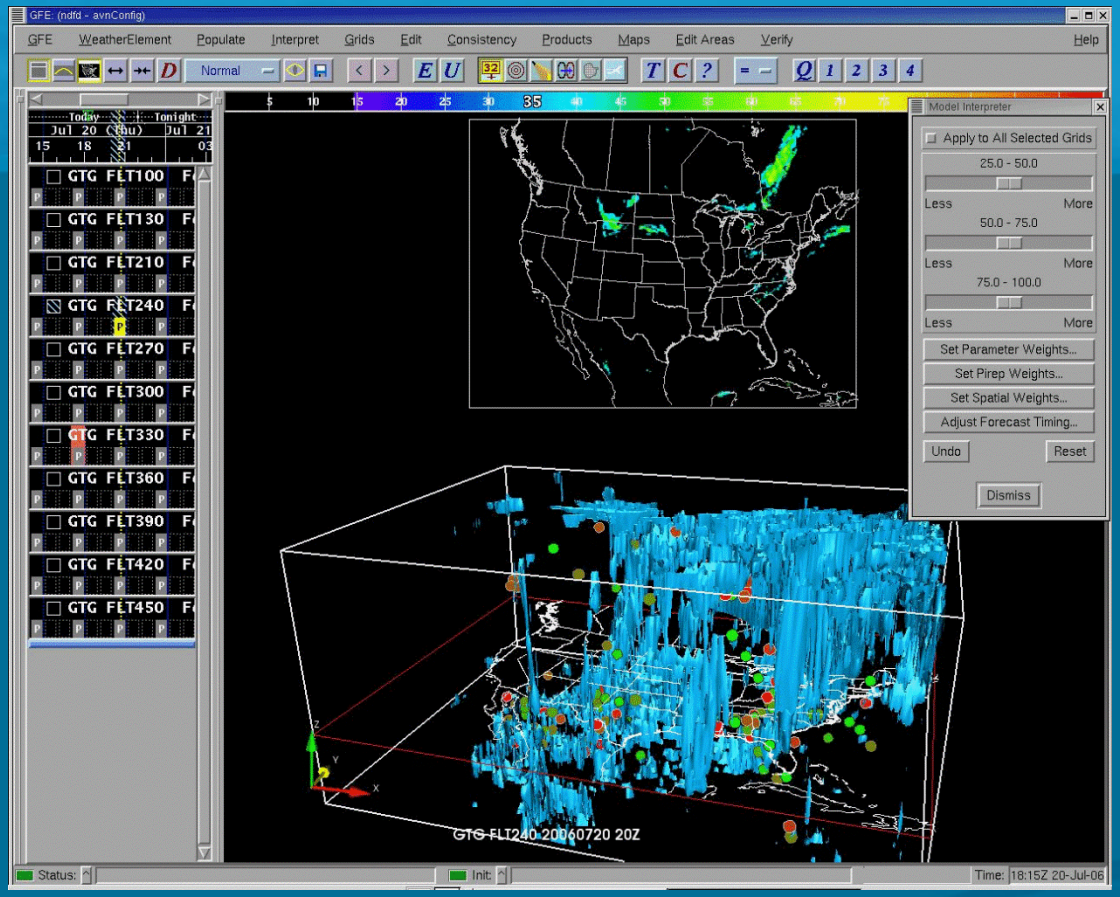
NDFD Precipitation Elements



Steve Olson
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Nextgen Collaborative Science Meeting
March 2010

