



NWS Flood Warning Products plus a Look Ahead



September 21 & 22, 2010
DRBC Flood Warning Users Forum

Presented by
Gary Szatkowski
Meteorologist-in-Charge
NOAA's National Weather Service
Philadelphia/Mt. Holly NJ Forecast Office

609-261-6602 x222 (office) Gary.szatkowski@noaa.gov



Mission statement



- “The **National Weather Service (NWS)** provides **weather, hydrologic, and climate forecasts and warnings** for the United States, its territories, adjacent waters and ocean areas, **for the protection of life and property and the enhancement of the national economy**. NWS data and products form a national information database and infrastructure which can be used by other governmental agencies, the private sector, the public, and the global community.”

LOCATIONS OF WEATHER FORECAST OFFICES

122 Offices Nationwide

NWS Forecast Office - Mount Holly, NJ

NWS Mount Holly Personnel

- Senior Forecasters : 5
- General Forecasters: 5
- Meteorological Interns: 3
- Hydrometeorological Technicians: 1
- Electronic Technicians: 3
- Hydrologist: 1
- Management: 5
- IT position: 1
- Administrative support: 1
- Total Personnel: 25

Fort Dix, NJ WSR-88 Doppler Radar

NWSFO Mount Holly

ASOS

County Warning Area



Flood Warnings



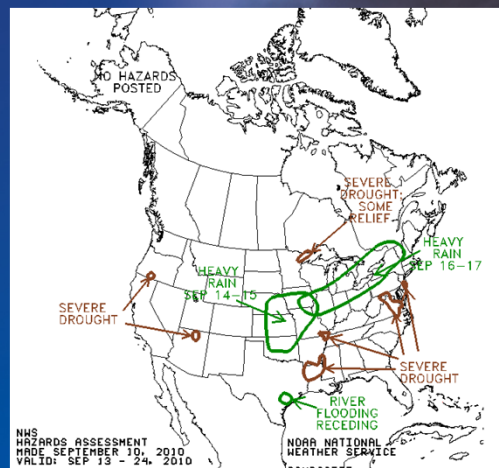
- By the time we issue a flood warning, many activities on both our part and yours have hopefully happened
 - *i.e., If you are waiting for a flood warning prior to taking critical action, you may not have enough time to complete all your activities*
- Let's review all the relevant information to assist in your planning before the first flood warning is issued.



NWS Hazards assessment



- www.cpc.ncep.noaa.gov/products/predictions/threats/threats.qif
- 3 to 14 day forecast

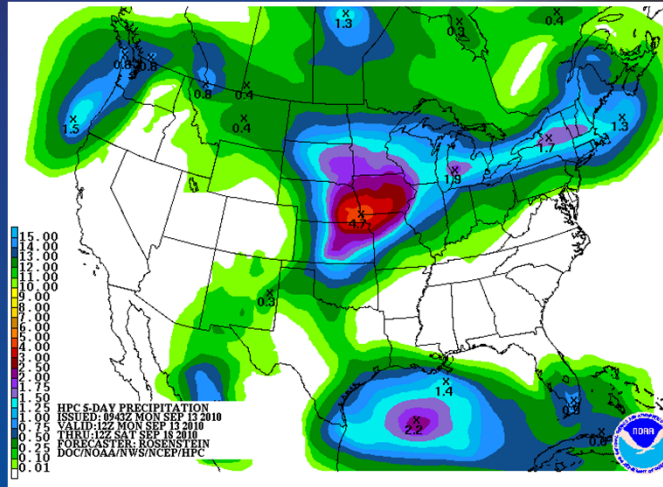




5 day rainfall total forecast



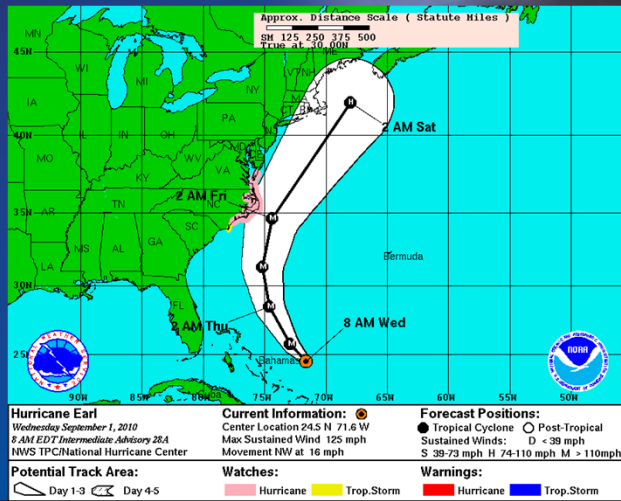
- www.hpc.ncep.noaa.gov/qpf





If a hurricane is the threat




- www.nhc.noaa.gov




Briefing package issued by WFO Mount Holly



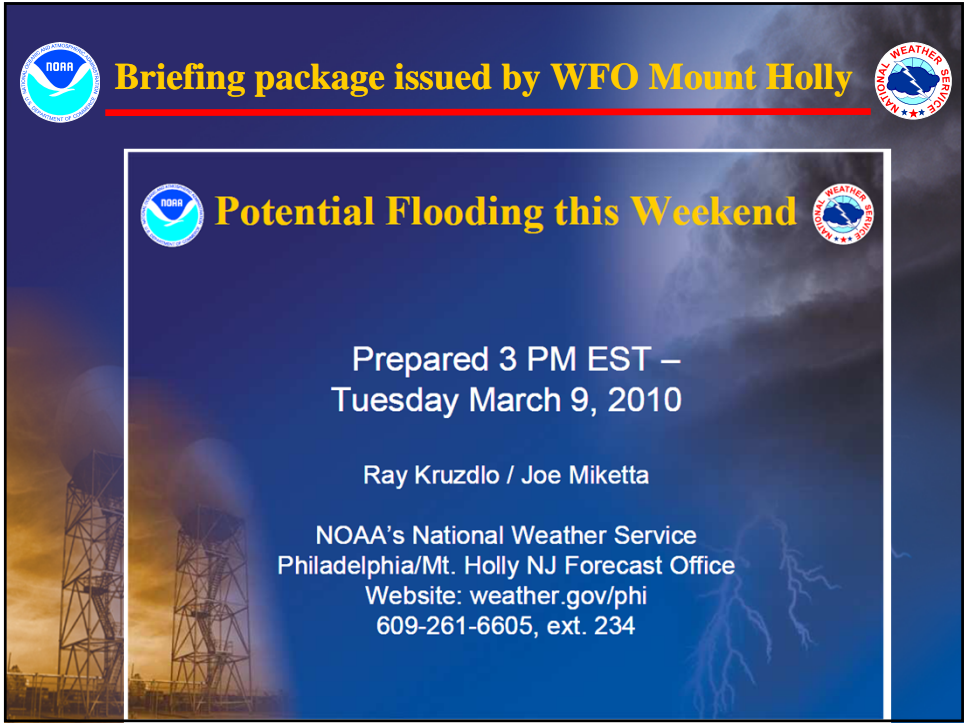


Potential Flooding this Weekend



Prepared 3 PM EST –
Tuesday March 9, 2010

Ray Kruzzdlo / Joe Miketta

NOAA's National Weather Service
Philadelphia/Mt. Holly NJ Forecast Office
Website: weather.gov/phi
609-261-6605, ext. 234

