

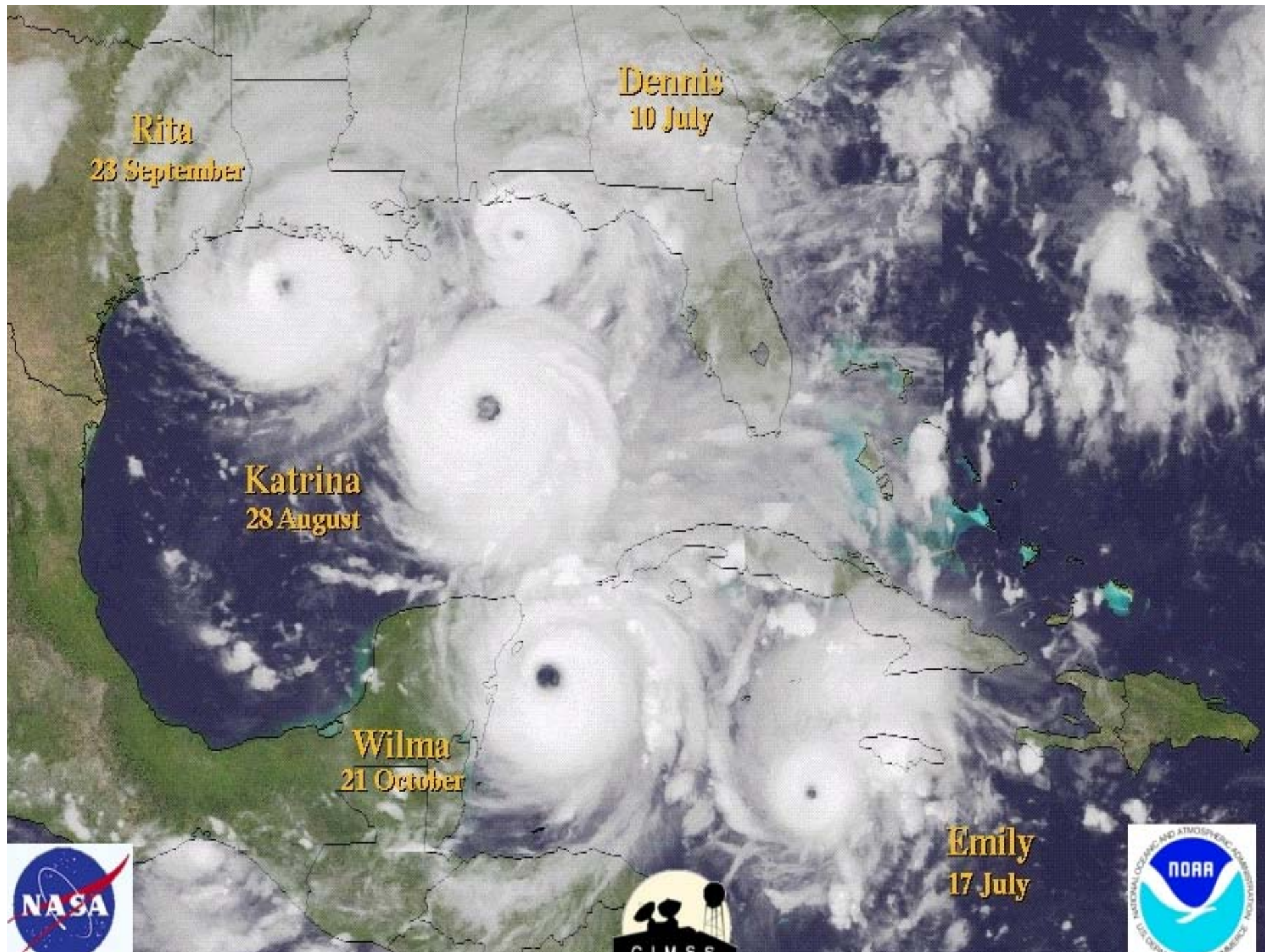
Future Forecast Workstations/Systems

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Considerations

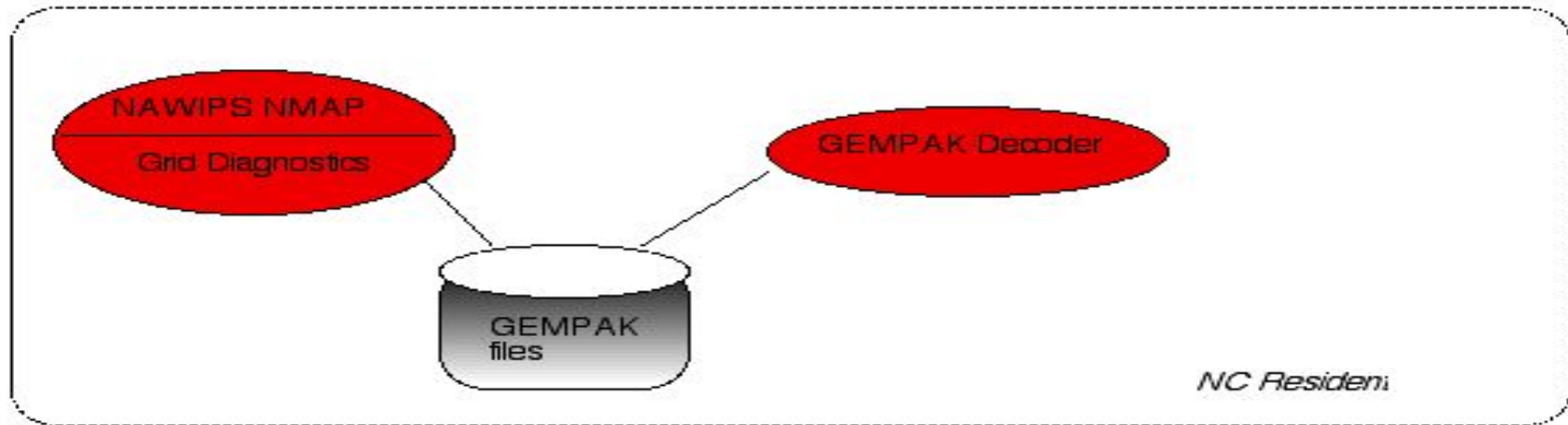
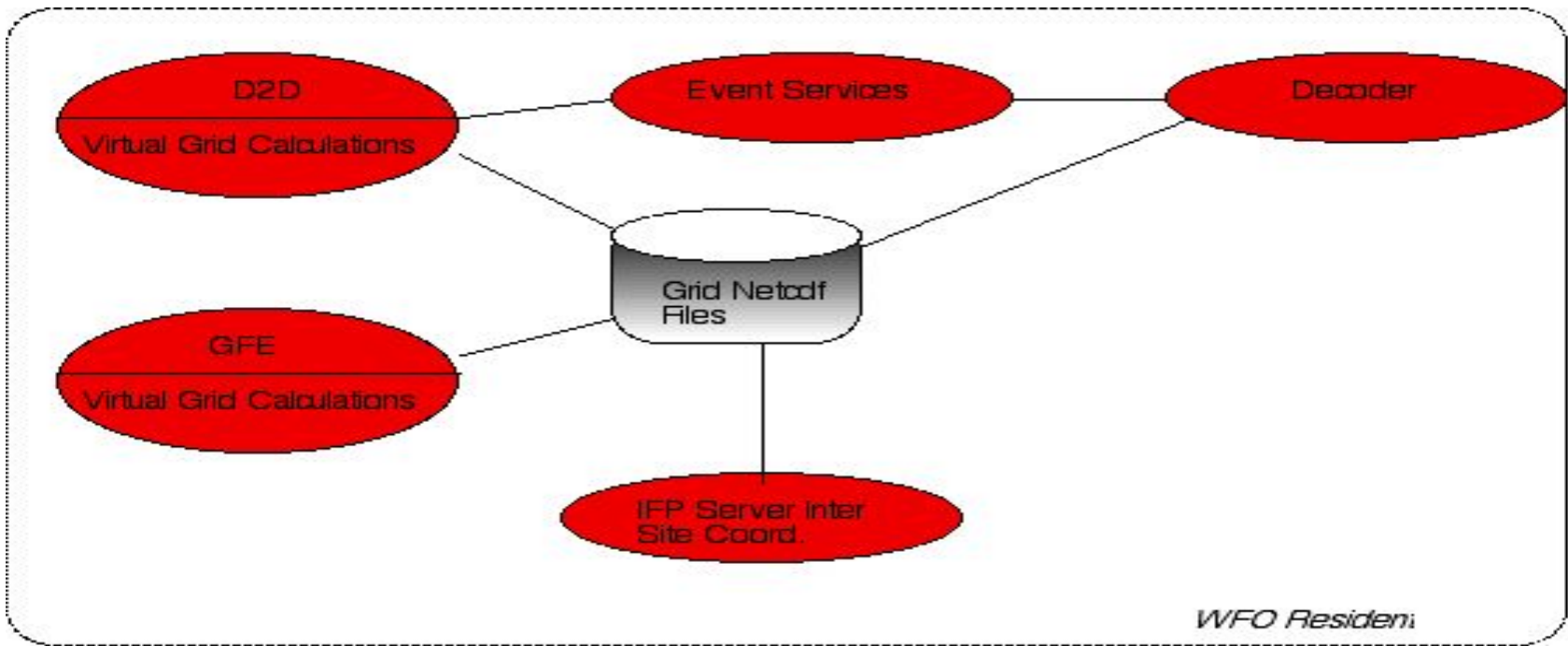
- Continued Increase of Data
- New data paradigms
 - Pull versus Push
- High Bandwidth Networks
- Moore's Law Still in Effect (for the moment)
- Continuing Visualization Advances
- Forecaster Still Adds Value

