

# NOAA National Weather Service

## *Building a Weather-Ready Nation*

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# Most Severe Weather on Earth

## *A Typical Year in the U.S.*



**6 Atlantic  
Hurricanes**



**1,300 Tornadoes**



**5,000 Floods**



**26,000 Severe  
Thunderstorms**



**Drought and  
Large Wildfires**



**600 Deaths  
\$14B in Losses**

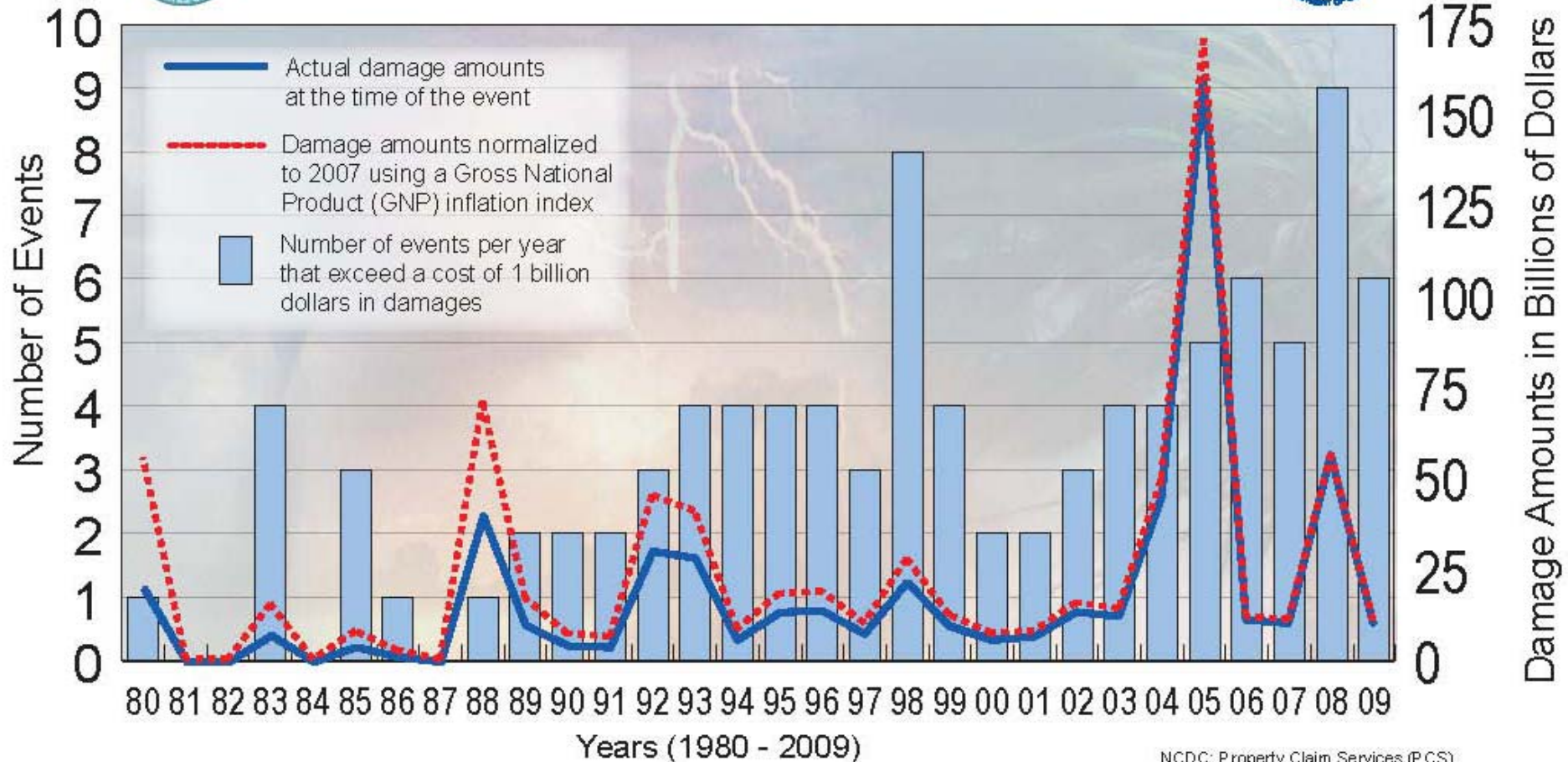
