

# Analysis of the 6 July 2015 PECAN MCS Utilizing Airborne- and Ground-Based Doppler **Observations and Airborne In-Situ Microphysical Data**

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- as observed in the trailing stratiform region of two Plains Elevated Convection at Night (PECAN) experiment
- system kinematics using multiple-Doppler at Mesoscale Utilizing Radar and Airborne Instrumentation (SAMURAI) technique



Fig. 1: NWS WSR-88D composite radar reflectivity at 1 km AGL detailing the mesoscale structure of each MCS both at the end of the SAMURAI analysis period, and 45 minutes prior.

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- Strong rear inflow jet (RIJ) sampled during UFO4 within formative transition zone of MCS
  - Subsaturated air below ~5.5 km likely allowed for sublimation and evaporation of precipitation; resultant microphysical cooling may have contributed to the descent of observed RIJ
  - Sublimation likely dominant as seen by large concentration of ice particles observed above the 0°C isotherm
- RIJ is absent in enhanced stratiform region of maturing MCS sampled during IOP20
  - More uniform and generally higher RH through depth of spiral likely inhibiting evaporative/sublimative processes

- level jet (NLLJ) with a cold frontal boundary
  - environments

  - with other PECAN operation periods

IOP20 MCS was strongly influenced by the interaction of the nocturnal low • Such features are notably absent from the UFO4 meso-/synoptic scale

**Future Work** 

Complete additional quality control on input SAMURAI radar data Include background fields for SAMURAI initializations Consider additional Doppler legs and spirals for each of these cases, along