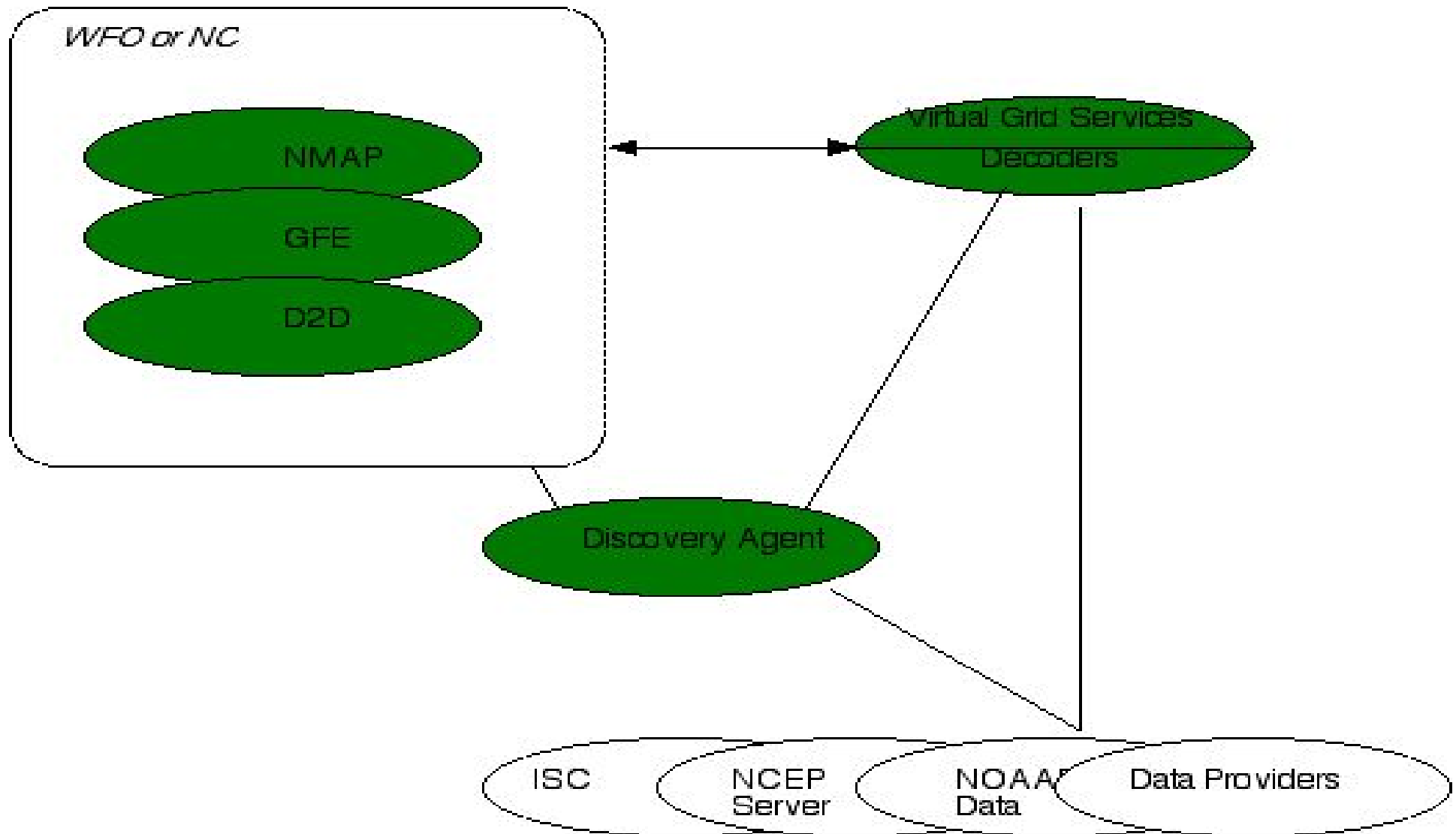
Data Growth

- Satellite - GOES-R, NPOESS, experimental satellites, derived products
- Radar - dual polarization, 0.5 beam, new products, other radars
- Models - higher resolution, ensembles
- Surface - more mesonets, 1 minute ASOS