# Most Severe Weather on Earth

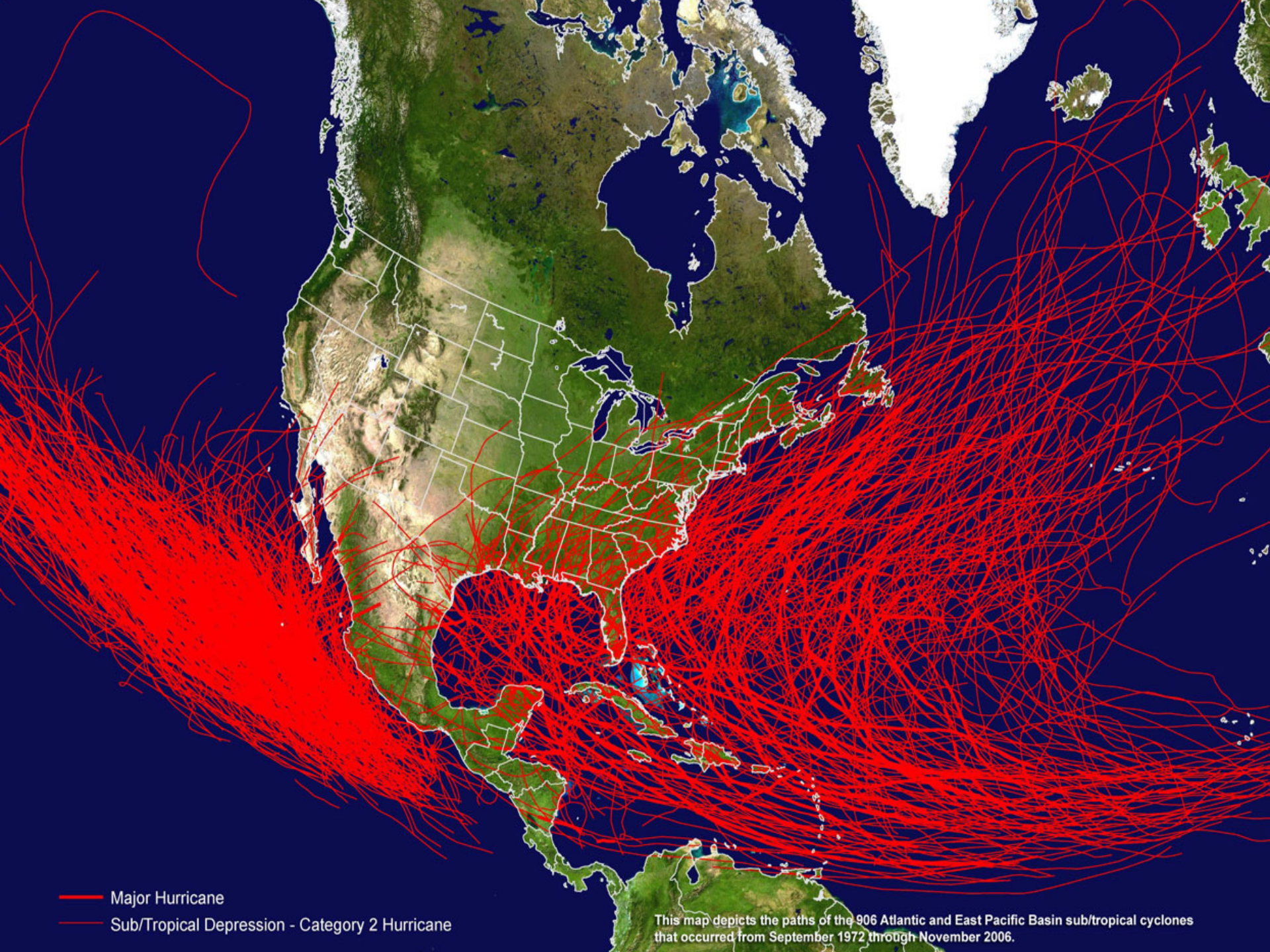
## *Billion Dollar Disasters*



### Billion Dollar U.S. Weather Disasters 1980 - 2009

NOAA/NESDIS/NCDC





- Major Hurricane
- Sub/Tropical Depression - Category 2 Hurricane

This map depicts the paths of the 906 Atlantic and East Pacific Basin sub/tropical cyclones that occurred from September 1972 through November 2006.