Weather.gov/phi

- Local forecast by City, ZIP or ZIP code
- Current Hazards
- Weather Briefing
- Local Hazards
- Hazardous
- Weather Outlook
- Connective
- Outlooks
- Winter Weather
- Tropical Weather
- Current Conditions
- Observations
- Satellite Images
- Rivers & Lakes
- AHP'S
- Radar Imagery
- Mt. Holly Radar
- Nexrad
- Forecasts
- Activity Planner
- Local Forecasts
- Aviation
- Marine
- Fire Weather
- Air Quality
- Model Guidance
- Hydrology
- River, Rainfall,
- Snow and Ice
- River Ice Reports
- Drought
- Information
- River Forecast Center
- Climato
- Local
- National
- More
- Weather Safety
- Weather Radio
- Storm Ready
- Preparedness
- Skywarn™
- Emergency
- Manager's Page
- Office Programs
- Research/Reports
- Education/Outreach
- Coop. Observers

Philadelphia Weather - National Weather Forecast Office Mount Holly Home Page - Mozilla Firefox

http://www.ew.noaa.gov/er/phi/

Most Visited Commerce Web Applic. National Hurricane Ce. National Weather Ser... Time & Attendance NOAA's National Weat... NOAA Messenger Exp

Philadelphia ... National Weather S... MOS FORECASTS National Weather S... sfc_bu_gf GDP Ina... National Weather S... (Print)


National Weather Service Forecast Office Philadelphia/Mount Holly

Site Map News Organization Search

NOAA Text Weather Forecast Public Past Event NHC UV Air Surf NOAA Watch Products Roundup Matrices Info Weather Archive Index Quality Zone

Quick Glimpse at the Weather Philadelphia/Mt Holly map FAQ

Click on the map below for the latest forecast.



Best weather warnings & advisories

Sole Warning

Great Craft Accuracy

Hazardous Weather Outlook

Short Term Forecast

Area Forecast Discussion - A nice respite of cooler drier air ahead of high pressure arriving from the Great Lakes will give way to more above normal temperatures to the weekend as the high moves east of New Jersey. A weakening cold front will by to move through the forecast area Sunday or Sunday night. Weak high pressure will return for the early part of the week...read the full AFD.

Last map update: Tue, Jun 8, 2010 at 4:26:19 pm EDT

FAQ & Resources Seasonal Weather Tips Education

Choose from the options below for other ways to view your IWS forecast

Text Forecast Digital Forecast Quick Forecast Graphical Forecast Images

Radar Composites Weather Data

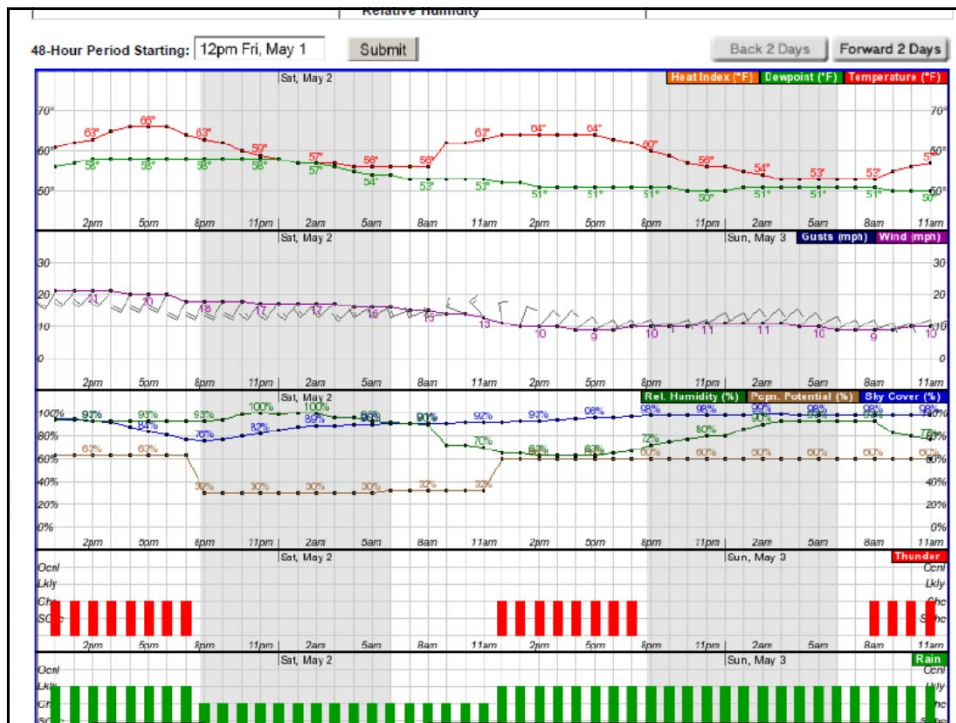
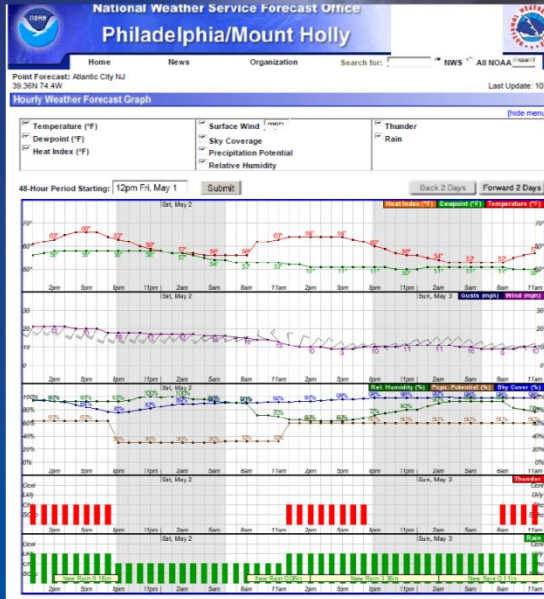
Top of Page | Home Page



Hourly Weather Graph



- Got a hazmat or a forest fire or a ...???
- Need a detailed weather forecast?
- In graphic form???
- We've got you covered





Hourly weather table



- Need a detailed weather forecast?
- In tabular form?
- We've got that too!



