EUMETRAIN

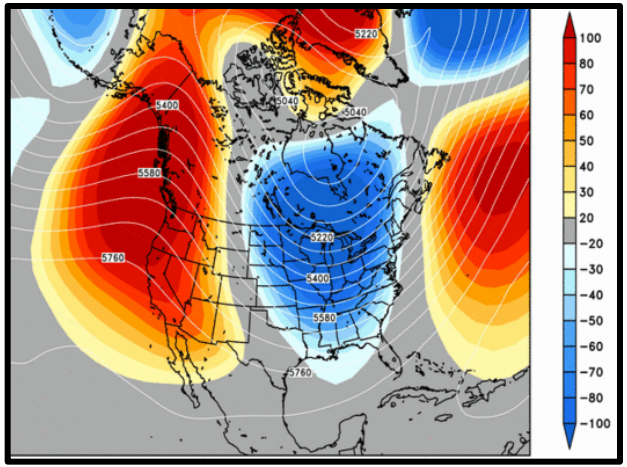
International training project sponsored by EUMETSAT
to support and increase the use of meteorological satellite data

High Impact Weather - Event Week 2014

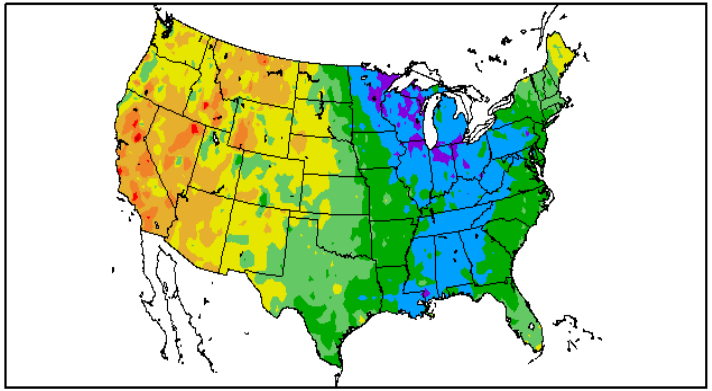
Winter 2013-14 in the USA

