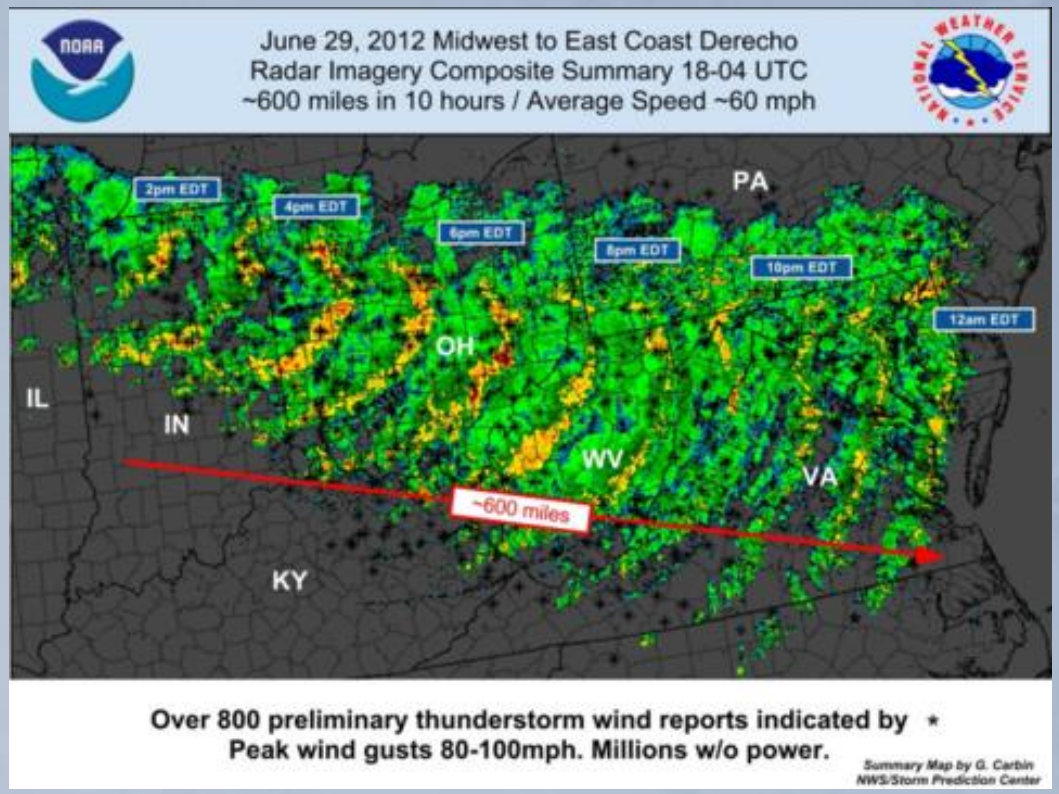
June 29, 2012 Derecho Windstorm Event



Baltimore/Washington Weather Forecast Office

Agenda

- Thunderstorm Basics
- Derecho Storm Stats
- Derecho formation
- Radar and satellite
- Derecho Frequency
- NWS Services

NWS Baltimore/Washington Overview
Area of Responsibility

9.3 Million People
over 27,000 square miles

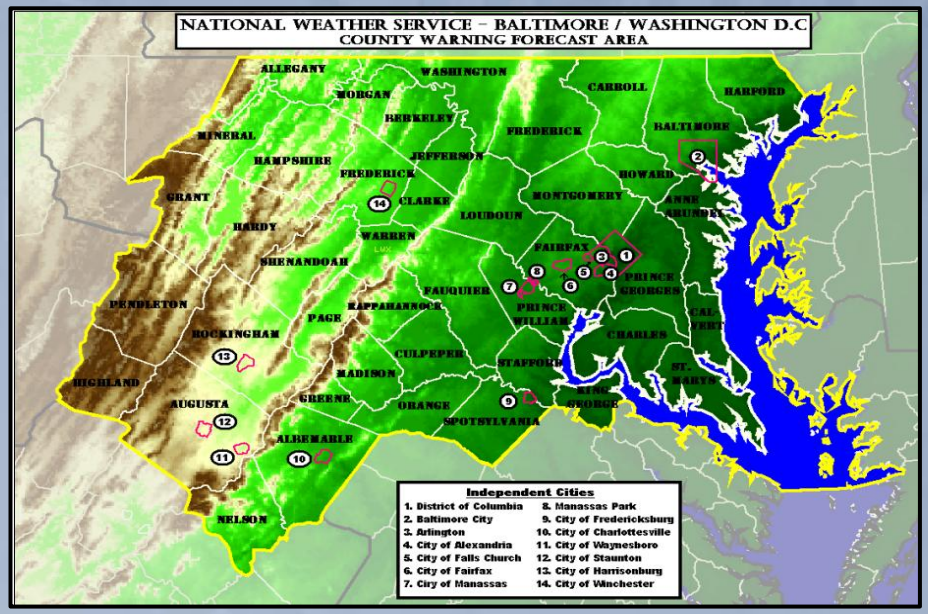
Maryland
- 13 Counties
- City of Baltimore
- Chesapeake Bay

West Virginia
- 8 Counties

Virginia
- 22 Counties
- 11 Independent Cities

The District of Columbia

Major Rivers
- Potomac
- Shenandoah
- Rappahannock



Region is prone to all weather hazards

Thunderstorm Basics

What makes a thunderstorm severe?

- Very Unstable Air
- Plenty of Moisture
- Increasing wind shear w/height:
  - Tilts a storm allowing it to continue for a longer time
  - Could cause a storm to rotate (increasing its severe potential)

NWS Terminology

"Severe Thunderstorms"

- means a thunderstorm is producing:
  - Wind gusts: 58 mph or higher
  - Hail: quarter size (1") or larger
  - Tornadoes also qualify a storm as severe

Note: The National Weather Service does not classify a thunderstorm as severe based on intense lightning or flash flooding

So, what is a derecho?

