





# Welcome !

National Weather Service  
2003 IAEM Conference  
Orlando, Florida



# What's New at the National Weather Service New Products and Services

## Presentation Outline

New Products

Ted Buehner  
NWS Seattle/Tacoma

New at the Storm  
Prediction Center

Dan McCarthy  
Storm Prediction Center

StormReady Program

Steve Kuhl  
NWS Washington DC



# What's New at the National Weather Service New Products and Services

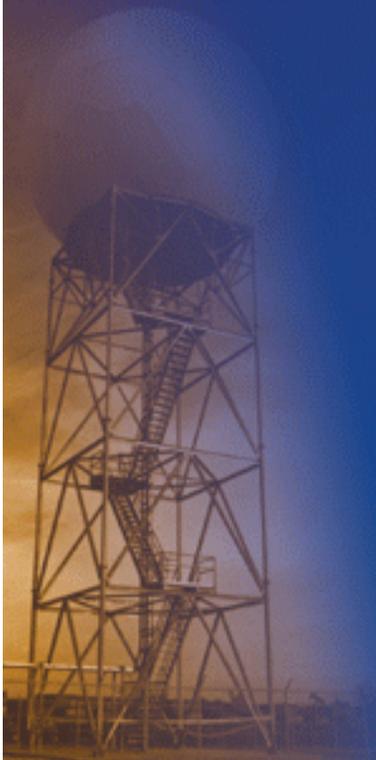
Ted Buehner

Warning Coordination Meteorologist  
National Weather Service -Seattle/Tacoma





# Your National Weather Service Goes Digital



# Traditional Forecasting Process

- Schedule Driven
- Product Oriented
- Labor Intensive

National Centers  
Model Guidance

Field Offices  
Type Text Products



TODAY...RAIN LIKELY.  
SNOW LIKELY ABOVE 2500  
FEET. SNOW  
ACCUMULATION BY LATE  
AFTERNOON 1 TO 2  
INCHES ABOVE 2500  
FEET. COLDER WITH  
HIGHS 35 TO 40.  
SOUTHEAST WIND 5 TO 10  
MPH SHIFTING TO THE

SEATTLE TACOMA EVERETT AND VICINITY  
ISSAQUAH  
PTCLDY CLOUDYPTCLDY PTCLDY SUNNY PTCLDY  
60/52 63/54 65/47 55/40 55/37 50/33  
POP 20 POP 20 POP 20 POP 20 POP 10 POP 10

National Centers  
Generate Graphical Products

*U.S. Drought  
Monitor*



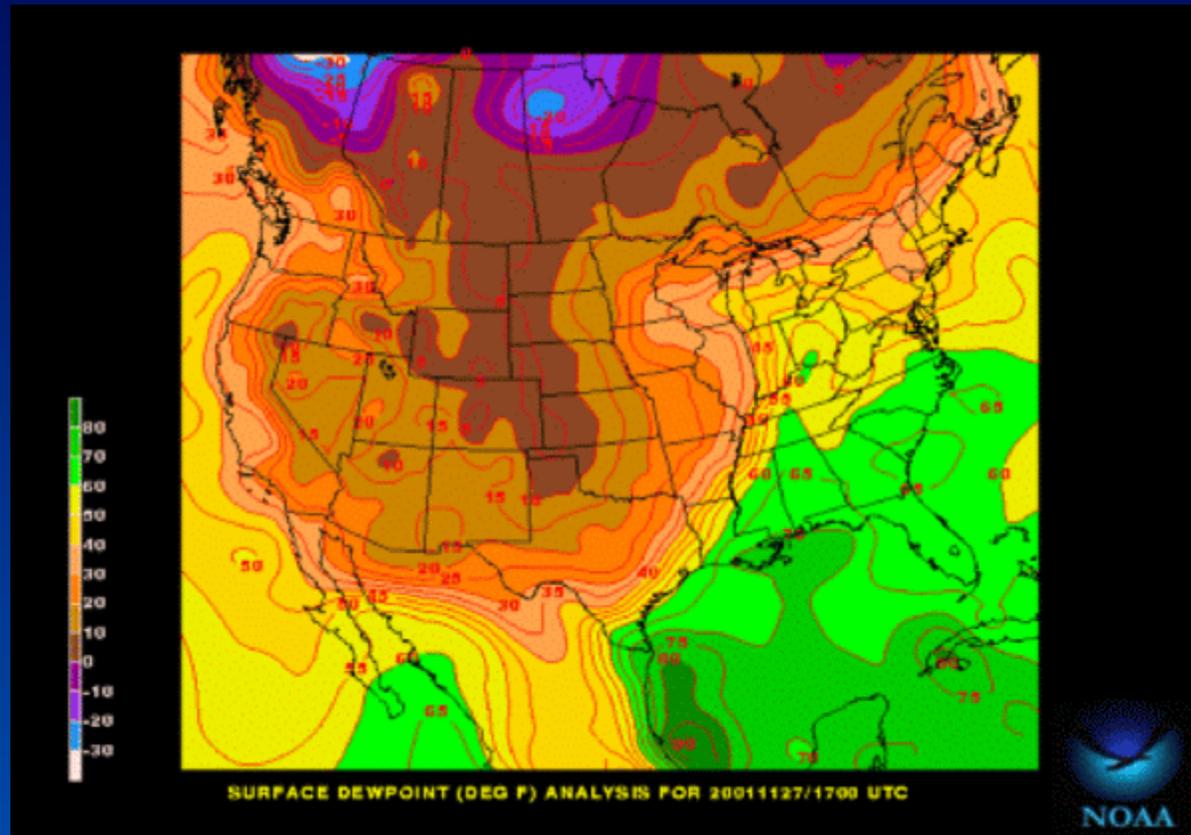
*Excessive Heat  
Products*



*Threats  
Assessments*



# *Taking advantage of Technology*



**Our Goal: To develop a new forecasting process and delivery system that will provide you with new and enhanced forecasts and multiple ways to receive NWS weather information**



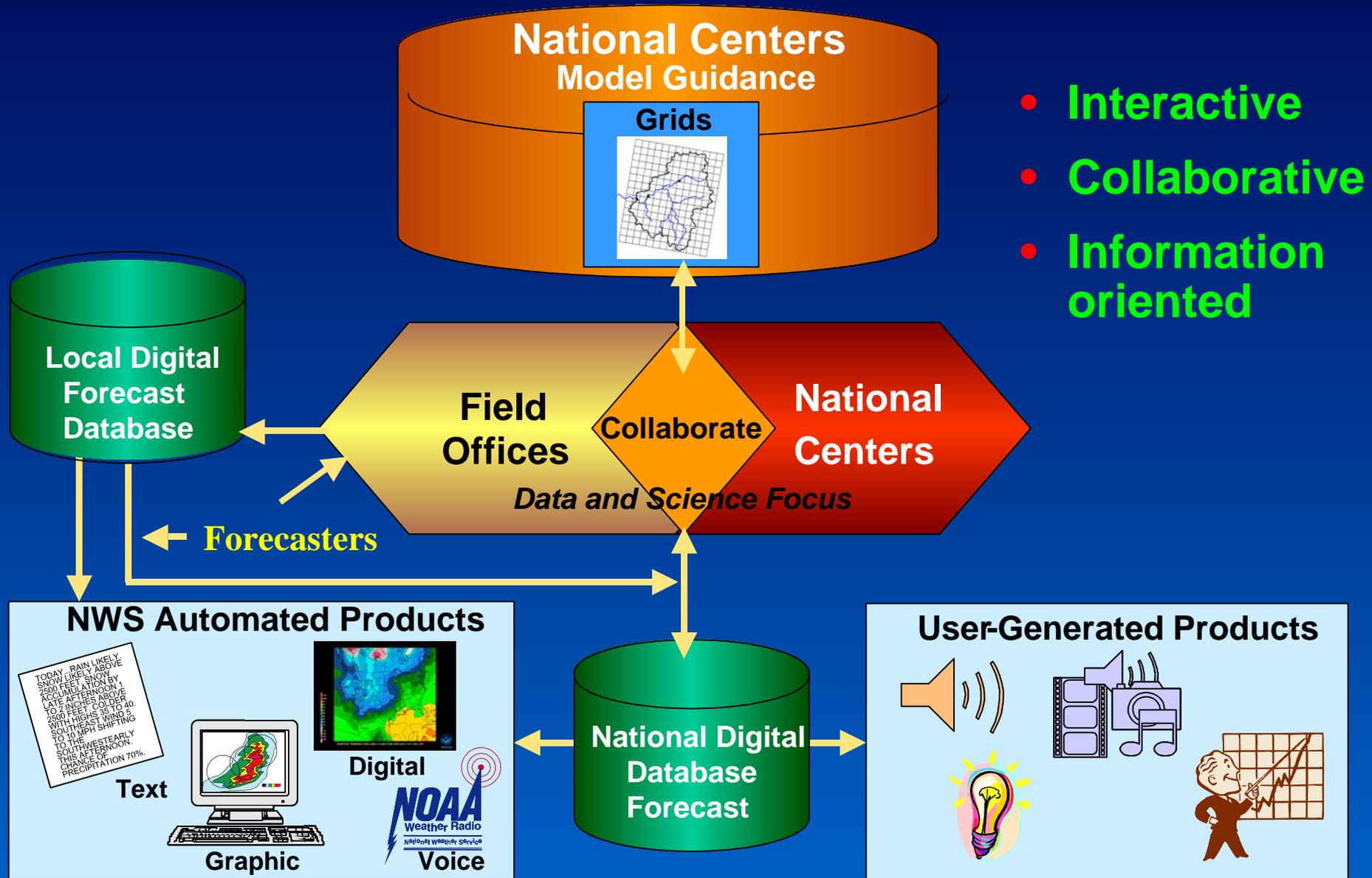
# IFPS



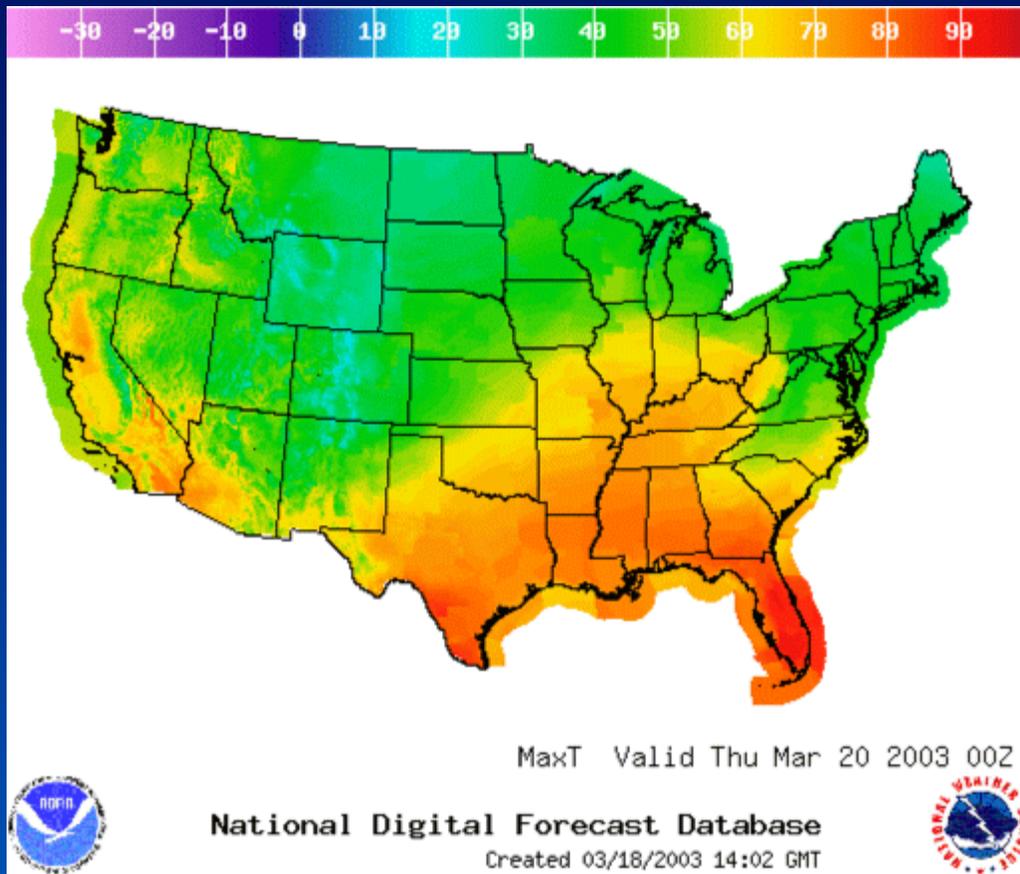
## Interactive Forecast Preparation System

- Grid resolution
  - 5 km now, 2.5 km expected in the next year (down to a “neighborhood” scale)
- Numerical weather prediction inputs
  - Local forecaster adjustments to grids
- Forecast grid elements (all at surface)
  - Temperatures, Max/Min, DewPt/RH
  - POPs, Precip Amts, % Sky Cover, Weather
  - Snow/Freezing Level, Winds, Wave Height

# New Forecasting Process



# National Digital Forecast Database

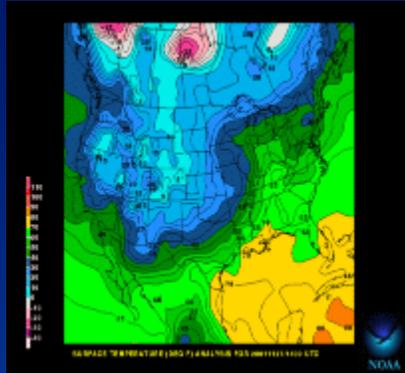


- ▶ Mosaic forecasts for the entire country
- ▶ National marine and climate products available
- ▶ Interactive! You can download the data files and use them as you see fit
- ▶ First Time! Can be integrated with GIS mapping
- ▶ Eventually real time observed weather data will be available

# National Digital Forecast Database

- \* A national database of digital weather forecast information
- \* Designed to meet fundamental information needs of industry, commercial weather services, media, academia, international, emergency management needs you →
- \* Provides web-based interactive graphics and forecast for any location and elevation on a 5 km grid (soon - 2.5 km)

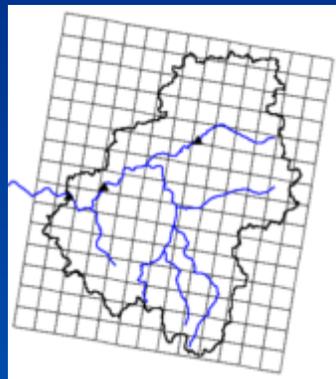
# Giving You More Weather Information via the Internet



*The public, emergency managers and city planners can use WWW. graphic products for detailed forecasts*

- More weather data
- Higher resolution forecasts
- Visual displays of probability
- User-defined products create business opportunities

**Different products for different customers**



*Commercial weather companies & emergency managers can use grids to generate tailored products*

TODAY...RAIN LIKELY.  
SNOW LIKELY ABOVE 2500  
FEET. SNOW  
ACCUMULATION BY LATE  
AFTERNOON 1 TO 2  
INCHES ABOVE 2500  
FEET. COLDER WITH  
HIGHS 35 TO 40.  
SOUTHEAST WIND 5 TO 10  
MPH SHIFTING TO THE  
SOUTHWESTEARLY THIS  
AFTERNOON. CHANCE OF  
PRECIPITATION 70%.

