Impact of Dropsonde and MTP Data on Convective Initiation Using WRFVAR

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Motivation

• Sensitivity of 0-24h QPF to upstream initial conditions

• Sensitivity of high resolution (with radar data) 0-12h QPF to first guess forecast background

• How much difference of the assimilation technique (3DVar vs. 4DVar) make?
Diurnal variation of Radar DA impact

- Radar DA has longer positive impact for late evening initializations
- The positive impact only lasted 4 hours for morning initializations
WRF 4DVAR Radar Data Assimilation

4-hour forecasts from a case study (13 June 2002)
ETS of 0-6 hour forecast

IHOP 2002 June 13 Case: 00Z-06Z

ETS vs. time for 1 mm and 5 mm precipitation.

- 4D_RF
- 4D_RV
- 3DVAR

- 1 mm
- 5 mm
Experiment Configuration

D1: 9 km with MPEX data assimilation

D2: 3 km with radar data assimilation and D1 forecast as background