Greg Carbin, NOAA / Storm Prediction Center

1

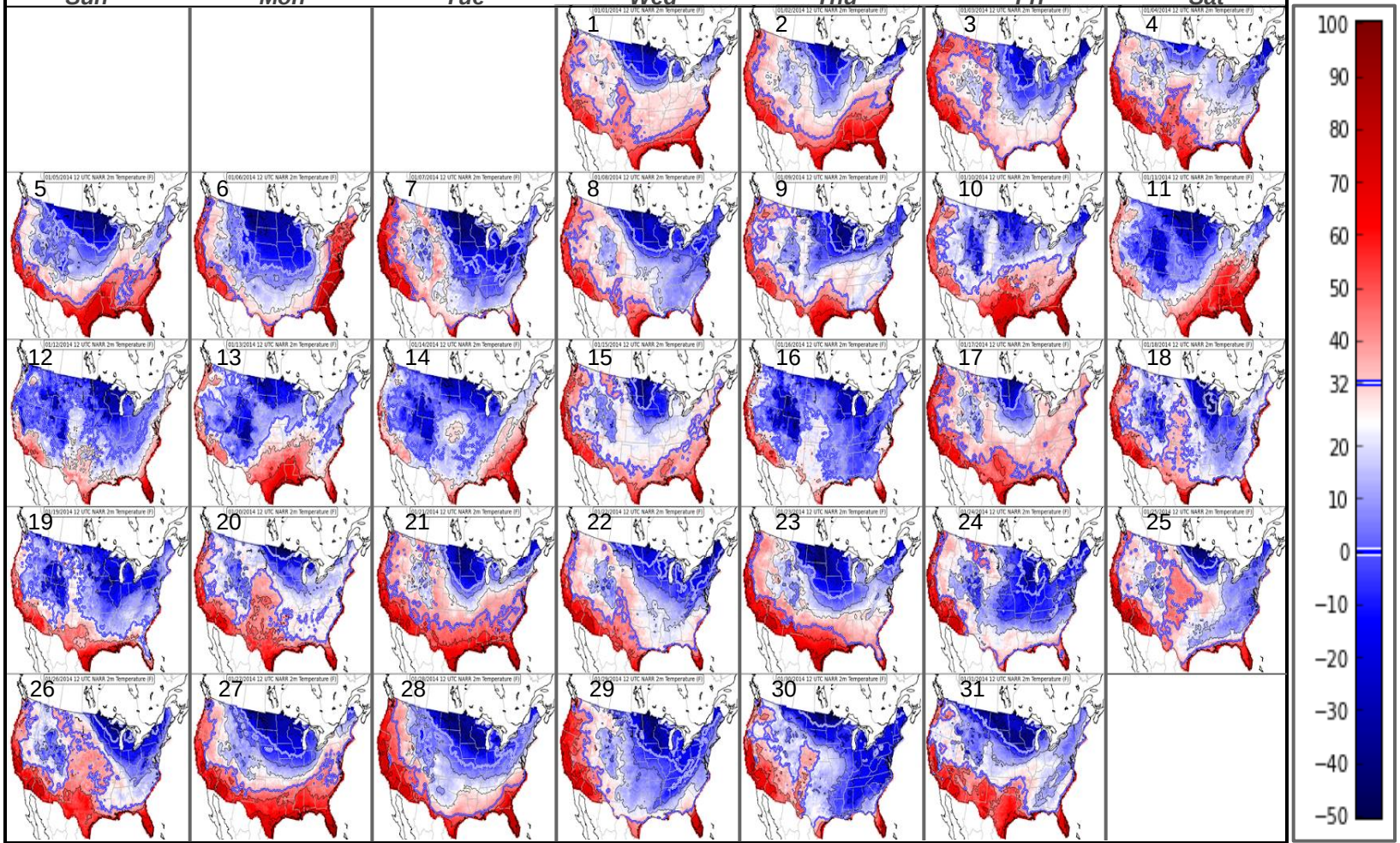


January Cold and Dixie Woes



−15 −12 −9 −6 −3 0 3 6 9 12 15

January 2014 12 UTC NARR 2m Temperature (F)



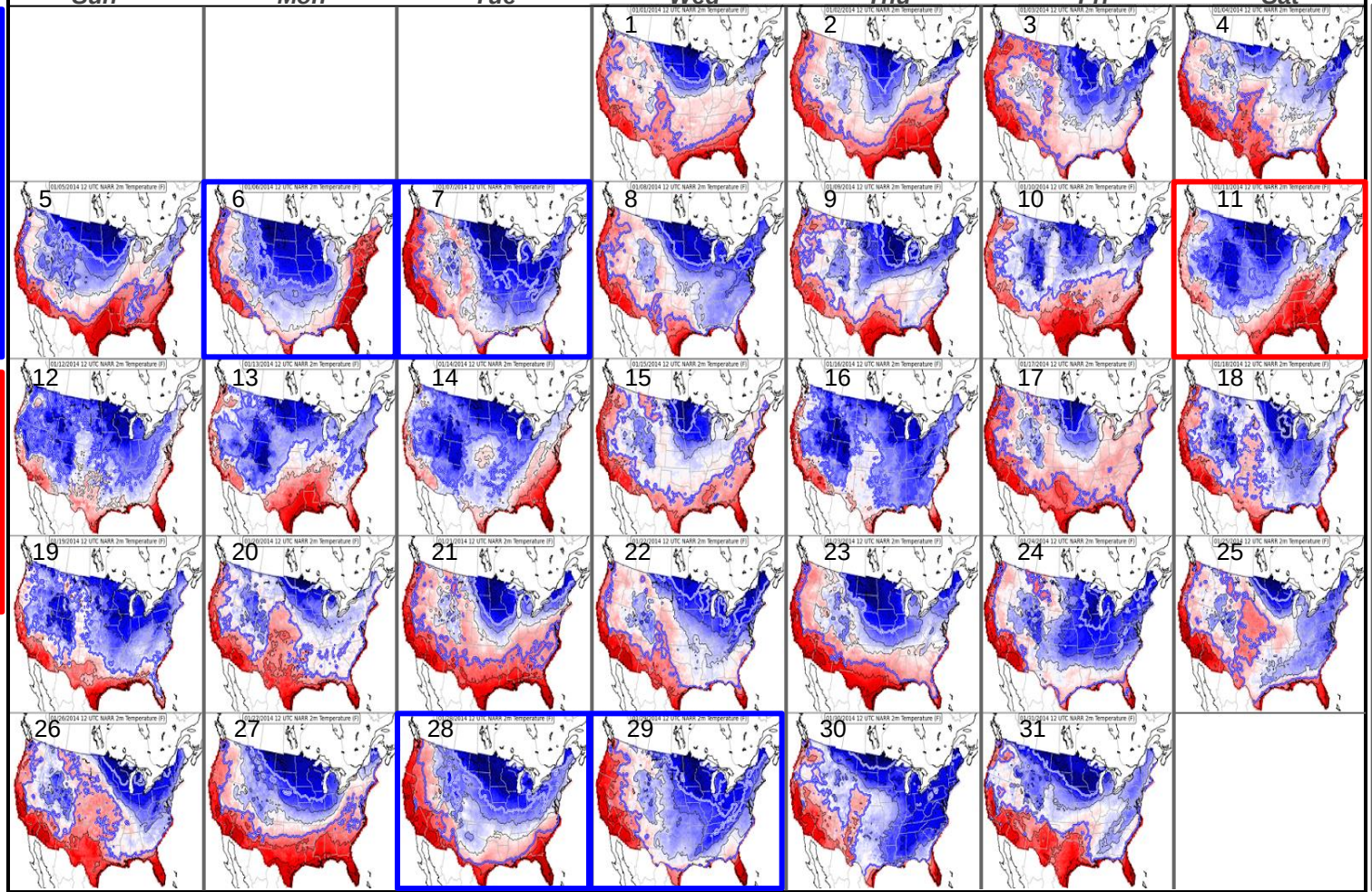
January 2014 12 UTC NARR 2m Temperature (F)