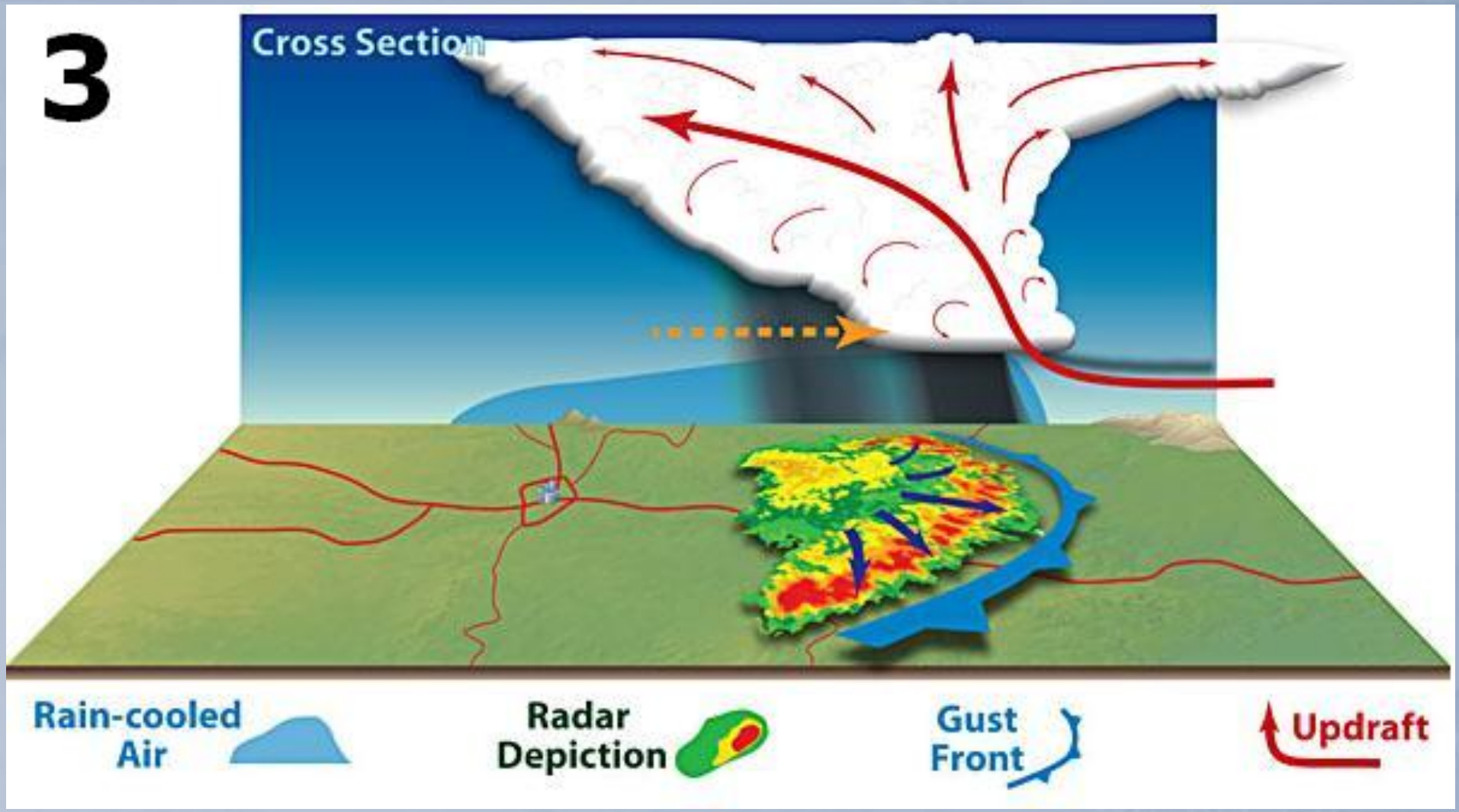
Pronounced:

“Der-ray-cho”

What is a derecho?

- A long-lived, rapidly-moving line of intense thunderstorms
  - travels over 250 miles at speeds over 60 mph
    - *June 29 derecho travelled over 750 miles!*
- produces widespread damaging winds in a nearly continuous swath
  - multiple reports of winds over 75 mph
    - *Chesapeake Bay bridge: 89 mph gust (unofficial)*
    - *Dulles Airport: 71 mph gust*
    - *Reagan National Airport: 70 mph gust*
    - *BWI Airport: 66 mph gust*

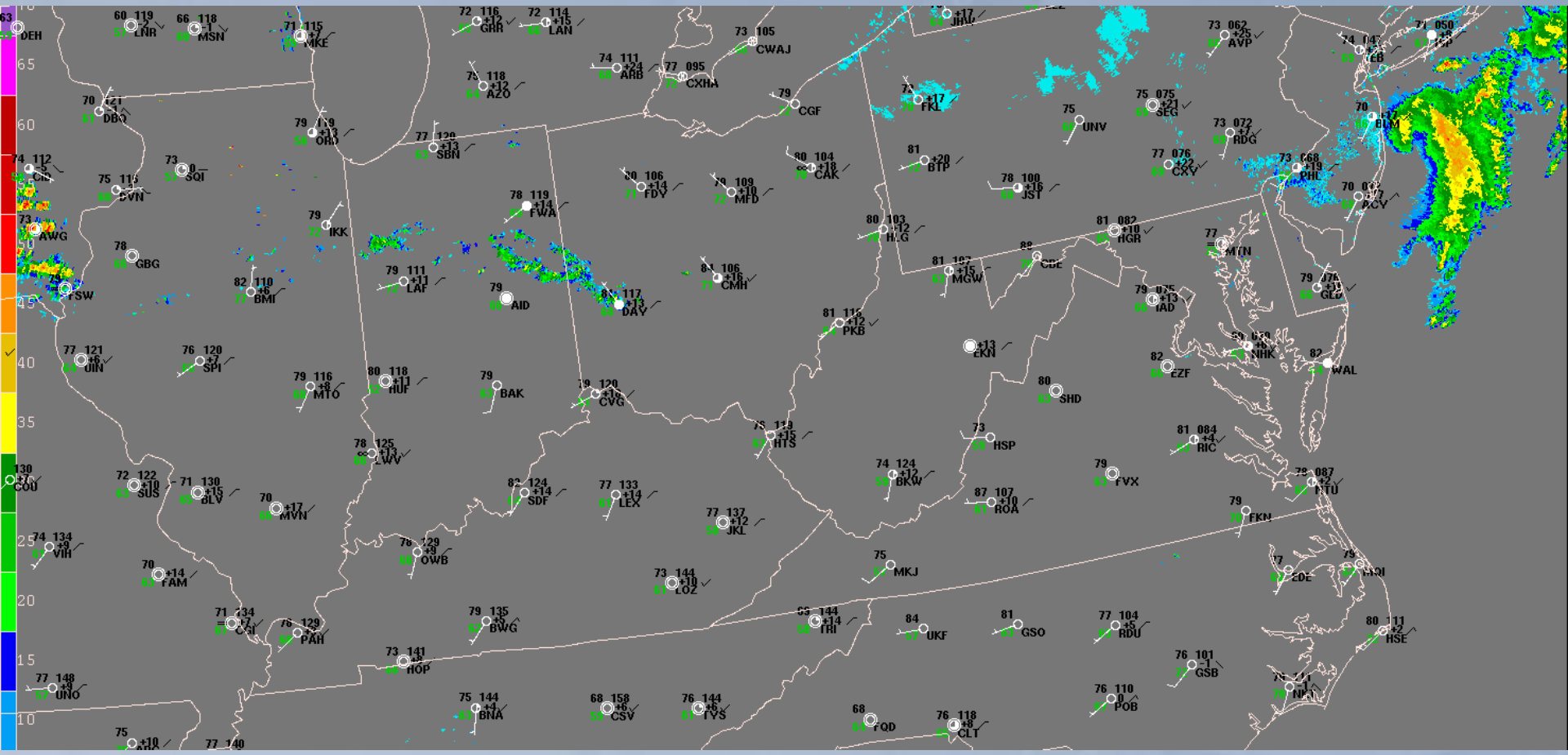
How a derecho forms/moves?