- Geographic Information Systems

New Data Paradigm

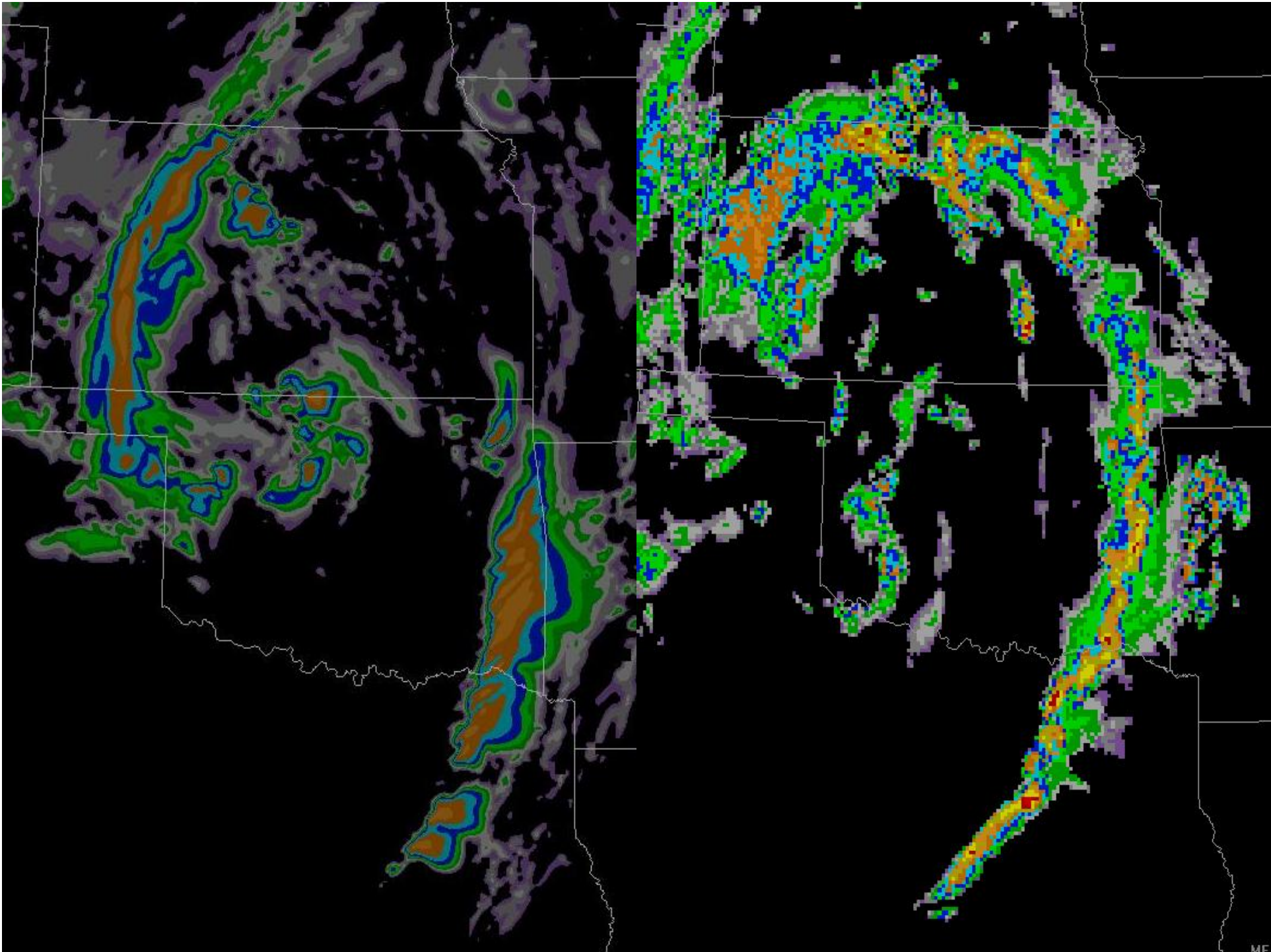
- Data can be “pulled” from anywhere on the network as needed.
- Requires good bandwidth
- Functions similar to web
- Not good for time-critical data
- Some Data “pushed” and stored locally