*Radio stations & public can still use text forecasts*



# IFPS

## Interactive Forecast Preparation System

- Updates
  - Anytime
  - Push vs. Pull
- Implementation schedule
  - Today....selected grids posted to the Web
  - 2004...remaining grids phased in Nationwide
- Web examples



# National Weather Service Forecast Office

## Kansas City/Pleasant Hill



Home

News

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Local forecast by "City, St" or Zip Code

Current Hazards  
Hazardous Weather  
Hazards Assessment

Current Conditions  
Missouri  
Kansas  
Surface Maps  
Satellite  
Weather Summary  
Rivers & Lakes AHPs

Radar Imagery  
Pleasant Hill, MO  
Nationwide

Forecasts  
Interactive  
Graphical  
Aviation  
Fire Weather  
Model Guidance  
KC Skycast

Climate  
Monthly Summaries  
KC Records  
Regional  
Climate Prediction  
Pcpn/Temp Table

Weather Safety  
Storm Ready  
Skywarn  
Preparedness  
Weather Radio

Hydrology  
River Stgs/Fcsts  
Drought Information

Local Interest  
Coop Observers  
EM Briefing  
EMMAN  
KC AMS  
Office Information  
Contact Us  
Email Webmaster  
Web Information

Experimental Interactive Gridpoint Forecasts Updated 07:00 PM CST Fri Oct 31 2003

Experimental Product Feedback Form

7-Day Text Forecast

- Temperature
- Dewpoint
- Wind Chill
- Wind
- Rel. Humidity
- Sky Cover
- Weather
- Pcpn. Probability

Adjacent



Sites



Click map, or enter information in boxes below, for forecast



Hazardous Weather Outlook

Last map update: Fri, Oct 31st 2003 at 7:48:08 pm CST

Enter latitude/longitude pair in decimal degrees (i.e. 38.75 -94.23)

Latitude  Longitude

National Weather Service  
Pleasant Hill Weather Forecast Office  
1803 N. 7 Hwy  
Pleasant Hill, MO 64080  
(816) 540-6021  
W-EAX.Webmaster@noaa.gov

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Your National Weather Service *forecast*


Saint Joseph, MO

Enter Your "City, ST" or zip code

NWS Kansas City/Pleasant Hill, MO
[Comments/Feedback](#)

Experimental Gridpoint forecast for 39.72 -94.77
Last Update: 7:00 pm CST October 31, 2003

Forecast at a Glance

Tonight	Saturday	Saturday Night	Sunday	Sunday Night	Monday	Monday Night	Tuesday	Tuesday Night
								
Increasing Clouds Lo 37°F	Chance Showers Hi 51°F	Chance Tstms Lo 47°F	Chance Tstms Hi 70°F	Chance Tstms Lo 49°F	Chance Showers Hi 64°F	Chance Showers Lo 49°F	Chance Showers Hi 62°F	Chance Showers Lo 48°F

Detailed 7-day Forecast

Current Conditions

Hazardous weather condition(s):

Hazardous Weather Outlook

**Tonight:** Increasing clouds, with a low near 37. North northwest wind between 3 and 6 mph.

**Saturday:** Rain showers possible. Chance for precipitation is 30%. Cloudy, with a high near 51. East northeast wind between 6 and 10 mph.

**Saturday Night:** Rain showers and thunderstorms possible. Chance for precipitation is 40%. Cloudy, with a low around 47. Southeast wind around 9 mph.

**Sunday:** Rain showers and thunderstorms possible. Chance for precipitation is 40%. Partly cloudy, with a high near 70. South southeast wind between 7 and 10 mph.

**Sunday Night:** Rain showers and thunderstorms possible. Chance for precipitation is 30%. Mostly cloudy, with a low around 49. South southeast wind between 3 and 9 mph.

**Monday:** Rain showers possible. Chance for precipitation is 50%. Mostly cloudy, with a high around 64.

**Monday Night:** Rain showers possible. Chance for precipitation is 40%. Cloudy, with a low near 49.

**Tuesday:** Rain showers possible. Cloudy, with a high near 62.

**Tuesday Night:** Rain showers possible. Cloudy, with a low around 48.

**Wednesday:** Rain showers possible. Cloudy, with a high near 60.

St. Joseph, Rosecrans Memorial Airport

Last Update on Oct 31, 6:53 pm CST

Fair

40°F  
(4°C)

**Humidity:** 79 %

**Wind Speed:** N 5 MPH

**Barometer:** 30.30" (1026.3 mb)

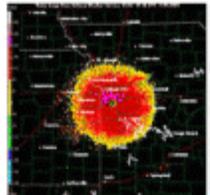
**Dewpoint:** 34°F (1°C)

**Wind Chill:** 37°F (3°C)

**Visibility:** 10.00 mi.

**More Local Wx:** [2 Day History](#)

Radars and Satellite Images




Additional Forecasts & Information

Zone Averaged Forecast for Buchanan County, MO

<a href="#">Element Meteorogram</a>	<a href="#">Digital/Tabular Forecast</a>
<a href="#">Hazardous Weather</a>	<a href="#">Forecast Discussion</a>
<a href="#">Regional Weather Conditions</a>	<a href="#">Past Weather Information</a>
<a href="#">Interactive Forecast Map</a>	<a href="#">Home</a>



# Kansas City/Pleasant Hill

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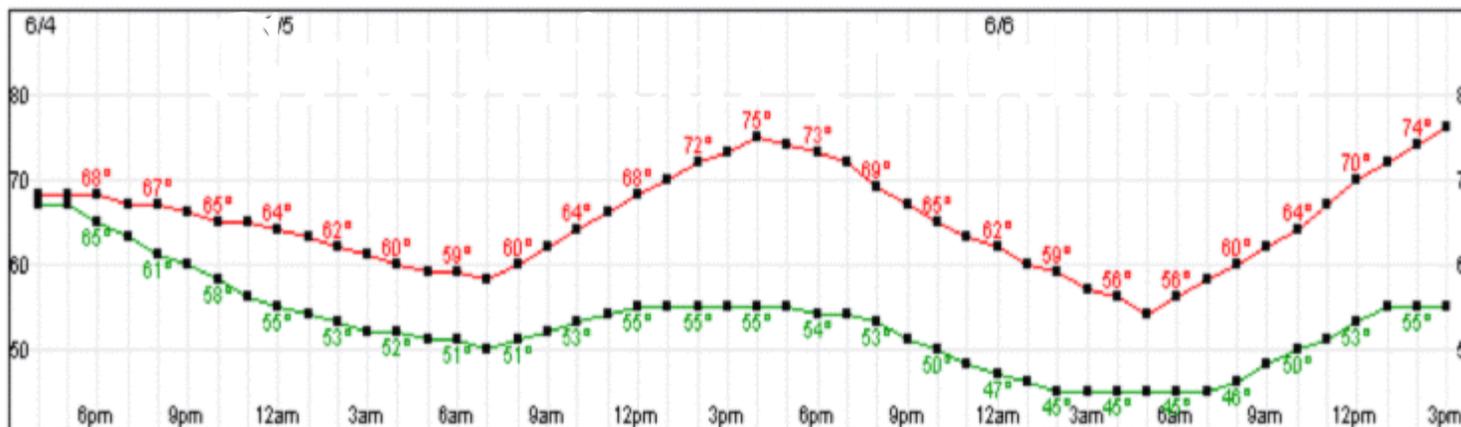
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Experimental Gridpoint forecast for 40.07 -93.62

Locations within 5 miles of this gridpoint include...Edinburg MO...Trenton MO

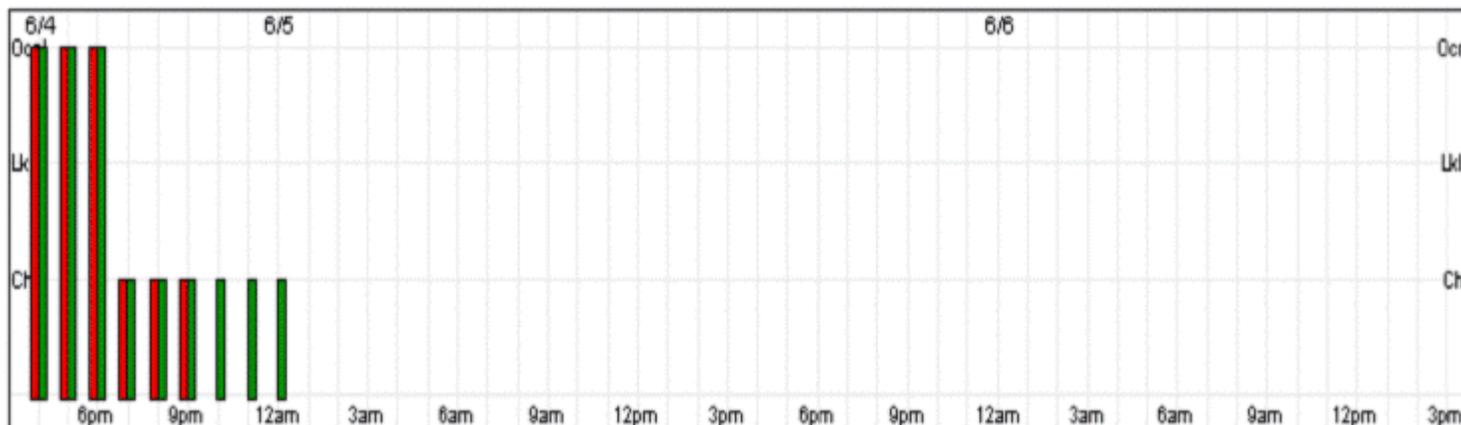
## Element Meteogram



Meteogram parameters: Temperature (°F) Dewpoint (°F)

Click on hour columns for additional forecast information

## Precipitation Probabilities



Precipitation probability: Thunder Rain



# Kansas City/Pleasant Hill

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Experimental Gridpoint forecast for 40.16 -93.5

Locations within 5 miles of this gridpoint include: Dur p MO

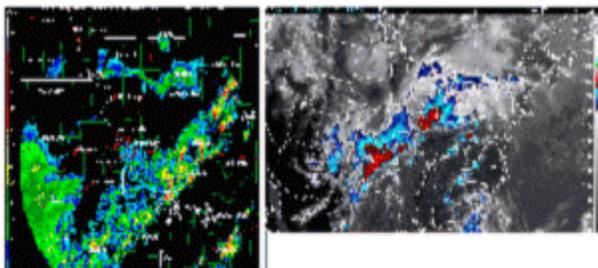
## Digital Forecast **Graphical Products**

	6/4								6/5															
	16	17	18	19	20	21	22	23	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
Temp	68	68	68	67	67	66	65	64	64	63	62	61	60	59	59	58	60	62	64	66	67	69	71	73
Dewp	67	67	65	63	61	60	58	56	55	54	53	52	52	51	51	50	51	52	53	54	54	55	55	55

	6/6																							
	16	17	18	19	20	21	22	23	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
Temp	75	74	73	72	69	67	65	63	62	60	59	57	56	54	56	58	60	62	64	67	69	72	74	76
Dewp	55	54	54	54	53	51	50	48	47	45	45	45	45	45	45	45	46	48	50	51	53	55	55	55

	6/7																							
	16	17	18	19	20	21	22	23	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
Temp	77	79	77	76	74	73	71	69	68	66	64	63	61	59	58	60	62	65	67	69	71	74	76	78
Dewp	56	56	56	57	56	56	56	55	55	55	54	54	53	52	52	51						56		

