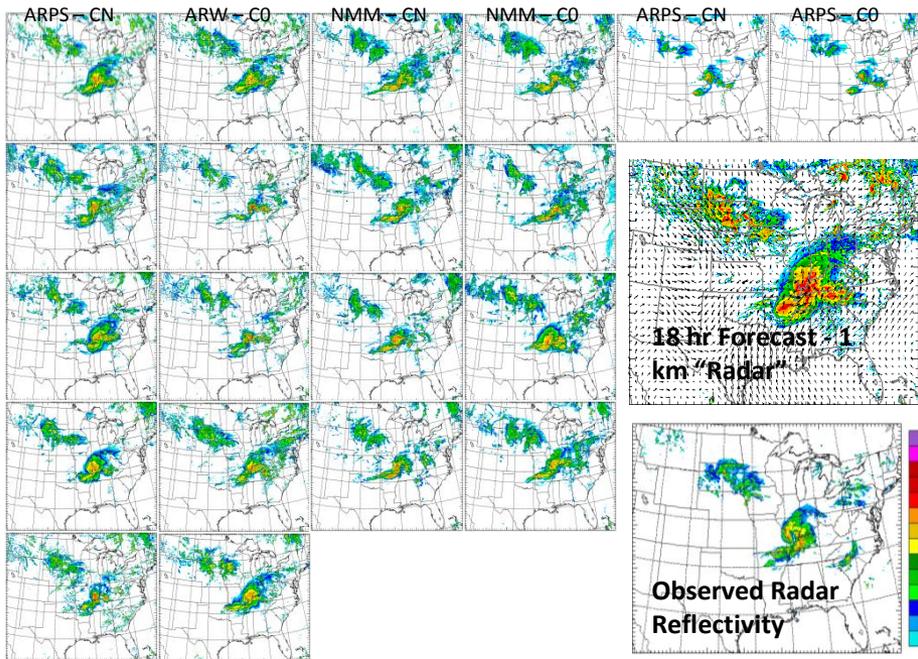
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Co-I: Dr. Fuzhong Weng, NOAA/NESDIS

Co-I: Jack Kain and David Turner, National Severe Storm Laboratory

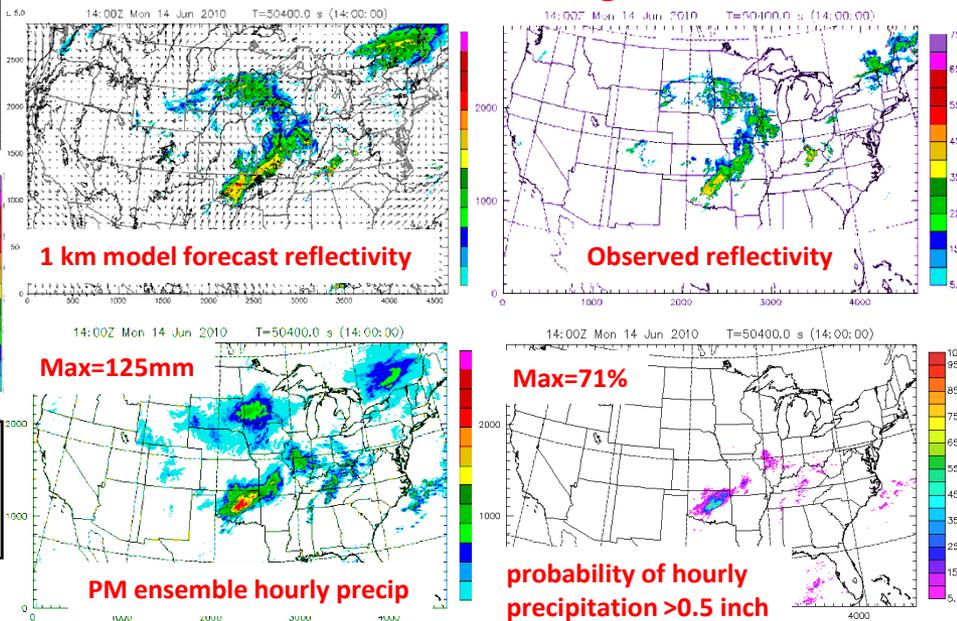
Realtime Convection-Permitting Ensemble and Convection-Resolving Deterministic Forecasts of CAPS for the Hazardous Weather Testbed (HWT) Spring Experiments



CAPS 2011 SSEF:

51 4-km, one 1 km, 36h CONUS forecasts
8 microphysics, 4 PBL, 2 LSM schemes,
assimilating WSR-88D data