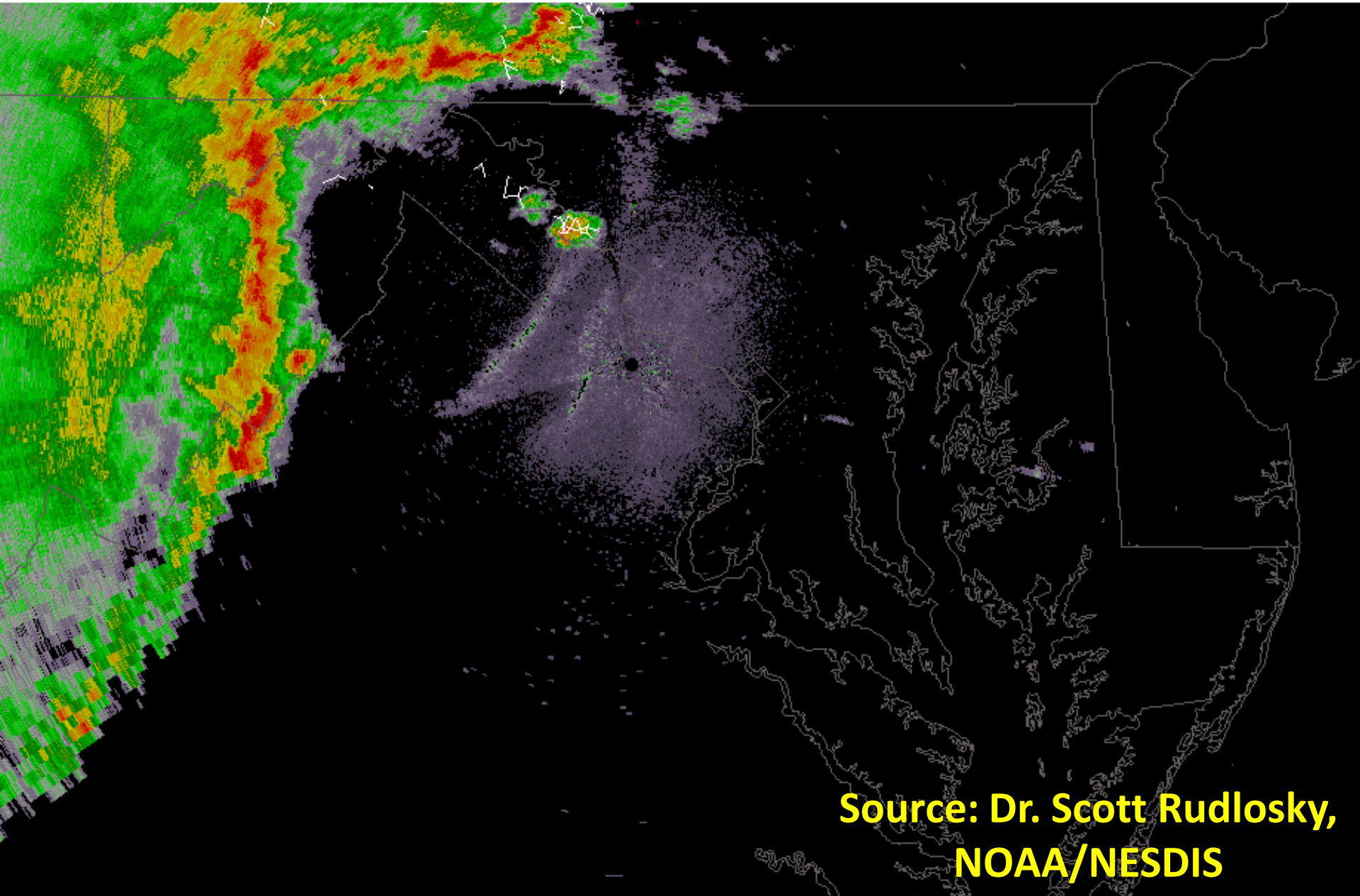
Source: Storm Prediction Center, NOAA

June 29 Derecho:
Radar & Satellite views

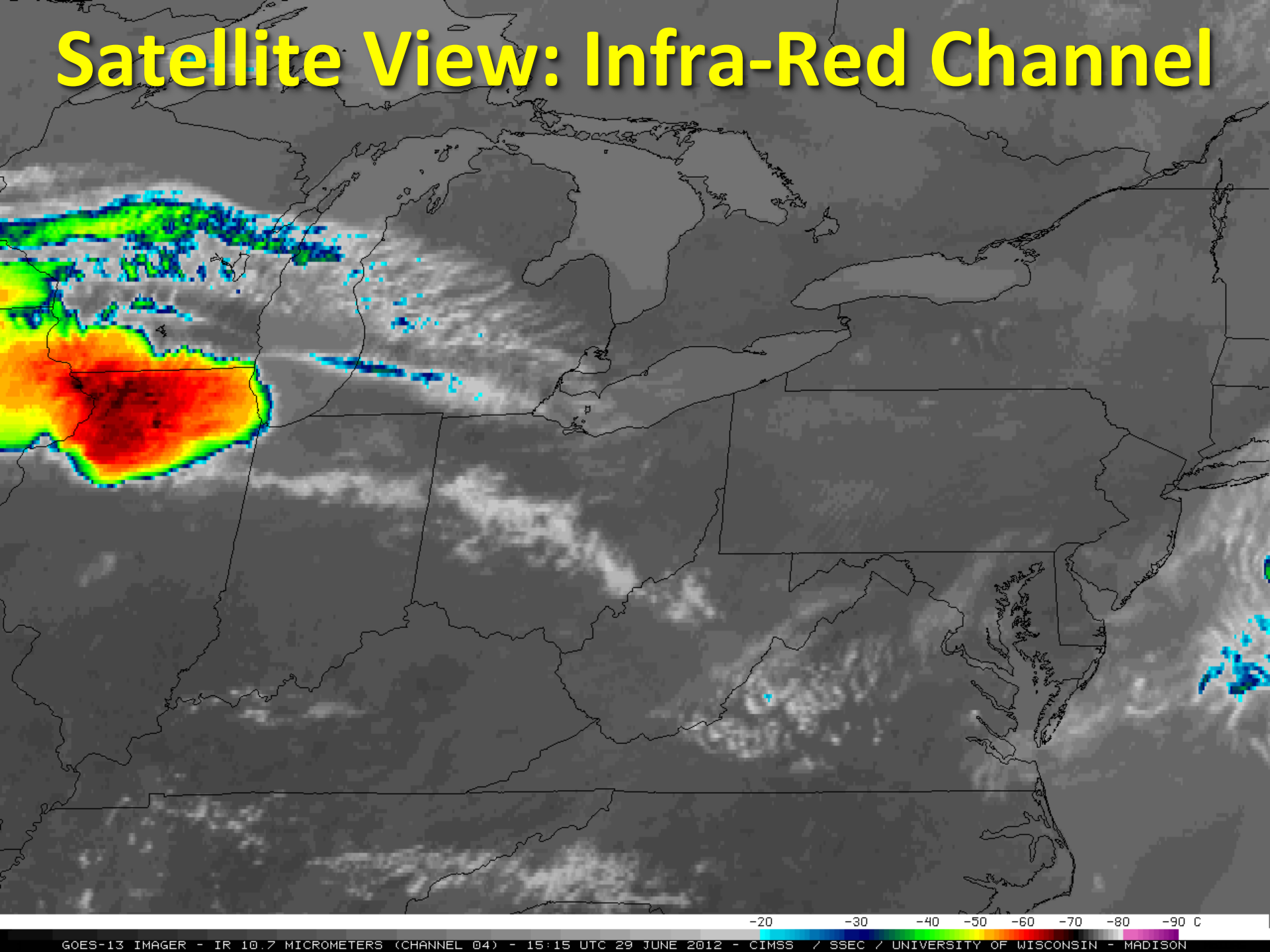