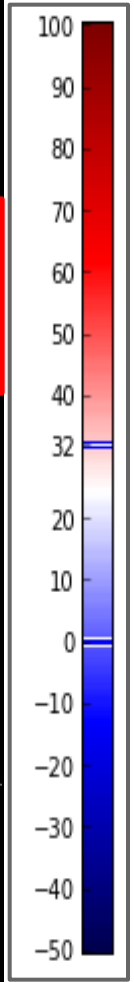
Coldest 5% of January days since 1979:

--2014--
6th 16.6F
7th 15.0F
28th 17.1F
29th 18.5F

Warmest 5% of January days since 1979:

--2014--
11th 36.6F





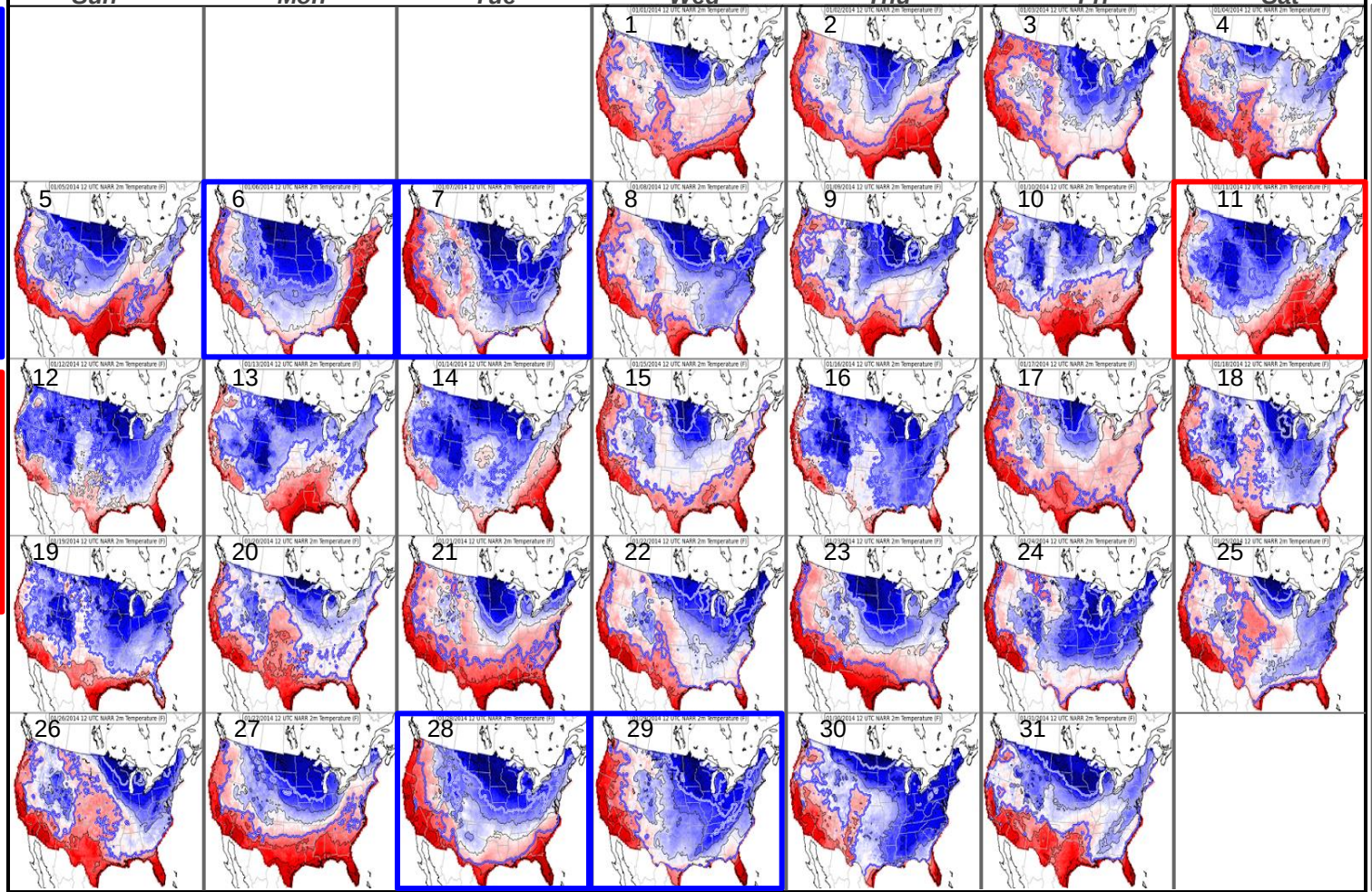
January 2014 12 UTC NARR 2m Temperature (F)