National Weather Service Forecast Office
Philadelphia/Mount Holly

Home News Organization Search for: [] NWS AB NC
Point Forecast: Atlantic City NJ 33.2094 74.44W
Last Update: 10:02 am EDT
Tabular Forecast [hide menu] | Font Size: A A A

Temperature (°F)
 Dewpoint (°F)
 Heat Index (°F)

Surface Wind (mph)
 Sky Coverage
 Precipitation Potential
 Relative Humidity

Thunder
 Rain

48-Hour Period Starting: 12pm Fri, May 1 [Submit] [Back 2 Days] [Forward 2 Days]

Date	05/01											05/02												
Hour (EDT)	12	13	14	15	16	17	18	19	20	21	22	23	00	01	02	03	04	05	06	07	08	09	10	11
Temperature (°F)	61	62	63	65	66	66	66	64	63	62	60	59	58	57	57	57	56	56	56	56	56	56	56	56
Dewpoint (°F)	56	57	58	58	58	58	58	58	58	58	58	58	58	57	57	56	55	54	54	53	53	53	53	53
Heat Index (°F)																								
Wind (mph)	21	21	21	21	20	20	20	18	18	18	17	17	17	17	17	16	16	16	15	15	14	14	13	
Wind Dir	SSW	SW	SW	SW	SSW	SSW	SSW	SSW	SSW	SSW	SW	SW	SW	SW	SW	WSW	WSW	WSW	WSW	W	WNW	NW	NW	
Gust																								
Sky Cover (%)	95	94	93	92	88	84	81	77	76	77	80	82	85	88	89	89	90	90	91	91	91	91	92	
Popn. Potential (%)	63	63	63	63	63	63	63	63	30	30	30	30	30	30	30	30	30	32	32	32	32	32	32	
Rel. Humidity (%)	94	95	93	93	93	93	93	93	94	99	100	99	100	100	96	96	93	92	91	90	72	72	70	
Thunder	Cbc	Cbc	Cbc	Cbc	Cbc	Cbc	Cbc	Cbc	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Rain	Lkly	Lkly	Lkly	Lkly	Lkly	Lkly	Lkly	Lkly	Cbc	Cbc	Cbc	Cbc	Cbc	Cbc	Cbc	Cbc	Cbc	Cbc	Cbc	Cbc	Cbc	Cbc	Cbc	

Date	05/03																							
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Temperature (°F)	64	64	64	64	64	64	63	62	60	59	57	56	55	54	53	53	53	53	53	53	55	56	57	
Dewpoint (°F)	52	52	51	51	51	51	51	51	51	50	50	50	51	51	51	51	51	51	51	51	50	50	50	
Heat Index (°F)																								
Wind (mph)	11	10	10	10	9	9	9	10	10	10	11	11	11	11	11	10	10	9	9	9	9	10	10	
Wind Dir	N	NNE	NE	NE	NE	ENE	ENE	ENE	E	ENE	ENE	ENE	ENE	NE	NE	NE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	
Gust																								
Sky Cover (%)	92	93	93	94	95	96	96	97	98	98	98	98	98	99	99	98	98	98	98	98	98	98	98	
Popn. Potential (%)	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	
Rel. Humidity (%)	65	65	63	63	63	63	65	67	72	75	77	80	86	90	93	93	93	93	93	93	93	83	80	77
Thunder	Cbc	Cbc	Cbc	Cbc	Cbc	Cbc	Cbc	Cbc	--	--	--	--	--	--	--	--	--	--	--	--	Cbc	Cbc	Cbc	Cbc

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Temperature (°F)
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Surface Wind (mph)
 Sky Coverage
 Precipitation Potential
 Relative Humidity

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 Rain

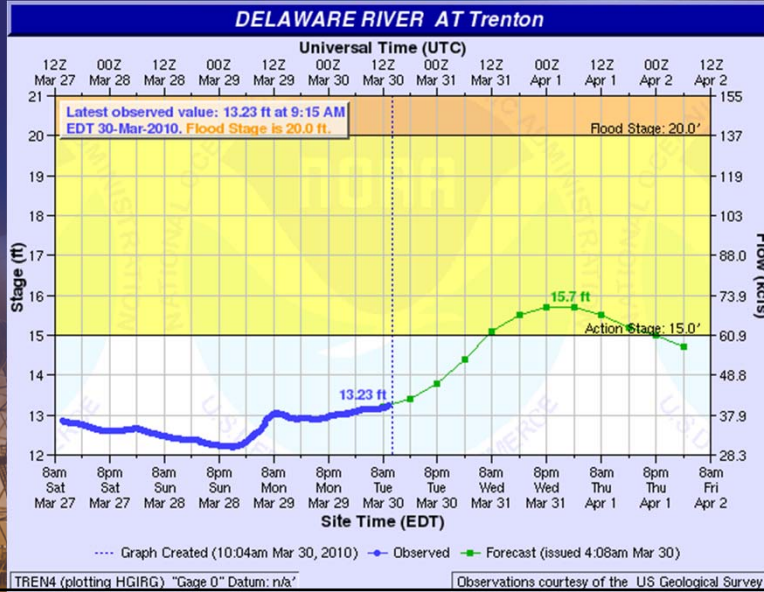
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Rel. Humidity (%)	94	95	93	93	93	93	93	93	94	99	100	99	100	100	96	96	93	92	91	90	72	72	70	
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Rain	Lkly	Lkly	Lkly	Lkly	Lkly	Lkly	Lkly	Lkly	Lkly	Cbc	Cbc	Cbc	Cbc	Cbc	Cbc	Cbc	Cbc	Cbc	Cbc	Cbc	Cbc	Cbc	Cbc	Cbc

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Gust																								
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Rel. Humidity (%)	65	65	63	63	63	63	65	67	72	75	77	80	86	90	93	93	93	93	93	93	93	83	80	77
Thunder	Cbc	Cbc	Cbc	Cbc	Cbc	Cbc	Cbc	Cbc	--	--	--	--	--	--	--	--	--	--	--	--	Cbc	Cbc	Cbc	Cbc



AHPS - Hydrograph

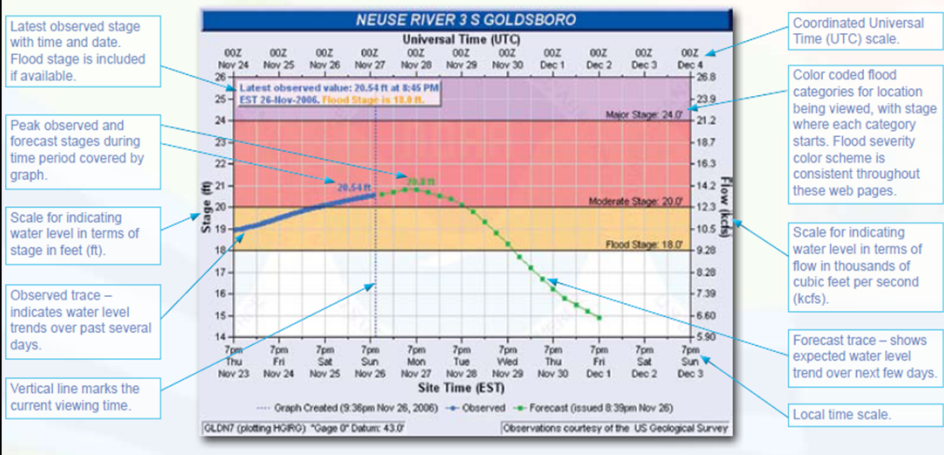


AHPS - Hydrograph



Hydrograph

The hydrograph is the first graphic displayed after clicking on a specific river/stream location on the regional map. It provides recent observations and for many points a forecast for the next few days. Tabs at the top of the hydrograph allow a user to display other graphical information for the river/stream location.





