



# Conceptual Overview

## The Digital Forecast Process

### - IFPS and NDFD -

NWS goes digital

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# The Vision

- Aggressively and continually infuse science and technological advances to improve products and delivery of services that best meet and anticipate customer needs.
- Deliver a credible, timely, and relevant suite of seamless weather, water, and climate products and services which exploit technology to the fullest to meet customer and partner needs.

- from NWS Strategic Plan



# The Goals

- Post NWS products and data on the Internet in graphic-oriented format (2002)
- Prepare and disseminate NWS forecast products in digital form (2003)

- from NWS Strategic Plan



# IFP Benefits



- Maximizes **human contribution** to forecast process
- Provides more **forecast detail** in time and space
- Enables more **effective communication** with users (e.g., graphics)
- Increases the **usefulness** of NWS forecasts to customers and partners



# How does IFPS work?



- A 7-day **digital forecast database** is established at each WFO.
- Forecasters **interactively modify** the contents of the database according to the latest observations and model guidance.
- NWS text, tabular, voice, and graphical **products are generated** from the database
- The **database itself** is provided as an NWS product to customers and partners



# IFPS Grid Editor



GFE: (SITE - gFeConfig)

GFE WeatherElement Populate Grids Edit Consistency Products Maps Edit Areas Verify Help

**D** **H** **T** **C** ? = - **Q** **1** **2** **3** **4**

3 Dec 04 (Tue) Dec 05 (Wed)  
 06 12 18 06 12

- T SFC Fcst (BOU)
- Td SFC Fcst (BOU)
- MaxT SFC Fcst (BOU)
- MinT SFC Fcst (BOU)
- Wind SFC Fcst (BOU)
- Sky SFC Fcst (BOU)
- Wx SFC Fcst (BOU)
- PoP SFC Fcst (BOU)
- QPF SFC Fcst (BOU)
- SnowAmt SFC Fcst (BOU)
- FzLevel SFC Fcst (BOU)
- T SFC ISC (BOU)

(edit)T SFC Fcst (BOU) (F) 1h Tue 00Z 04-Dec-01

Status: 20:38:38 R Finished generating map of ISC points Time: 20:39Z 22-Jan-02



# Computer Worded Forecast

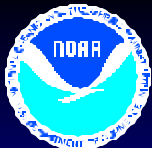


**.TONIGHT...CLEAR. LOW IN THE MID 30S. LIGHT WIND EARLY BECOMING SOUTHWEST 10 TO 15 MPH AFTER MIDNIGHT.**

**.SUNDAY...MOSTLY SUNNY AND WARMER. HIGH IN THE UPPER 60s. SOUTHWEST WIND 15 TO 25 MPH BECOMING NORTH DURING THE AFTERNOON.**

**.SUNDAY NIGHT...CLEAR. LOW AROUND 30. LIGHT WIND.**

**.MONDAY...SUNNY AND COOLER. HIGH IN THE MID 50S.**



# Digital Forecast Matrix



WVZ033-034-VAZ003-004-131124-

BUCHANAN VA-DICKENSON VA-MCDOWELL WV-WYOMING WV-

INCLUDING THE CITIES OF...CLINTWOOD VA...GRUNDY VA...PINEVILLE WV...

