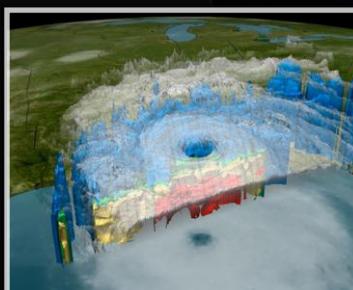
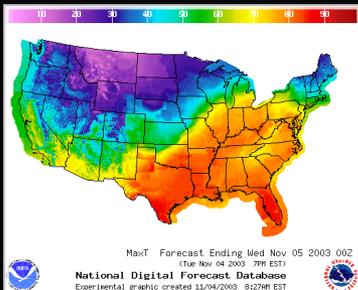
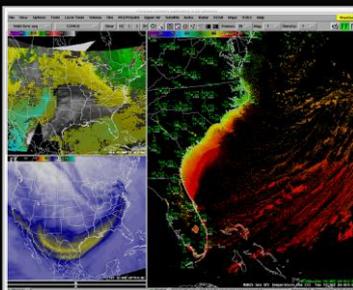
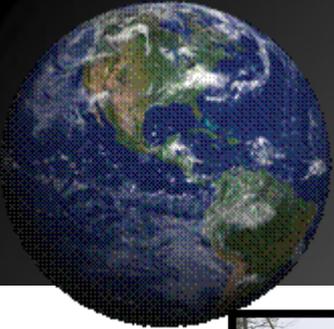


Weather-Ready Nation

*Douglas Hilderbrand
Weather-Ready Nation Ambassador Lead
Sea Grant Monthly Meeting
May 6, 2014*





Case for Change

"Average" Year and Trends in the U.S.



650 Deaths
\$15B in Losses



26,000 Severe
Thunderstorms



6 Atlantic Basin
Hurricanes



1,300 Tornadoes



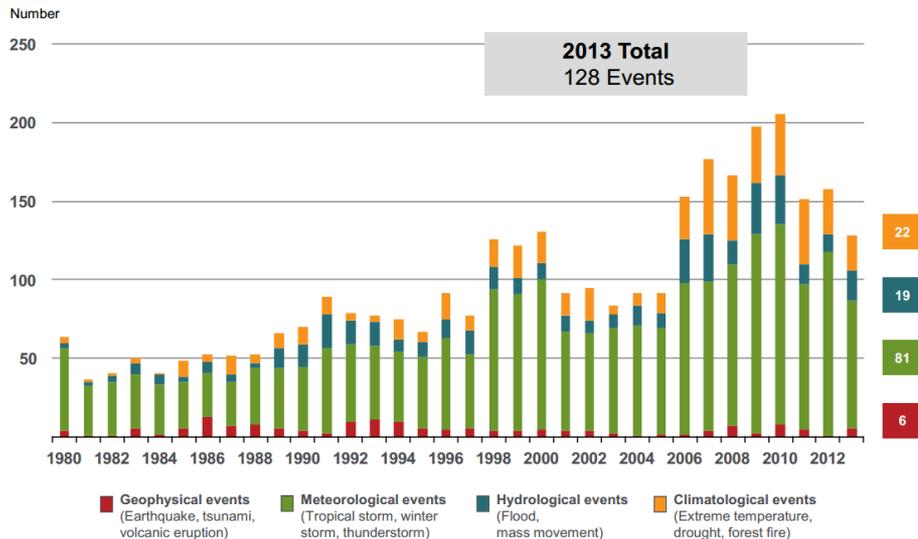
5,000 Floods

US Natural Catastrophe Update

Loss Events in the U.S. 1980 – 2013

Number of events

Munich RE



Regardless of the cause, the trend shows an increasing number of extreme weather events at increasing cost to the nation.