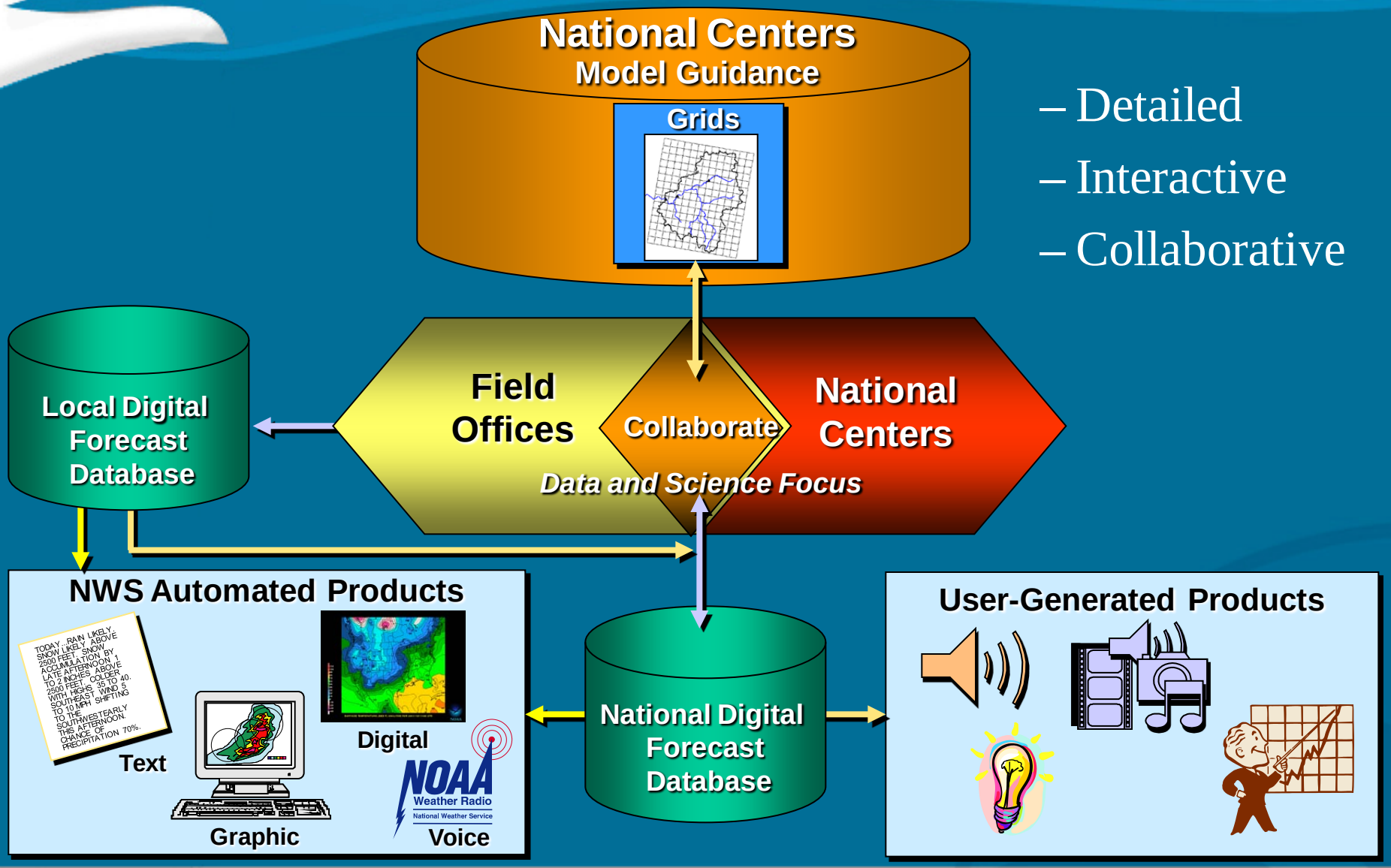
NDFD Precipitation Elements

NDFD contains the following precipitation elements:

- Predominant Weather
- Probability of Precipitation (PoP)
- 6-Hour Quantitative Precipitation Forecast (QPF6)
- 6-Hour Snow Accumulation

Available for CONUS and 16 pre-defined CONUS sectors

NDFD Digital Forecast Process



- Detailed
- Interactive
- Collaborative

NDFD and meeting Nextgen performance criteria

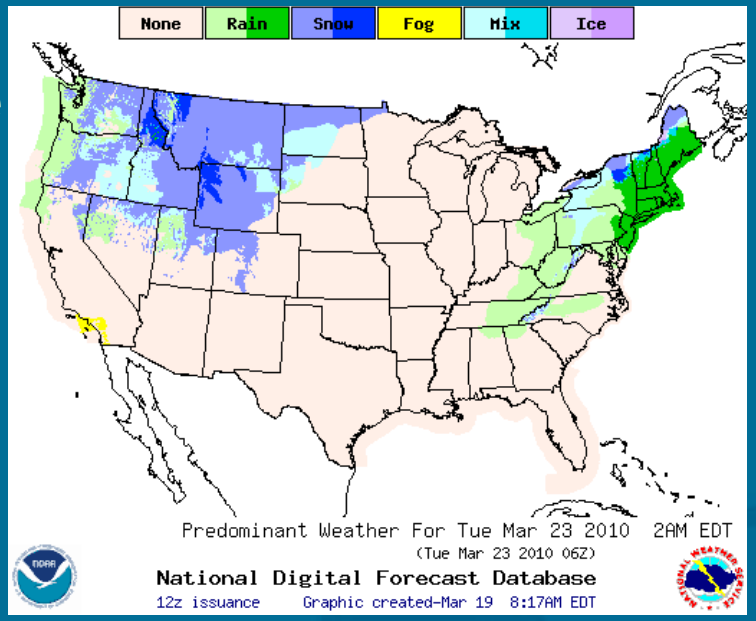
Criteria	Global Airspace Req.	NDFD Req.	Meet Req?
Hor. Resolution	10km	5km. Going to 2.5km this FY.	Exceeds
Update Rate	<= 10min	WFOs varies from 24x/day to 2x/day	
Forecast Temporal Res.	1h	3h (days 1-3) 6h (days 4-7)	Does not meet. But 1h is planned.
Forecast Update Rate and Latency	3h (day 1) 6h (days2-7)	3h (days 1-3) 6h (days 4-7)	Meets