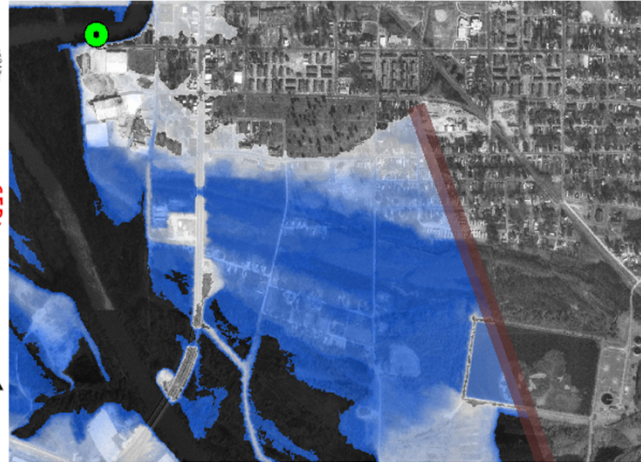
Near Term – inundation mapping



Neuse River at Kinston, NC (KINN7)

Latitude: 35.260000 N Longitude: -77.590000 W

NAVD88: 40.0 ft - Stage: 29.1 ft



Graphical representation of flood inundation for NWS flood categories are based on steady state hydrologic modeling water surface elevations for incremented discharges. Map shows approximate inundation areas for given water surface elevations and should not be used for navigation or permitting or other legal purposes, but strictly as a planning reference tool.

- USGS Gauge Location
- Area of Inundation
- Extent of Inundation Study Boundaries



Text product – Flood warning



- Text product to complement the hydrograph



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000
WGUS41 KPHI 132026
ELWPHI
BULLETIN - IMMEDIATE BROADCAST REQUESTED
FLOOD WARNING
NATIONAL WEATHER SERVICE MT HOLLY, NEW JERSEY
326 PM EST SAT MAR 13 2010

...THE NATIONAL WEATHER SERVICE IN MOUNT HOLLY NJ HAS ISSUED A FLOOD
WARNING FOR THE FOLLOWING RIVERS IN NEW JERSEY...

NORTH BRANCH RANCOCAS CREEK AT PEMBERTON AFFECTING BURLINGTON COUNTY
PRECAUTIONARY/PREPAREDNESS ACTIONS...

SAFETY MESSAGE...DO NOT ATTEMPT TO DRIVE THROUGH FLOODED AREAS. THE
WATER MAY BE DEEPER THAN YOU THINK.

&&

NJ0005-140226-
/O.NEW.KPHI.FL.W.0014.100314T0000Z-000000T0000Z/
/PEM4.1.ER.100314T0000Z.100315T0600Z.000000T0000Z.NO/
326 PM EST SAT MAR 13 2010

THE NATIONAL WEATHER SERVICE IN MOUNT HOLLY NJ HAS ISSUED A
* FLOOD WARNING FOR
THE NORTH BRANCH RANCOCAS CREEK AT PEMBERTON.
* FROM THIS EVENING UNTIL FURTHER NOTICE...OR UNTIL THE WARNING IS
CANCELLED.
* AT 3:00 PM SATURDAY THE STAGE WAS 2.4 FEET.
* FLOOD STAGE IS 2.5 FEET.
* MINOR FLOODING IS FORECAST.
* FORECAST...RISE ABOVE FLOOD STAGE THIS EVENING AND CONTINUE TO RISE
TO NEAR 3.0 FEET BY EARLY TUESDAY MORNING.
* IMPACT...AT 2.5 FEET...SOME MINOR FLOODING BEGINS IN EASTAMPTON

&&

LOCATION          FLD      OBSERVED      FORECAST
STG            STG      STG  DAY TIME    CREST
RANCOCAS CREEK
PEMBERTON      2.5      2.38  SAT 3 PM     3.0  MON 2 AM
&&

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<http://inws.wrh.noaa.gov/>



iNWS - Interactive NWS
National Weather Service Mobile Decision Support Services (MDSS)

iNWS MOBILE ALERTING

Receive customized text message and e-mail alerts for National Weather Service products that you care about.



Welcome.

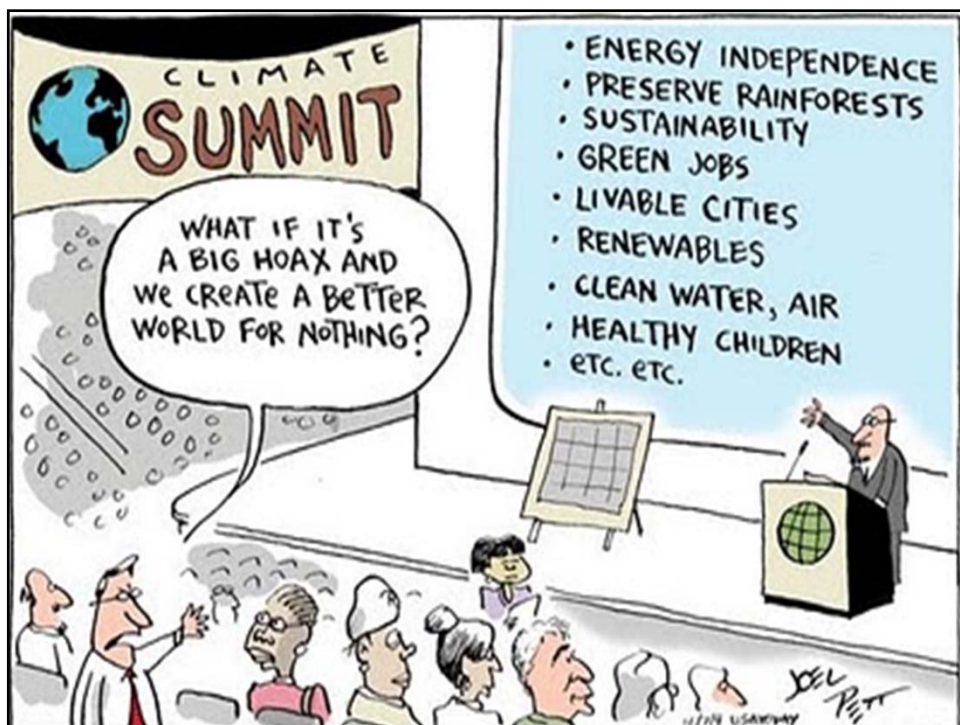
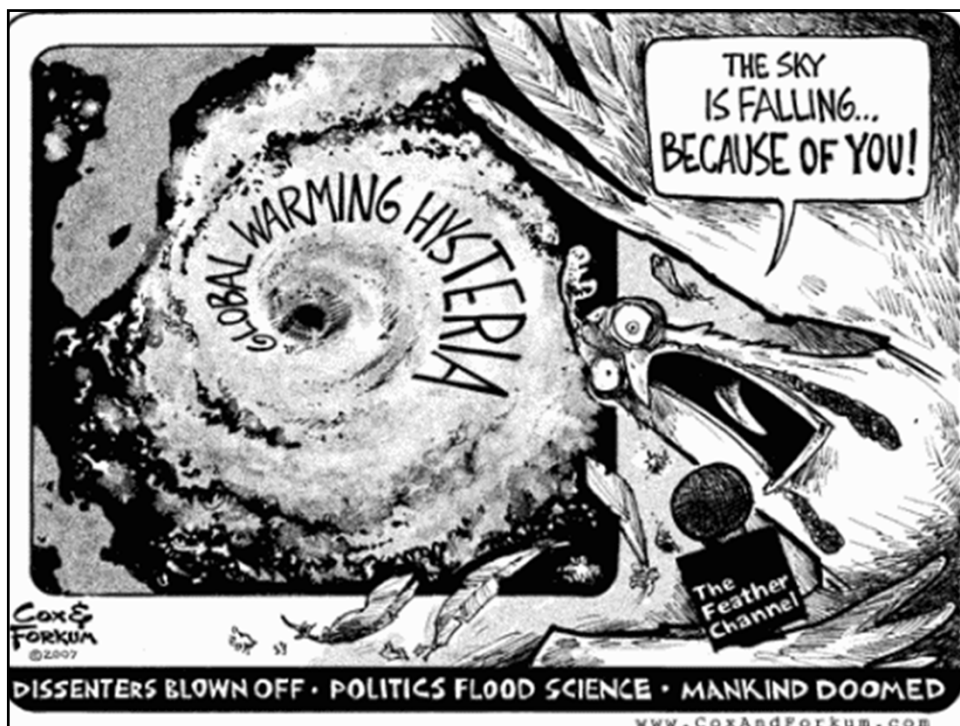
InteractiveNWS (iNWS) is the home of new mobile and desktop innovations of the National Weather Service. This application suite allows NWS partners to receive National Weather Service products in new and innovative ways, such as text messaging and mobile-enabled webpages. iNWS strives to fulfill our mission of protecting life and property by using new technology to reach out to our customers.