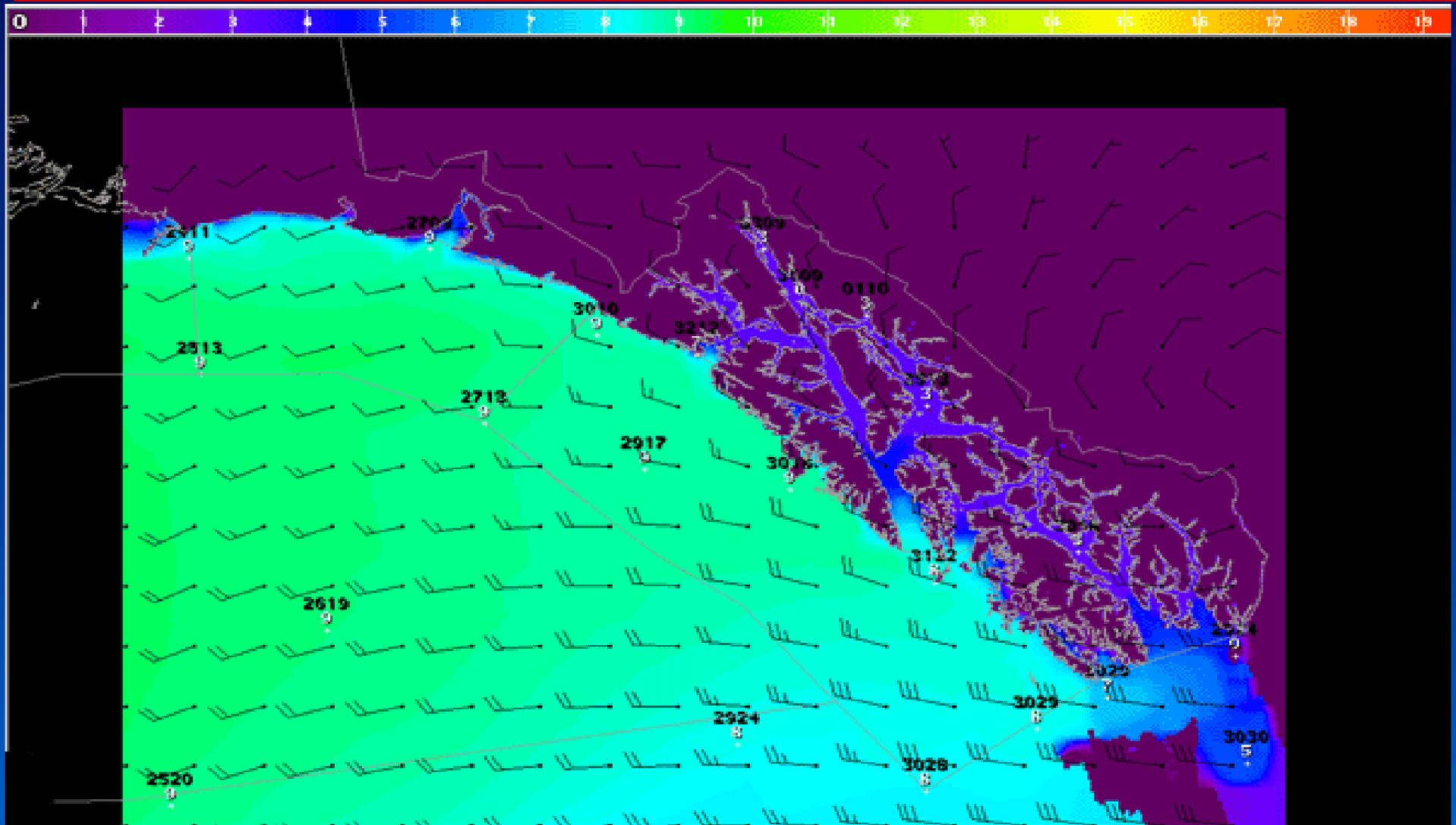
### Radars and Satellite Images

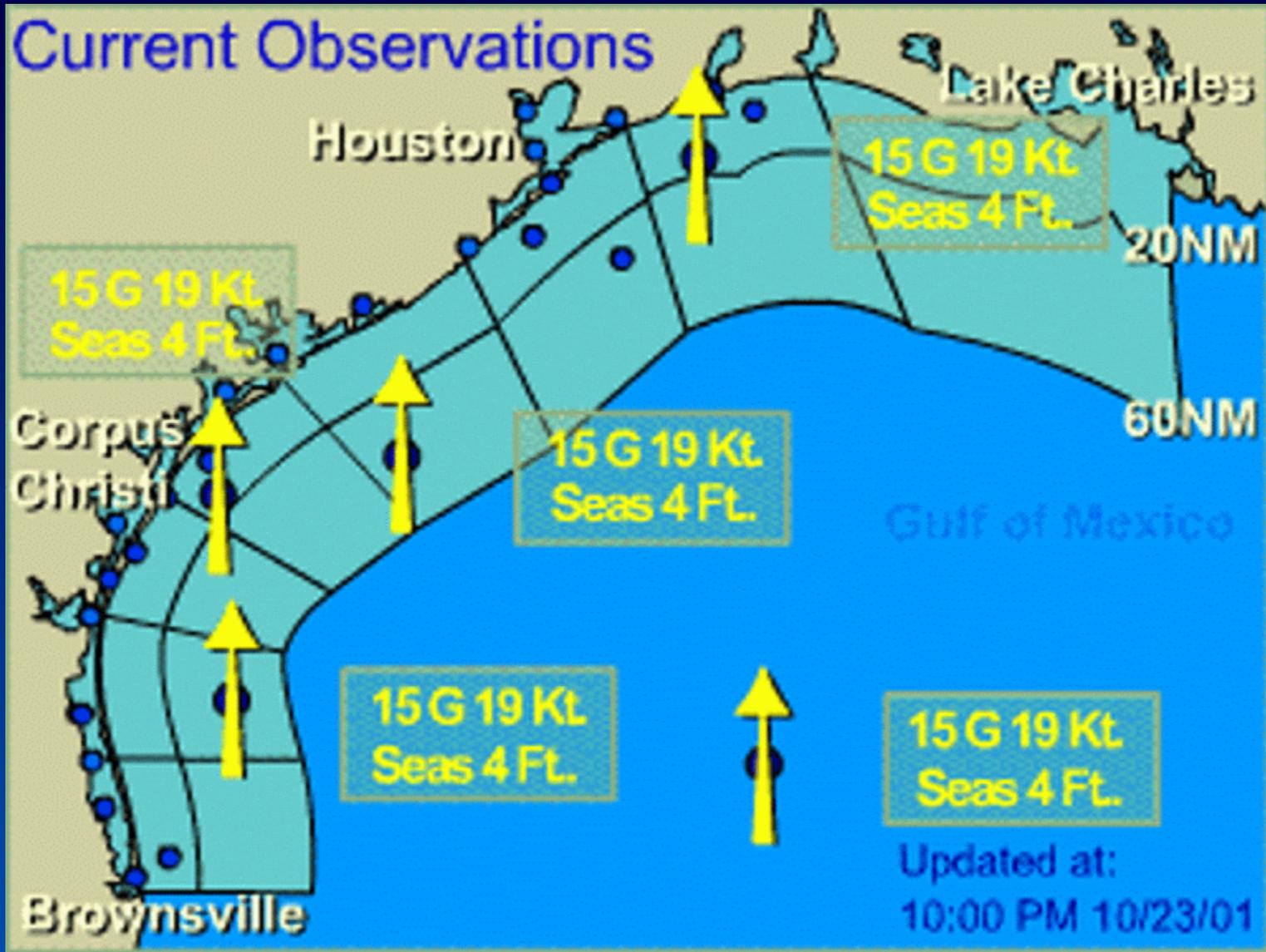


### Additional Forecasts & Information

- [7-Day Text Forecast](#)
- [Element Meteogram](#)
- [Hazardous Weather](#)
- [Digital Forecast](#)
- [Forecast Discussion](#)

# Graphical forecasts of sea heights and winds from NWS Juneau, AK





**Weather information can be delivered  
the way you want it...**

---



# Marine Weather

National Weather Service - Corpus Christi, TX

## Current Marine Hazards



## Current Observations



## Other Links



Tide Information

Port Aransas Jetty Tides  
 Oct. 23, 2001  
 High Tide/5:34 AM  
 Low Tide/7:22 PM  
 High Tide/11:36 PM



Sea Water Temperature

Port Aransas  
**74°**



Tropical Weather

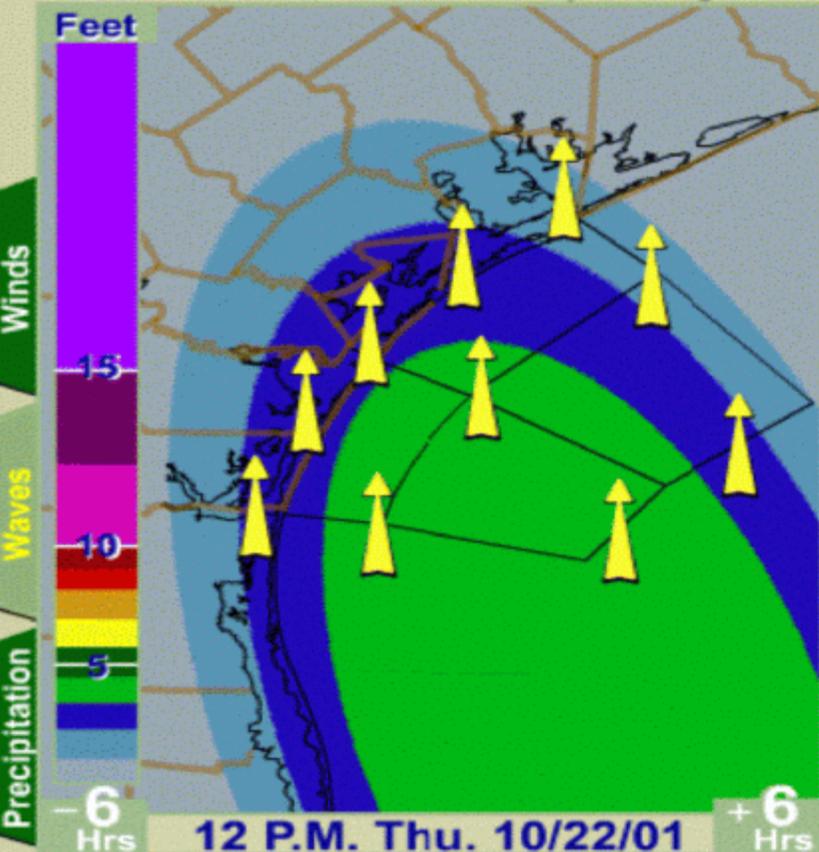


Current Radar



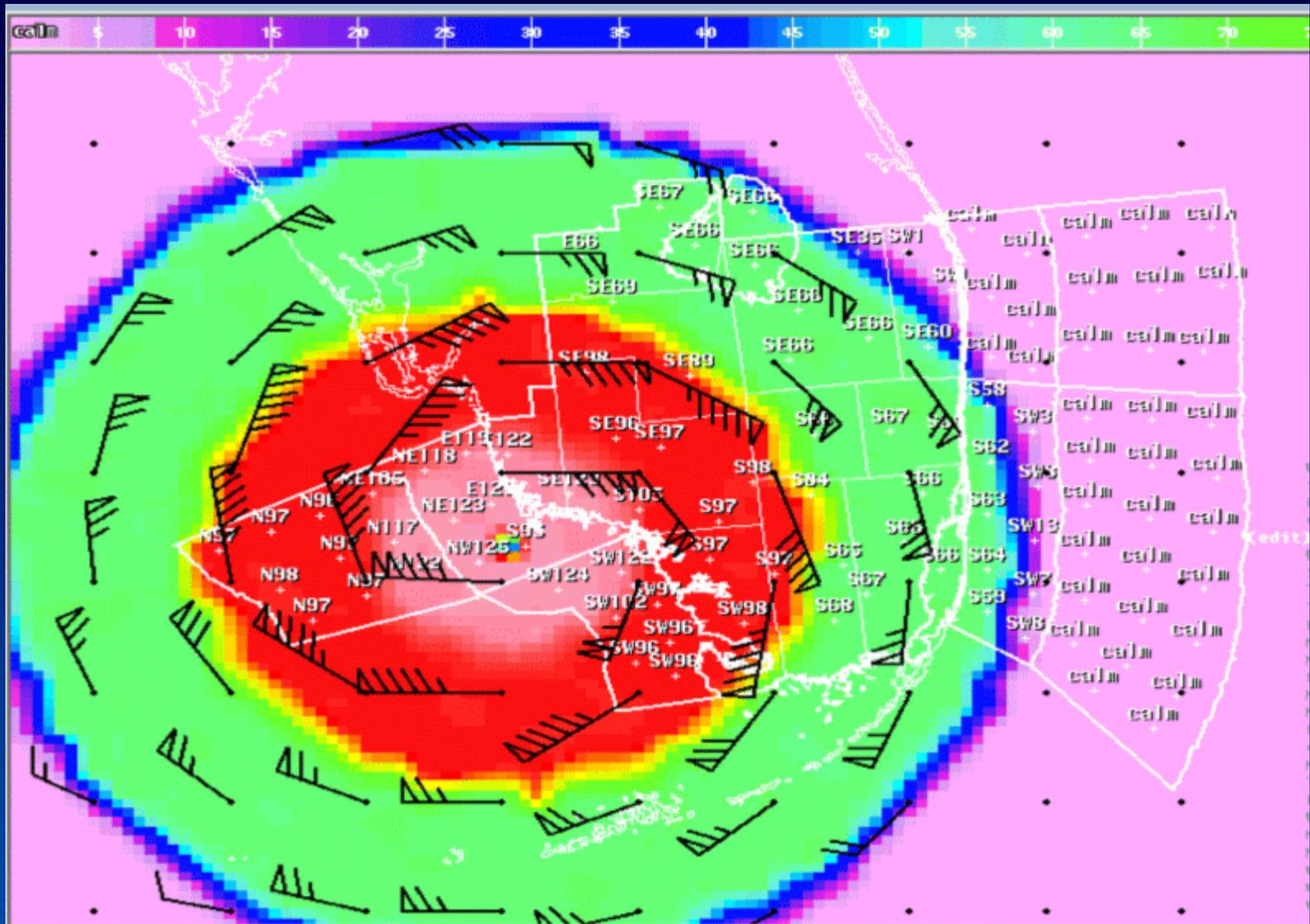
Printable Version

## Marine Forecast Baffin Bay to Matagorda Ship Channel



	Bay Waters	COASTAL WATERS		
Today	5 knots	Slightly Choppy	Sun	
Tongt.	5 - 10 knots	Slightly Choppy	Moon	
Sat.	10 knots	Slightly Choppy	Sct. Clouds	
Sat. Night	10 - 15 knots	Slightly Choppy	Sct. Clouds	
Sun.	15 knots	Slightly Choppy	Sun	
Sun. Night	15 - 20 knots	Slightly Choppy	Moon	
Mon.	20 knots	Slightly Choppy	Sun	
Mon. Night	20 - 25 knots	Slightly Choppy	Moon	
Tue.	25 knots	Slightly Choppy	Sun	

GRAPHICS KEY !



**A graphical forecast example of winds around Hurricane Andrew!**



National Weather Service Forecast Office

State College, PA



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Search

Go

## Experimental Forecast Images

See the [Product Description of the Experimental Forecast Images](#). Please send us your [Comments](#) on this product.

Adjacent Sites



Animate



Print



Help



Public

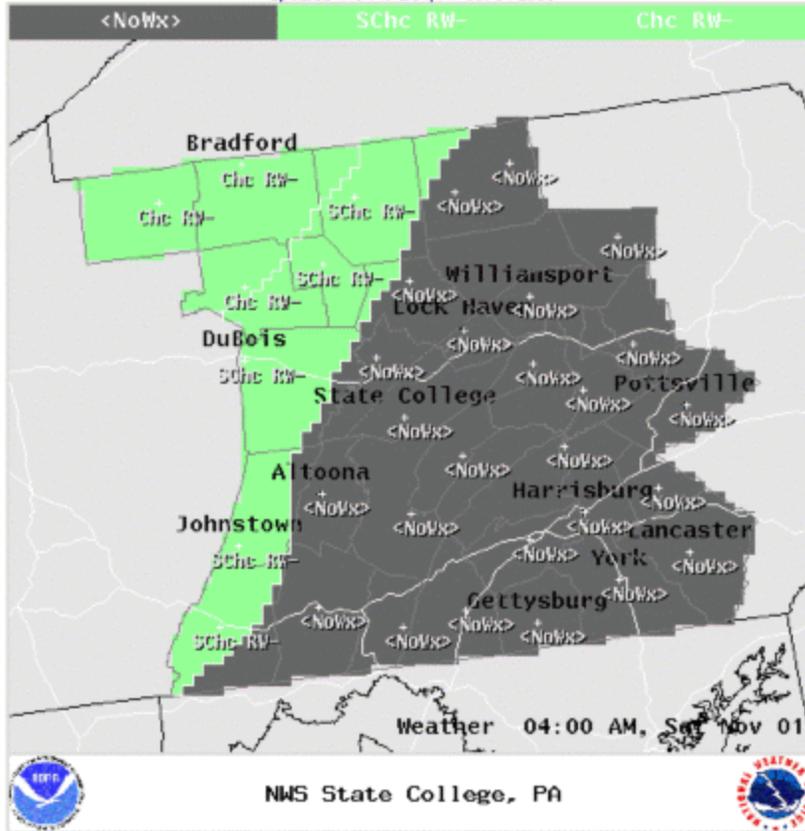
Fire Weather

### Experimental Forecast Images

Tonight (Select Time)	<input type="button" value="←"/> <input type="button" value="→"/>			
Max/Min Temperature	Low			
Temperature	7pm	10pm	1am	4am
Dewpoint	7pm	10pm	1am	4am
Wind Chill	7pm	10pm	1am	4am
Relative Humidity	7pm	10pm	1am	4am
Sky Cover	7pm	10pm	1am	4am
Probability of Precip.	12 hr. probability			
Weather	7pm	10pm	1am	4am
Wind Dir. & Speed	7pm	10pm	1am	4am
Wind Gusts	7pm	10pm	1am	4am
Amount of Precip.	QPF		QPF	
Snow Accum.	6 hr Snow		6 hr Snow	
Cycle Image	<input type="button" value="←"/> Prev		Next <input type="button" value="→"/>	

