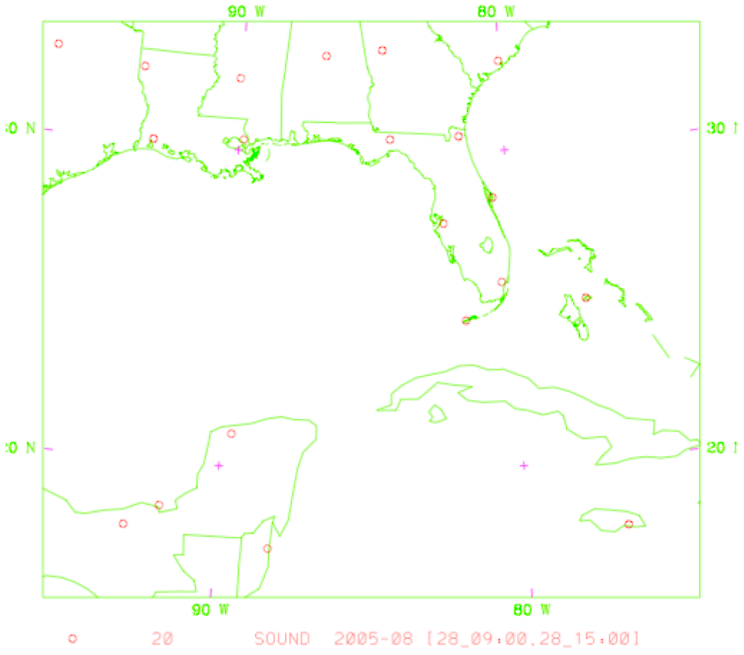
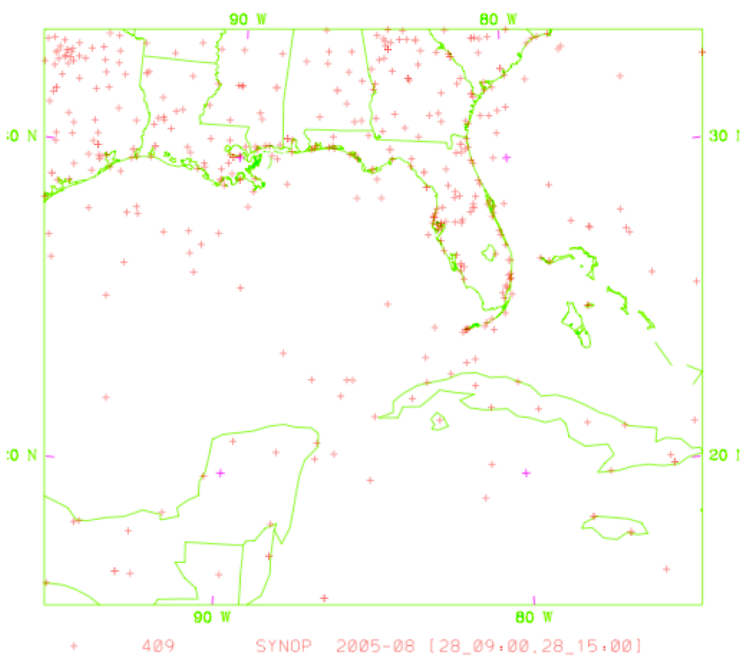
Preliminary results: MLEF with WRF and real observations

Hurricane Katrina:

- *Model resolution*: 30 km horizontal, 28 vertical levels (75x70x28)
- *Observations*: NCAR upper-air and surface observations (p_s, T, q, u, v) ~ 1,000-3,000 per cycle
- *Assimilation*: 6-hour interval, from 26 Aug 00Z - 31 Aug 00Z (5 days)
- *Control variables*: u,v,$\delta\theta$,δZ,q_v
- *State vector dimension* ~700,000
- 96 ensembles
- Old boundary conditions

Radiosonde and SYNOP Observations (at 12 UTC)



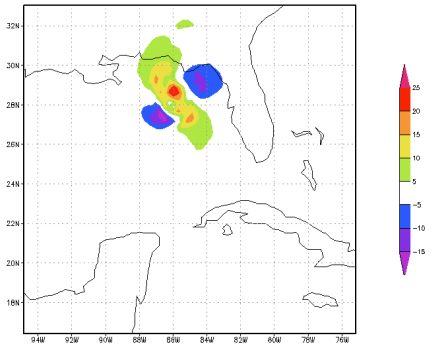


20 Radiosondes

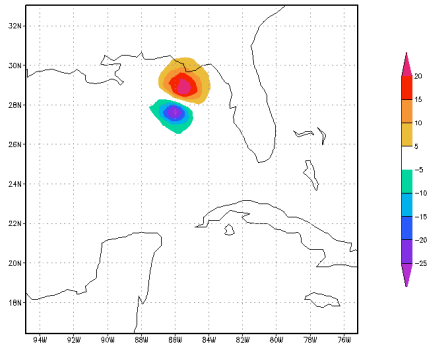
409 SYNOPs

- **Irregular observation coverage (in both space and time)**

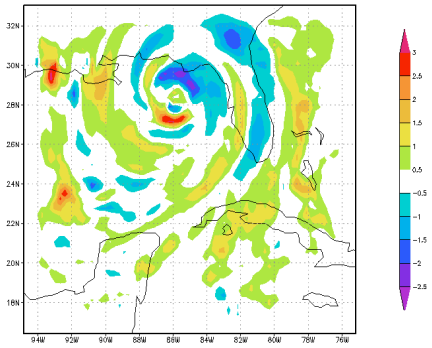
6-hour forecast difference between DA and No-DA experiments (DA cycle 12)



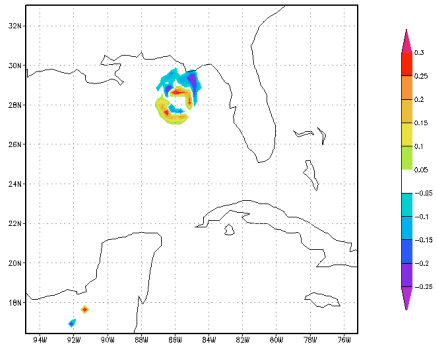
V-wind at 550 hPa (20 m/s)



Surface pressure (15 hPa)



Spec humid at 550 hPa (3 g/kg)



Cloud water at 550 hPa (0.25 g/kg)

- Dynamically consistent impact of data assimilation
- Need other (e.g. satellite) observations to further improve the forecast