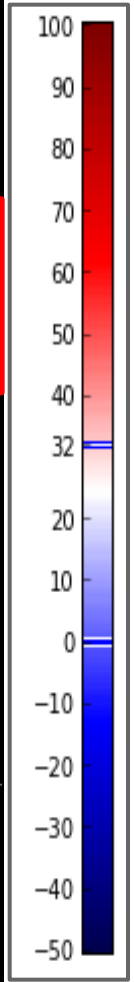
Coldest 5% of January days since 1979:

--2014--
6th -8.6C
7th -9.4C
28th -8.3C
29th -7.5C

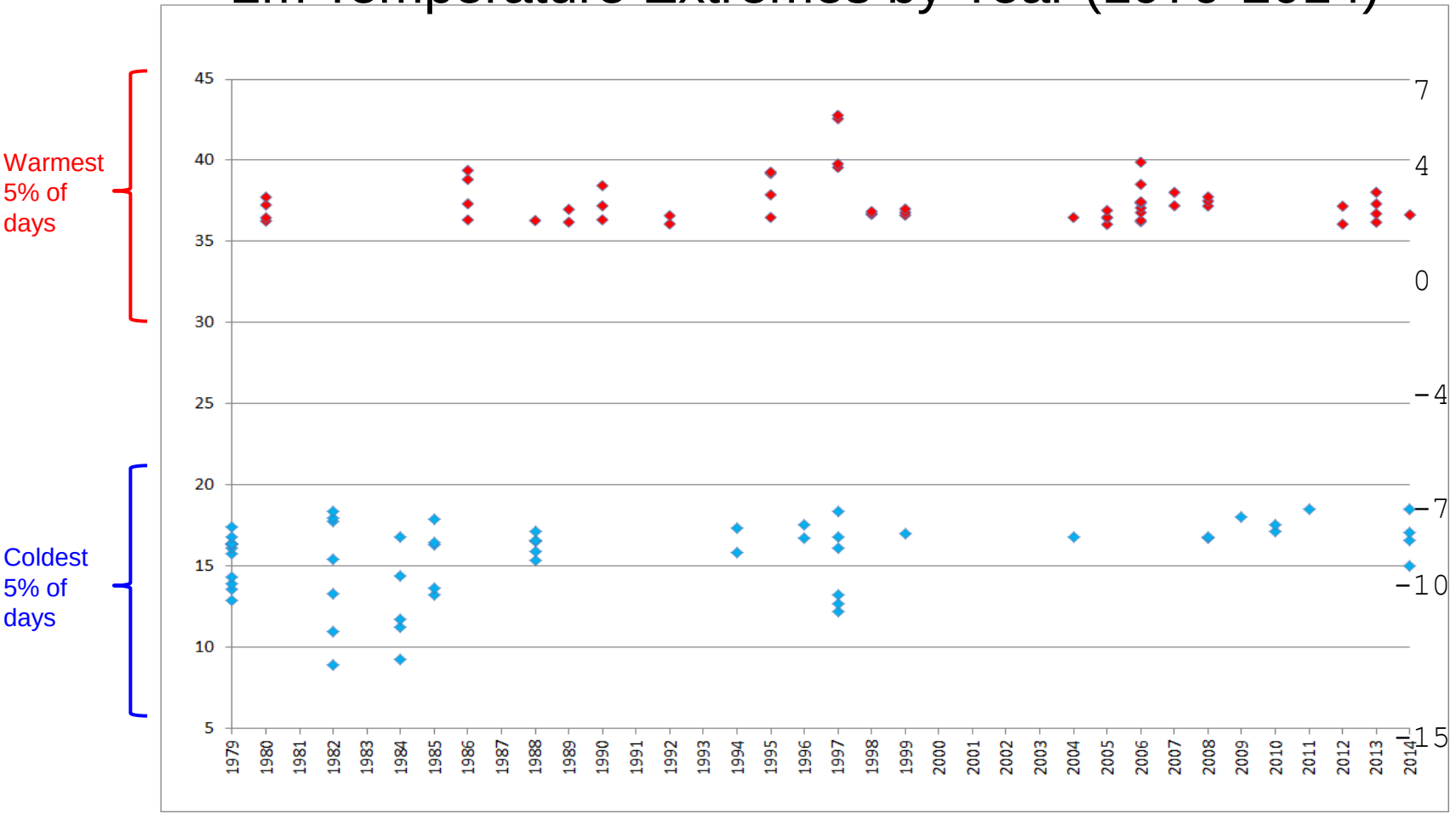
Warmest 5% of January days since 1979:

--2014--
11th 2.6F

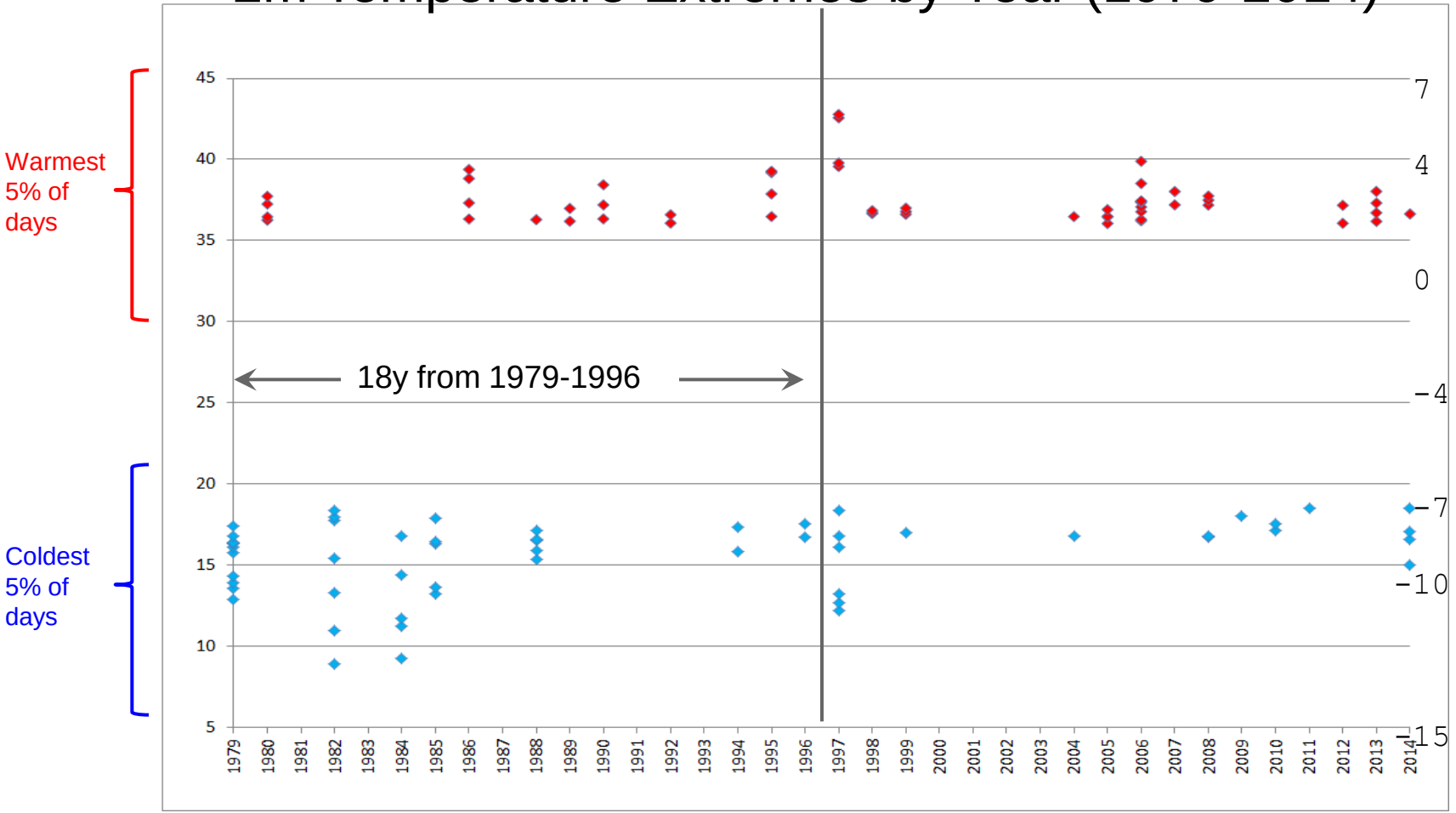




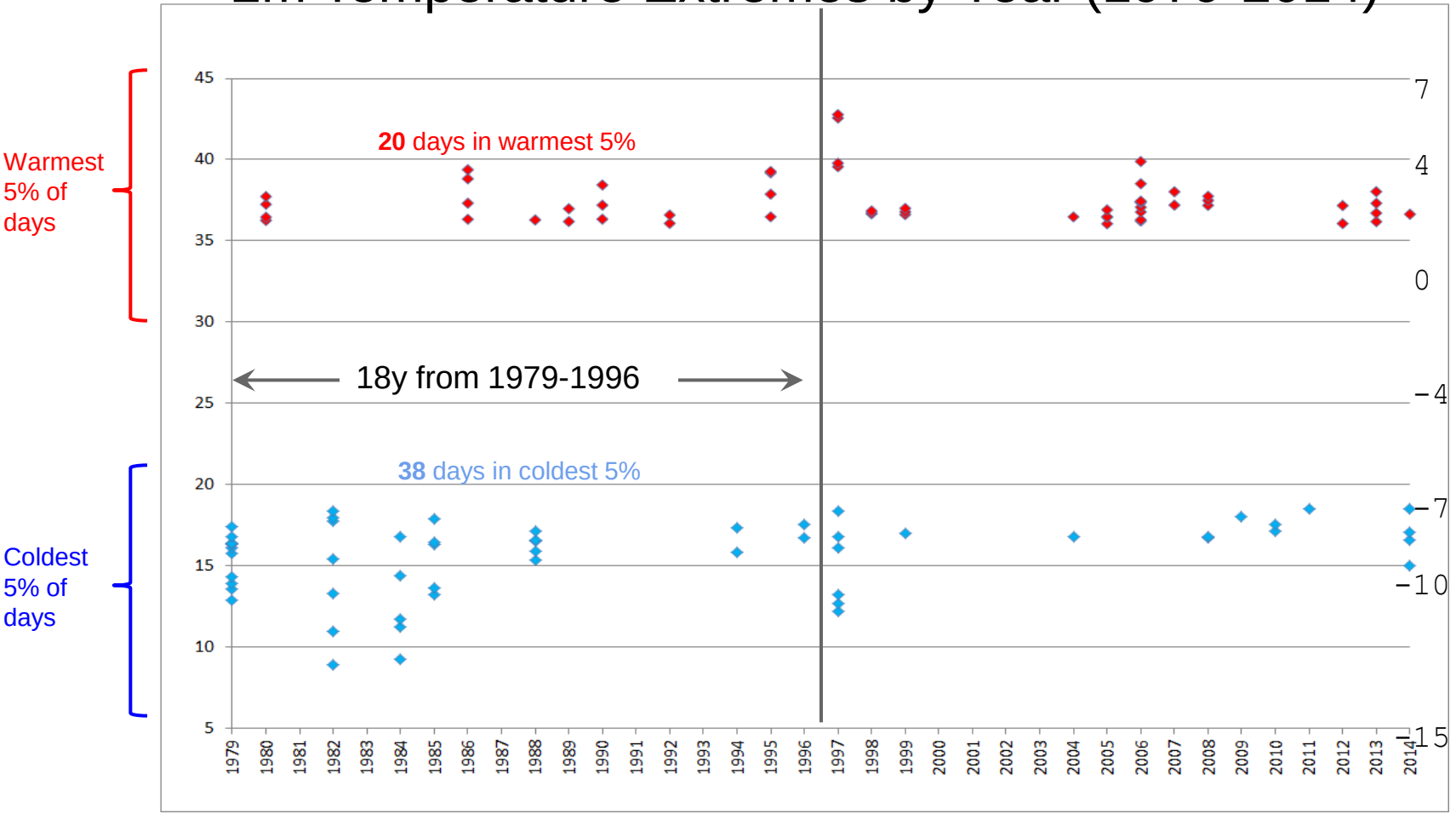
Distribution of January 12 UTC NARR CONUS 2m Temperature Extremes by Year (1979-2014)



