Mesoscale Organization Breakout

ZHE FENG

PNNL
2013 ASR STM
Mid-latitude Convective Lifecycle

Intensify

Mature

Decay

Feng et al.
2012 JGR

Classification
Convective Core
Stratiform Rain
Anvil Cloud
Lifetime of Convective Systems

- **Initial convective intensity** determines lifetime of short-lived CS (< 6 hr)

- Collocated NARR shows: 40% stronger wind shear and 50% higher RH favor longer-lived CS (> 6 hr)
Composite CS Evolution

- SR area continue to grow after convection peaks
- Stronger shear and more humid env. support fully developed SR (deposition) → prolongs CS lifetime beyond 6-hr (conv. organ.)

Composites of 4221 systems