Regional Radar View



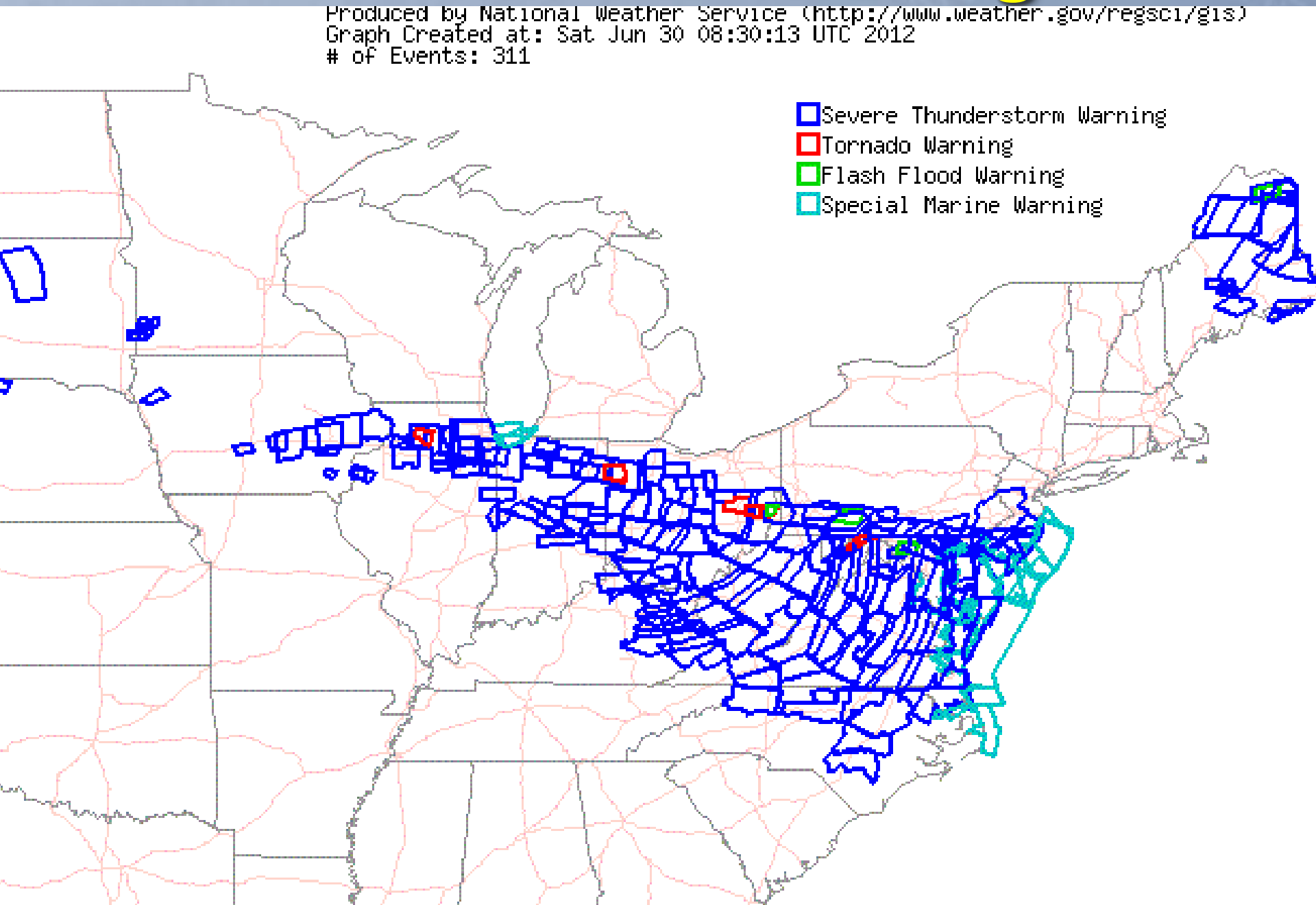
June 29 Derecho



Satellite View: Infra-Red Channel

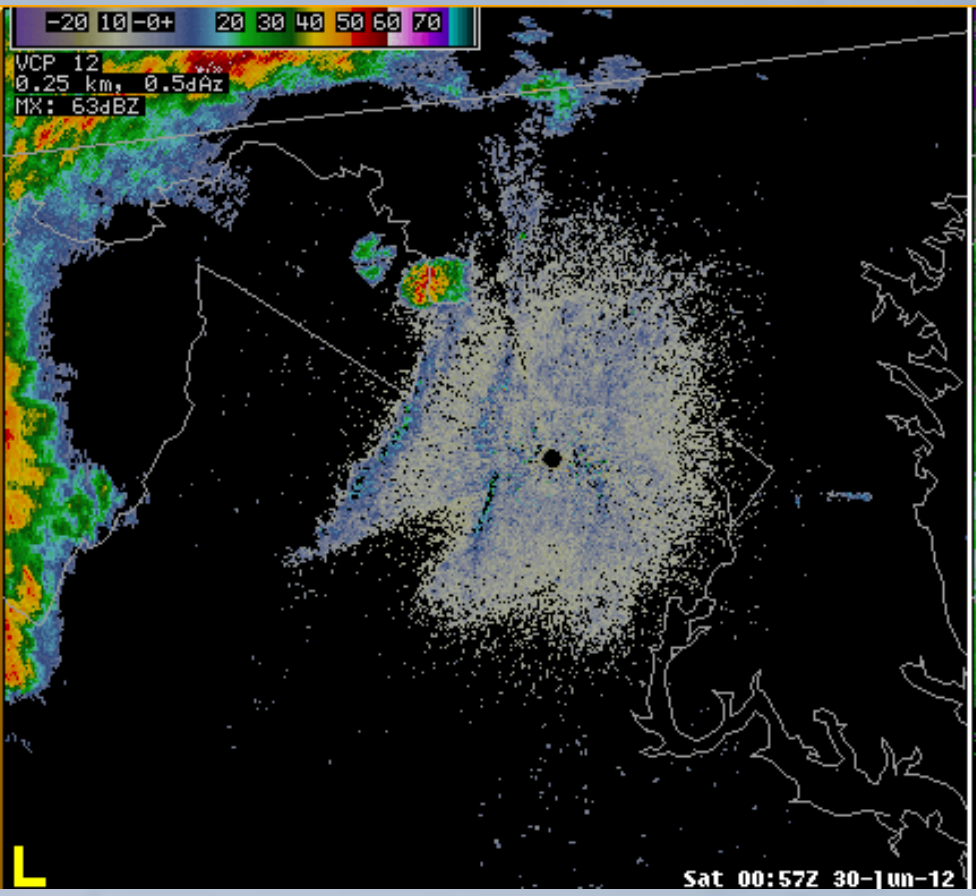