# A Weather-Ready Nation

National Weather Service Strategic Plan 2020

SEARCH

THE PLAN  ALL NEWS

Explore the Plan  
TOWARD A BETTER FUTURE

Achieving Our Vision  
NWS GOALS

## Weather Decision Services

Improve weather decision services for events that threaten safety, health, the environment, economic productivity, or homeland security [Learn More >>](#)

### THANK YOU FOR PARTICIPATING!

The public comment period has ended thank you for all of your constructive comments

Stay Connected  
with IWS

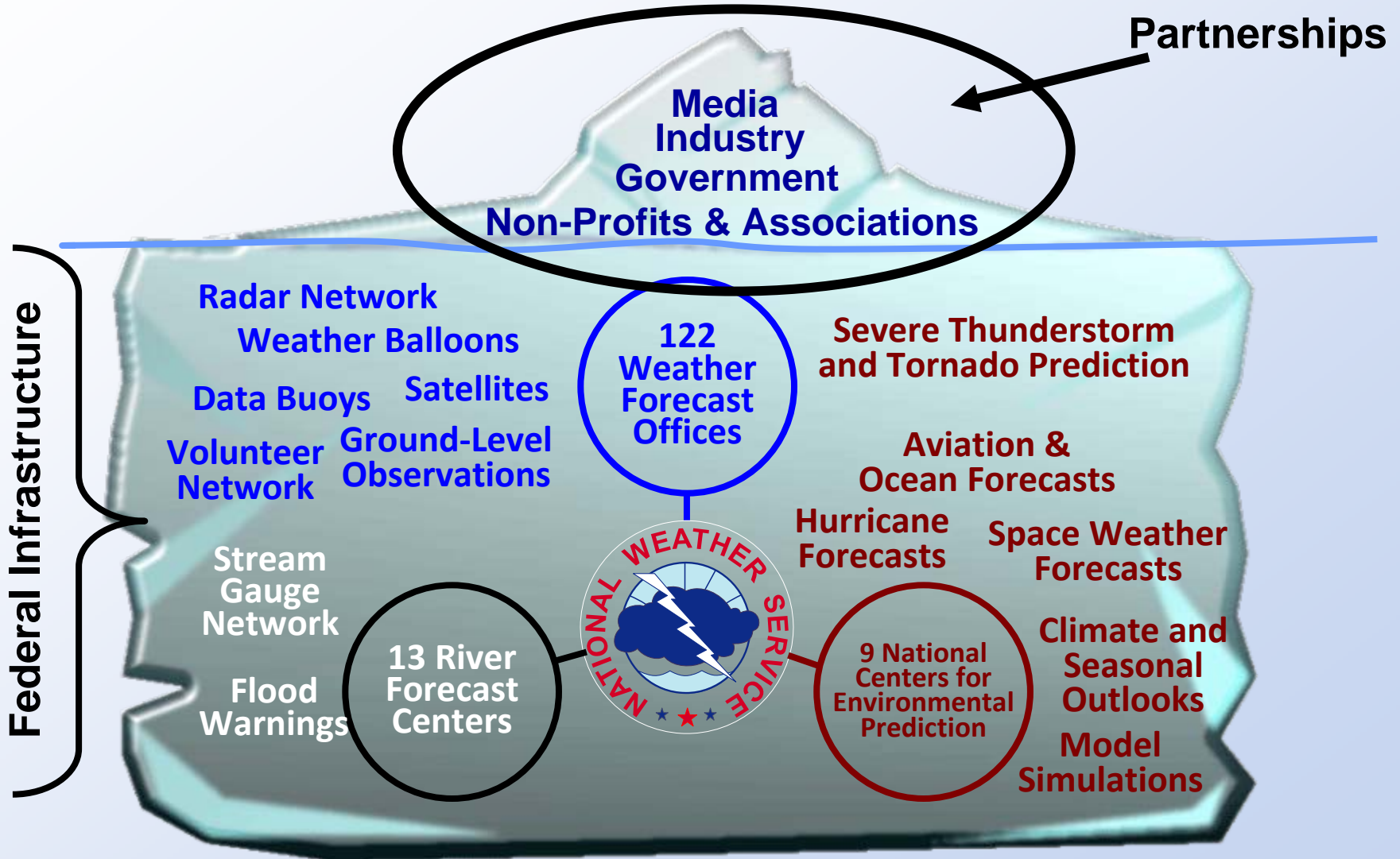


#### Message from Jack Hayes

NOAA Assistant Administrator for Weather Services and Director National Weather Service Jack Hayes introduces the NWS strategic plan and encourages everyone to participate in the feedback process