(Image source: Munich Re, 2014)





Case for Change

In the past few years magnitude of disasters reflects increased societal vulnerability



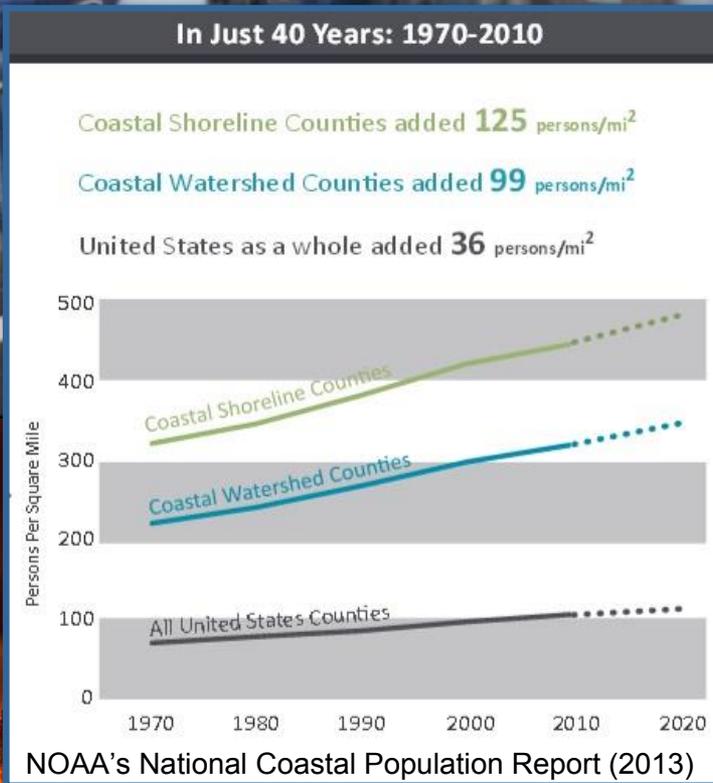
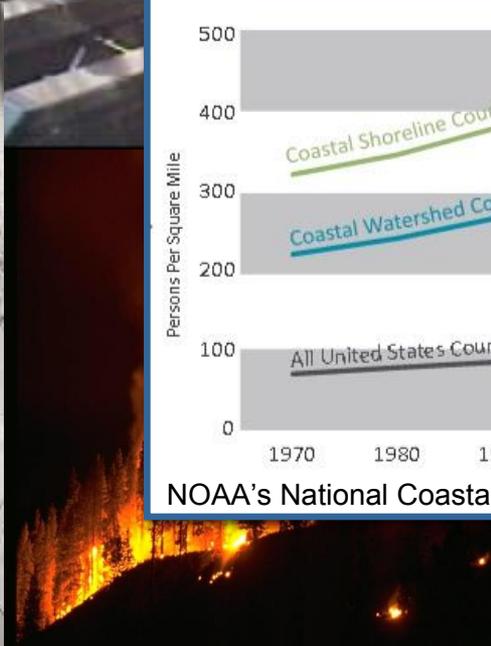
NOAA's National Coastal Population Report (2013)





Case for Change

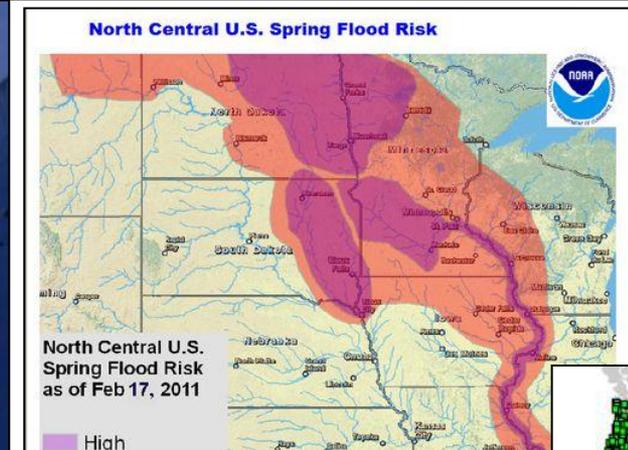
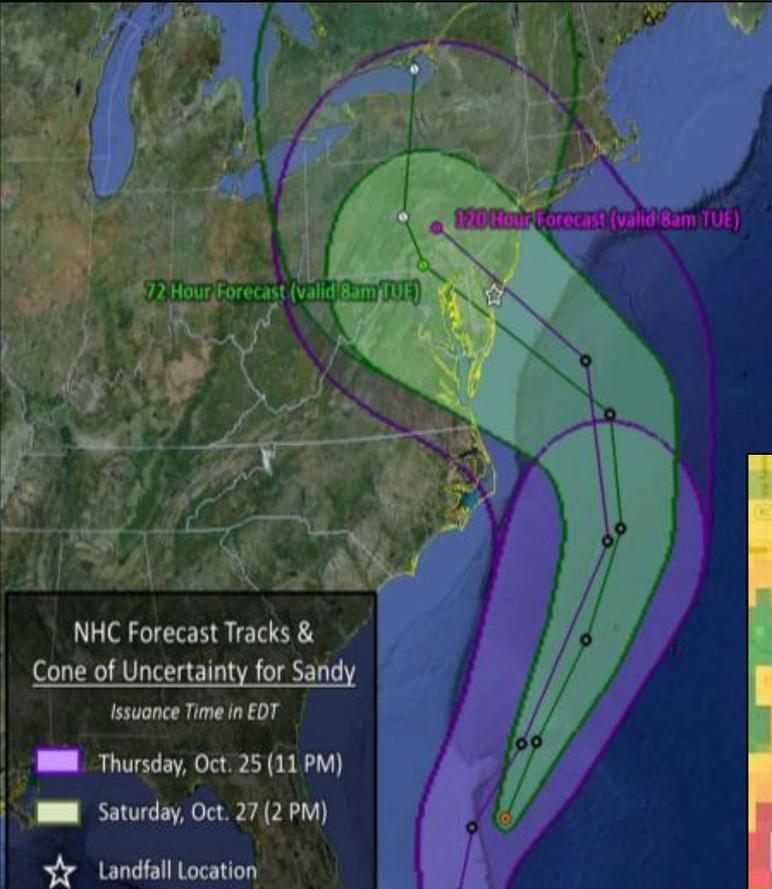
In the past few years magnitude of disasters reflects increased societal vulnerability