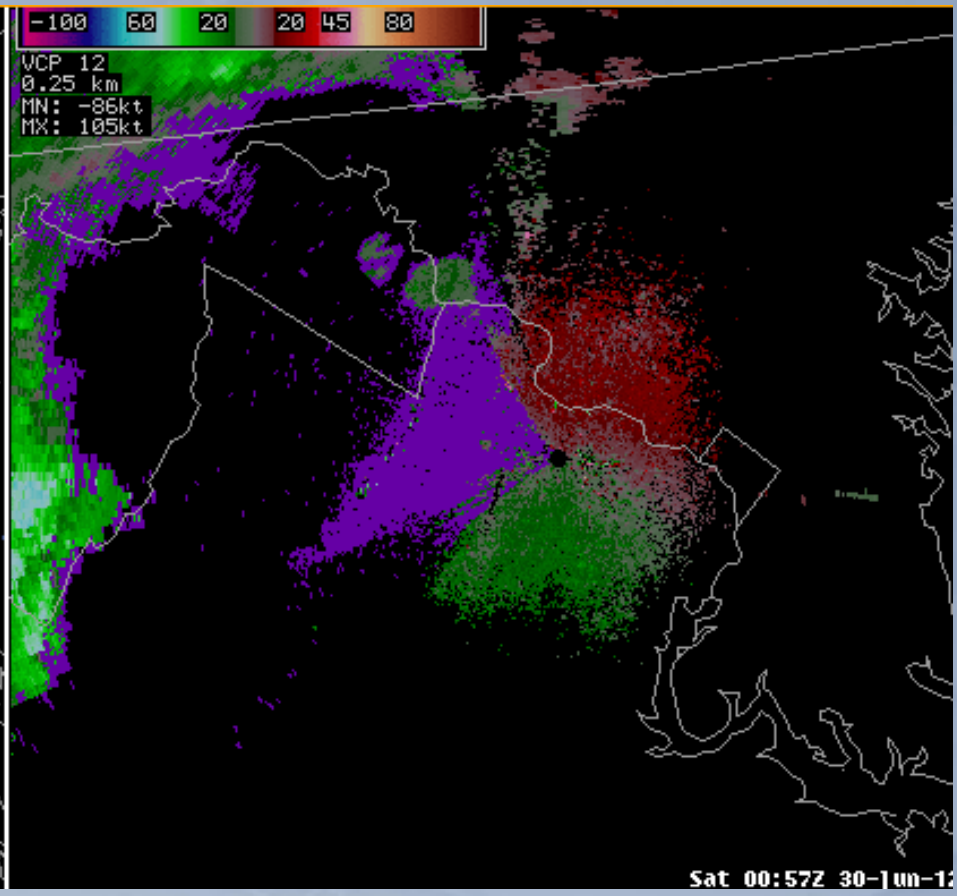
NWS Severe Warnings



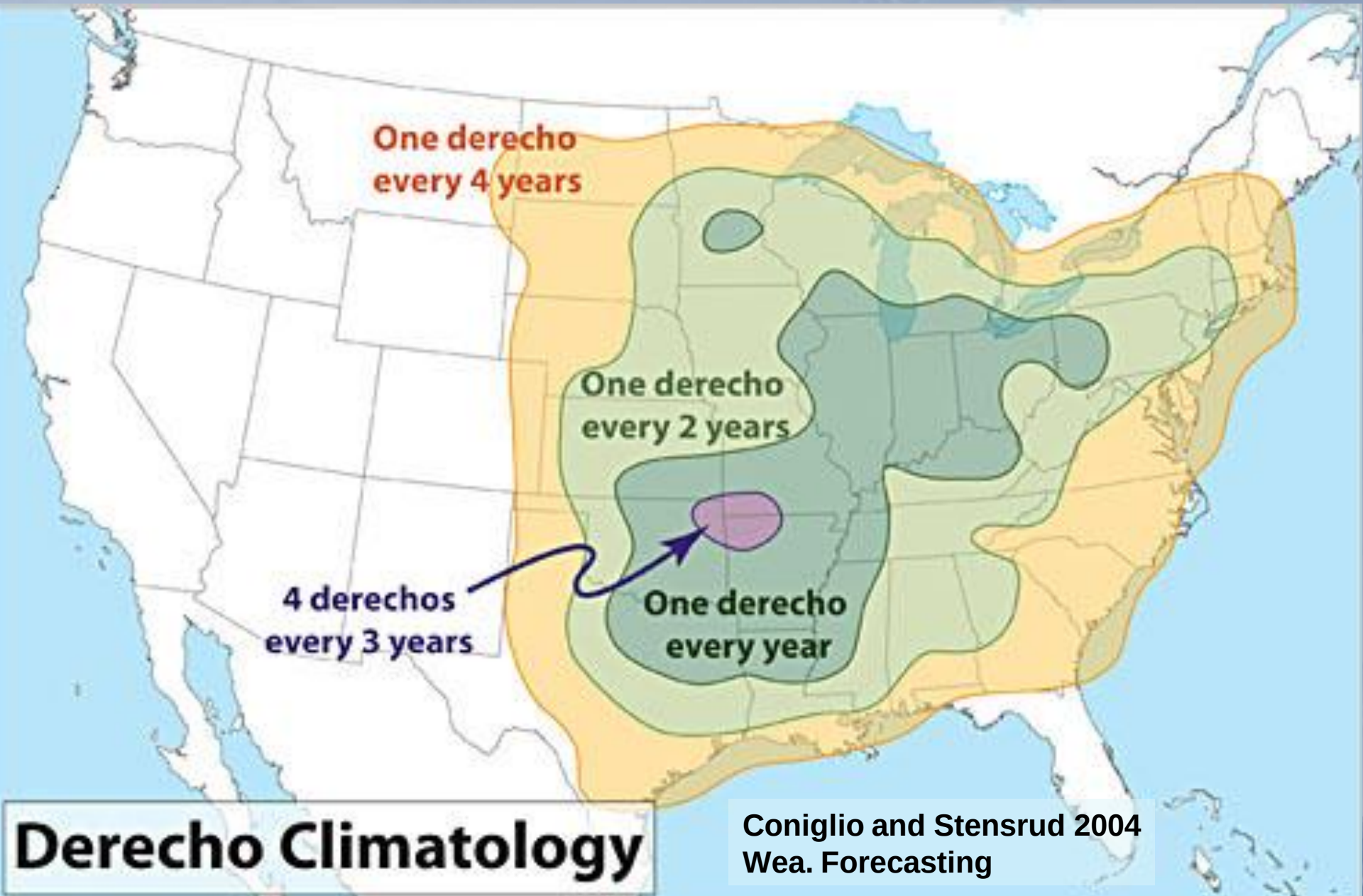
Radar Animation (LWX)

8:57 – 10:48 P.M.