WELCH WV

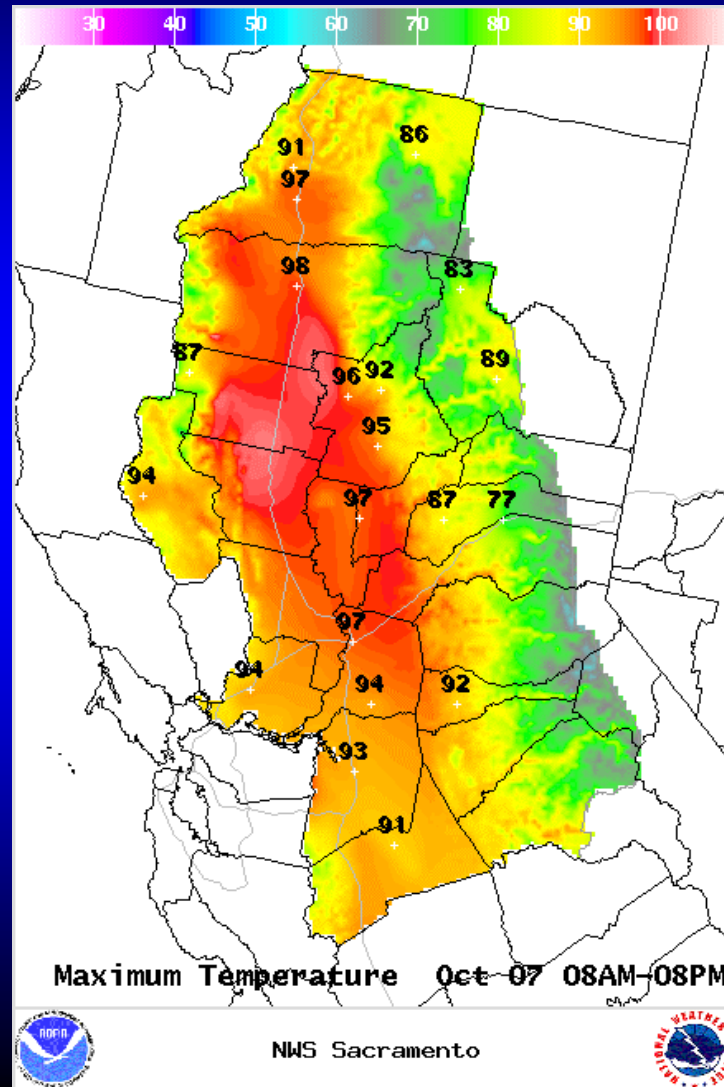
324 PM EST SAT JAN 12 2002

EST	SUN 01/13/02												MON 01/14/02									
	15	18	21	00	03	06	09	12	15	18	21	00	03	06	09	12	15	18	21	00	03	06
POP 12HR					40			20				10			30			40				
QPF 12HR				.01	.10			0				0		.01	.10			.01	.10			
MAX QPF				.01	.10			0				0		.01	.10			.01	.10			
SNOW 12HR				00	00			00	00			00	00									
MN/MX			27	31	32		36	40	42		22	28	30		36	40	41		30	32	34	
TEMP	45	41	37	32	33	36	39	39	36	33	30	28	30	34	38	39						
DEWPT	31	31	30	30	29	29	28	28	26	26	26	25	25	26	28	30						
RH	58	67	76	92	85	75	64	64	67	75	85	88	81	72	67	70						
WIND DIR	SW	W	W	W	NW	NW	NW	NW	W	W	W	SW	S	S	SW	SW						
WIND SPD	10	12	15	15	15	15	15	12	10	8	8	8	12	15	15	10	10	10	5	5		
CLOUDS	SC	B1	B2	B2	B1	B1	B1	SC	SC	SC	SC	SC	B1	B1	B1	B1	B2	B2	B2	B2		
RAIN																	C	C	C			
SNOW				C	C												C	C	C	C	C	
WIND CHILL		26	18	11	13	17	21	24	23	23	19	17	12	14	19	27						





# Experimental Web Product





# NDFD Definition



- Contains a **seamless mosaic** of NWS digital forecasts
- Is **available to all** users and partners – public and private
- Allows **users and partners** to create wide range of text, graphic, and image products





# NDFD Benefits



*Increasing the usefulness of Government weather forecasts*

- Provides weather information to “drive” custom applications developed by private sector
  - Decision support systems that fit the forecast to the problem
  - Weather information along a path
  - Text generation in more than one language
  - Forecasts for vehicles and hand-held devices with GPS
  - Controls for smart appliances (e.g., heating, cooling, irrigation)
  - Graphics for mass media