Case for Change

Extreme events well forecast...but societal impacts?



Flood Outlook months in advance of historical 2011 flooding



May 2013 Moore, OK Tornado ~16 minutes before formation (36 min. before arriving in Moore)

Sandy's "Left Turn" Forecast Path



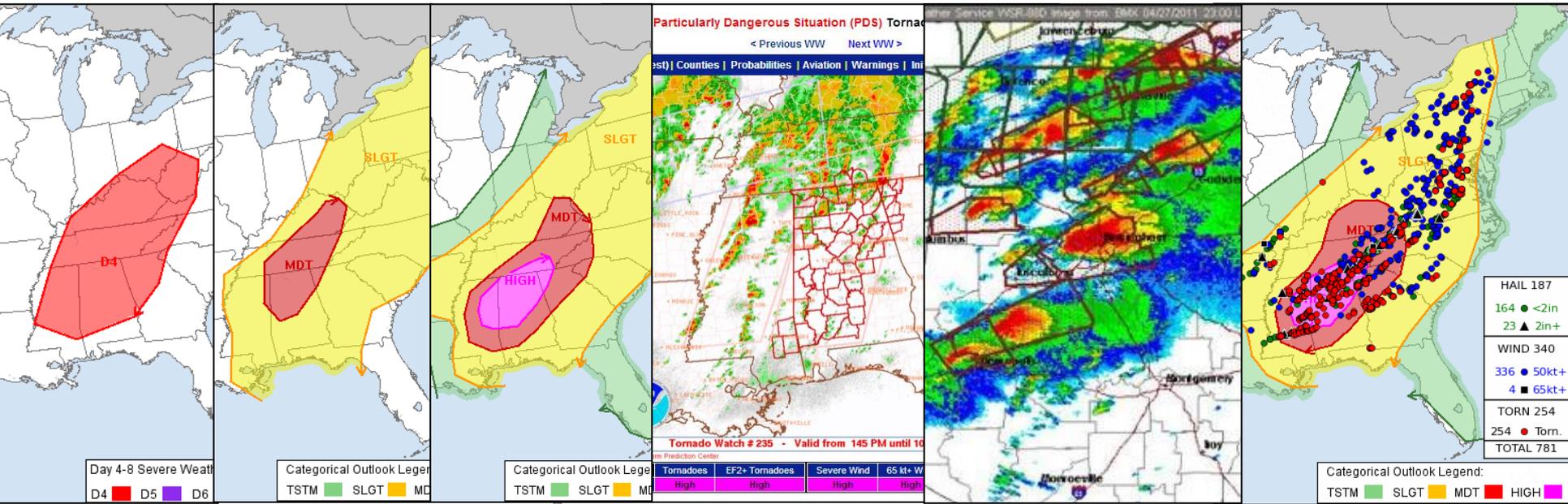
Case for Change