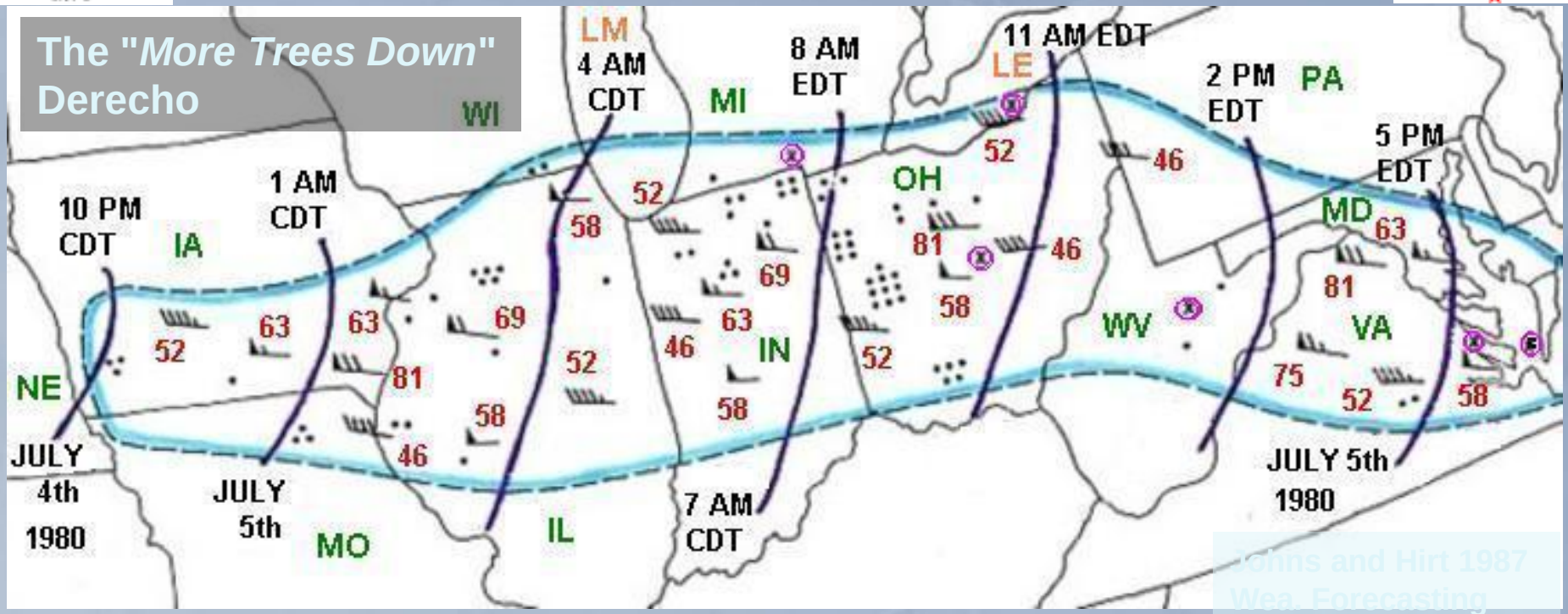
Derecho Climatology



Coniglio and Stensrud 2004
Wea. Forecasting

Past Derechos: Mid—Atlantic Region

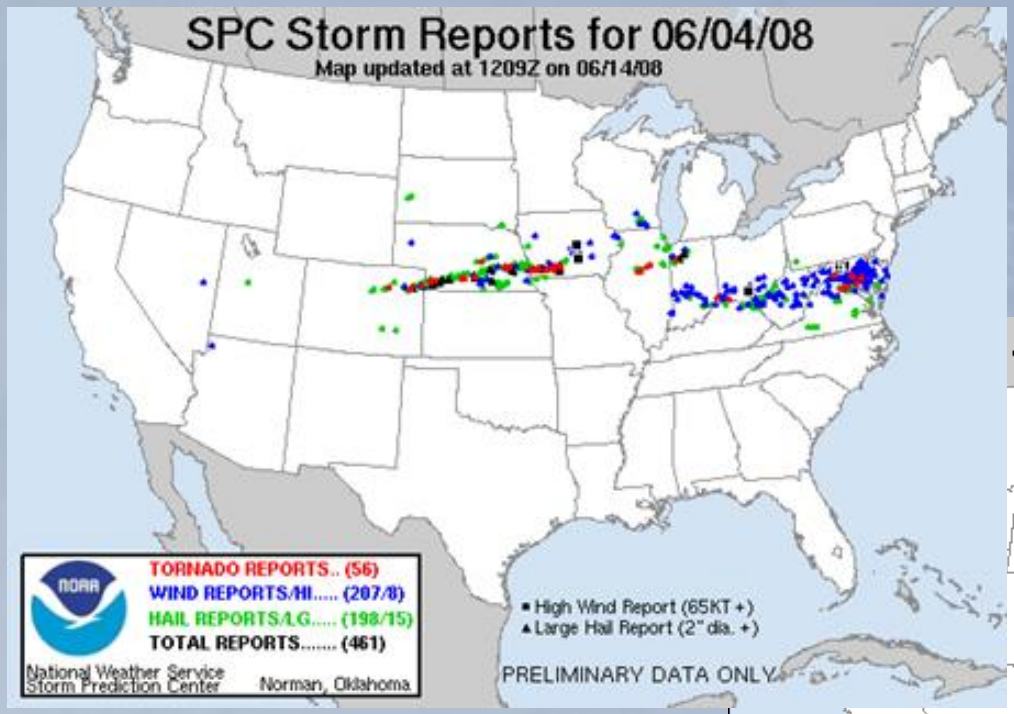
4-5 July 1980 Derecho Event



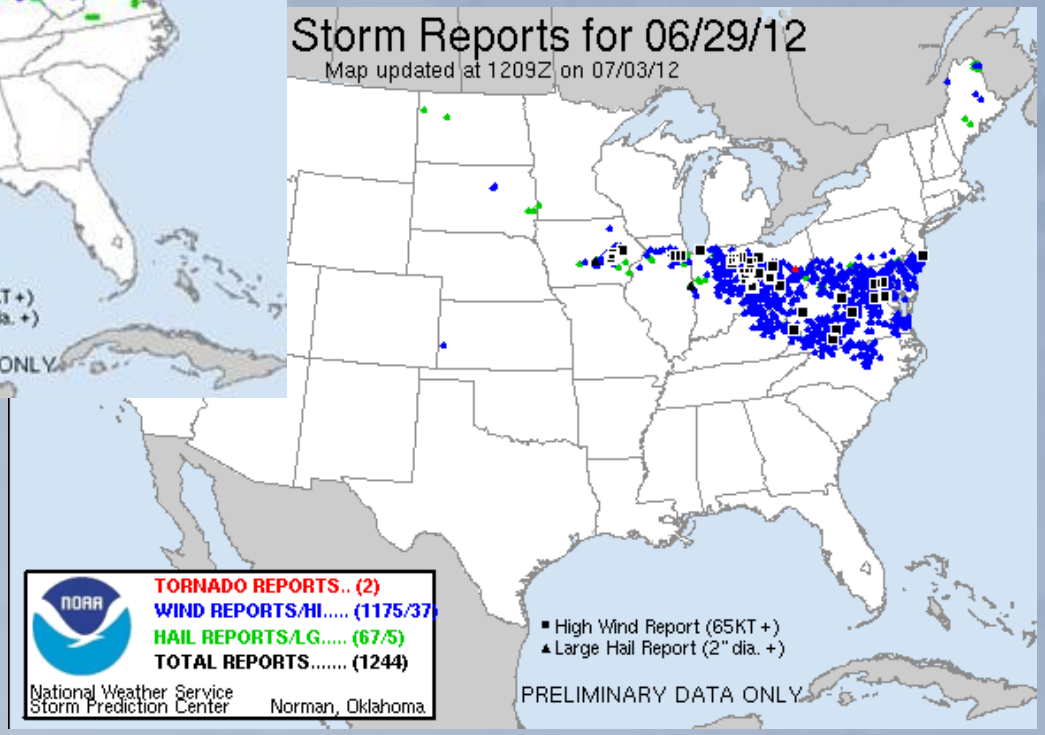
A bowing line of thunderstorms produced a derecho east of Omaha, Nebraska (NE) about 10 PM CDT (03 UTC) on Friday evening, July 4th, 1980. The derecho rushed eastward at speeds of 55 to 60 mph reaching eastern Indiana (IN) and northwestern Ohio (OH) by 8 AM EDT (12 UTC) on Saturday morning, July 5th and the mid Atlantic coast by early evening on the 5th. Measured wind gusts exceeded 80 mph at several points along the storm's track. Six people were killed (shown as "x"s circled in purple: 4 boating; 2 camping); 67 were injured (shown as dots) by derecho winds.

2008 / 2012 Derechos

June 2008



June 2012



Derecho Impact

Impact

- **Over 2 million customers without power (MD/VA/DC)**
  - Virginia's largest non-tropical outage
    - 987,989 statewide
  - Maryland
    - 1,067,854 statewide peak