MouseOver Effect ON

Updated 743 PM EST, Fri Oct 31 2003



NWS State College, PA



Your NATIONAL WEATHER SERVICE forecast for  
**LANCASTER COUNTY** ...INCLUDING THE CITY OF LANCASTER  
 ISSUED 304 PM EST FRI OCT 31 2003

Experimental

[GO TO 3 HOURLY GRAPHICAL FORECAST](#)

	Min Temp	Max Temp	Midnight Sky	Midday Sky	Weather	Night PoP	Day PoP	Nighttime Wind (mph)	Daytime Wind (mph)	Max RH	Min RH
SATURDAY	52F	72F			SUNNY	0%	10%	2 NW	3 to 9 VRBL	100%	70%
SUNDAY	49F	64F			SUNNY	10%	10%	1 to 3 NE	4 to 5 NE	100%	65%
MONDAY	52F	74F			PARTLY CLOUDY	10%	10%	1 to 8 SW	Gentle W	93%	47%
TUESDAY	50F	70F			PARTLY CLOUDY	10%	10%	Light W	Light W	100%	50%
WEDNESDAY	47F	64F			PARTLY CLOUDY	10%	20%	Gentle W	Gentle SW	96%	53%
THURSDAY	46F	64F			PARTLY CLOUDY	20%	20%	Gentle SW	Gentle SW	96%	51%

[GO TO DIGITAL FORECAST](#)  
[GO TO HOME PAGE](#)  
[GO TO TEXT ZONE PRODUCT](#)

- General Information
- Technical
- Development/Status
- Feedback/Survey
- Contact Us
- Other Links



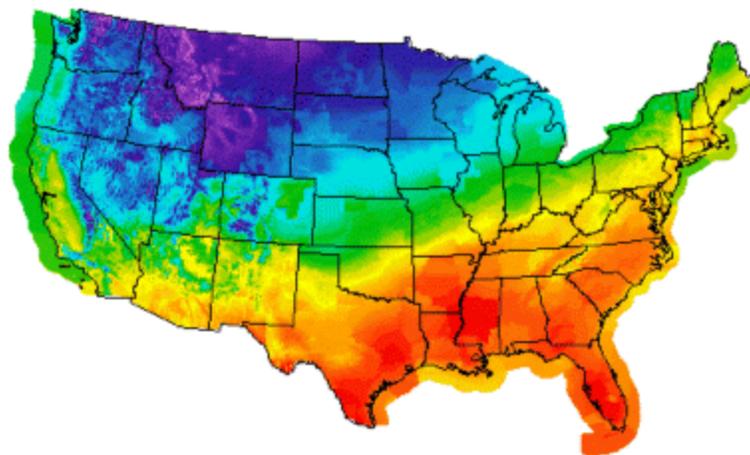
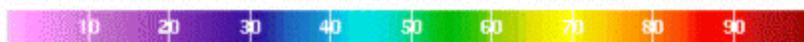
## General Information

**NDFD**  
NWS National Digital  
Forecast Database

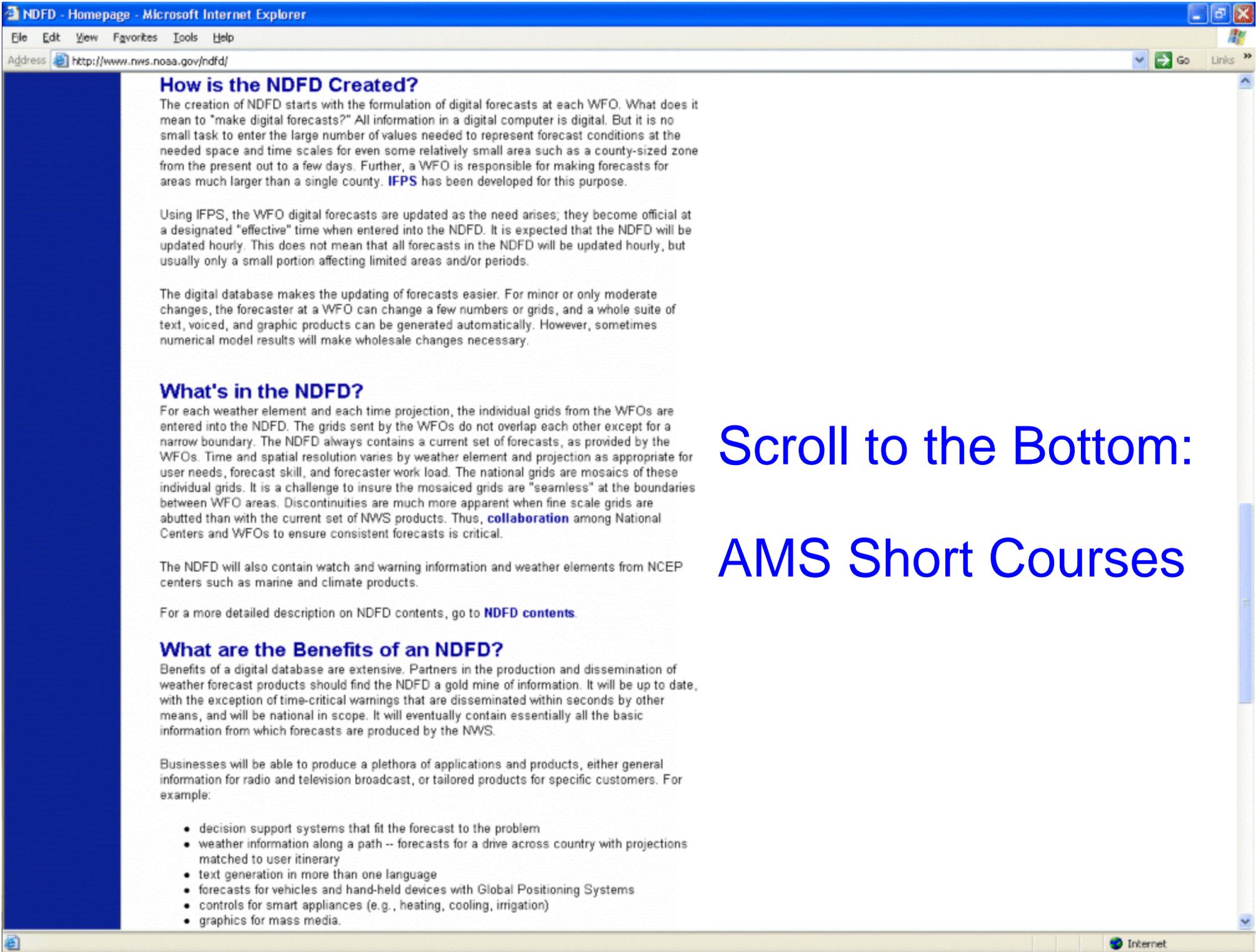
### What is the NDFD?

Beginning in late 2003, NWS will be making available a limited number of forecast grids of sensible weather elements (e.g., cloud cover, maximum temperature) in what is being called the The NWS National Digital Forecast Database (NDFD). In addition, a few **national graphics** produced from these grids will be available, such as temperature and probability of precipitation. The NDFD contains a seamless mosaic of NWS digital forecasts from NWS field offices working in collaboration with NWS National Centers for Environmental Prediction (NCEP). The database will be made available to all customers and partners—public and private—and will allow those customers and partners to create a wide range of text, graphic, and image products of their own. With time, a wider array of forecast elements will be available in the database as will a larger set of graphical presentations. See our **Development page** for details of what new grids, products, and capabilities of the NDFD are coming on line.

### Experimental Image of NDFD Data, Maximum Temperature Map



[www.nws.noaa.gov/ndfd](http://www.nws.noaa.gov/ndfd)



### How is the NDFD Created?

The creation of NDFD starts with the formulation of digital forecasts at each WFO. What does it mean to "make digital forecasts?" All information in a digital computer is digital. But it is no small task to enter the large number of values needed to represent forecast conditions at the needed space and time scales for even some relatively small area such as a county-sized zone from the present out to a few days. Further, a WFO is responsible for making forecasts for areas much larger than a single county. **IFPS** has been developed for this purpose.

Using IFPS, the WFO digital forecasts are updated as the need arises; they become official at a designated "effective" time when entered into the NDFD. It is expected that the NDFD will be updated hourly. This does not mean that all forecasts in the NDFD will be updated hourly, but usually only a small portion affecting limited areas and/or periods.

The digital database makes the updating of forecasts easier. For minor or only moderate changes, the forecaster at a WFO can change a few numbers or grids, and a whole suite of text, voiced, and graphic products can be generated automatically. However, sometimes numerical model results will make wholesale changes necessary.

### What's in the NDFD?

For each weather element and each time projection, the individual grids from the WFOs are entered into the NDFD. The grids sent by the WFOs do not overlap each other except for a narrow boundary. The NDFD always contains a current set of forecasts, as provided by the WFOs. Time and spatial resolution varies by weather element and projection as appropriate for user needs, forecast skill, and forecaster work load. The national grids are mosaics of these individual grids. It is a challenge to insure the mosaiced grids are "seamless" at the boundaries between WFO areas. Discontinuities are much more apparent when fine scale grids are abutted than with the current set of NWS products. Thus, **collaboration** among National Centers and WFOs to ensure consistent forecasts is critical.

The NDFD will also contain watch and warning information and weather elements from NCEP centers such as marine and climate products.

For a more detailed description on NDFD contents, go to [NDFD contents](#).

### What are the Benefits of an NDFD?

Benefits of a digital database are extensive. Partners in the production and dissemination of weather forecast products should find the NDFD a gold mine of information. It will be up to date, with the exception of time-critical warnings that are disseminated within seconds by other means, and will be national in scope. It will eventually contain essentially all the basic information from which forecasts are produced by the NWS.

Businesses will be able to produce a plethora of applications and products, either general information for radio and television broadcast, or tailored products for specific customers. For example:

- decision support systems that fit the forecast to the problem
- weather information along a path -- forecasts for a drive across country with projections matched to user itinerary
- text generation in more than one language
- forecasts for vehicles and hand-held devices with Global Positioning Systems
- controls for smart appliances (e.g., heating, cooling, irrigation)
- graphics for mass media.

Scroll to the Bottom:  
AMS Short Courses

Home > Graphical Forecasts (Experimental) > Upper Mississippi Valley

This map shows forecast temperatures for the US, normally updated every hour. This is an **experimental** product of the National Digital Forecast Database, produced by the National Weather Service. Public comments and suggestions are encouraged. The Weather Service will [accept comments](#) until December 1, 2003.

Warnings and Forecasts			Graphical Forecasts			National Maps			Radar			Rivers			Satellite		
Experimental Graphical Forecasts																	
Upper Mississippi Valley																	
Click on Map to Zoom In																	
Element Period	Temperature & Wind	Dew Point Temperature	Sky Cover														
Tonight	00Z	00Z	00Z	33 31													
	03Z	03Z	03Z	27 31													
	06Z	06Z	06Z	36 38													
	09Z	09Z	09Z	38 39													
Saturday	12Z	12Z	12Z	41 41 45													
	15Z	15Z	15Z	42 44 47													
	18Z	18Z	18Z	47 51 52													
	21Z	21Z	21Z	47 51 52													
Saturday Night	00Z	00Z	00Z	50 50 57													
	03Z	03Z	03Z	50 51 58													
	06Z	06Z	06Z	50 51 58													
	09Z	09Z	09Z	50 51 58													
Sunday	12Z	12Z	12Z	54 60 62													
	15Z	15Z	15Z	54 60 62													
	18Z	18Z	18Z	54 60 62													
	21Z	21Z	21Z	54 60 62													
Sunday Night	00Z	00Z	00Z	58 66 68													
	03Z	03Z	03Z	58 66 68													
	06Z	06Z	06Z	58 66 68													
	09Z	09Z	09Z	58 66 68													
Monday	12Z	12Z	12Z	60 66 70													
	15Z	15Z	15Z	60 66 70													
	18Z	18Z	18Z	60 66 70													
	21Z	21Z	21Z	60 66 70													
Monday Night	00Z	00Z	00Z	63 70 72													
	06Z	06Z	06Z	63 70 72													
	12Z	12Z	12Z	63 70 72													
	18Z	18Z	18Z	63 70 72													
Tuesday	00Z	00Z	00Z	69 73 77													
	06Z	06Z	06Z	69 73 77													
	12Z	12Z	12Z	69 73 77													
	18Z	18Z	18Z	69 73 77													
Tuesday Night	00Z	00Z	00Z	73 77 80													
	06Z	06Z	06Z	73 77 80													
	12Z	12Z	12Z	73 77 80													
	18Z	18Z	18Z	73 77 80													
Wednesday	00Z	00Z	00Z	77 80 82													
	06Z	06Z	06Z	77 80 82													
	12Z	12Z	12Z	77 80 82													
	18Z	18Z	18Z	77 80 82													
Wednesday Night	00Z	00Z	00Z	77 80 82													
	06Z	06Z	06Z	77 80 82													
	12Z	12Z	12Z	77 80 82													
	18Z	18Z	18Z	77 80 82													
Thursday	12Z	12Z	12Z														
	18Z	18Z	18Z														

T and Wind Forecast For Sun Nov 02 2003 21Z  
(Sun Nov 02 2003 4PM EDT)

**National Digital Forecast Database**   
Experimental graphic created 10/31/2003 9:29PM EDT

Adjacent Areas Key

Zoom Out

Previous Elements Additional Elements

Nation is divided into 16 Regional sectors



# National Digital Forecast Database Information Site

www.weather.gov

SiteMap News Organization Search

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- Technical
- Development/Status
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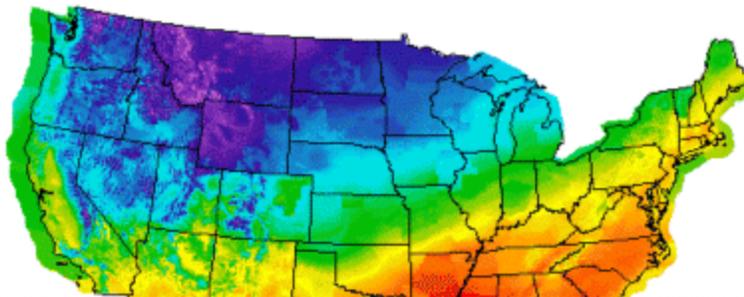
## General Information

**NDFD**  
NWS National Digital Forecast Database

### What is the NDFD?

Beginning in late 2003, NWS will be making available a limited number of forecast grids of sensible weather elements (e.g., cloud cover, maximum temperature) in what is being called the The NWS National Digital Forecast Database (NDFD). In addition, a few **national graphics** produced from these grids will be available, such as temperature and probability of precipitation. The NDFD contains a seamless mosaic of NWS digital forecasts from NWS field offices working in collaboration with NWS National Centers for Environmental Prediction (NCEP). The database will be made available to all customers and partners—public and private—and will allow those customers and partners to create a wide range of text, graphic, and image products of their own. With time, a wider array of forecast elements will be available in the database as will a larger set of graphical presentations. See our **Development page** for details of what new grids, products, and capabilities of the NDFD are coming on line.