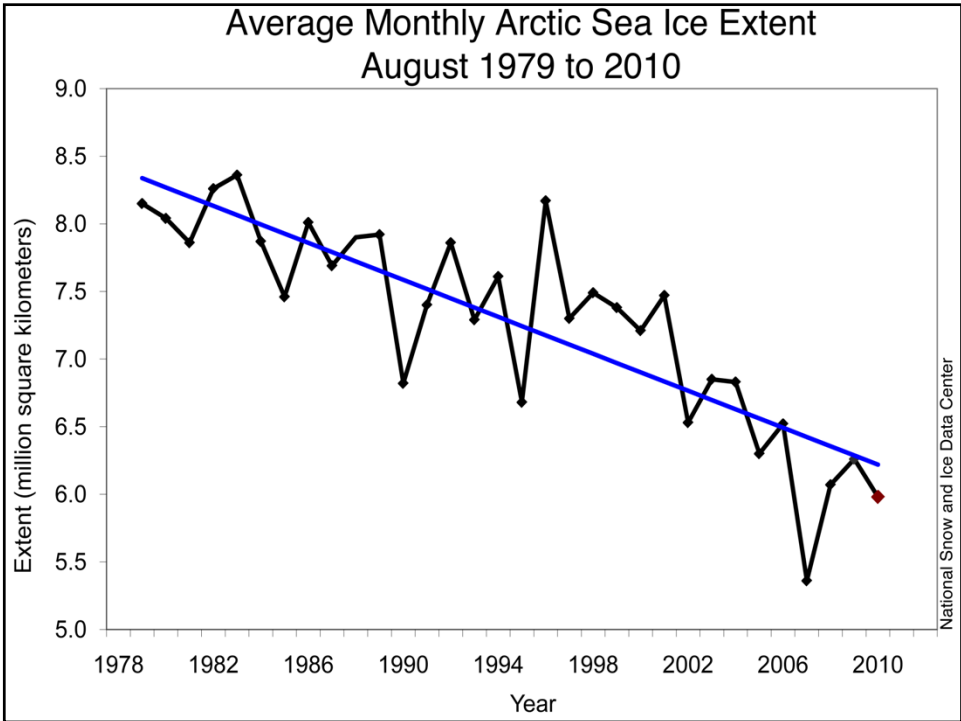
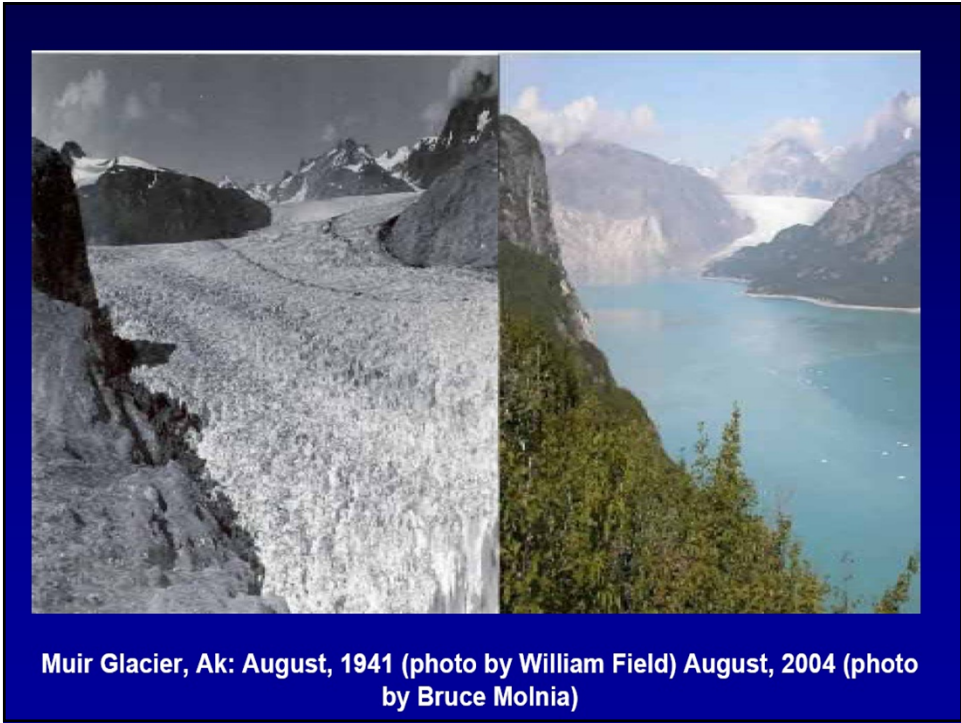