  - Washington DC
    - ~68,000

Impacts

- **Communications**
  - Phone Lines Down; Cell towers lost power
  - Landline Comms Damaged
    - Limited/no ability to make/receive calls
    - Large 911 Outages
      - Northern VA (1.5M+ People)

Impact

- **Direct Storm Fatalities (7)**
  - 0: DC
  - 4: VA (our CWA)
  - 3: MD (our CWA)
- **Direct Storm Injuries (2)**
  - 0: DC
  - 2: VA (our CWA)
  - N/A: MD

NWS Services: Derecho

Severe Thunderstorm Watch

- Issued 6:35 P.M. Friday evening

7:47 P.M. Friday

Special Weather Statement:

...SEVERE THUNDERSTORMS WITH DAMAGING WIND GUSTS TO IMPACT REGION THIS EVENING...

AT 745 PM...A LINE OF SEVERE THUNDERSTORMS PRODUCING DAMAGING WIND GUSTS WAS CROSSING SOUTHEAST PENNSYLVANIA AND CENTRAL WEST VIRGINIA. THIS LINE OF THUNDERSTORMS IS EXPECTED TO HIT THE POTOMAC HIGHLANDS BETWEEN 8 AND 8:30 PM...THE SHENANDOAH VALLEY BETWEEN 8:30 AND 9 PM...THE INTERSTATE 95 CORRIDOR INCLUDING THE GREATER WASHINGTON AND BALTIMORE METROPOLITAN AREAS BETWEEN 9:30 AND 10 PM...THEN REACHING THE CHESAPEAKE BAY BETWEEN 10:30 AND 11 PM.