### Experimental Image of NDFD Data, Maximum Temperature Map



Want the Grids for your GIS mapping needs ??

First - click on the Technical link to the left

- General Information**
- Technical
- Development/Status
- Feedback/Survey
- Contact Us
- Other Links



## Technical

**NDFD**  
NWS National Digital  
Forecast Database

### TECHNICAL INFORMATION SECTION

#### NDFD Database Contents

##### Variables

Currently, the NDFD contains data representing the following weather variables. More variables will be added as development of the NDFD progresses. For a complete listing of variables to be included in the NDFD, visit the [Development page](#). NDFD data are available for projections (as described in the table below) at the following UTC times: 0, 3, 6, 9, 12, 15, 18, 21.

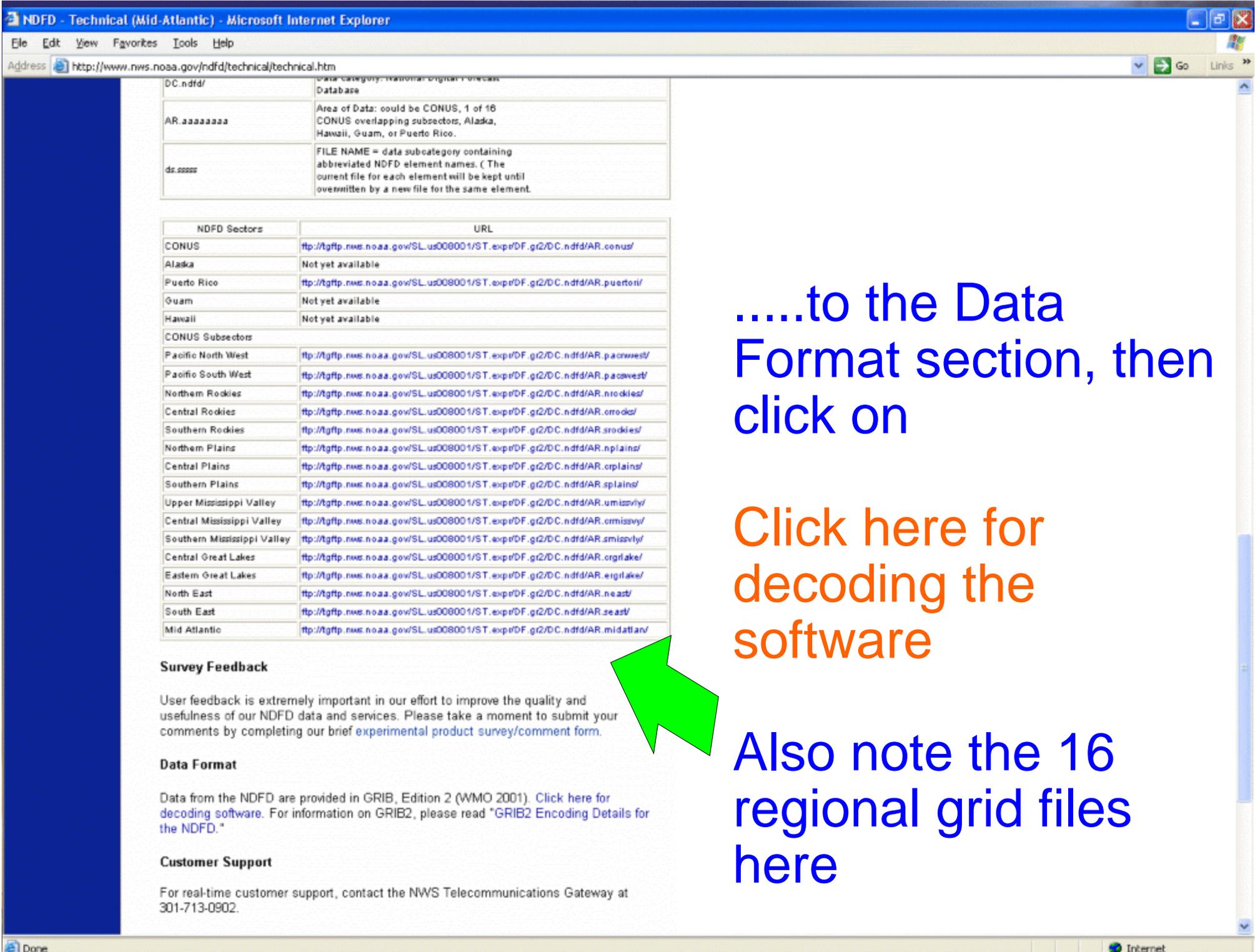
Variables	No. of Grids	Projections
Max-Temp	7	Every 24 hours, out to 168 hours
Min-Temp	7	Every 24 hours, out to 168 hours
PoP12	14	Every 12 hours, out to 168 hours
Sky Cover	40	Every 3 hours out to 72 hours; every 6 hours out to 168 hours
Temperature	40	Every 3 hours out to 72 hours; every 6 hours out to 168 hours
Dew Point	40	Every 3 hours out to 72 hours; every 6 hours out to 168 hours
Wind Direction	40	Every 3 hours out to 72 hours; every 6 hours out to 168 hours
Wind Speed	40	Every 3 hours out to 72 hours; every 6 hours out to 168 hours
Weather	40	Every 3 hours out to 72 hours; every 6 hours out to 168 hours
Precipitation Amount	12	Every 6 hours out to 72 hours
Snow Amount	6	Every 6 hours out to 36 hours
Wave Height	4	Every 12 hours out to 48 hours

[List of Variable Definitions](#)

##### Grid Resolution

Grids are currently available at 5km spatial resolution. Temporal resolution of NDFD grids is 3 hours for days 1-3 and 6 hours for days 4-7. We plan to increase both spatial and temporal resolution over the next few years.

You get this web page - scroll down to.....



DC.ndfd/	Data category: National Digital Forecast Database
AR.aaaaaaa	Area of Data: could be CONUS, 1 of 16 CONUS overlapping subsectors, Alaska, Hawaii, Guam, or Puerto Rico.
ds.sssss	FILE NAME = data subcategory containing abbreviated NDFD element names. ( The current file for each element will be kept until overwritten by a new file for the same element.

NDFD Sectors	URL
CONUS	<a href="ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.conus/">ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.conus/</a>
Alaska	Not yet available
Puerto Rico	<a href="ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.puertor/">ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.puertor/</a>
Guam	Not yet available
Hawaii	Not yet available
CONUS Subsectors	
Pacific North West	<a href="ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.pacnwst/">ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.pacnwst/</a>
Pacific South West	<a href="ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.pacswst/">ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.pacswst/</a>
Northern Rockies	<a href="ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.nrockies/">ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.nrockies/</a>
Central Rockies	<a href="ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.crockies/">ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.crockies/</a>
Southern Rockies	<a href="ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.srockies/">ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.srockies/</a>
Northern Plains	<a href="ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.nplains/">ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.nplains/</a>
Central Plains	<a href="ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.cplains/">ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.cplains/</a>
Southern Plains	<a href="ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.splains/">ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.splains/</a>
Upper Mississippi Valley	<a href="ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.umissvly/">ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.umissvly/</a>
Central Mississippi Valley	<a href="ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.cmissvly/">ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.cmissvly/</a>
Southern Mississippi Valley	<a href="ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.smissvly/">ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.smissvly/</a>
Central Great Lakes	<a href="ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.crglake/">ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.crglake/</a>
Eastern Great Lakes	<a href="ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.erglake/">ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.erglake/</a>
North East	<a href="ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.neast/">ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.neast/</a>
South East	<a href="ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.seast/">ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.seast/</a>
Mid Atlantic	<a href="ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.midatlan/">ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.g2/DC.ndfd/AR.midatlan/</a>

**Survey Feedback**

User feedback is extremely important in our effort to improve the quality and usefulness of our NDFD data and services. Please take a moment to submit your comments by completing our brief [experimental product survey/comment form](#).

**Data Format**

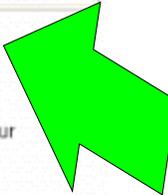
Data from the NDFD are provided in GRIB, Edition 2 (WMO 2001). [Click here for decoding software](#). For information on GRIB2, please read "GRIB2 Encoding Details for the NDFD."

**Customer Support**

For real-time customer support, contact the NWS Telecommunications Gateway at 301-713-0902.

.....to the Data Format section, then click on

Click here for decoding the software



Also note the 16 regional grid files here

## NDFD GRIB2 Decoder

The NDFD (**National Digital Forecast Database**) is available for the **conus (continuous U.S.)** on both the anonymous ftp site ([tgftp.nws.noaa.gov](http://tgftp.nws.noaa.gov)) and the web site (<http://weather.noaa.gov>). The currently available sectors are "CONUS", all sectors in the "CONUS", and "Puerto Rico". All sectors should have (MaxT, MinT, PoP12, Sky, Td, Temp, Wdir, Wspd, SnowAmount, QPF, Wx, and Waveh).

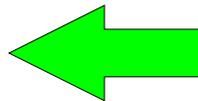
The data is distributed in **GRIB2 (Gridded Binary Edition 2)** format, which is outlined in the **WMO (World Meteorological Organization)** document: [The WMO GRIB2 Document FM92-X11 GRIB](#). A web friendly version of which is available [here](#)

In order to take advantage of this data, **MDL (Meteorological Development Laboratory)** created and maintains the official [GRIB2 Decoder library](#). The GRIB2 Decoder library does a very good job of unpacking **GRIB2** messages, but in order to understand how to use it, and what is returned, one needs a working knowledge of "The WMO GRIB2 Document FM92-X11 GRIB".

**MDL** felt that in order to make it easier for people to use **NDFD** data, a "driver" for the library should be provided. The main purposes for the driver are:

1. Provide an example of how to call the Decoder library.
2. Provide software to convert from **GRIB2** to a simpler (albeit larger) file format.
3. Provide a means to view the "meta" data without needing to reference "The WMO GRIB2 Document FM92-X11 GRIB" document.

[So how do I get/use the Driver?](#)



Click here !

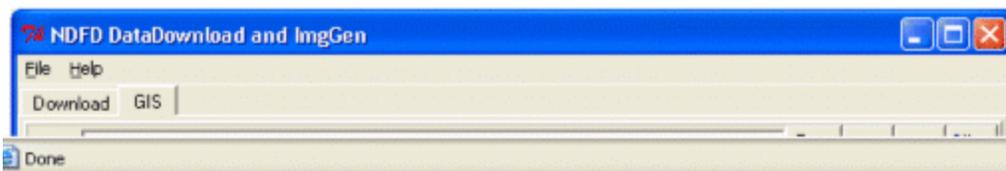
To satisfy requirement (2), the driver converts a particular grid in the **GRIB2** file to a ".flt" file. The ".flt" file is N by M floats (4 byte Real numbers), where N and M are the dimensions of the grid. In particular, the grid starts in the **Upper Left Corner**, traverses across a row, and then continues at the left on the next row (similar to refreshing a TV screen). This format was chosen because it happens to match the binary format required by **ESRI ArcView's Spatial Analyst**.

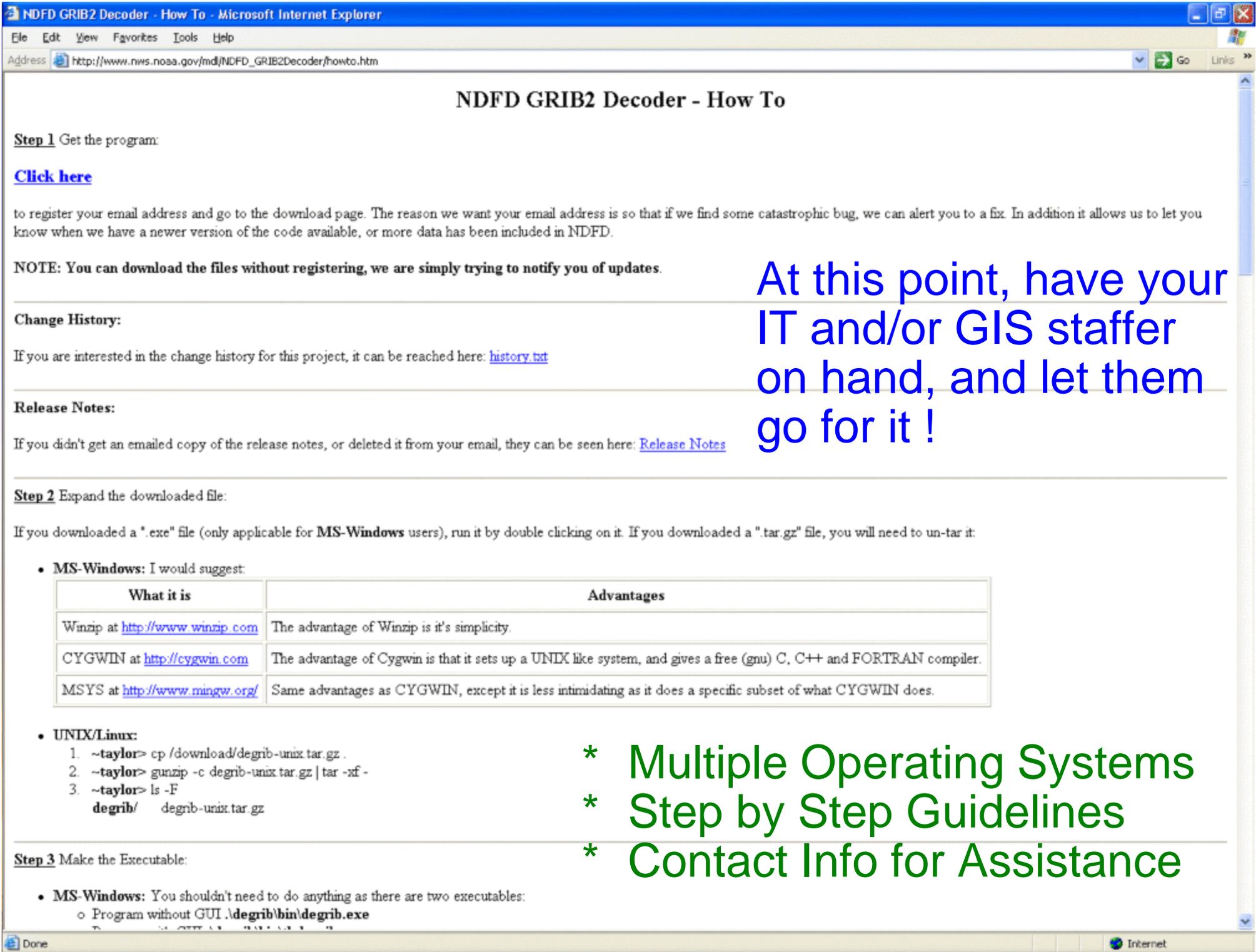
It was felt that the simplicity of the ".flt" file format would allow the user to write code to convert to their particular **GIS (Geographical Information System)** package, if it was not ESRI. The program can also create "**point .shp**" or "**polygon .shp**" files, for use in ESRI ArcView, when one does not have Spatial Analyst. **Please note** that using both types of ".shp" files in ArcView is **much slower** than using ".flt" files. To solve this problem, we are contemplating joining the adjoining polygons together (if they have the same value), to reduce the total number of elements.

