# Impact of Dropsonde and MTP Data on Convective Initiation Using WRFVAR

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# Motivation

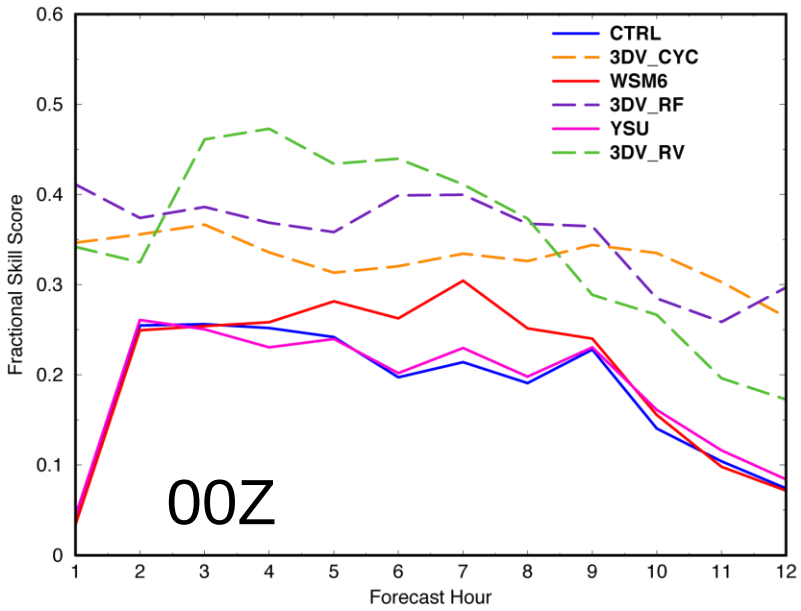
• Sensitivity of 0-24h QPF to upstream initial conditions

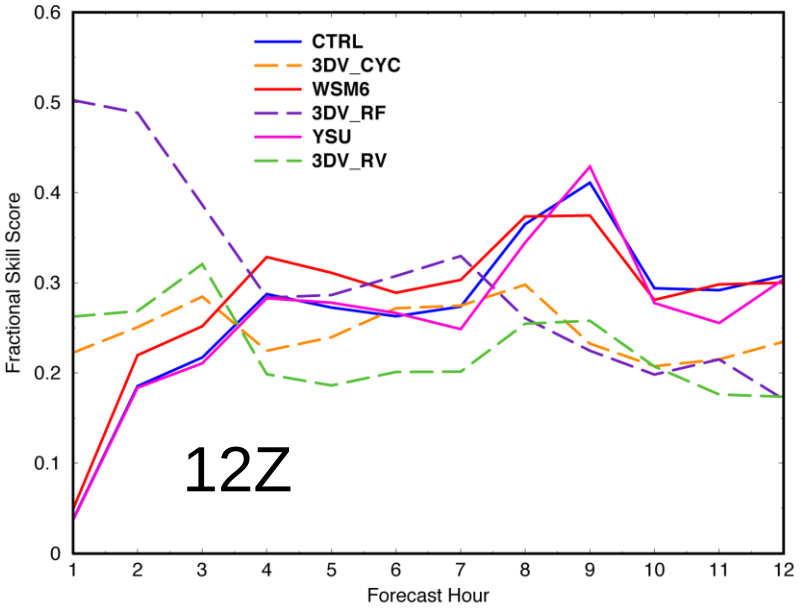
• Sensitivity of high resolution (with radar data) 0-12h QPF to first guess forecast background