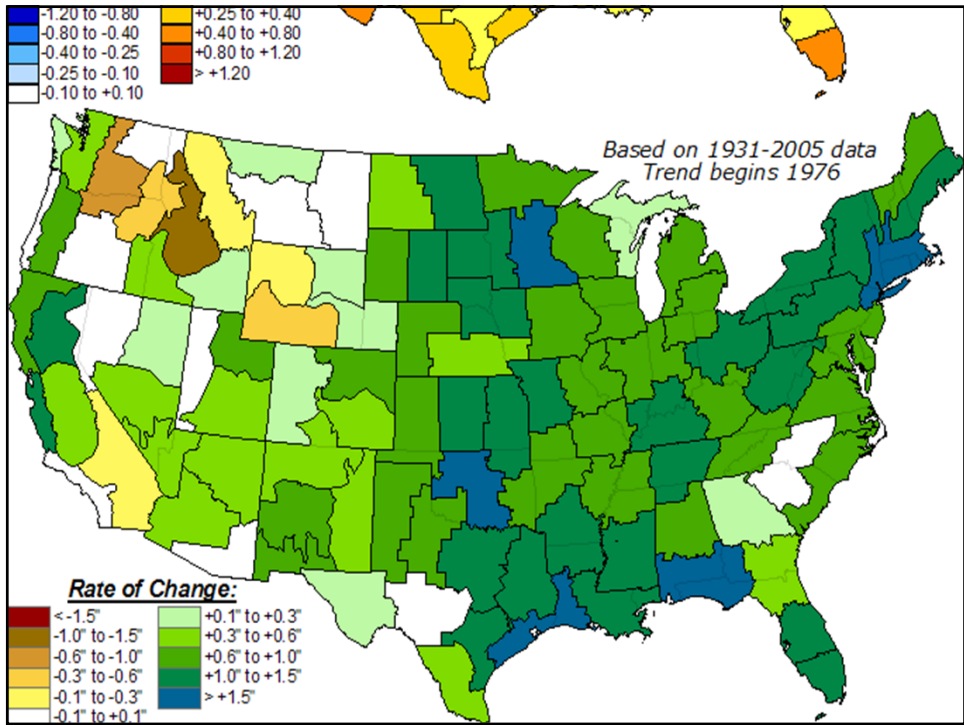
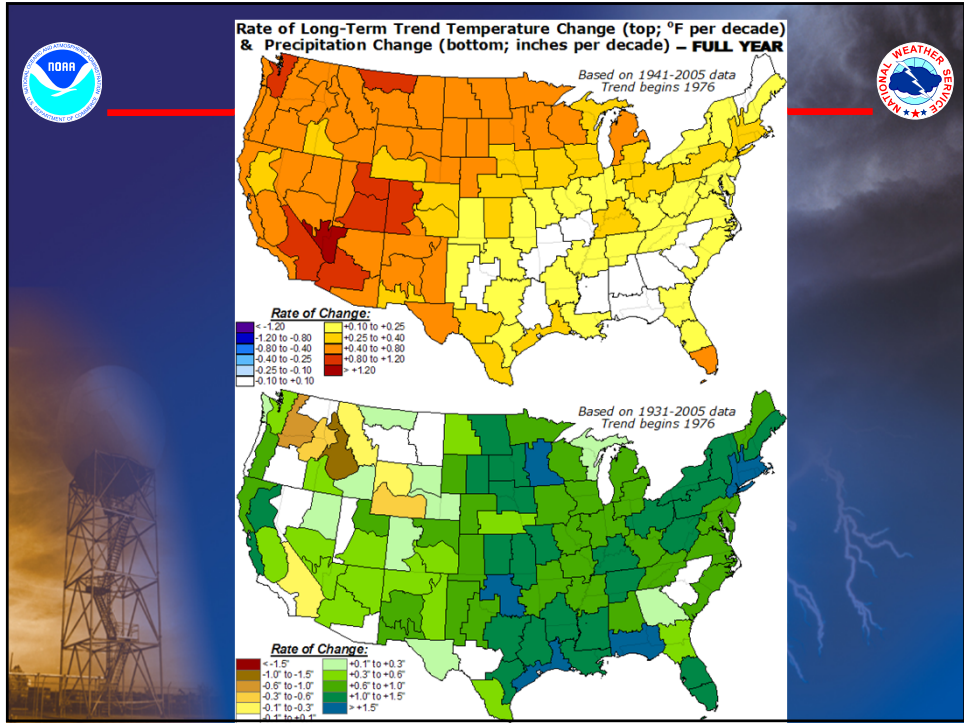
Where are we going



- Looking at changes both in how we provide public service and the world in which we live
- Change in the world
 - *Climate change*
- Changes in how we serve the public
 - *Decision Support Services*