To satisfy requirement (3), the driver creates a .txt file in which it has already looked up the parameters in the various tables in the GRIB2 document. The .txt file is a | separated file, because both '|' and '.' could be part of a variable description.

In addition, it was felt that the program should be able to be run either via a **GUI (Graphical User Interface)** or from a command line. For portability sake, the GUI part relies on [Tcl/Tk](#). (More specifically, it was designed for [version 8.3.2](#), although it has been tested on a system with version 8.0.4.)

If you are curious, here are 2 sample images of the GUI:





## NDFD GRIB2 Decoder - How To

**Step 1** Get the program:

[Click here](#)

to register your email address and go to the download page. The reason we want your email address is so that if we find some catastrophic bug, we can alert you to a fix. In addition it allows us to let you know when we have a newer version of the code available, or more data has been included in NDFD.

**NOTE:** You can download the files without registering, we are simply trying to notify you of updates.

### Change History:

If you are interested in the change history for this project, it can be reached here: [history.txt](#)

### Release Notes:

If you didn't get an emailed copy of the release notes, or deleted it from your email, they can be seen here: [Release Notes](#)

**Step 2** Expand the downloaded file:

If you downloaded a ".exe" file (only applicable for **MS-Windows** users), run it by double clicking on it. If you downloaded a ".tar.gz" file, you will need to un-tar it:

- **MS-Windows:** I would suggest:

What it is	Advantages
Winzip at <a href="http://www.winzip.com">http://www.winzip.com</a>	The advantage of Winzip is it's simplicity.
CYGWIN at <a href="http://cygwin.com">http://cygwin.com</a>	The advantage of Cygwin is that it sets up a UNIX like system, and gives a free (gnu) C, C++ and FORTRAN compiler.
MSYS at <a href="http://www.mingw.org/">http://www.mingw.org/</a>	Same advantages as CYGWIN, except it is less intimidating as it does a specific subset of what CYGWIN does.

- **UNIX/Linux:**

1. ~taylor> cp /download/degrib-unix.tar.gz .
2. ~taylor> gunzip -c degrib-unix.tar.gz | tar -xf -
3. ~taylor> ls -F  
degrib/ degrib-unix.tar.gz

**Step 3** Make the Executable:

- **MS-Windows:** You shouldn't need to do anything as there are two executables:
  - o Program without GUI `Adegrib\bin\degrib.exe`

At this point, have your IT and/or GIS staffer on hand, and let them go for it !

- \* Multiple Operating Systems
- \* Step by Step Guidelines
- \* Contact Info for Assistance



# NWS on the Web

- \* **Standard Format - all NWS Sites**
- \* **News and Features**
- \* **Clickable Map and Climate Data**
- \* **Digital and Graphical Forecasts**
- \* **Nationally - [weather.gov](http://weather.gov)**





# New NWS Products



- \* **State Tabular Forecast Product**
- \* **Point Forecast Matrix Product**
- \* **Revised Local Storm Report - Dec 16**
- \* **Watch By County - Late 2004**



## Jtah

'PUS65 KSLC 312137  
 SFTUT  
 UTZ001>021-IDZ024-025-WYZ021-011233-

TABULAR STATE FORECAST FOR UTAH  
 NATIONAL WEATHER SERVICE SALT LAKE CITY UT  
 233 PM MST FRI OCT 31 2003

ROWS INCLUDE...

DAILY PREDOMINANT DAYTIME WEATHER 6AM-6PM  
 FORECAST TEMPERATURES...EARLY MORNING LOW/DAYTIME HIGH  
 PROBABILITY OF PRECIPITATION 6AM-6PM  
 - INDICATES TEMPERATURES BELOW ZERO  
 MM INDICATES MISSING DATA

| FCST   |
|--------|--------|--------|--------|--------|--------|--------|
| SAT    | SUN    | MON    | TUE    | WED    | THU    | FRI    |
| NOV 01 | NOV 02 | NOV 03 | NOV 04 | NOV 05 | NOV 06 | NOV 07 |

...NORTHERN UTAH...

SALT LAKE CITY						
SNOW	MOCLDY	MOCLDY	SNOW	MOCLDY	MOCLDY	PTCLDY
29/36	28/40	25/36	30/35	28/35	24/40	25/43
POP 70	POP 40	POP 40	POP 50	POP 40	POP 30	POP 30

OGDEN						
SNOW	MOCLDY	MOCLDY	SNOW	MOCLDY	MOCLDY	PTCLDY
27/32	26/37	22/36	26/34	26/34	23/39	24/42
POP 70	POP 40	POP 40	POP 50	POP 40	POP 30	POP 30

PROVO						
SNOW	MOCLDY	MOCLDY	SNOW	MOCLDY	MOCLDY	PTCLDY
30/39	26/42	24/41	29/39	24/39	20/41	21/44
POP 70	POP 40	POP 40	POP 50	POP 40	POP 30	POP 30

LOGAN						
SNOW	MOCLDY	MOCLDY	SNOW	MOCLDY	MOCLDY	PTCLDY
17/29	13/33	9/31	18/33	19/33	13/32	17/35
POP 70	POP 40	POP 40	POP 50	POP 40	POP 30	POP 30

WENDOVER						
SNOW	PTCLDY	MOCLDY	MOCLDY	MOCLDY	MOCLDY	PTCLDY
29/39	24/44	26/39	28/37	25/37	24/42	25/45
POP 60	POP 40	POP 50	POP 30	POP 30	POP 20	POP 10

PARK CITY						
SNOW	MOCLDY	SNOW	SNOW	SNOW	MOCLDY	PTCLDY
26/33	22/34	18/32	21/31	20/31	16/36	19/37
POP 90	POP 50	POP 60	POP 60	POP 60	POP 50	POP 50



### NWS Tucson Prototype Digital Products

Retrieved data for 1237 at 11:27 AM on 1/22/01

Decoder is Available !

# Some Benefits of IFPS/NDFD

	Tue Jun 4		Wed Jun 5					Thu Jun 6					Fri Jun 7			Sat Jun 8			Sun Jun 9			Mon Jun 10			Tue Jun 11	
DATE	00	06	12	18	00	06	12	18	00	06	12	18	00	06	12	18	00	06	12	18	00	06	12	18	00	06
Temp	94	97	84	73	66	63	70	81	92	99	93	83	72	66	69	77										
Dew pt	28	28	29	29	29	29	30	30	31	31	32	32	32	32	33	33										
MaxT		97								99																
MinT						63								66												
RH	10	9	13	19	25	28	23	16	11	9	11	16	23	28	26	20										
MaxRH						28								28												
MinRH		9								9																
PoP 6	97	97	97																							
PoP12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0										
Sky(%)	0		0		0		0		0		0		0		0											
WndSpd	0		1		2		3		4		6		7		9											
WndDir	S		S		SE		SE		SE		E		E		E											
WxCov																										
WxTyp																										

[www.wrh.noaa.gov/glasgow](http://www.wrh.noaa.gov/glasgow)



## Preliminary Local Storm Report - Example

..TIME..	...EVENT...	...CITY LOCATION...	...LAT.LON...
..DATE..	...MAG.....	..COUNTY LOCATION..ST	...SOURCE...
..REMARKS..			
320 PM	SNOW	EVERETT	47.85N 122.45W
12/25/03		SNOHOMISH WA	SNOHOMISH 44

4 INCHES ACCUMULATION AND STILL SNOWING

845 PM	WIND GUST	UNIVERSITY PLACE	UNKNOWN
10/12/62		PIERCE WA	PIERCE 20

WIND GUST TO 90 MPH...ROOF BLOWN OFF HOUSE NEXT DOOR  
POWER OUT...NO LIGHTS VISIBLE ACROSS THE NARROWS

# Advanced Hydrologic Prediction Service (AHPS)

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AHPS is the National Weather Service's frontline solution to provide improved river, flood and water information across America.

# AHPS

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## **AHPS Will Better Answer the Following Questions:**

- How high will the river rise?
- When will the river reach its peak?
- Where will the flooding occur?
- How long will the flood last?
- How long will the drought continue?
- How certain is the forecast?

# AHPS

---

## AHPS includes...

- More accurate forecasts over all time scales
- Increased warning lead time
- Longer forecast horizons
- Information to assist risk-based decision making
- Nationally consistent access to products and information
- Easier to use graphic products

**\$766 million estimated annual recurring benefit**

(National Hydrologic Warning Council study)

# AHPS

## Advanced Hydrologic Prediction Service

Search

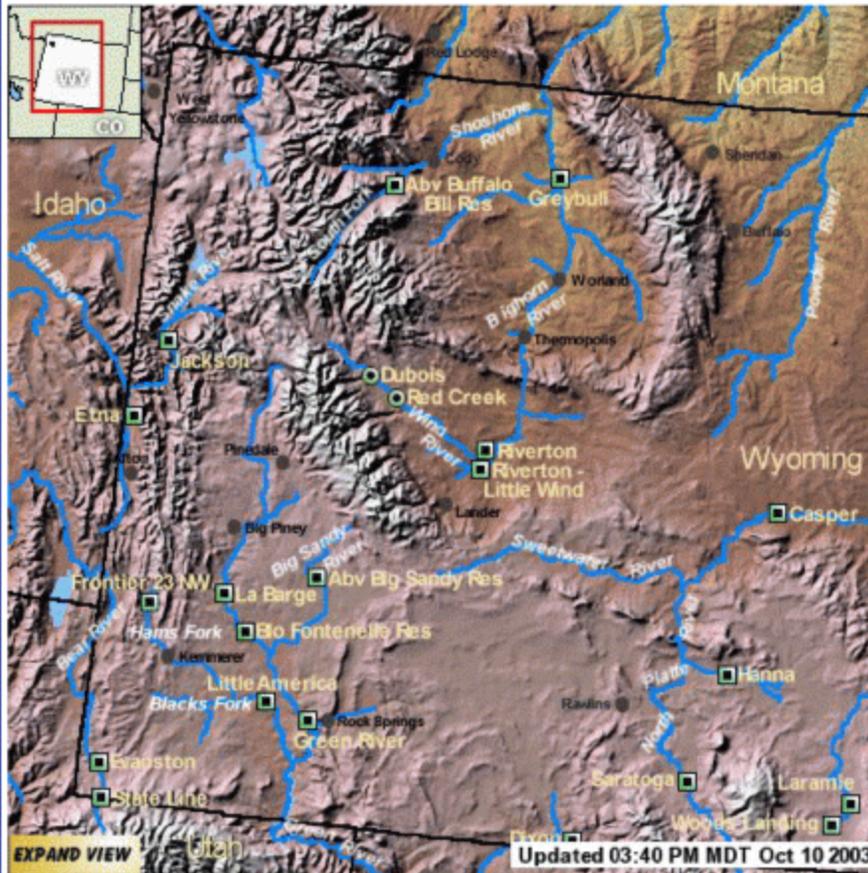
Local weather forecast by "City, ST"

National Conditions  
Rivers  
Satellite  
Climate

Local Conditions  
Warnings  
Weather Forecast  
Radar

What is AHPS?  
Facts  
Our Partners

How are we doing?  
Feedback



Click on a point or river on the map or select from the menus below.

- North Platte River --
- Little Wind River --
- Wind River --
- South Fork Shoshone River --
- Big Horn River --
- Snake River --
- Salt River --
- Big Sandy River --
- Black's Fork River --
- Ham's Fork River --
- Green River --

### Map Legend

- or ■ at or above Flood Stage
- or □ high water, below Flood Stage
- or □ below Flood Stage
- or □ observation more than 12 hours old
- or □ neighboring area point
- A square indicates that hydrograph information is available
- A circle indicates that both probability and hydrograph information are available

# AHPS

www.nws.noaa.gov



## National Weather Service Advanced Hydrologic Prediction Service



Search

Local weather  
forecast by  
"City, ST"

National Conditions  
Rivers  
Satellite  
Climate

Local Conditions  
Warnings  
Weather Forecast  
Radar

What is AHPS?  
Facts  
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How are we doing?  
Feedback

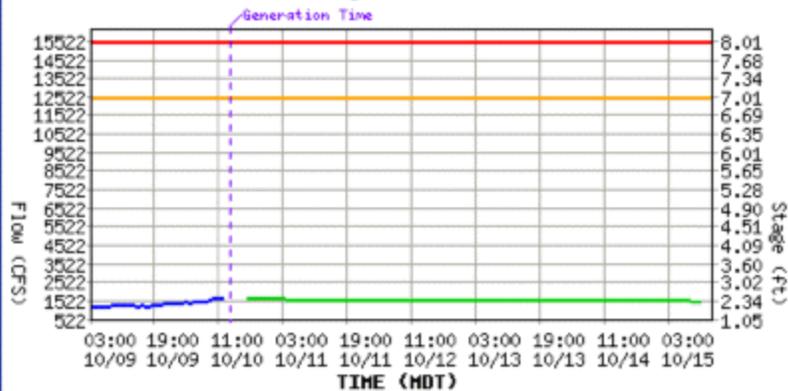
### Green River near Green River Flood Stage: 8 Feet

Latest Stage: 2.45 Feet at 12:30 MDT 10/10

[\[Graph Description\]](#) [\[Feedback\]](#) [\[Text Products\]](#) [\[Precip.\]](#)  
[\[Impacts\]](#) [\[Map\]](#) [\[Photos\]](#) [\[Historical Crests\]](#) [\[Low Water Events\]](#)

[Click Here for  
Green River  
at a Glance](#)

### GREEN RIVER NEAR GREEN RIVER (GRRM4, USGS 09217000) Gauge Datum = 6060.00ft (NGVD 1929)



Observed — Forecast — Bankfull — Flood — Moderate — Major

Latest: 2.45 ft 1659 CFS (10% of Flood flow) [12:30 10/10]  
Max: 2.47ft (1685 CFS) Max Fcst: 2.50ft (1724 CFS)  
Min: 2.07ft (1235 CFS) Min Fcst: 2.30ft (1479 CFS)

\*\*\* Stages may be ice affected \*\*\*

[Tabular  
Data](#)

- North Platte River --
- Little Wind River --
- Wind River --
- Wind River --
- Wind Rvr at a Glance
- Dubois**
- above Red Creek
- Riverton
- Salt River --
- Big Sandy River --
- Black's Fork River --
- Ham's Fork River --
- Green River --

**NOTE:** Forecasts for the Green River near Green River are issued as needed during times of high water, but are not routinely available.

[About this graph](#)  
[Printable Forecast](#)

# AHPS

The term **Major Flooding** is used to indicate extensive inundation and property damage, usually characterized by the evacuation of people and livestock, and the closure of both primary and secondary roads.