THIS LINE OF STORMS HAS A HISTORY OF PRODUCING MAJOR WIND DAMAGE ACROSS WEST VIRGINIA DUE TO WIND GUSTS OVER 75 MPH ..ALONG WITH PROLIFIC CLOUD TO GROUND LIGHTNING.

RESIDENTS AND VISITORS TO THE REGION SHOULD MONITOR THEIR FAVORITE MEDIA OUTLET AND NOAA WEATHER RADIO FOR WARNINGS...AND BE PREPARED TO TAKE ACTION TO PROTECT LIFE AND PROPERTY SHOULD A WARNING BE ISSUED FOR THEIR AREA LATER THIS EVENING.

9:35 P.M. Friday

Special Weather Statement:

...EXTREMELY DANGEROUS THUNDERSTORMS TO IMPACT BALTIMORE AND WASHINGTON REGION THIS EVENING...

AT 9:30 PM...A LINE OF SEVERE THUNDERSTORMS PRODUCING DAMAGING WIND GUSTS WAS CROSSING WESTERN MARYLAND AND THE EASTERN PANHANDLE OF WEST VIRGINIA. THIS LINE OF THUNDERSTORMS IS EXPECTED TO HIT CENTRAL MARYLAND AND THE WESTERN SUBURBS OF WASHINGTON DC BETWEEN 10 AND 10:30 PM...THE INTERSTATE 95 CORRIDOR INCLUDING WASHINGTON DC AND BALTIMORE BETWEEN 10:30 AND 11 PM...THEN REACH THE CHESAPEAKE BAY BETWEEN 11:30 AND MIDNIGHT.

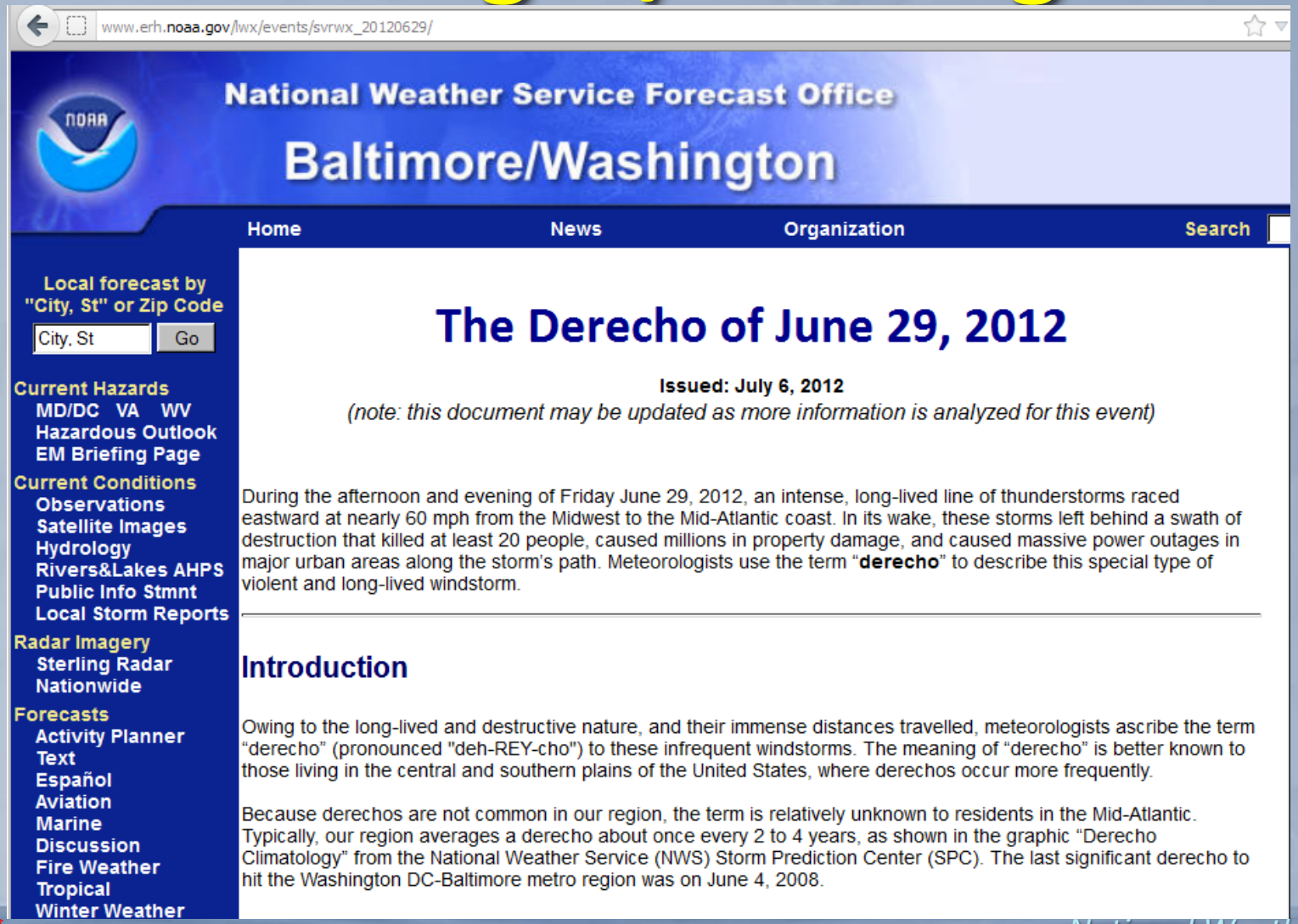
THIS LINE OF STORMS HAS A HISTORY OF PRODUCING MAJOR WIND DAMAGE ACROSS WESTERN MARYLAND AND EASTERN WEST VIRGINIA DUE TO WIND GUSTS OVER 75 MPH...ALONG WITH PROLIFIC CLOUD TO GROUND LIGHTNING.

THIS IS A PARTICULARLY DANGEROUS SITUATION THIS EVENING. RESIDENTS AND VISITORS TO THE REGION SHOULD START PLANNING NOW TO PROTECT LIFE AND PROPERTY THROUGH SEEKING SHELTER IN A STURDY BUILDING WHEN WARNINGS ARE ISSUED FOR YOUR AREA.

Summary

- A long-lived Derecho with widespread wind damage occurred on June 29th
- Tremendous impacts to major metro areas of Baltimore & Washington DC
- Although rare, derechos can occur here and cause significant disruption
- Be prepared! Heed all NWS-issued severe thunderstorm warning

More info on Derechos weather.gov/washington



http://www.erh.noaa.gov/lwx/events/svrwx_20120629/events/svrwx_20120629/