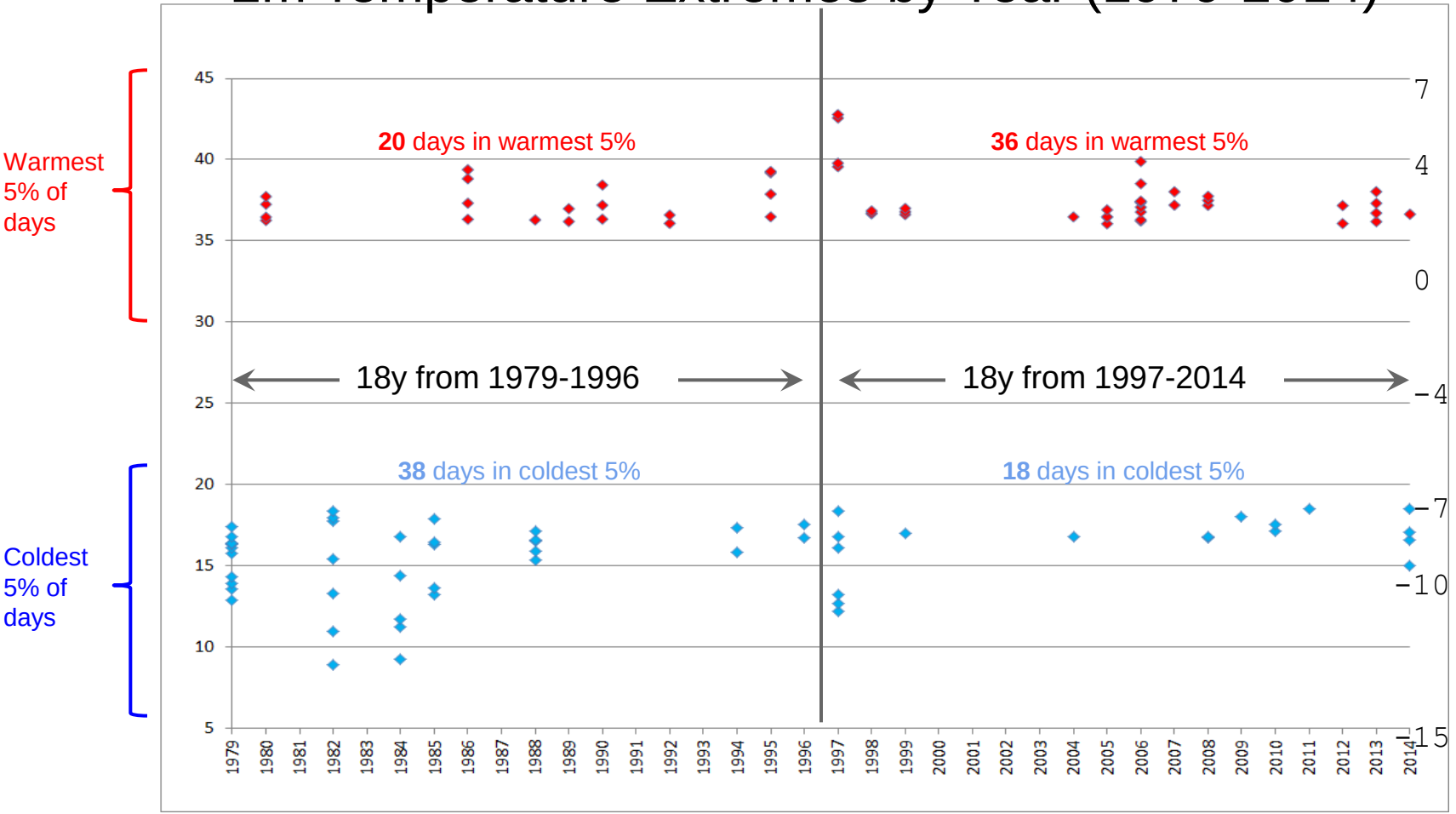
Distribution of January 12 UTC NARR CONUS 2m Temperature Extremes by Year (1979-2014)