Southeast Tornado Outbreak April 27-28, 2011

Coordination calls with emergency managers beginning on day 3

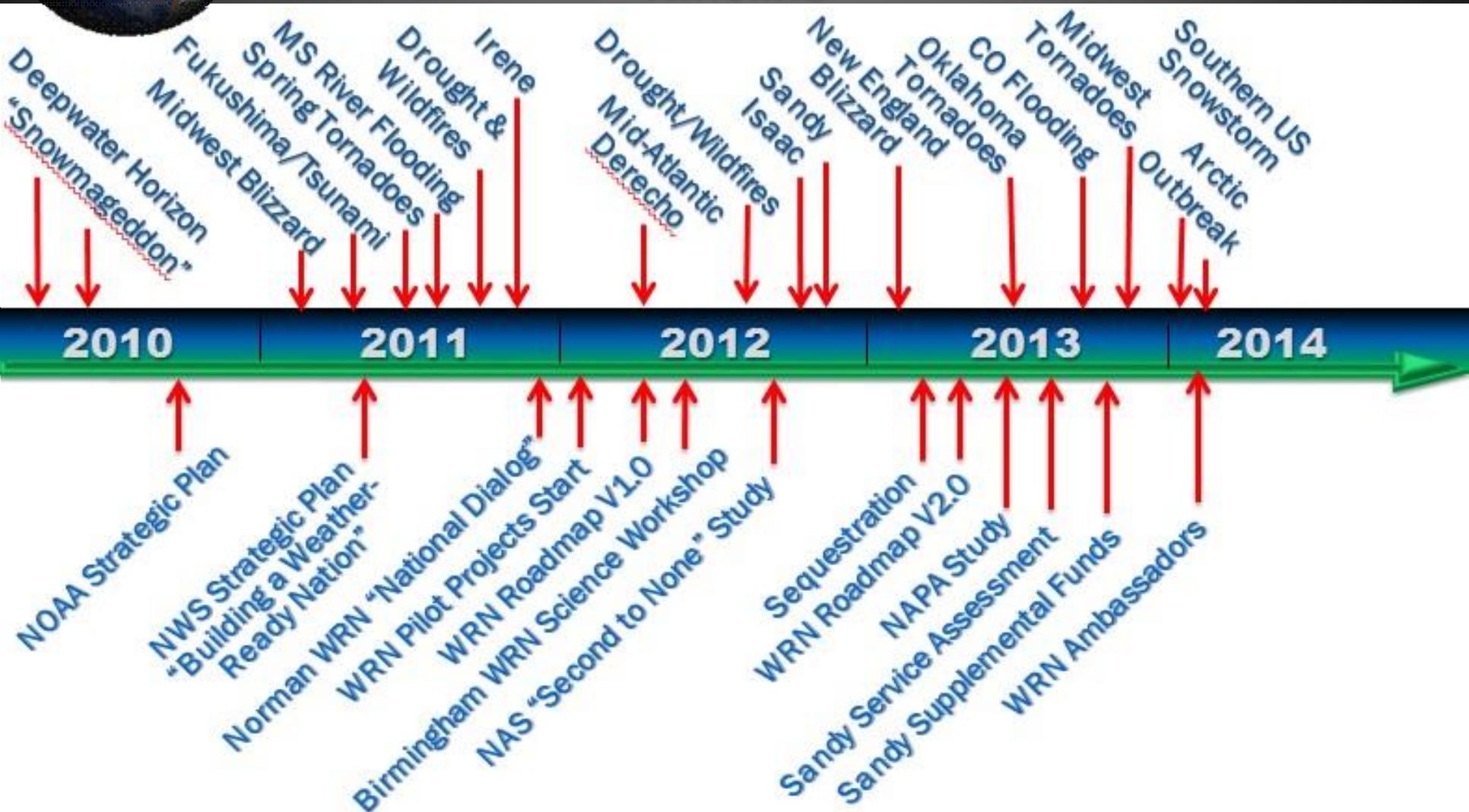
96% of tornadoes located within SPC Watch
 Ave. Warning Lead Time = 24 minutes

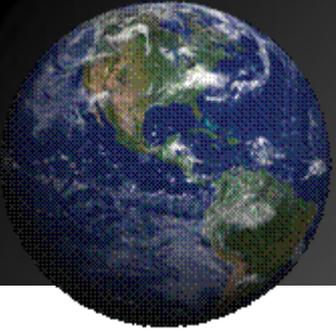
Deadliest outbreak since 1932
 ~190 tornadoes
 ~311 fatalities