•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



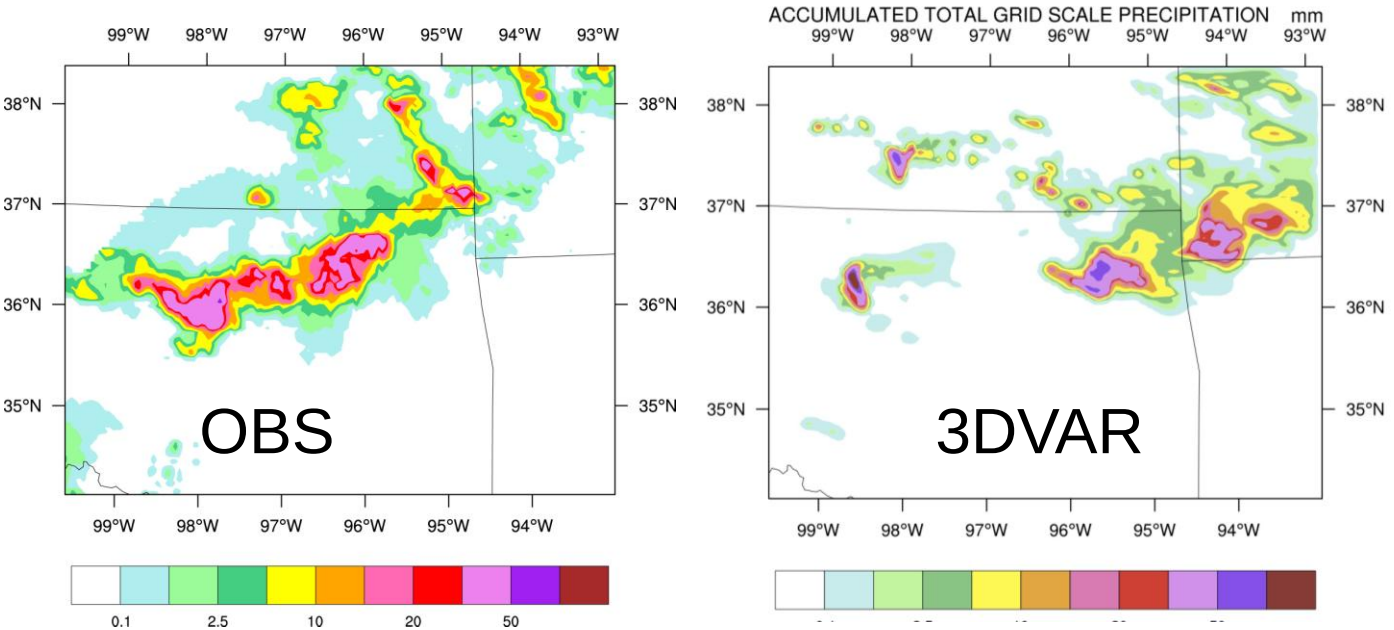



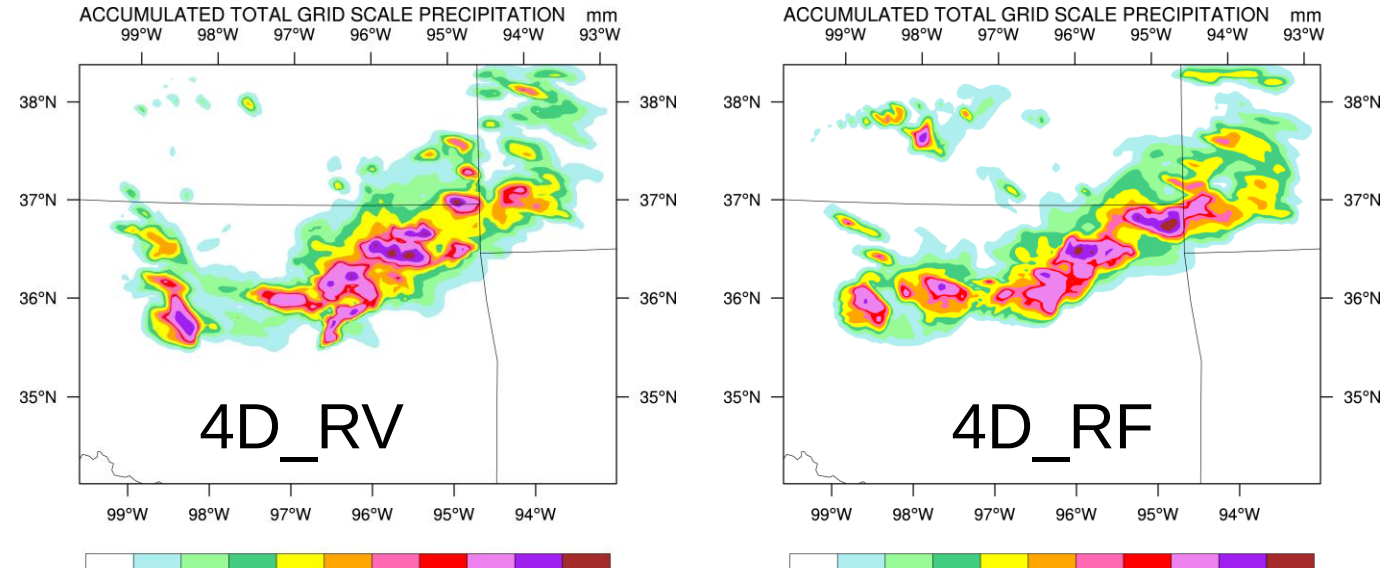

Dashed lines: Warm start

Solid lines: Cold start

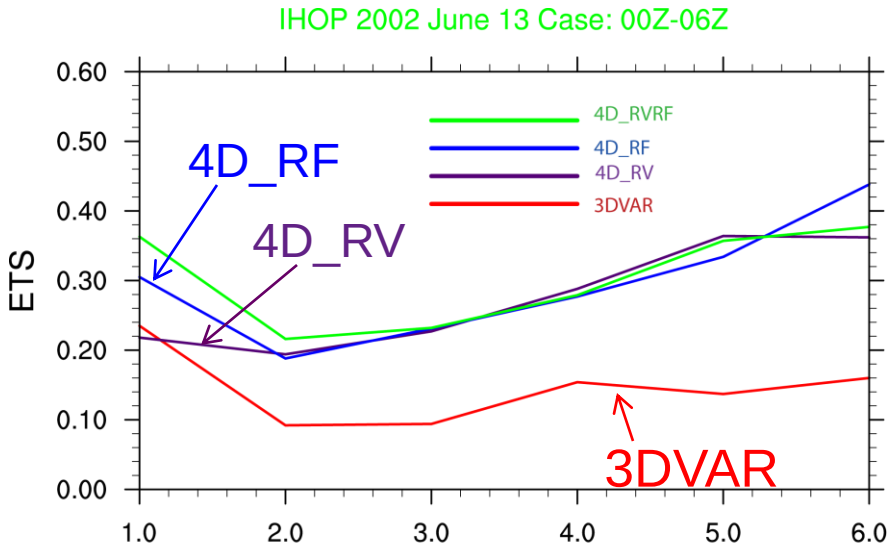
# WRF 4DVAR Radar Data Assimilation

## 4-hour forecasts