Mesoscale Models

- New Era
- WRF/ESMF makes it easily accessible
- Standard modules
- Robust
- Results are encouraging



Mesoscale Model Ensembles

- Ensembles capture range of solutions
 - Different initializations
 - Different physics packages
 - Different models
 - Time lagging
- Leverage assets across network via Grid computing technologies
- Run one member per site
- Access output via data “pull”

Warn on Forecast

- Something between current watch and warning
- Can characterize environment
- Timing and location not perfect
- Ensembles to quantify uncertainties

Probability Based Forecasts

- More Value than single deterministic forecast
- Objective guidance from ensembles
- Communicates inherent uncertainty
- Reliability vs Resolution
- Requires New tools
- Calibration Issues

Valid time seq

State(s)

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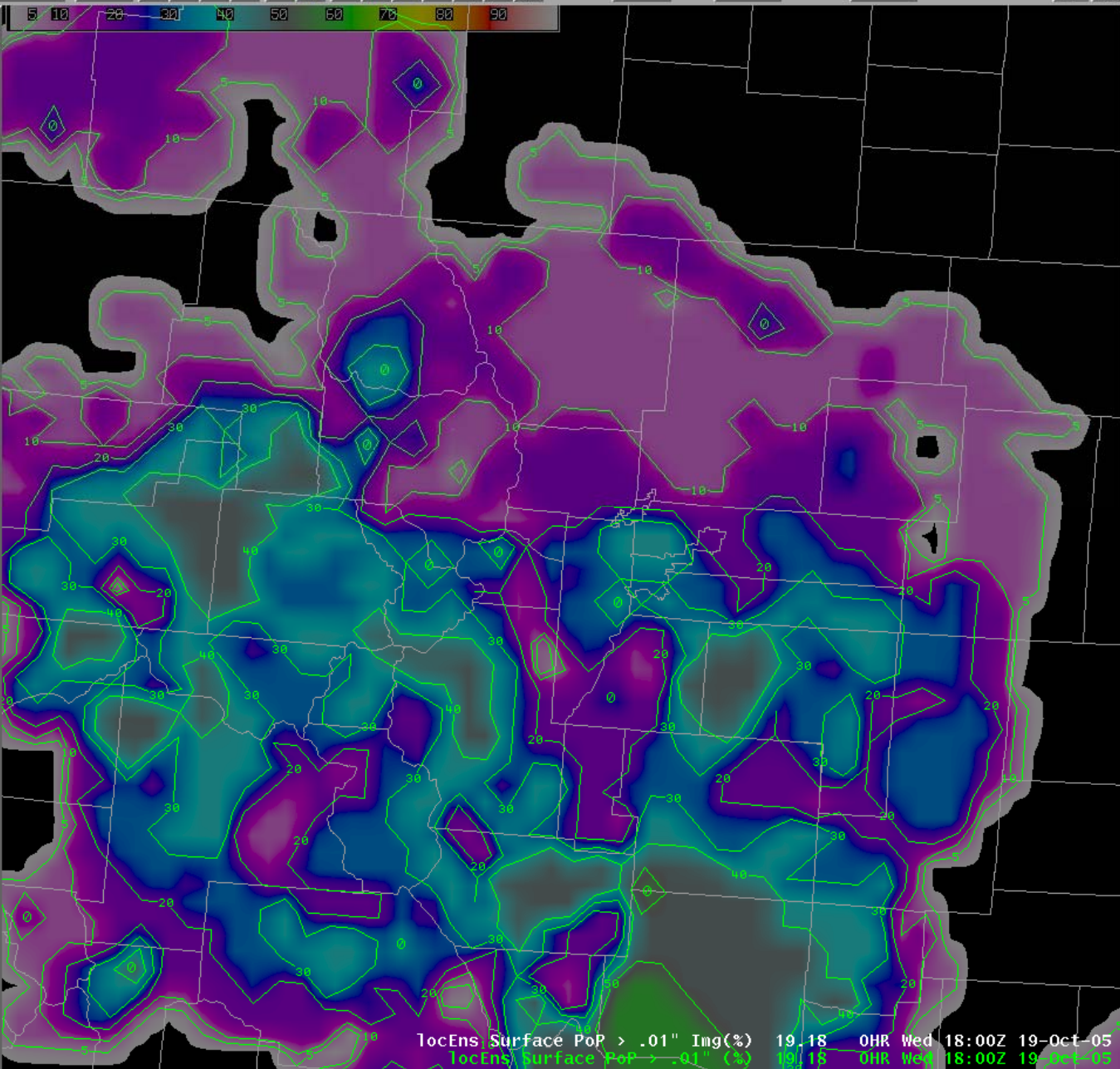
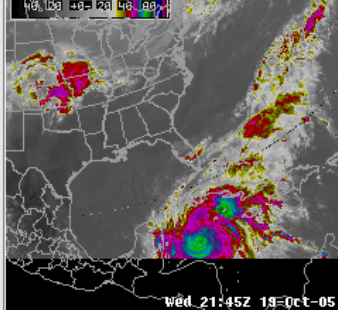
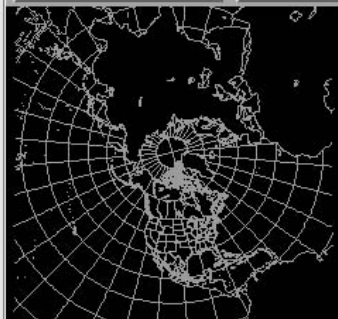
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Frames: 12

Mag: 1

Density: 1

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TocEns Surface PoP > .01" Inq(%) 19.18 OHR Wed 18:00Z 19-Oct-05
TocEns Surface PoP > .01" (%) 19.18 OHR Wed 18:00Z 19-Oct-05

Status: 20:50:08: Can not load NH IR Sat. Inventory does not time match.

Radar: 21:53:02: kftg: Radar Coded Message Received

Frames: 12 Time: 22:11 Z 19-Oct-05

Valid time seq

State(s)