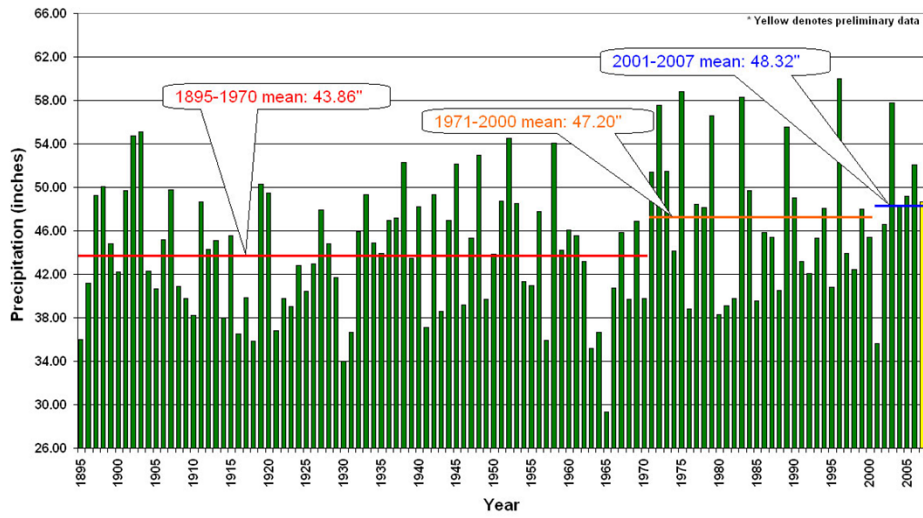




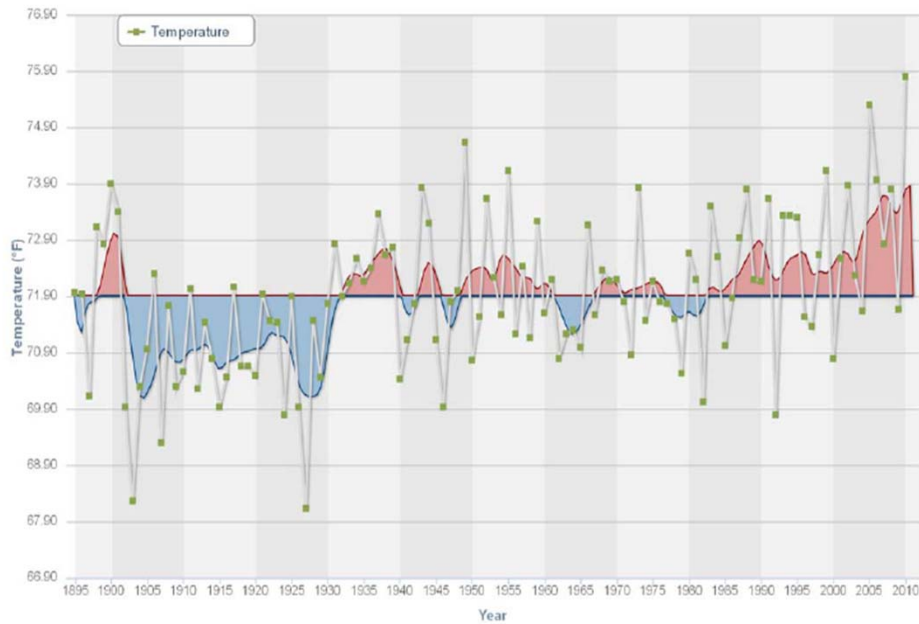


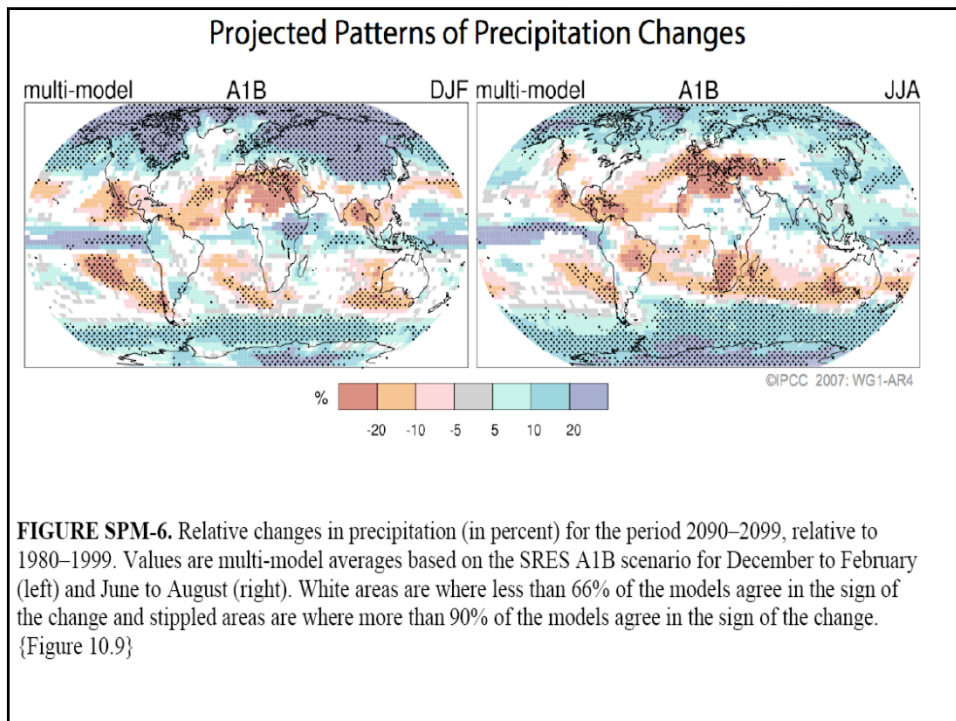
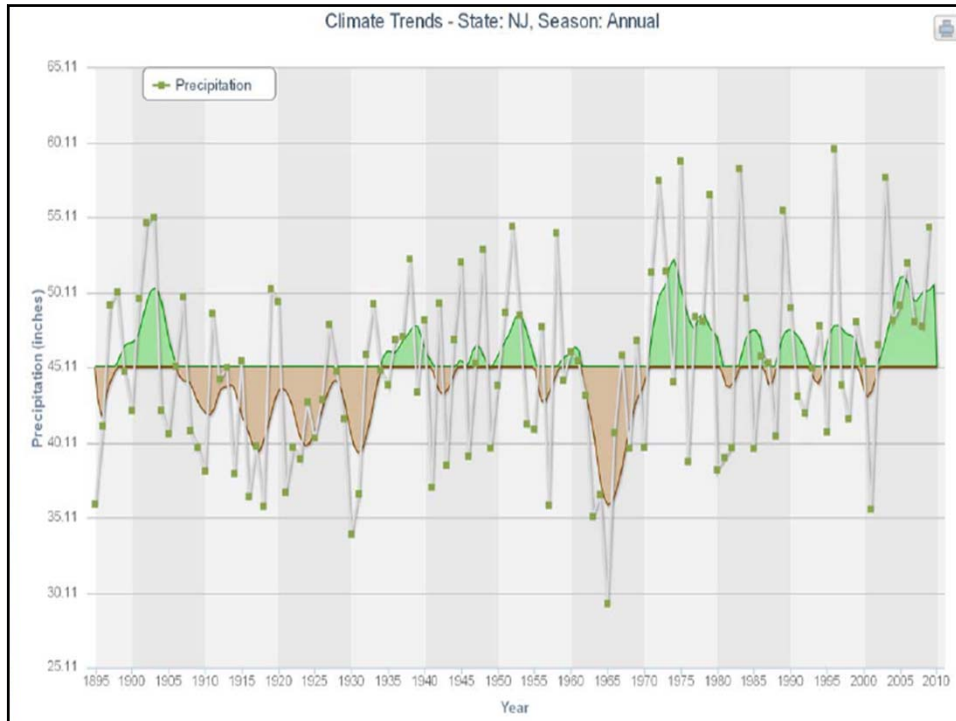


NJ Statewide Annual Precipitation (1895-2007)



Climate Trends - State: NJ, Season: Seasonal Summer



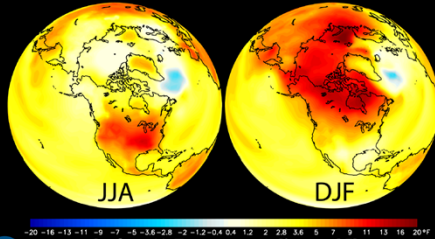




It will be a warmer & wetter world



Climate Change Responses Are Not Geographically Uniform
NOAA GFDL CM2.1 Climate Model



Surface Air Temperature Change [°F]
(2050s average minus modeled 1971-2000 average) SRES A1B scenario
Source: <http://www.gfdl.noaa.gov/patterns-of-greenhouse-warming-ar4>

Mean Decadal Change in the 99th Percentile of Daily Accumulations: 1948-2007

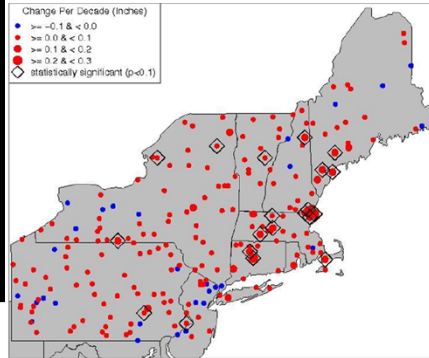


Figure 8. Trends in the 99th percentile of daily accumulations per decade from 1948-2007. Increasing trends are shown in red, decreasing in blue. Trends were calculated from ten 51-year window time series. Statistically significant trends are indicated by black diamonds.