[Past Precipitation](#)

[Forecast Precipitation](#)

## Information

### Photos

[Looking upstream](#)

[Looking downstream](#)

### Top 5 Historical Crests

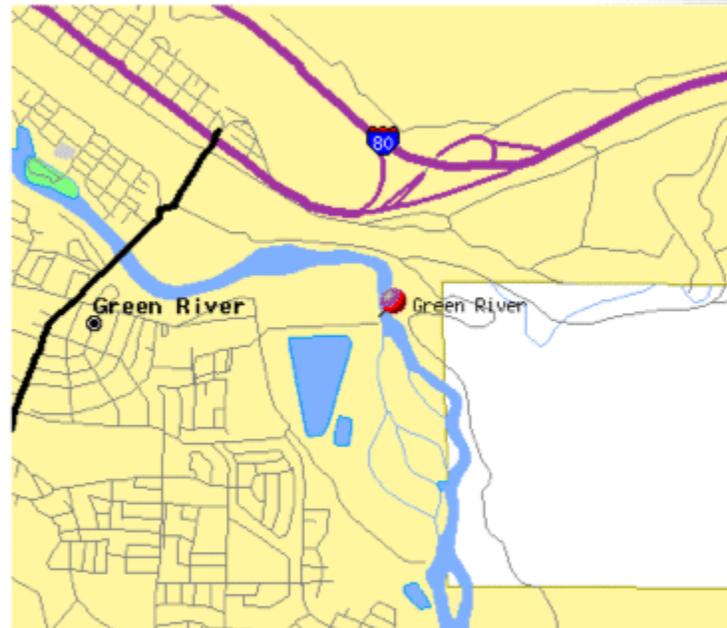
- (1) 8.53 ft on 09/07/1965
- (2) 7.98 ft on 06/16/1972
- (3) 7.64 ft on 06/21/1986
- (3) 7.64 ft on 07/05/1982
- (5) 7.29 ft on 07/07/1983

[More Past Crest and Flow Information](#)

### Top Low Water Event

- (1) 2.7 ft on 11/16/1955

[Low Water Flow Information](#)



## Impacts

- 8.5 Feet Record flood stage occurred September 7, 1965.
- 8.0 Feet Flood Stage. The Green River Walkway in town (from Expedition Island east to near the Water Treatment Plant) is closed due to high water. Most high water problems in town are west of HWY 530 (Uinta Drive) in the oldest part of the town.
- 7.2 Feet The Green River Walkway in Green River becomes partially submerged.

## Other Data Sources

## Real-time Data:

- river gauges (USGS),
- SNOTEL sites (NRCS),
- precipitation gauges
- temperature gauges

# River Forecasting Process

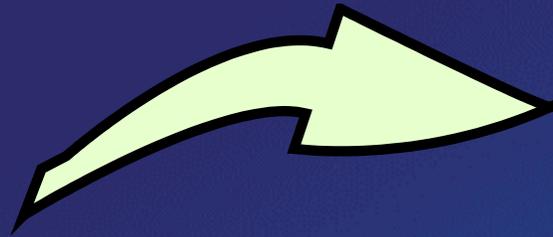
RFC

River forecast guidance based on NWS river models

NWS Office

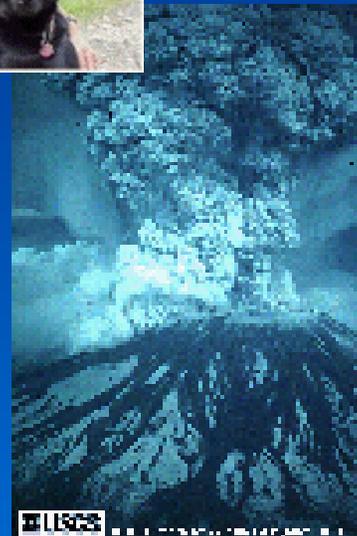
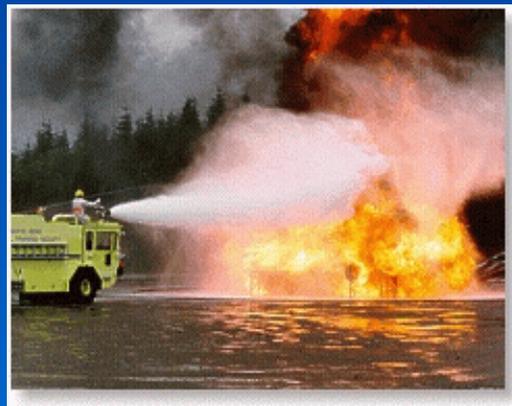
Local forecasting tools, models, and expertise.

River forecasts and flood warnings in public bulletins



# Washington's Non-Weather Hazards (NWS Support)

- Tsunami
- Volcanic
- HazMat
- Search and Rescue
- Earthquake
- Dam Break



# HAZMAT Response

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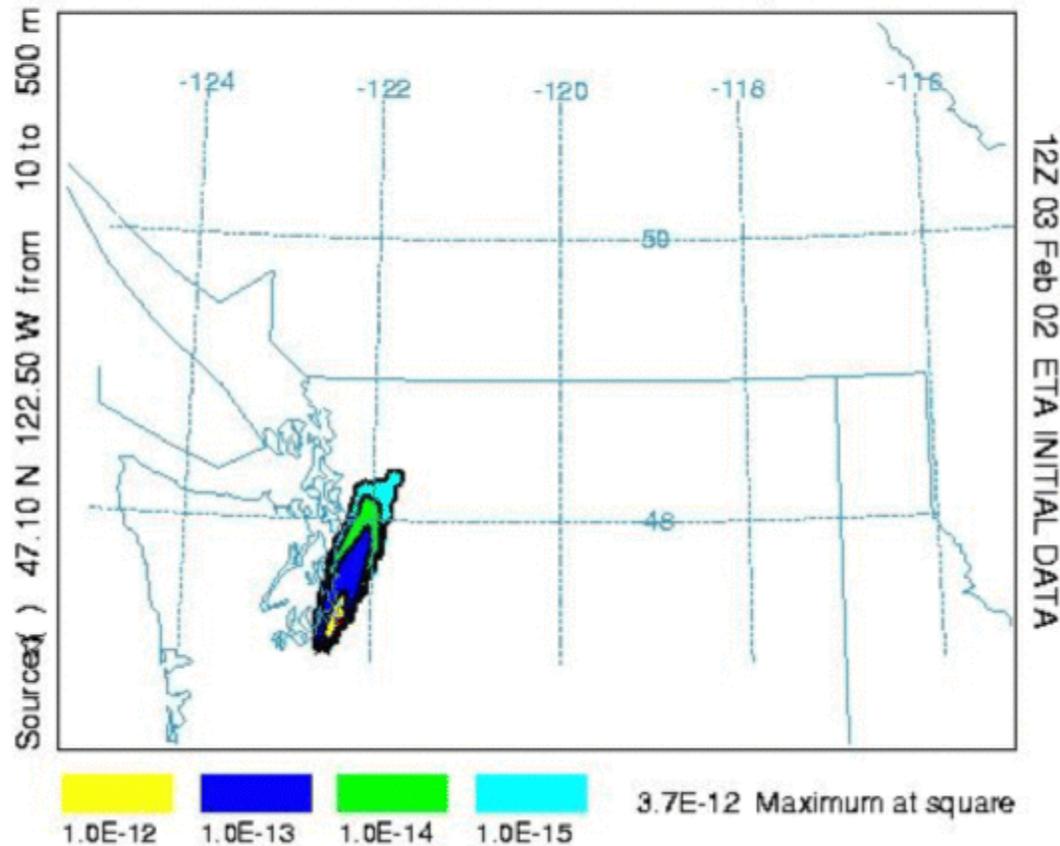
- **Cameo/Aloha**
- **HYSPLIT**
- **IMETs**



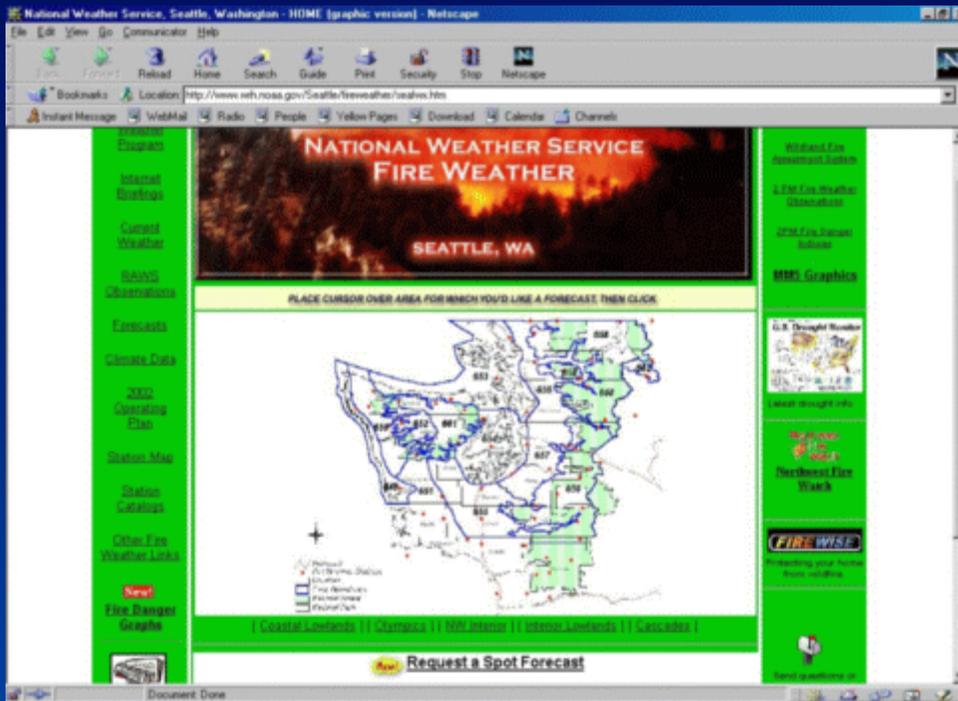
# HYSPLIT

(Hybrid Single-Particle Lagrangian Integrated Trajectory)

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
Concentration averaged between 10 m and 500 m (mass/m<sup>3</sup>)  
Integrated from 12z 03 Feb to 15z 03 Feb (UTC)  
Release Started at 12Z 03 Feb (UTC)

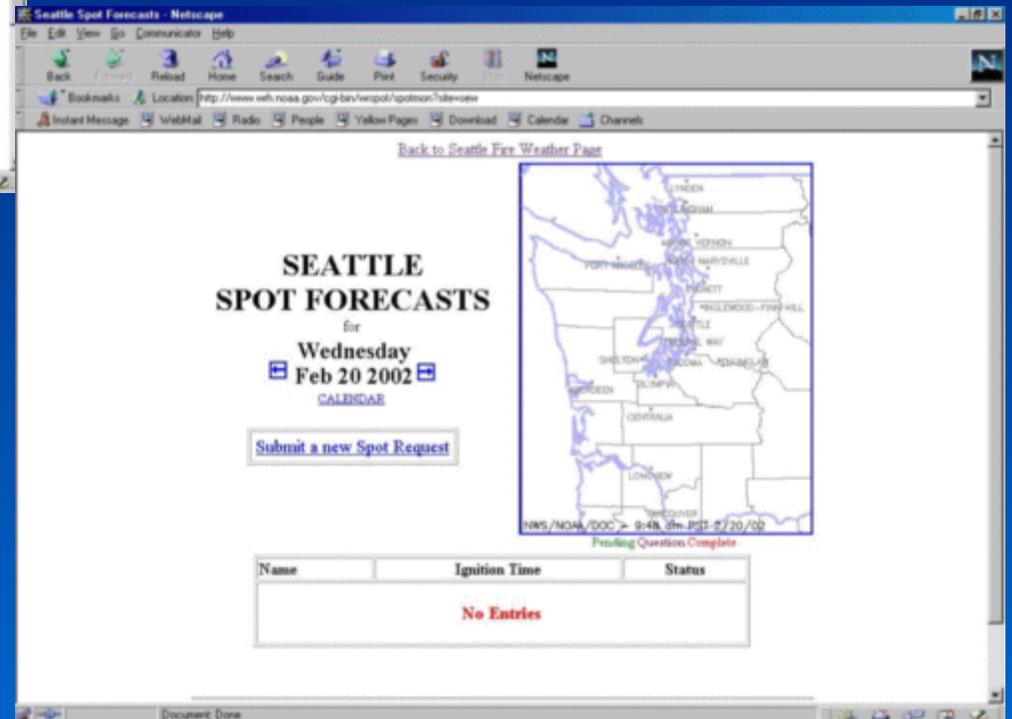


# Spot Forecasts



From Your Local NWS Office Web Site

- Hazmat
- Search & Rescue



# Spot Forecast

Pendleton Fire Weather Spot Request - Netscape

File Edit View Go Communicator Help

Back Forward Reload Home Search Guide Print Security Stop Netscape

Location: http://207.173.99.100/cgi-bin/wrspot/spotform?site=pdt

Instant Message WebMail Radio People Yellow Pages Download Calendar Channels

Required Elements in RED

**PROJECT NAME**

Project Name:

Wildfire  WFU  
 Prescribed Fire

Ignition Time:   Pm  
 Mm

Date:

**REQUESTING AGENCY**

Requesting Agency:

Phone Number:   
FAX Number:   
Contact Person:

**LOCATION**

Legal (T/R):   OR  WA  
 C WA

Either Legal OR Lat/Lon Required

Lat:   
Lon:

7.5' Quad:

Elevation:  Top  Bottom

Drainage:

Aspect:

Size:  (Acres)

**FUEL**

Type:

Sheltering  
 Full  
 Partial  
 Unsheltered

**OBSERVATIONS**

Place	Elev	Time	Wind	Temp	Wetbulb	RH	Dewpt.	Sky/Weather
<input type="text"/>								
<input type="text"/>								
<input type="text"/>								
<input type="text"/>								

**PRIMARY FORECAST ELEMENTS**

TDA TNT TMR (Today, Tonight, Tomorrow)

Clouds / Weather  
   Chance of Wetting Rain  
   Temperature  
   Relative Humidity  
   20 Foot Level Wind

**REMARKS**

Document: Done

# NOAA Weather Radio: A Lifesaver for the Cost of a Pair of Shoes

- \* Direct from the NWS 24 hours-a-day
- \* Latest Area Forecasts and Information (with new voices !)
- \* Over 850 Stations Across the U.S.
- \* Warning Alarm Feature
- \* Flood and Weather Warnings as Needed
- \* “All-Hazards” Warning System
- \* Emergency Alert System (EAS)
- \* Receivers Available at most Radio Electronic Retailers

The State of Washington



Proclamation

*WHEREAS*, the state of Washington has experienced natural and man-made disasters in the past, and scientific evidence indicates the state remains vulnerable to natural and man-made disasters in the future; and

*WHEREAS*, the loss of life and property can be greatly reduced if the citizens have available information provided over the National Oceanic and Atmospheric Association (NOAA) weather radio; and

*WHEREAS*, state agencies, schools, hospitals, businesses and the general public should have weather radios equipped with a special alarm tone feature that can sound an alert and give immediate information about a life threatening situation; and

*WHEREAS*, the importance of listening to the NOAA Weather Radio will be highlighted during the month of September by NOAA, the city, county, and state emergency management agencies, and schools, hospitals, and businesses throughout the state; and

*WHEREAS*, the citizens of our state need to prepare themselves to be self-sufficient for at least three days following a natural or man-made disaster;

*NOW, THEREFORE*, I, Gary Locke, Governor of the state of Washington, do hereby proclaim September, 1998, as

*NOAA Weather Radio Month*

in Washington State, and encourage all Washingtonians to increase their knowledge and awareness of the benefit and use of the NOAA weather radio, before, during and after a natural or man-made disaster.