NWS Evolution Toward Building a Weather-Ready Nation Timeline





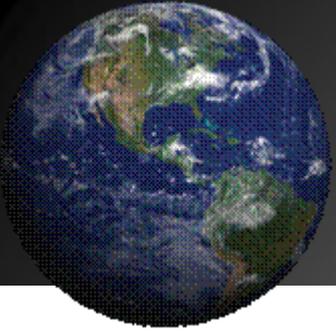
NWS Strategic Outcome: A Weather-Ready Nation

Becoming a Weather-Ready Nation is about building community resilience in the face of increasing vulnerability to extreme weather.



NOAA is developing new decision support services, improving technology to track and forecast storms, and expanding its dissemination efforts to achieve far-reaching national preparedness for weather events.

Decreasing Vulnerability by Increasing Resilience



Weather-Ready Nation

Five Major Focus Areas

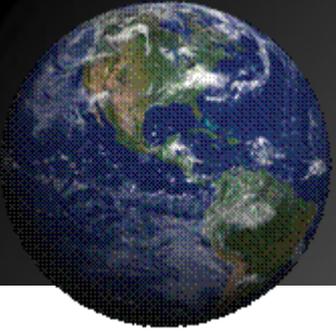
Internal

- ☑ Impact-based Decision Support Services
- ☑ Communications/Outreach
- ☑ Science & Technology Advances
- ☑ Information Delivery

- ☑ Innovative Partnerships

External to NOAA





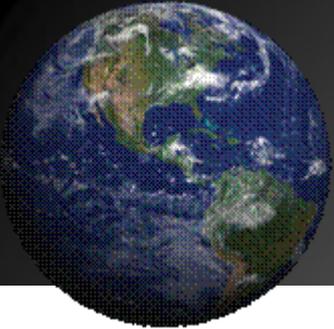
Taking NWS to the Next Level

Impact-based Decision Support Services

IDSS has four elements:

- ✔ Better understanding of societal impacts.
- ✔ Making our information more relevant to decision makers.
- ✔ Participating directly in decision making for those decisions fundamental to the role of government, especially the protection of life and property.
- ✔ Counting on market forces to provide diverse decision-support services across the entire economy.





Taking NWS to the Next Level

Impact-based Decision Support Services

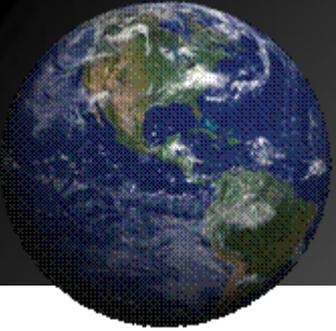
Recent Successes:

- ✔ **Impact-based Warning Demonstration (2012-current)**
 - ✔ Experimental in Central Region
- ✔ **National Scout Jamboree (July 2013)**
- ✔ **Pilot Projects (4 WFOs, 2 Ops Centers)**
 - ✔ Emergency Response Specialists
 - ✔ Building relationships
- ✔ **Severe Wx Outbreaks (May/Nov. 2013 & April 2014)**
 - ✔ Effective use of webinars and social media
 - ✔ Supporting recovery efforts with continued severe weather threats
 - ✔ “Team approach” for service backup/resource management



“The information you and the weather service provided us ultimately saved more lives than we could ever count.”

--Shane Cohea, Moore Medical Center



Taking NWS to the Next Level

Outreach to Public

Action-oriented
Consistent messaging
Vulnerable populations

Recent successes:

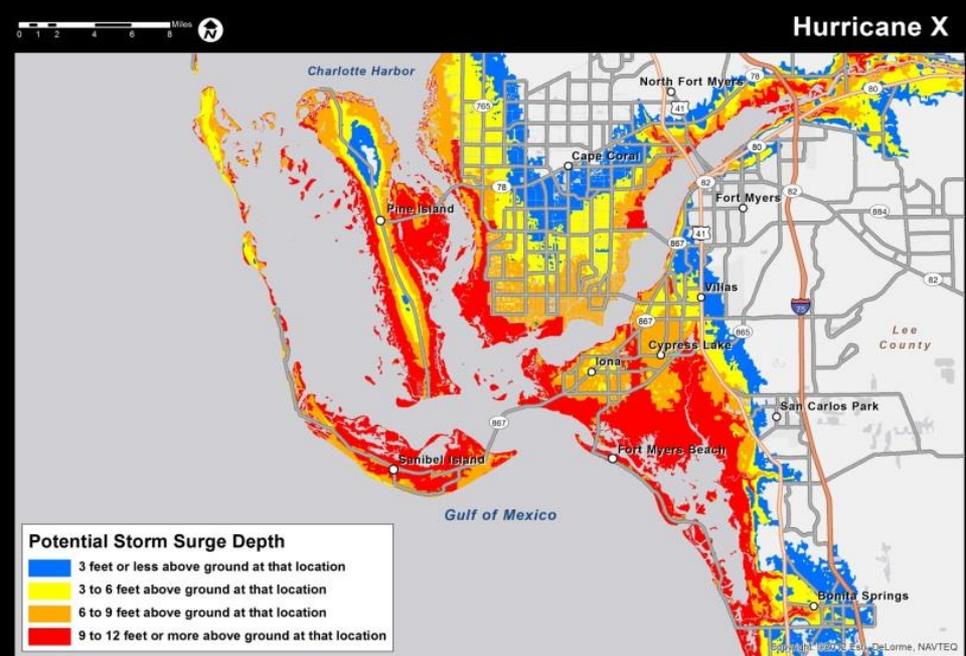
- ✔ Weather-Ready Nation webpage
- ✔ Greater exposure of campaigns
 - ✔ “Turn Around...Don’t Drown”
 - ✔ “When Thunder Roars...Go Indoors”
 - ✔ “Be a Force of Nature”
- ✔ National Severe Weather Preparedness Week
- ✔ Brickyard 400 Public Service Announcement
- ✔ National Preparedness Month/”PrepareAthon”





Taking NWS to the Next Level

S&T Advances...including Social Science



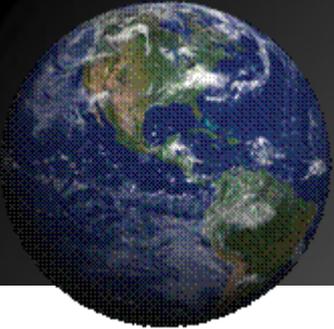
Impact Based Warning Demo
Tags and text

Tornado Tag TORNADO...RADAR INDICATED	Severe weather and near storm environment is supportive, but no confirmation. Tornado is confirmed by spotters, law enforcement, etc.
Tornado Tag TORNADO...OBSERVED	Tornado is confirmed by spotters, law enforcement, etc.
Tornado Damage Threat Tag Tag	Severe weather and near storm environment is supportive, but no confirmation. Tornado is confirmed by spotters, law enforcement, etc.
Tornado Damage Threat Tag THREAT...CONSIDERABLE	Clear early, when there is capable evidence that a tornado, capable of producing considerable damage, is imminent or ongoing. Tornado duration generally expected to be long.
Tornado Damage Threat Tag THREAT...CATASTROPHIC	Use excessive caution when severe threat to human life and catastrophic damage from a tornado is occurring, and will only be used when reliable sources confirm a violent tornado. Tornado duration generally expected to be long.
Tornado Tag in Severe Thunderstorm Warnings TORNADO...POSSIBLE	A severe thunderstorm has some potential for producing a tornado although forecaster confidence is not high enough to issue a Tornado Warning.



Confused by winter weather watches, warnings & advisories?

Click here to help NWS simplify our products.

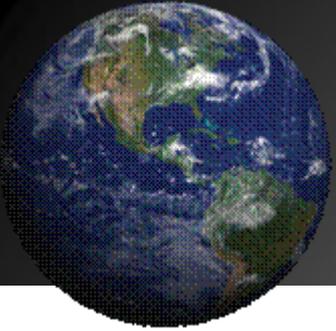


Taking NWS to the Next Level

Information Delivery

Deliver through multiple channels...

- ✔ Social Media
- ✔ Wireless Emergency Alerts
- ✔ interactiveNWS (iNWS)



Strengthening Partnerships

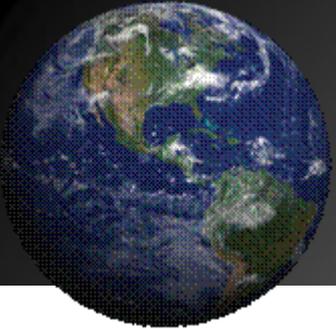
We need partners' help in transforming society to become ready, responsive and resilient to increasing extreme weather threats.

