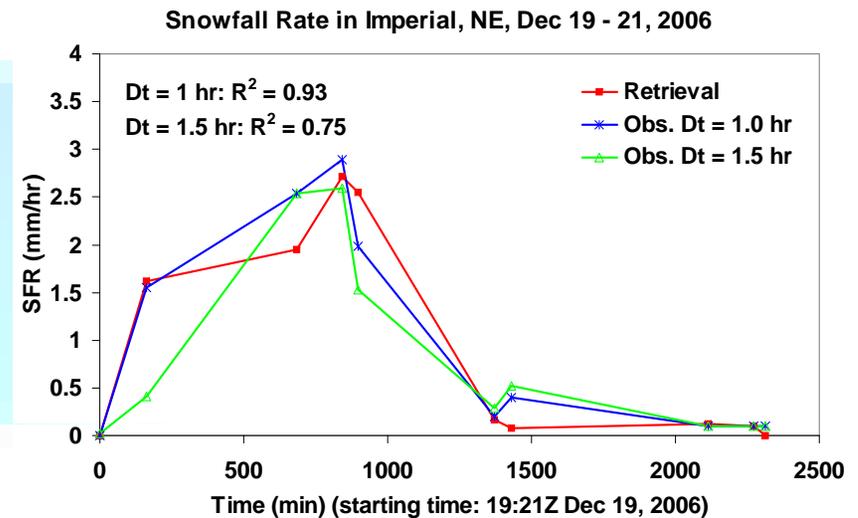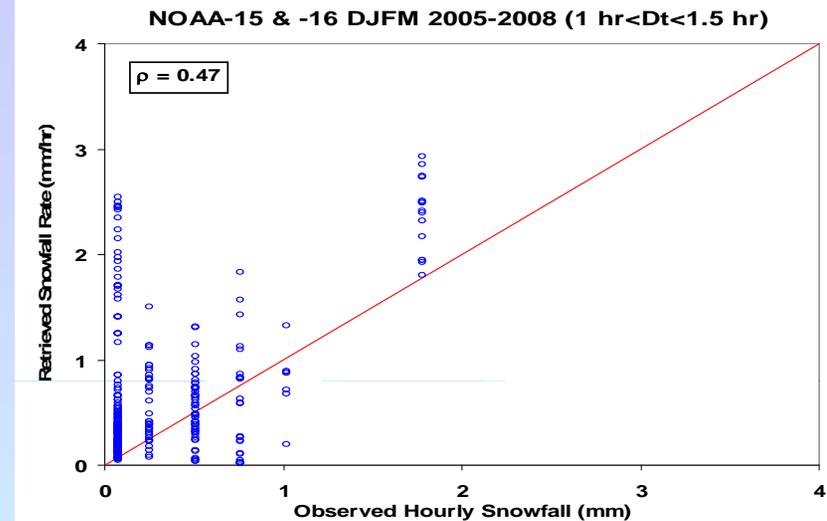# Developmental Snowfall Rate Product

- Approach
  - Retrieve IWP using a two-stream RTM under snowing condition
  - Derive cloud top height from vapor and temperature profiles
  - Compute ice water content
  - Assume constant fall velocity
  - Derive snowfall rate (water equivalent rate)

- Validation
  - Use NCDC local climatological hourly snowfall observations
  - Highest correlation is between retrieved snowfall rate and hourly snowfall observations with 1-1.5 hr time lag

NOAA-15 & -16 DJFM 2005-2008 (1 hr<Dt<1.5 hr)

$\rho = 0.47$

Retrieved Snowfall Rate (mm/hr)

Observed Hourly Snowfall (mm)

Snowfall Rate in Imperial, NE, Dec 19 - 21, 2006

Dt = 1 hr: R^2 = 0.93
Dt = 1.5 hr: R^2 = 0.75

- Retrieval
- Obs. Dt = 1.0 hr
- Obs. Dt = 1.5 hr

SFR (mm/hr)

Time (min) (starting time: 19:21Z Dec 19, 2006)

February 2009