from a case study (13 June 2002)

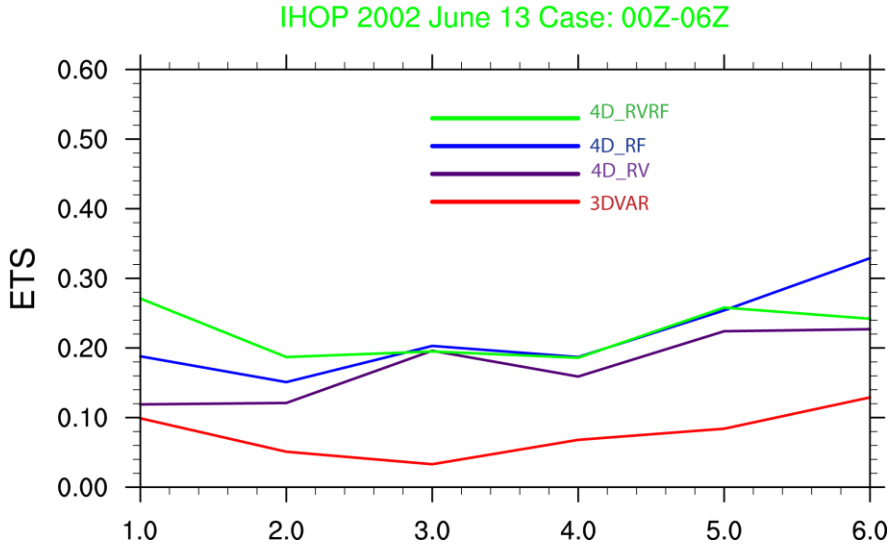


# ETS of 0-6 hour forecast

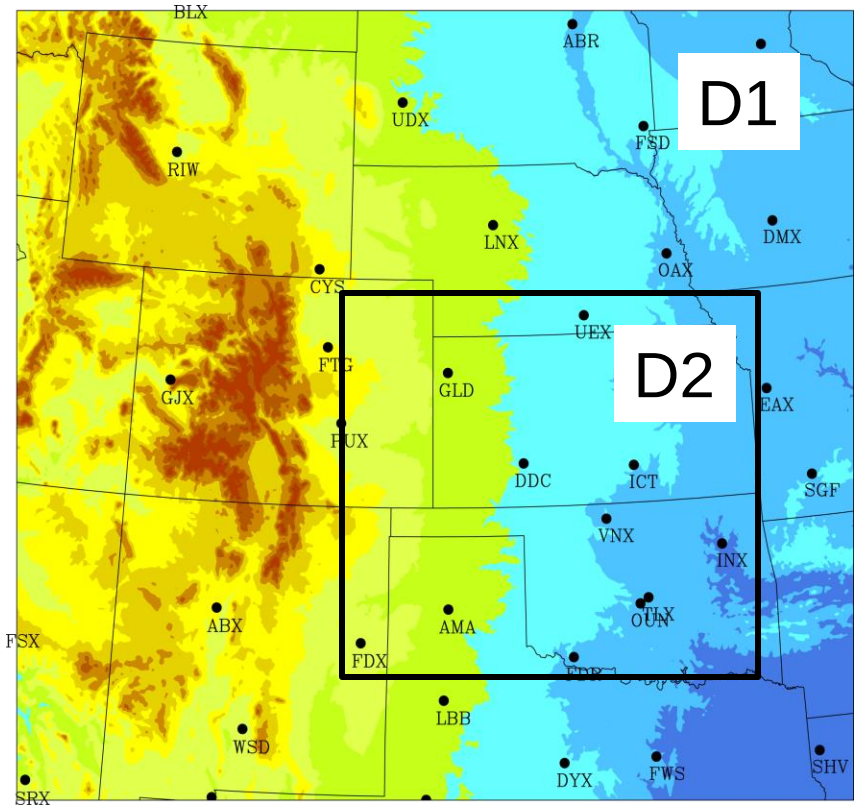



1 mm




5 mm

# Experiment Configuration




D1: 9 km with MPEX data assimilation

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