# Building a Weather-Ready Nation

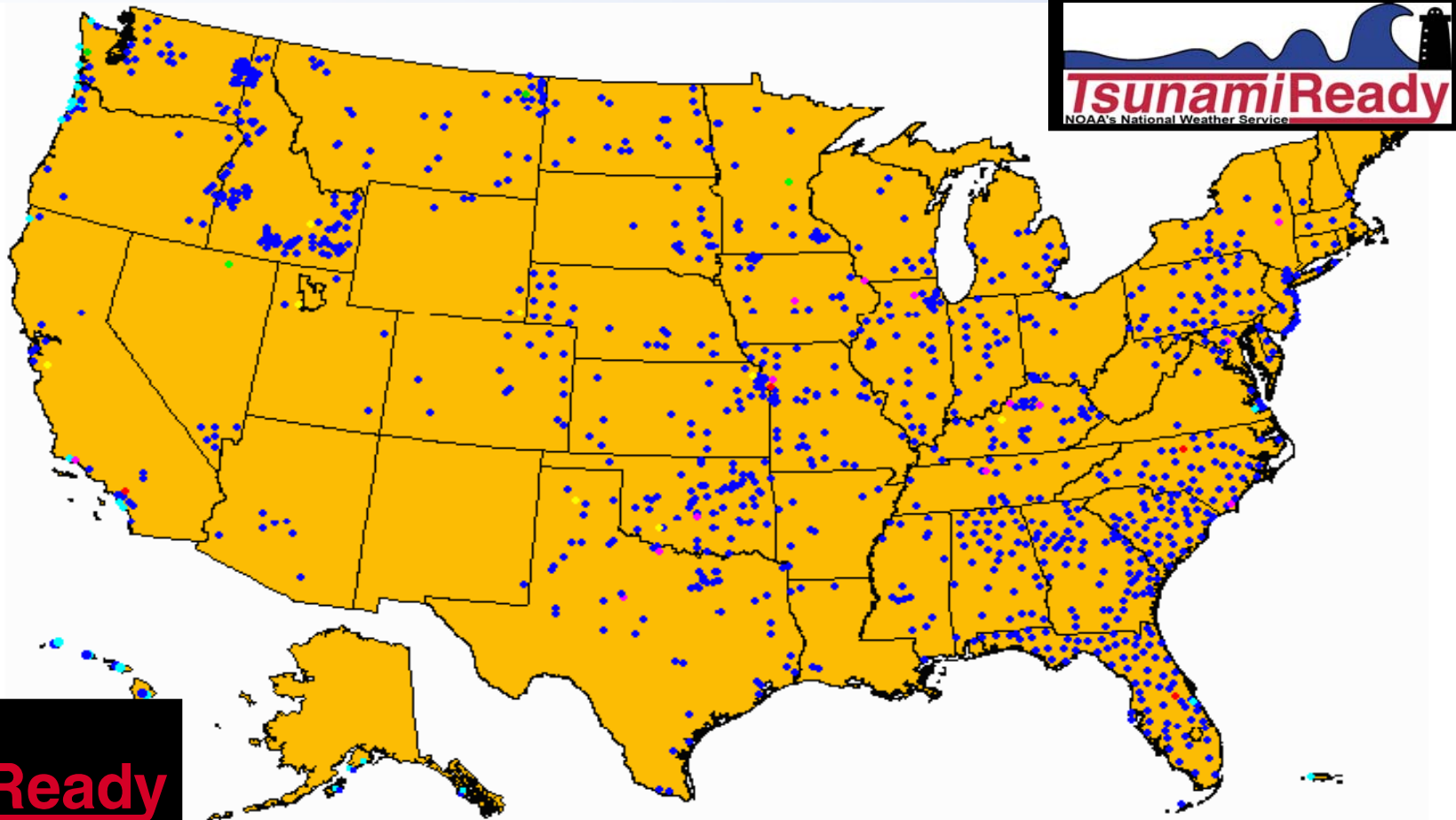
*Partnerships are at the tip of the iceberg*



