

Improving very-short-range Forecasts of the Pre-Convective Environment and Heavy Precipitation Events using operational Satellite Observations

Ralph A. Petersen¹, William Line¹ and Robert Aune²

CIMSS, University of Wisconsin-Madison

NOAA/NESDIS Advanced Satellite Products Branch (ASPB)

Madison, WI

Introducing a new, Isentropic Version of the CIMSS NearCasting Model

- Builds upon recommendations from GOES-R Proving Grounds experiments
- Is consistent with where GOES soundings are best:
 - Cloud-free areas (no latent heating)
 - Adiabatic flow
- Isentropic coordinates implicitly include vertical motions
 - Upward transport at lower-levels can indicate potential lifting mechanisms
 - Downward transport of upper-level dryness enhances gradients and Convective Instability signatures
- Covariance of static stability and moisture fields helps differentiate Heavy Precipitation events from Severe Convection