NOAA will continue to improve outreach, IDSS, S&T, and dissemination methods.

Building a Weather-Ready Nation requires the entire Weather Enterprise to work together to deliver information for better community, business, and personal decision making.



▪ SOCIETAL RESPONSE EQUAL TO RISK ▪



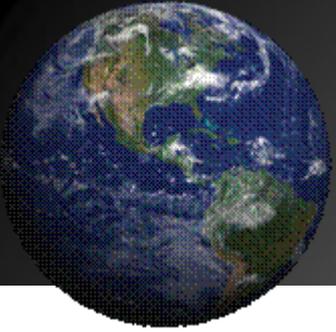
Strengthening Partnerships

WRN Ambassador Initiative

- ✔ **How can organizations be a part of and contribute toward building a Weather-Ready Nation?**
 - ✔ All levels of government
 - ✔ Weather, Water, Climate Enterprise
 - ✔ Academia
 - ✔ Businesses & non-profits
- ✔ **Formal recognition of organizations that work with NOAA toward building a Weather-Ready Nation**
 - ✔ Promote WRN messages and themes
 - ✔ Engage with NOAA on potential collaborations
 - ✔ Share success stories
 - ✔ Serve as an “Example”



Visit: www.noaa.gov/wrn



Strengthening Partnerships

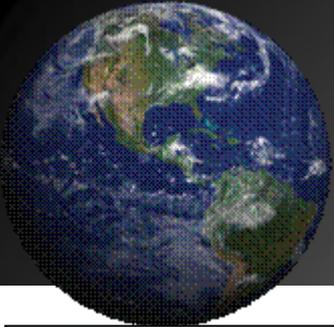
WRN Ambassador Initiative

📌 Early Successes

- 📌 Outreach during preparedness weeks
- 📌 Press releases and media interviews
- 📌 Community events
- 📌 WRN Ambassador Congressional testimony
- 📌 More consistent WRN messaging
- 📌 Expansion of stakeholder engagement to non-traditional sectors
 - 📌 Insurance
 - 📌 Health
 - 📌 Real-Estate
 - 📌 Museums/Science Centers

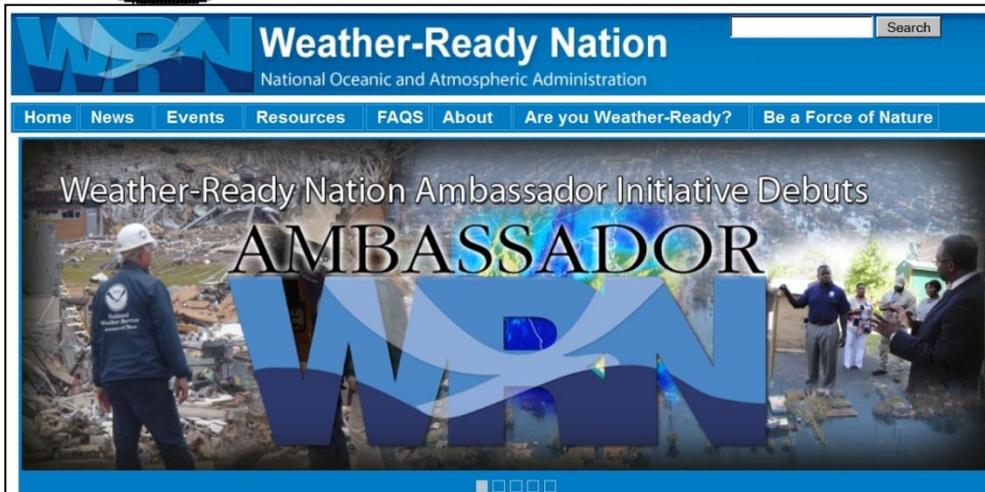


Visit: www.noaa.gov/wrn



Strengthening Partnerships

WRN Ambassador Initiative



www.noaa.gov/wrn



WRN Ambassador
Information and
Application



About Weather-Ready Nation Ambassadors™

The Weather-Ready Nation Ambassador™ initiative is the National Oceanic and Atmospheric Administration's (NOAA) effort to formally recognize NOAA partners who are improving the nation's readiness, responsiveness, and overall resilience against extreme weather, water, and climate events. As a WRN Ambassador, partners commit to working with NOAA and other Ambassadors to strengthen national resilience against extreme weather. In effect, the WRN Ambassador initiative helps unify the efforts across government, non-profits, academia, and private industry toward making the nation more ready, responsive, and resilient against extreme environmental hazards. [Weather-Ready Nation \(WRN\)](#) is a strategic outcome where society's response should be equal to the risk from all extreme weather, water, and climate hazards.