# Building a Weather-Ready Nation

## *Working at the Local Level*

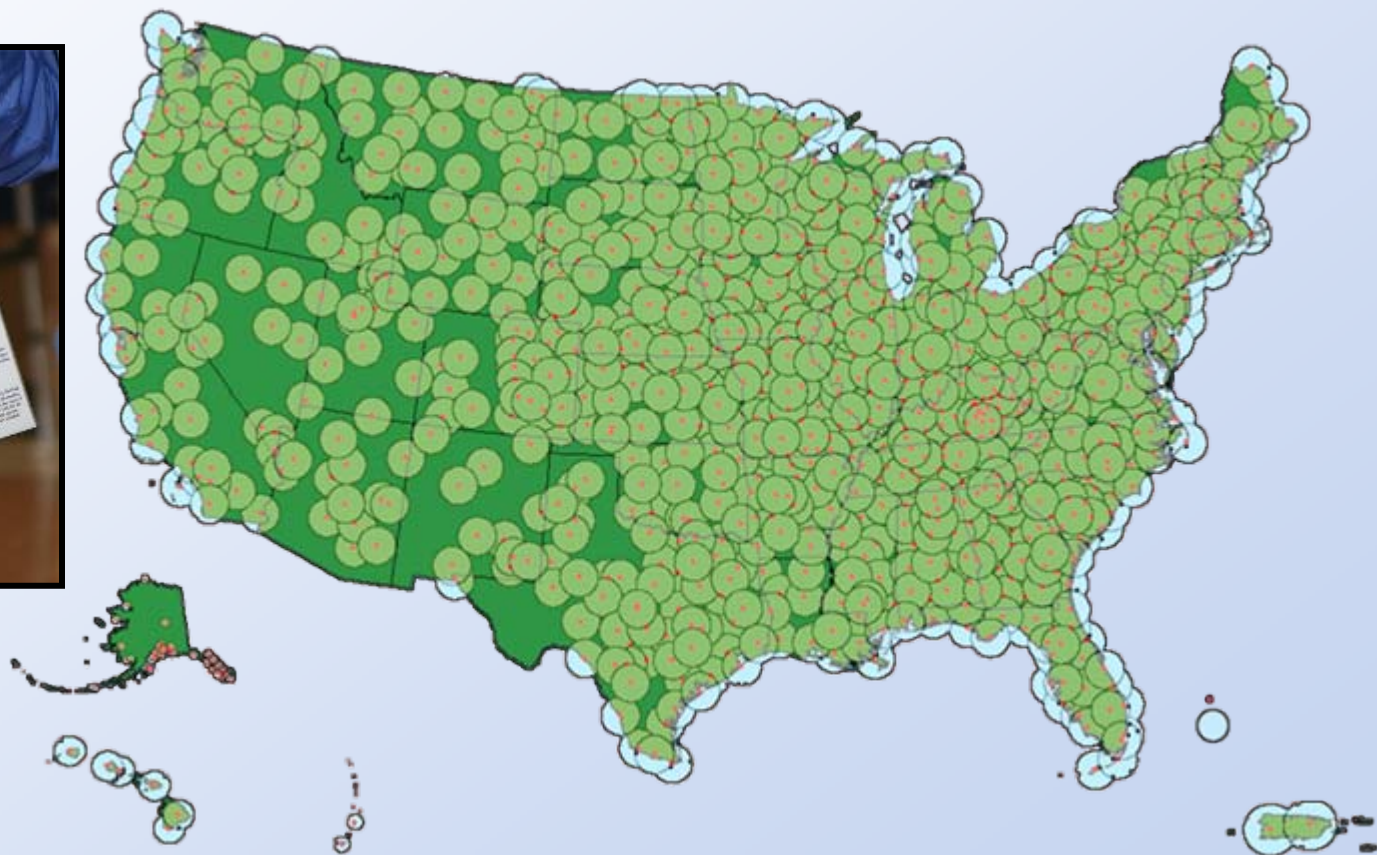
**1,656 StormReady Communities in 50 States**  
**79 TsunamiReady Communities in 10 States**