NDFD – Predominant Weather

Predominant Weather - The weather (precipitating or non-precipitating) valid at the top of the indicated hour.

Precipitating Weather (e.g., rain, freezing rain, ice pellets, snow, etc.) is described as the type of precipitation accompanied by descriptors of intensity, coverage, or likelihood.

Non-Precipitating Weather (e.g., fog, haze, smoke, etc.) is described as the type of obstruction to vision (non-precipitating variety) accompanied by descriptors of intensity or coverage.



Sample Predominant Weather Valid 2am EDT Mar. 23, 2010

NDFD – Predominant Weather (Cont'd)

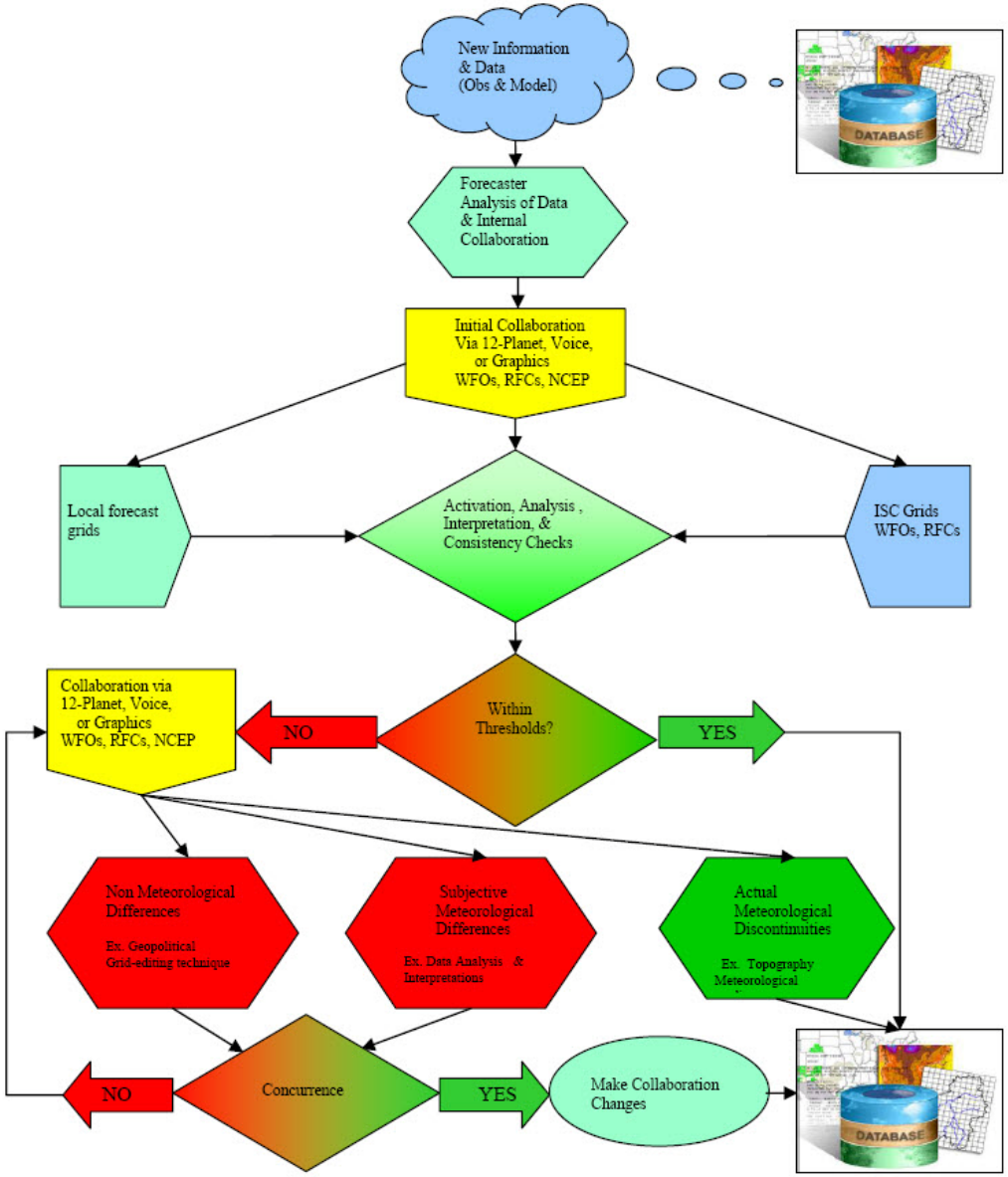
- *NDFD Weather gridpoints contain a tremendous amount of aviation information (See table on right).*
- *5 subparts:*
- *Weather*
- *Coverage*
- *Intensity*
- *Visibility*
- *Attribute codes*

