

Priorities for DA/Ensemble strategic team(s)

DA System Development

- 3D->4D EnsVar using cycled HWRF backgrounds, including mult. outer loops, NMMB integration.
- moving nest DA cycling capability
- better of high temporal and spatial frequency obs, including
 - airborne data
 - radiances (cloudy, sfc/moisture sensitive).
 - Geostationary high-temporal freq (including satellite winds)
 - rapid cycling (perhaps hourly)

DA/ensemble development

- dealing with displacement errors
 - field alignment
 - rapid cycling
 - storm-relative DA
- multi-scale assimilation
- representation of model uncertainty (through the development of stochastic physics in HWRF, emphasis on microphysics/sfc layer).

Systematic Evaluation of DA/Ob impacts

- Set up an hourly cycling system to evaluate impact of high-freq (temporal and spatial) obs on vortex-scale in self-consistent HWRF EnsVar system (milestone FY15)
 - airborne data (RDITT) FY15
 - sat winds FY16
 - GPSRO FY16
 - GOES/GOES-R. FY17 ?
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Predictability issues

- What obs are needed to improve forecasts at different time scales (particularly intensity)?
 - OSE/OSSEs? (leveraging SS effort?)
 - what kinds of systems are more/less predictable?
 - use ensemble forecasts as diagnostic tool (cases with small spread/large error - feedback with model development/DA)

Ens forecast issues

- evaluate HWRF ensembles initialized from EnsVar system vs GEFS
- Evaluate estimations of forecast uncertainty (at different spatial temporal scales) - inform development of stochastic physics.
- Include the effect of ocean uncertainty in global ensemble (beyond day 5).

Ens forecast issues (cont)

- Extract more info from days 5-7 in global ensembles (genesis/decay)
- Identify/correct deficiencies in ensemble system for days 5-7 (including storm population biases, track biases - feedback on model physics)
- Don't develop multiple models with project funds (instead focus on operational model(s) with stochastic physics, leverage existing independent systems).