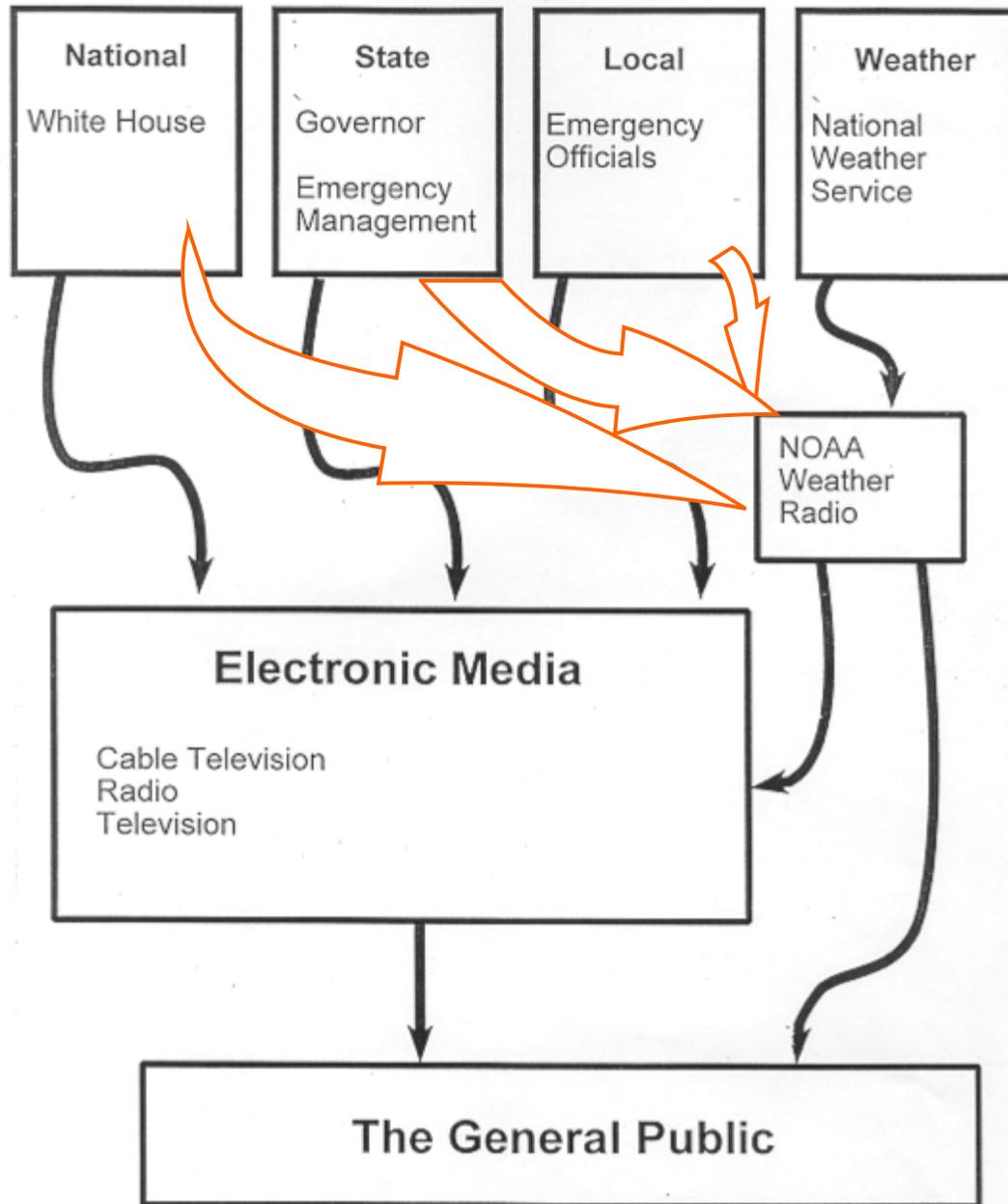


Signed this 20<sup>th</sup> day of August, 1998

Gary Locke  
Governor

NOAA Weather  
Radio is  
Washington  
States  
“All- Hazards”  
Warning System

# EAS Message Originating Sources





# NWS Messages to EAS



- \* Tornado Watch or Warning
- \* Severe Thunderstorm Watch or Warning
- \* Flash Flood Watch or Warning
- \* Flood Warning
- \* High Wind Warning
- \* Winter Storm / Heavy Snow / Blizzard Warning
- \* Tsunami Watch or Warning
- \* Civil Emergency Message



# Non -NWS Messages on NOAA Weather Radio

Examples include:

- \* Civil Emergency Warning
- \* Evacuation Immediate
- \* Volcano Warning
- \* Shelter in Place Warning
- \* Child Abduction Emergency (AMBER)

# NWS Seattle “All-Hazards” NWR

How does it work?

National

- KIRO Radio 710 AM
- KPLU Radio 88.5 FM

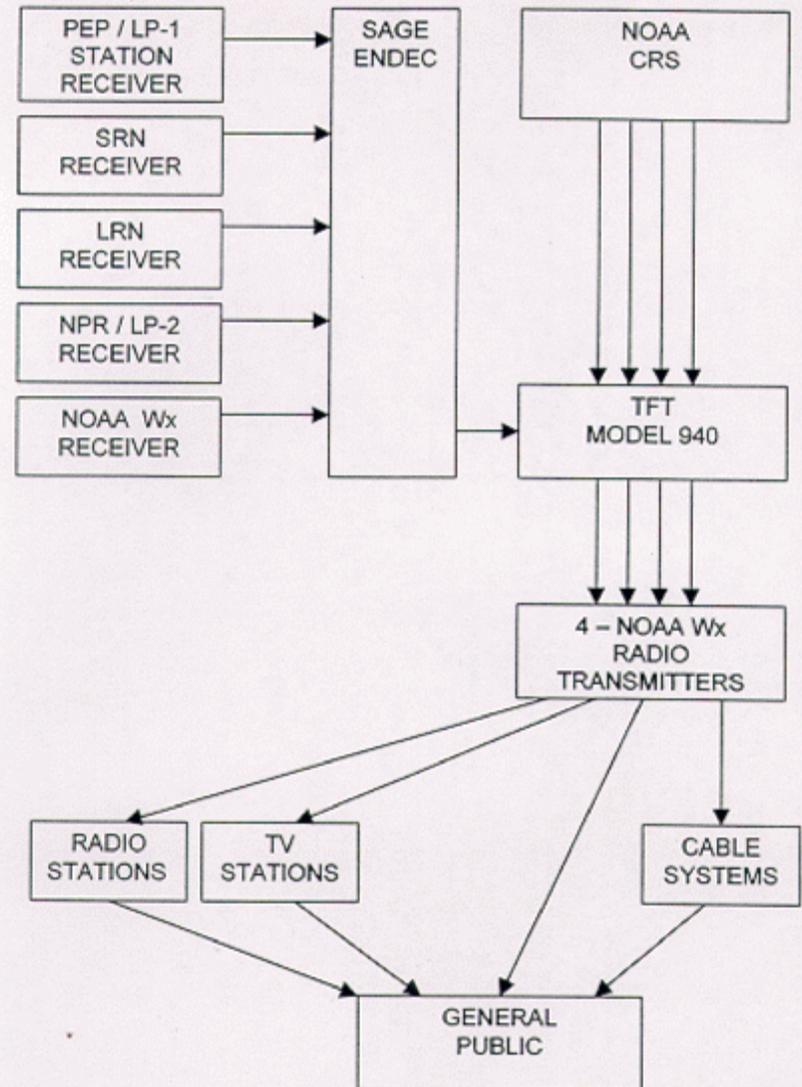
State

- 155.475 Mhz (VHF)

County/Local

- 450.0875 Mhz (UHF)

## NOAA Wx RADIO – SEATTLE

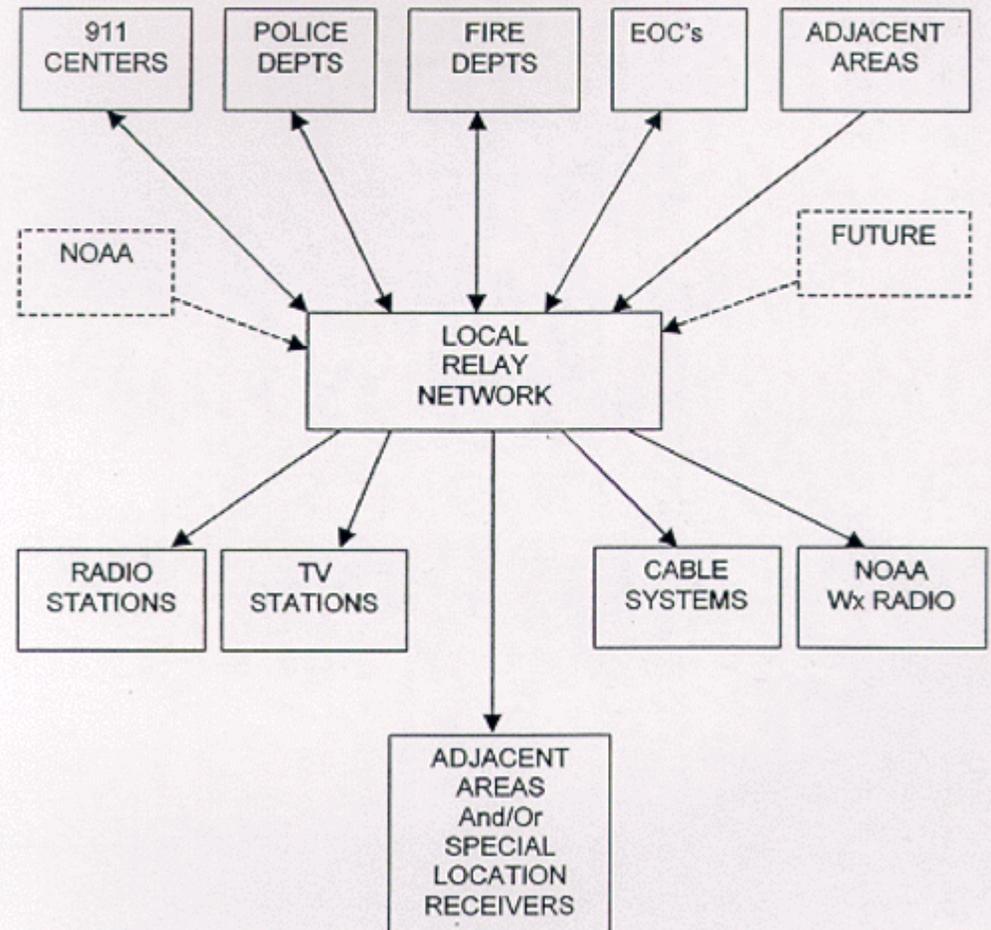


# NWS Seattle “All-Hazards” NWR

How does it work?

Local Relay Network  
is the key element !

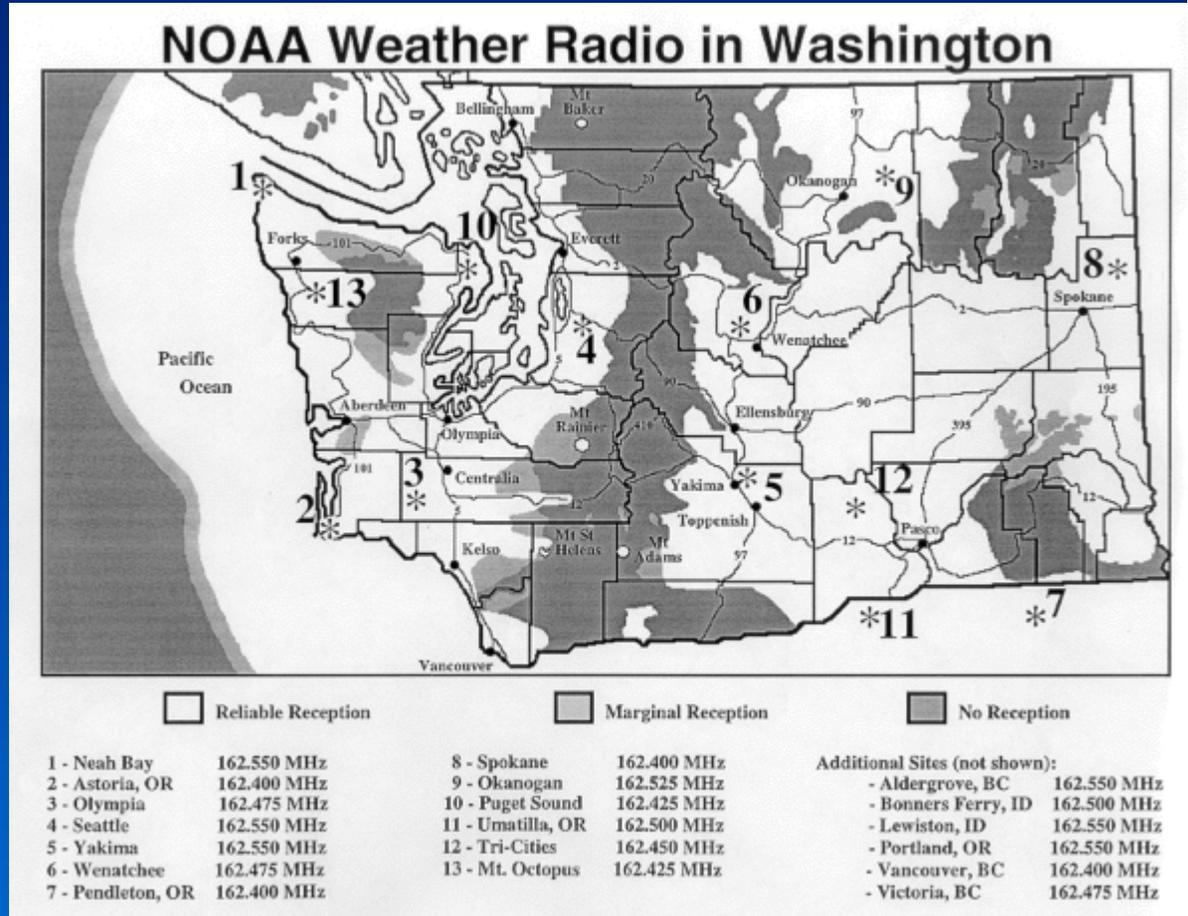
## THE LOCAL RELAY NETWORK (LRN)



# NWS Seattle "All-Hazards" NWR

Future.....

- Use Nationally as part of Homeland Security ?
- NWS Nationally
- EAS - Segmented Counties / Cities



NW	N	NE
W	CNTL	E
SW	S	SE



# Questions ? Comments?