June 14, 2010 – OKC Flooding Case, 14 h fcst



20 members from 2008
Support Probabilistic Forecasts

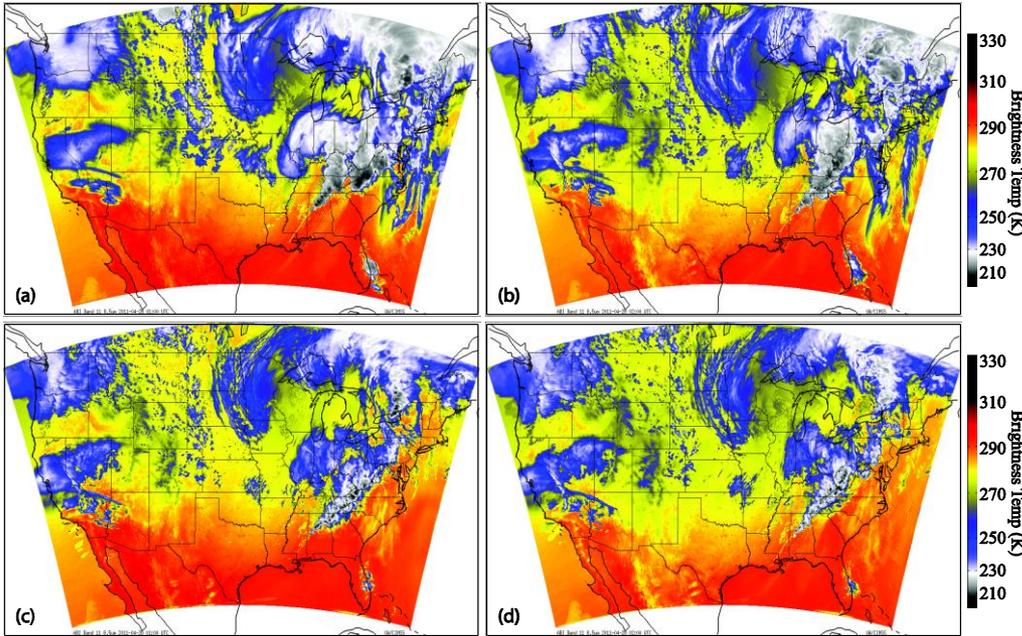


Proposed Work

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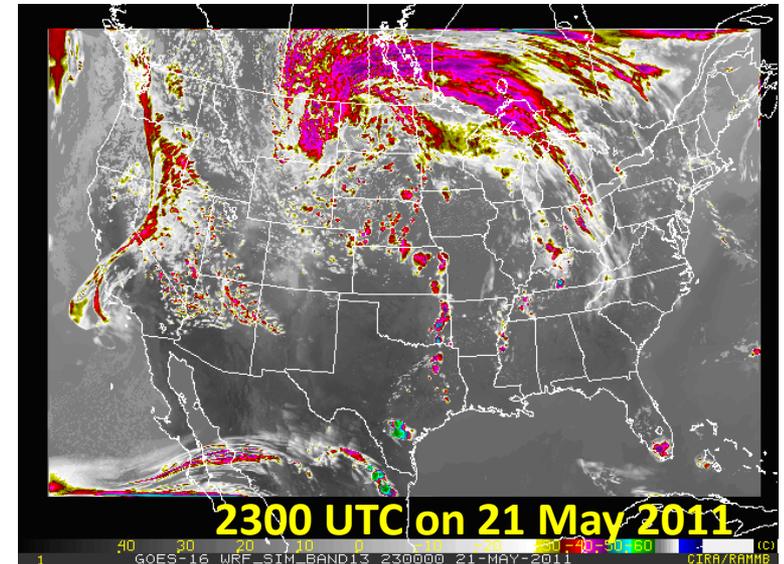
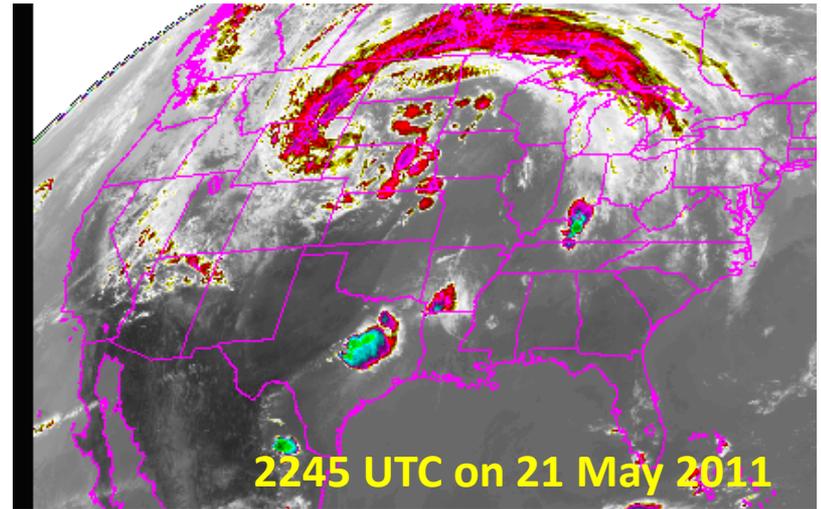
- Ensemble of ABI imagery using NESDIS CRTM, CIMSS and CIRA simulation packages, from CAPS's Storm-Scale ensemble in realtime.
- Probabilistic products in terms of satellite observables.
- Adapt the simulation packages to work with various microphysics schemes, including two-moment schemes
- Simulations for at least 5 bands (6.185, 7.35, 6.95, 10.35 and 12.3 μm), comparison with GOES observations
- Require ~3000-4000 CPU cores using three packages for ~ 30 members, need to run on NICS
- Send the products to HWT/GOES-R Proving Ground for realtime assessment during Spring Experiments

Preliminary Testing Results



Simulated ABI $8.5 \mu\text{m}$ brightness T (K) at 0100 UTC, 28 April 2011 for 4 CAPS 4-km ensemble members

By Jason Otkin, CIMSS



Top: observed Bottom: synthetic
GOES-R at $10.35 \mu\text{m}$ from 2011
NSSL realtime 4-km WRF forecast
By Louie Grasso, CIRA