# NDFD Forecast Elements



The NDFD will contain:

- Weather, water, and climate forecasts from WFOs, RFCs, and NCEP Service Centers
- Elements that support generation of current WFO products
- Digital watch, warning, and advisory information
- Elements that would attract the private development of graphics and decision tools
- The *official* NWS forecast for each element



# NDFD Prototype Elements



- Daytime Maximum Temperature
- Nighttime Minimum Temperature
- Probability of Precipitation (12 hour)
- Sky Cover
- Temperature
- Dewpoint Temperature
- Wind Direction
- Wind Speed



# NDFD Resolution



- Spatial resolution
  - 5 km grids for now
  - 2.5 km grids when AWIPS hardware allows
- Temporal resolution
  - 3 hourly for days 1-3
  - 6 hourly for days 4-7
- As available from CPC beyond day 7



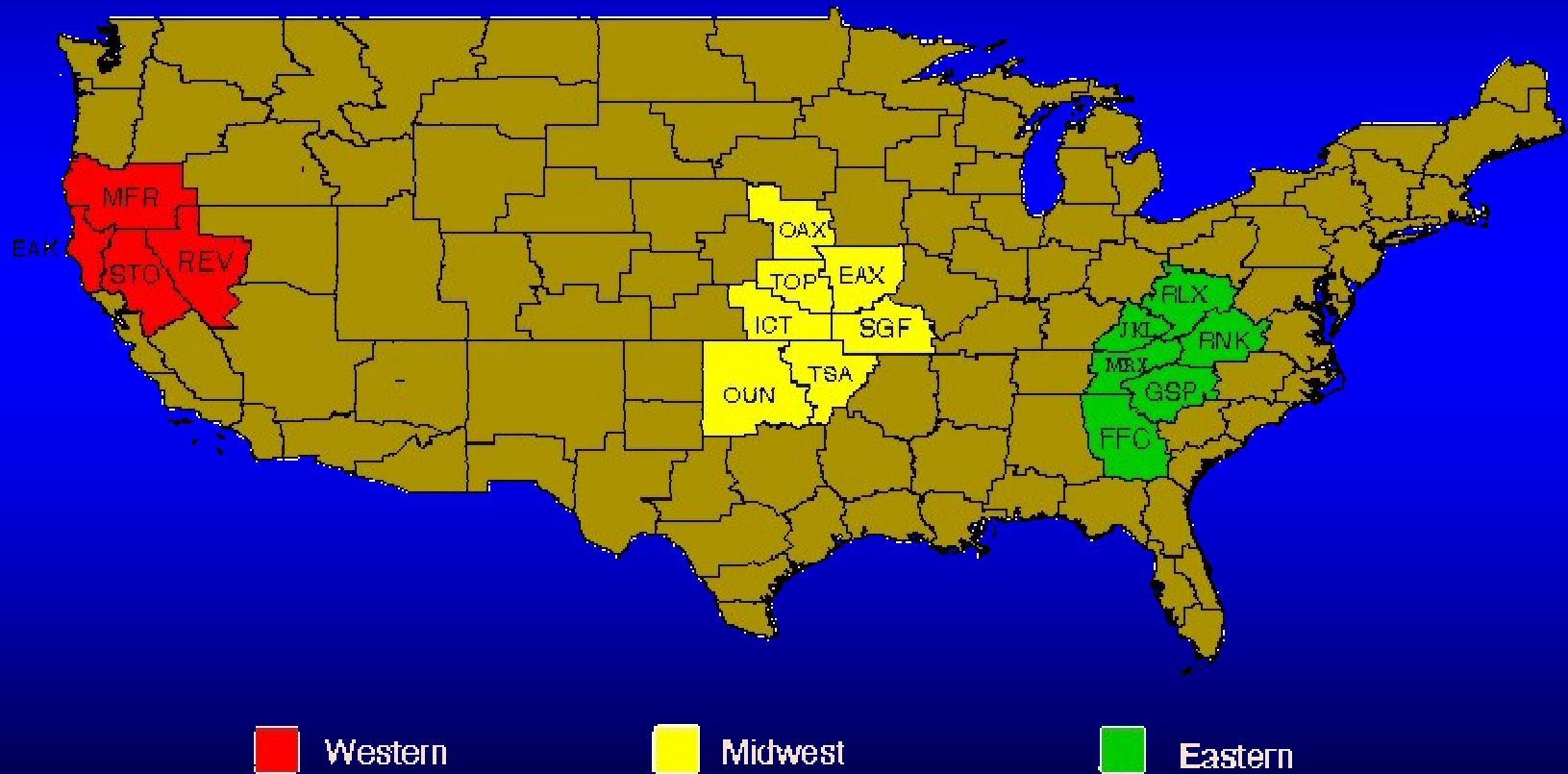
# NDFD Updating



- Grids received from WFOs with specified effective times
- Internal graphics posted in near real time for WFO and HPC review
- Consistency stats generated from database hourly
- GRIB (v2) products updated hourly on FTP servers
- National web graphics updated hourly
- Database replicated on regional web servers in near real time (being tested)