The WRN Ambassador initiative is a:

- Unifying effort;
- Action-oriented;
- Inclusive; and
- Force multiplier (i.e., new partnerships lead to even more partnership opportunities).





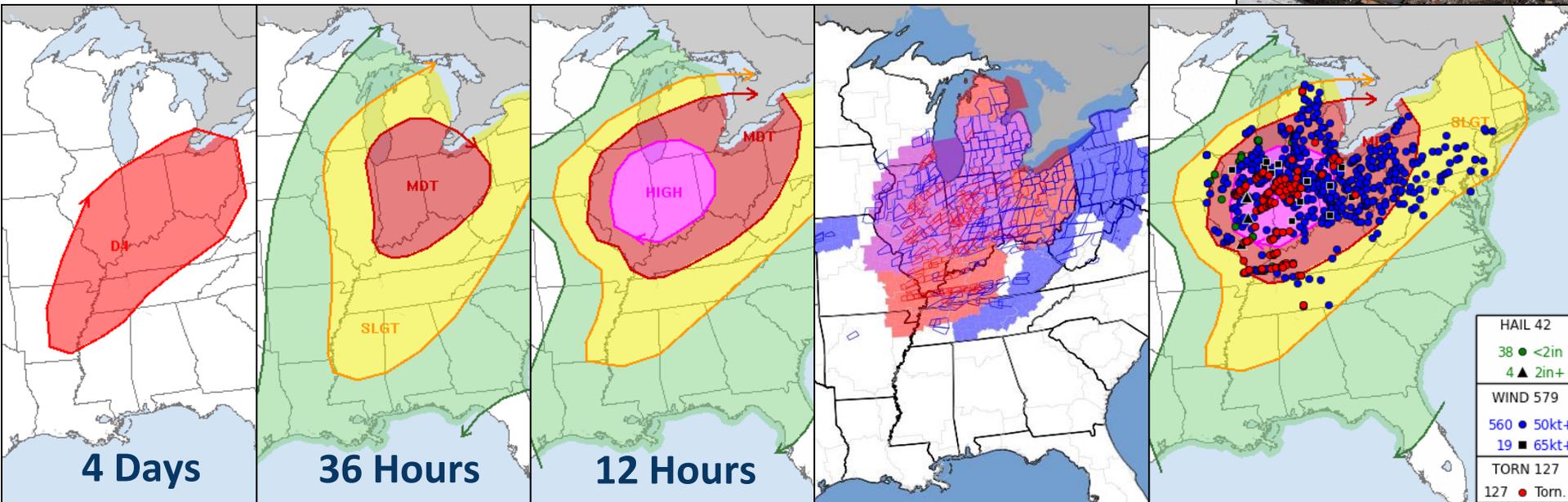
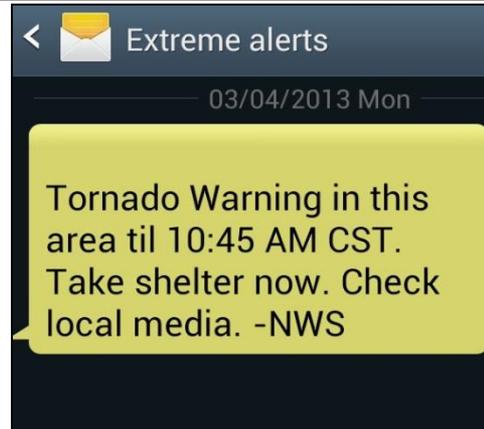
Bottom Line: Making Progress

Midwest Tornado Outbreak

November 17, 2013

4th Largest November Tornado Outbreak:
~71 tornadoes, **6 fatalities**

Coordination calls with FEMA and state
emergency managers 3 days in advance





WRN

wrn.feedback@noaa.gov

www.weather.gov

www.noaa.gov/wrn