# Building a Weather-Ready Nation

## **NOAA Weather Radio—All Hazards**

- **1,000 transmitters**
- **Available in All 50 States**





# Building a Weather-Ready Nation

## *Tornado Warnings*

**January 10, 2008  
Caledonia, MS**

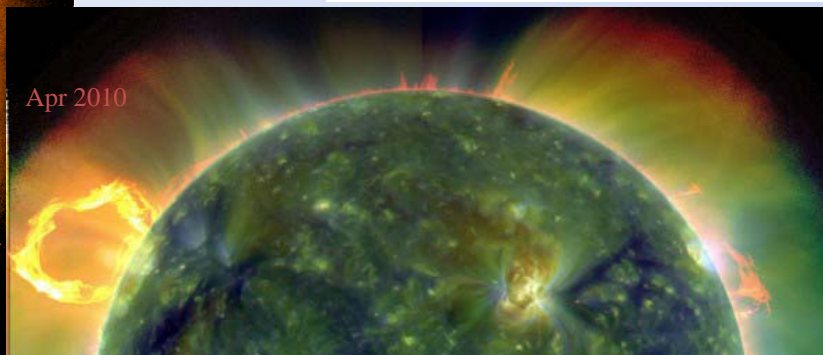
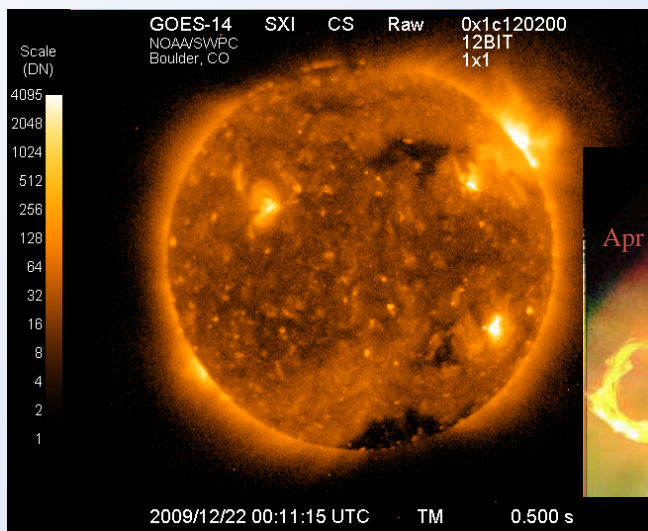
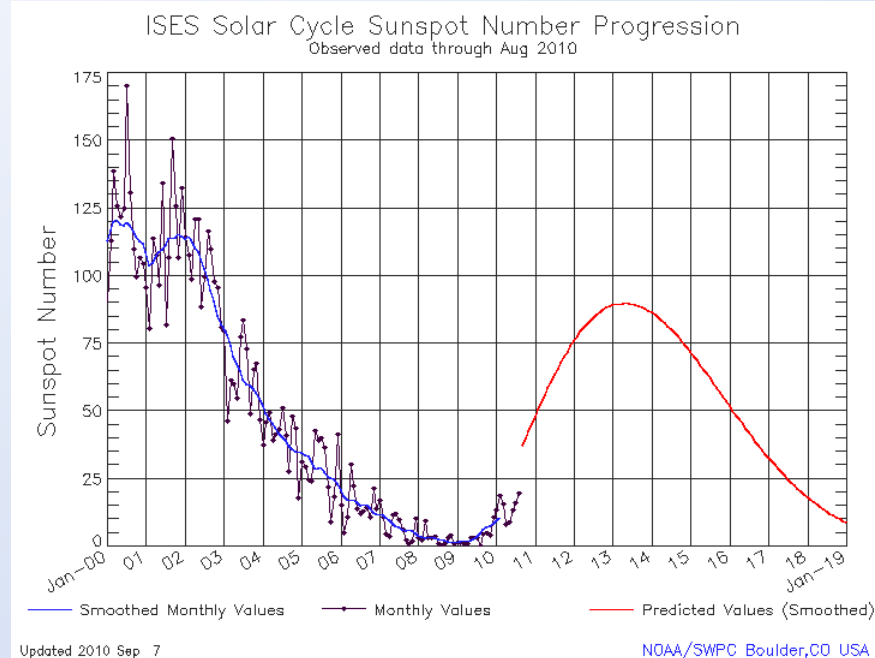