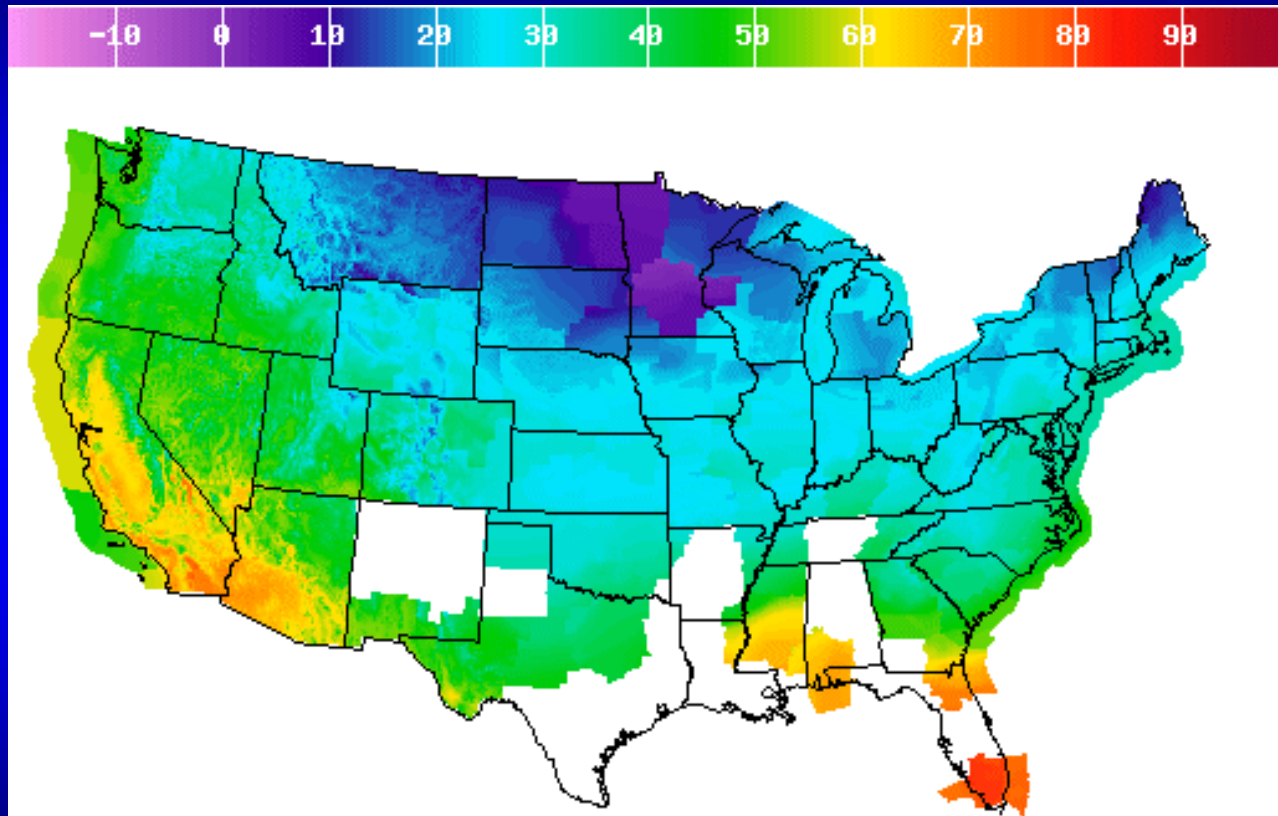
# NDFD Prototype Areas







# NDFD formation



MaxT Valid Wed Dec 04 2002 20Z



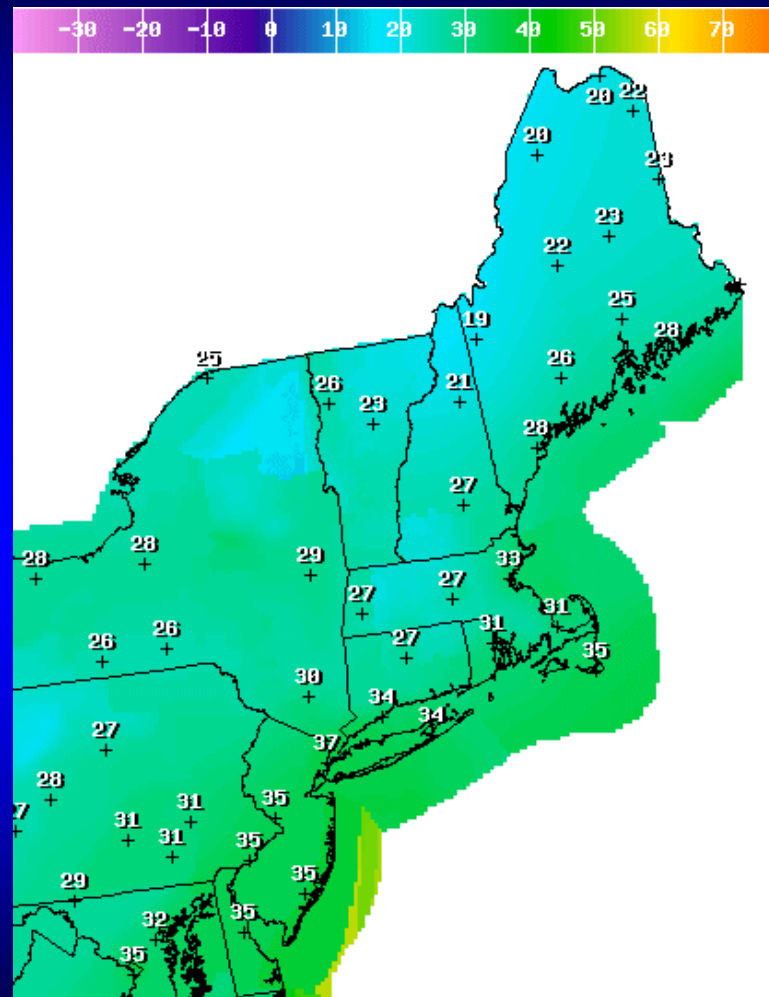
National Digital Forecast Database

Created 12/04/2002 12:57 GMT





# One of 16 NDFD sectors



MinT Valid Mon Nov 25 2002 08Z



National Digital Forecast Database

Created 11/21/2002 17:30 GMT





# IFPS/NDFD in a nutshell



from teletype text...

...to digital data streams