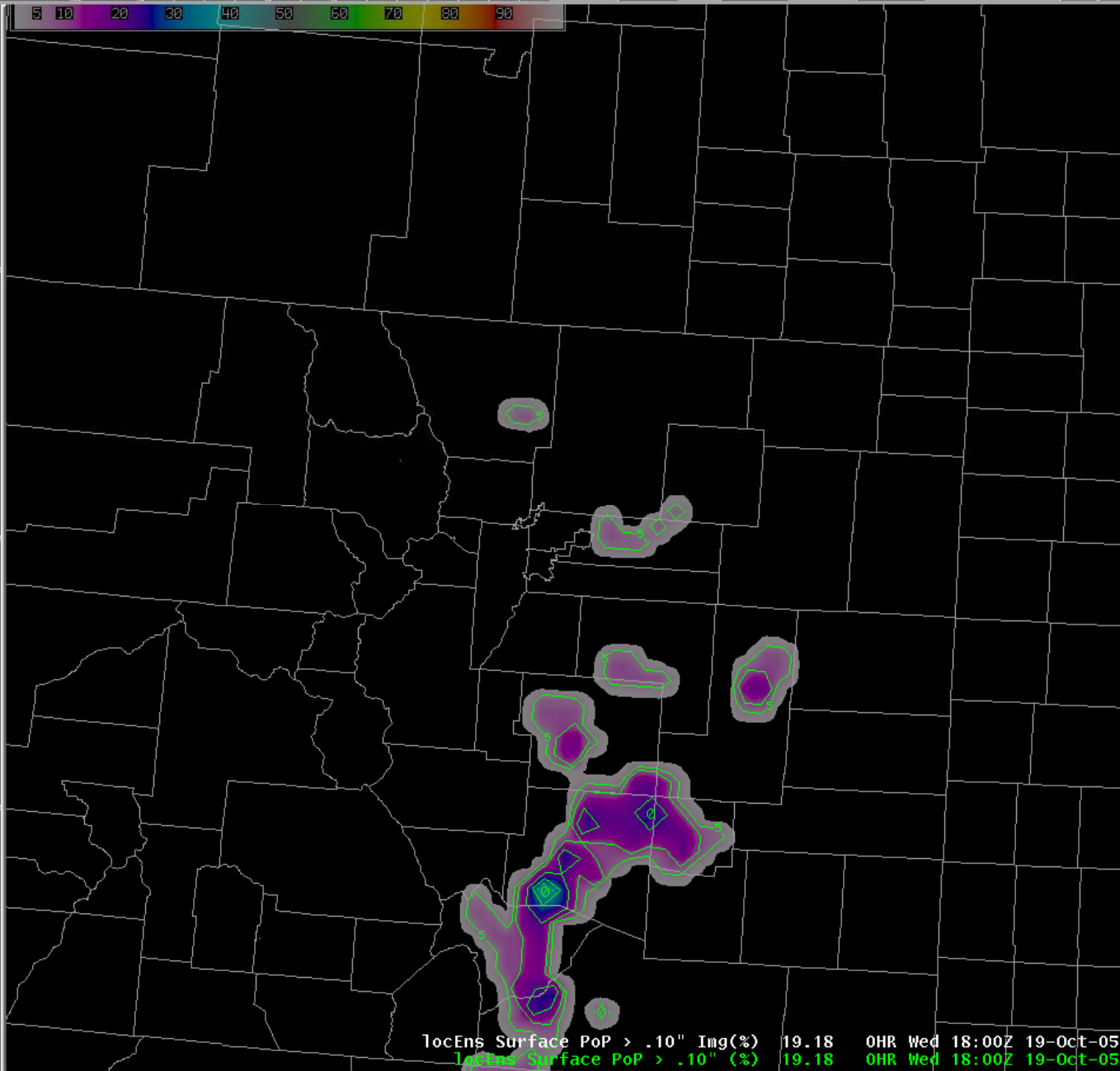
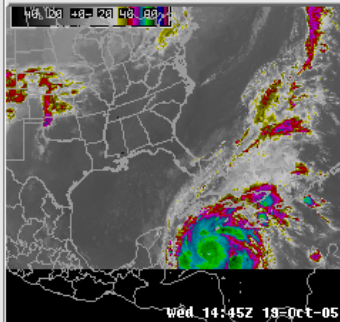
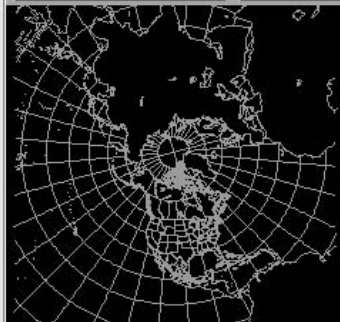
Clear



Frames: 12

Mag: 1

Density: 1



1ocEns Surface PoP > .10" Img(%) 19.18 OHR Wed 18:00Z 19-Oct-05
1ocEns Surface PoP > .10" (%) 19.18 OHR Wed 18:00Z 19-Oct-05

Status: 20:50:08: Can not load NH IR Sat. Inventory does not time match.

Radar: 21:53:02: kftg: Radar Coded Message Received

Frames: 12 Time: 22:12 Z 19-Oct-05

Grid Based Paradigm

- A few forecaster prepared grid parameters now official NWS products
- Some private companies using grid approach
- Leverage common dataset to create a wide variety of products
- Anticipate growing acceptance and use

Summary

- Much more data
 - New data paradigms
 - High bandwidth networks
- Continuing technological advances
- Warn on Forecast
- Mesoscale models & ensembles
- Probability distributions
- Digital forecast database (grids)