Sample Weather Key	Meaning
Sct:SW:-:<NoVis>:	*Light scattered snow showers*
Ocnl:R:-:<NoVis>:^S:Ocnl:-:<NoVis>:^SChc:ZR:-:<NoVis>:	*Occasional light rain and snow, with a slight chance of light freezing rain*
Wide:FR:-:<NoVis>:OLA	*Widespread light frost in the outlying areas*
<NoWx>:<NoCov>:<NoInten>:<NoVis>:	*No weather*
Sct:RW:-:<NoVis>:^T:Iso:m:<NoVis>:	*Scattered light showers with isolated moderate thunderstorms*
Sct:T:+:<NoVis>:DmgW,LgA	*Scattered severe thunderstorms with damaging winds and large hail*

NDFD – Future Work

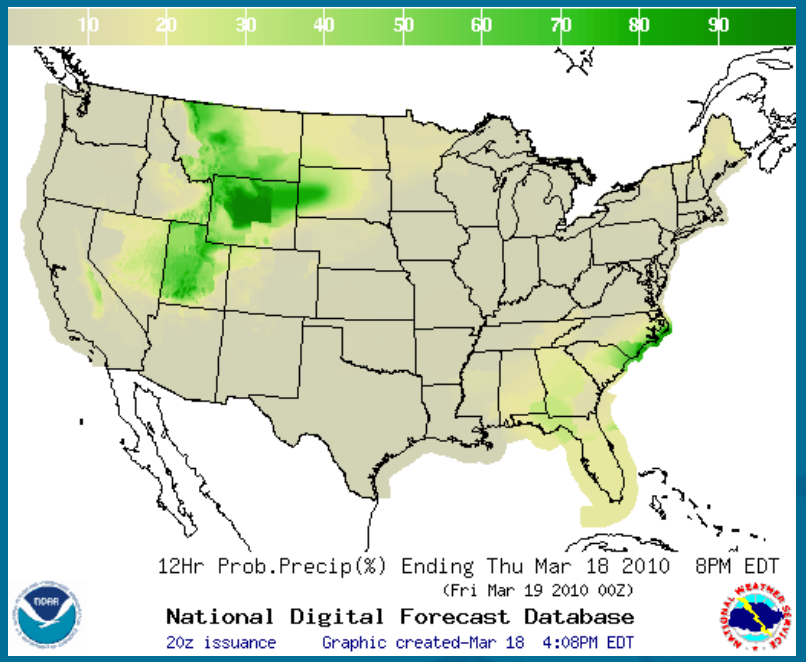
- *Experimental hourly updates to NDFD weather elements will be available later this year.*
- *2.5km grids will be available this FY.*
- *NWS also has a number of efforts underway to produce NDFD-based ceiling and visibility grids and continues to evaluate these efforts.*

Backup Slides


New Information
& Data
(Obs & Model)
DATABASE
Forecaster
Analysis of Data
& Internal
Collaboration
Initial Collaboration
Via 12-Planet, Voice,
or Graphics
WFOs, RFCs, NCEP
Local forecast
grids
Activation, Analysis ,
Interpretation, &
Consistency Checks
ISC Grids
WFOs, RFCs
Collaboration via
12-Planet, Voice,
or Graphics
WFOs, RFCs, NCEP
NO
Within
Thresholds?
YES
Non Meteorological
Differences
Ex. Geopolitical
Grid-editing technique
Subjective
Meteorological
Differences
Ex. Data Analysis &
Interpretations
Actual
Meteorological
Discontinuities
Ex. Topography
Meteorological
NO
Concurrence
YES
Make Collaboration
Changes
DATABASE