- **EF-3 Tornado**
- **41 minute lead time**
- **2,000 people inside  
no fatalities, 3 injuries**

# Building a Weather-Ready Nation

## Space Weather

- Next solar maximum is expected 2013
- Space weather impacts:
  - Satellites (i.e. Galaxy 15)
  - GPS Reliability
  - Aviation (NextGen, Polar Flights)
  - Energy distribution
- \$1-2 Trillion potential impact



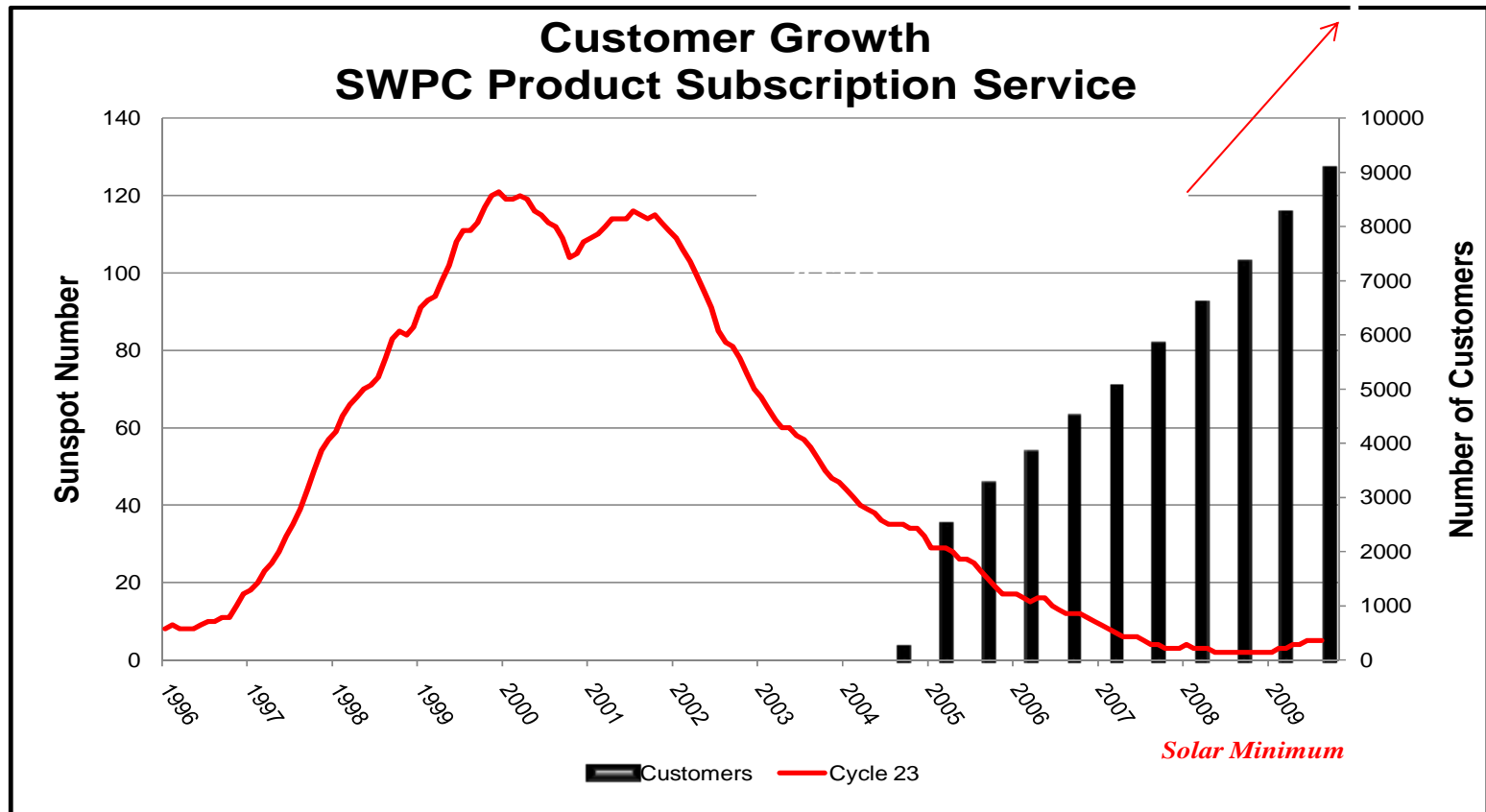
# Space Weather Impacts

- On Oct 28, 2003 NWS space weather forecasters observed a powerful Earth-directed eruption on the Sun. Space weather warnings were issued. In response:
  - ***Power grid operators reduced system load, disconnected system components, and postponed maintenance.***
  - ***Airlines made critical decisions about route and/or altitude restrictions to flight operations.***
  - ***Satellite operators took action to mitigate impacts.***
  - ***Precision GPS users postponed operations or used back-up systems.***