University of New Hampshire

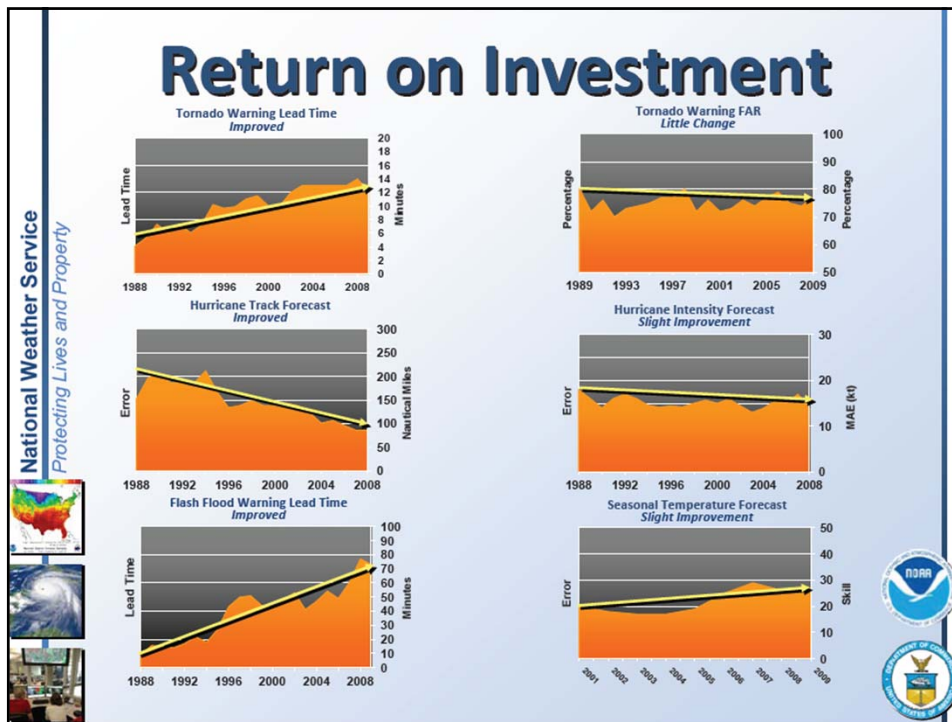


Changes in how we serve the public



- Decision Support Services





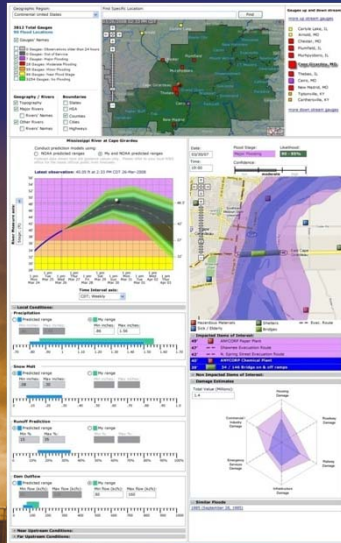
Decision Support Services

- Our level of service performance steadily improves
 - *And we will continue working to improve*
- But now, its not just good enough to make a better weather forecast
- We want to work with our partners to insure that the appropriate level of information is getting to decision makers when they need it and that we work with them on the best ways to use that information to support your decision making process



NWS DSS - What is It?

Painting a Complete Picture Quickly



New Decision Tools created by a team of Social Scientists with Emergency Managers

- Visualizations of inundation “impact” for various flooding scenarios
- Visualization of uncertainty model inputs for more clear understanding predictions
 - Allow for local knowledge to be incorporated into impacts (inundation and costs)
- *Fusion/organization of information* for clear understanding of relationship to one another and enhanced orientation.

35

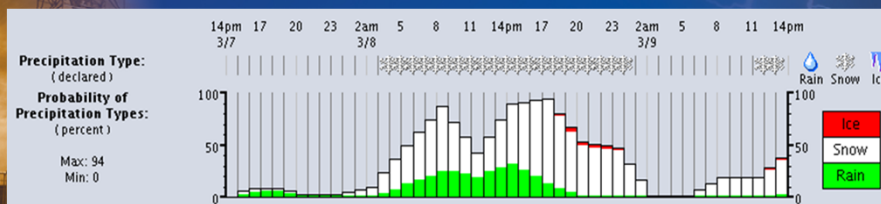


NWS DSS - What is It?

Conveying Uncertainty





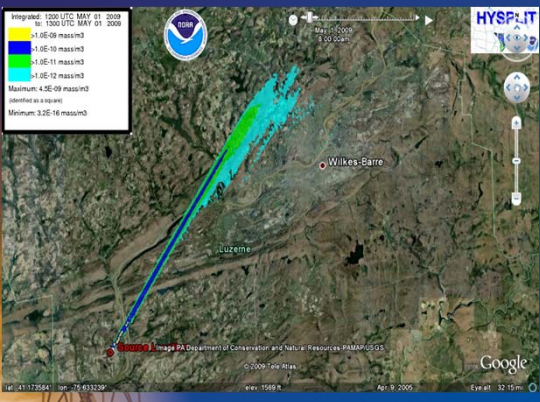
- Facilitates understanding of complex meteorological information through the use of intuitive visualization tools
- Graphic depicts conditional probability of P-Type and overall precipitation probability. User can easily view the chance of liquid, freezing or frozen precipitation with deterministic forecast is shown at the top.



NWS DSS – What is It?

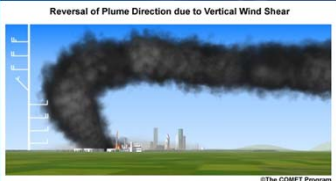
More Innovative Visualization



- Fast, responsive & visually intuitive impact-based products for plumes & fire wx
- Currently, WFOs must request HYSPLIT to be run from NCEP (20 min lag)
- Model may not take advantage of current mesonet data (e.g., MADIS)

Reversal of Plume Direction due to Vertical Wind Shear



©The COMET Program

Where We're Headed

Climate Services




- *Climate information demands increasing*
 - *High quality observations*
 - *Improved seasonal to inter-annual prediction*
 - *Downscaled products and services to regional and local levels*
- *Entire Weather and Climate Enterprise must work together to meet these challenges*
 - *NWS committed to doing our part*



- Improve Preparation for and Response to Heat Waves, Drought, Coastal Inundation, and Other Phenomena
- Relevant and Reliable Climate Data Will Stimulate Private Development of Technologies and Applications



Where We're Headed



Water Resource Services

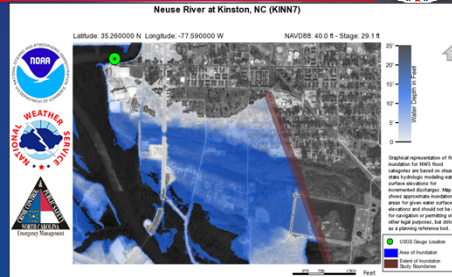
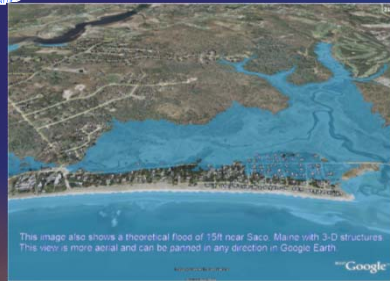
- Provide high-resolution water quantity, quality, and soil moisture forecasts
 - Emergency and resource managers mitigate losses for conditions ranging from droughts to floods



- Enables NOAA to meet our Nation's growing needs for water forecasts
- Provides forecasts for consumption resources
- Provides important resource protection capabilities



Discussion time



- What are you going to do with a flood inundation map?
- What are you going to do as the forecast is updated every six hours?
- What can the NWS do to help your decision making process?



May Fortune Smile Upon All Your Decisions



The End