NDFD – Probability of Precipitation (PoP12)

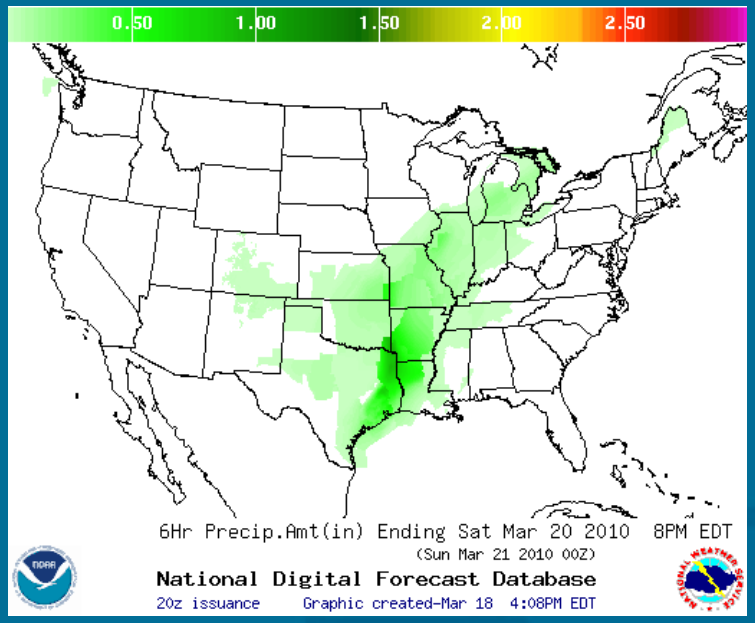
Probability of Precipitation (PoP) - The probability, expressed in percent, of measurable precipitation (at least 0.01 inch) valid for the specified 12-hour period. Trace events are excluded. Valid periods begin at 0000 UTC and 1200 UTC.



Sample PoP12 ending 8pm EDT Mar. 18, 2010

NDFD – 6 Hour Quantitative Precipitation Forecast (QPF6)

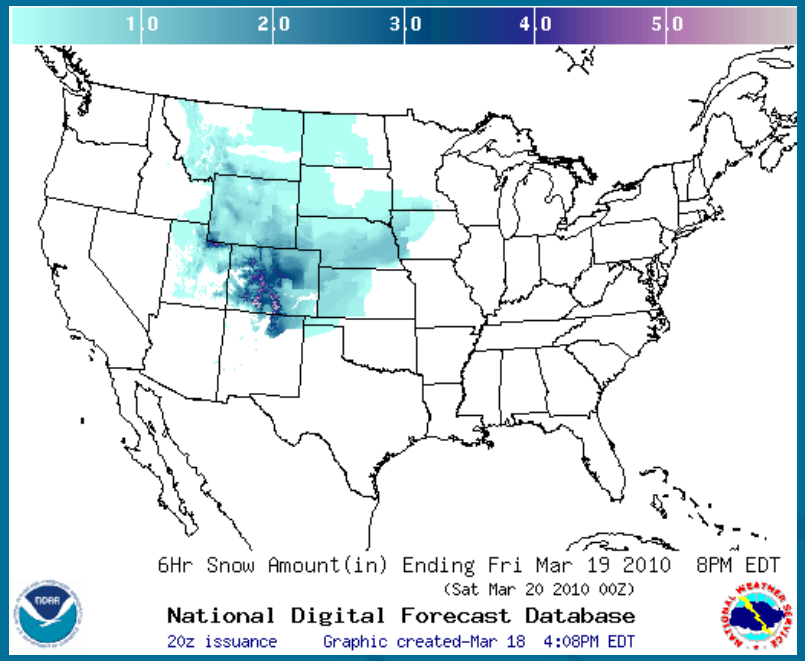
6-Hour Quantitative Precipitation Forecast (QPF6) - The expected amount of liquid precipitation (in hundredths of inches) accumulated over a six hourly period. NDFD valid periods are six hours in length beginning and ending at 0600, 1200, 1800, and 0000 UTC.



Sample QPF6 ending 8pm Mar. 20, 2010

NDFD – 6 Hour Snow Accumulation

6-Hour Snow Accumulation - The expected total accumulation of new snow (in inches) during a 6 hour period. A snow accumulation grid will be specified whenever a measurable snowfall is forecast for any hour during a valid period. Valid periods for the NDFD begin and end at 0600, 1200, 1800, and 0000 UTC.



Sample Snow Amount ending 8pm EDT Mar. 19, 2010