- NWS working with FEMA and DHS to ensure critical infrastructures are safe from extreme space weather events.

<http://www.spaceweather.gov>



# Protecting Our Advanced Technologies



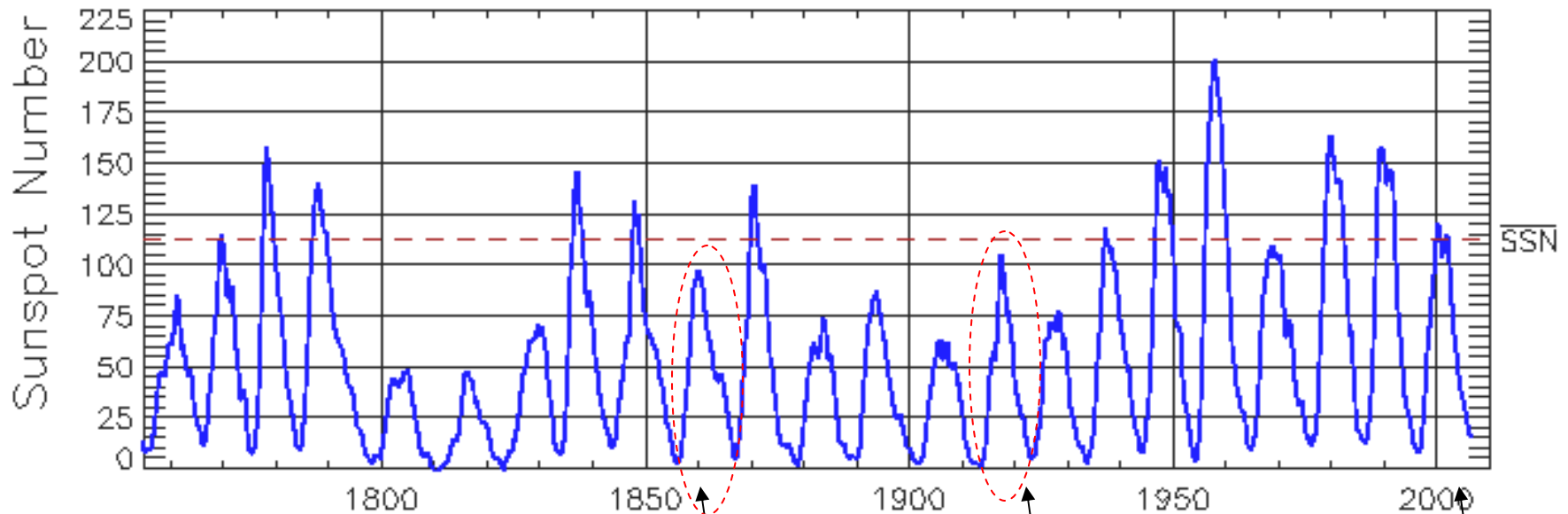
SES Satellite	Inmarsat	FEMA	Boeing	FAA
North America Electric Reliability Corp. (NERC)	L-3 Communications	Florida Division of Emergency Mgmt.	British Petroleum America	Bonneville Power Administration
Washington St. Dept of Transportation	Caterpillar, Inc.	Alaskan Airlines	United Launch Alliance	Salem and Hope Creek Nuclear Stations

**Example of Registrants in 2009**

# Preparing for Extreme Space Weather

The largest geomagnetic storms on record occurred during lower than average cycles

The Solar Cycle in Sunspot Number



**1859 Storm**

**1921 Storm**

**2003 Storm**

# Building a Weather-Ready Nation

## *Protecting Lives Through Partnerships*

NOAA TEAM

PARTNERS

PUBLIC



# FEMA



# Building a Weather-Ready Nation

## *Working at the Local Level*