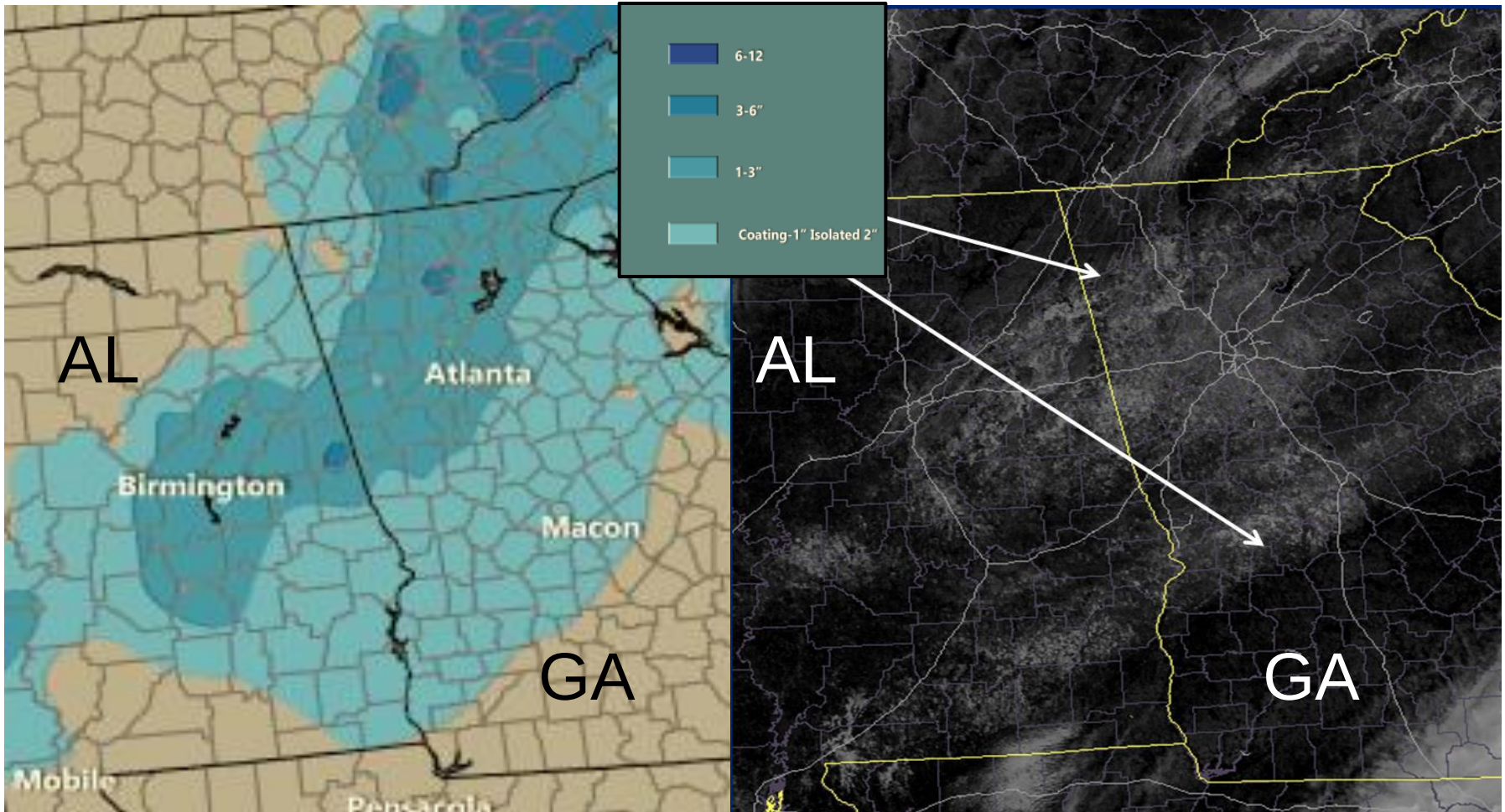
Distribution of January 12 UTC NARR CONUS 2m Temperature Extremes by Year (1979-2014)

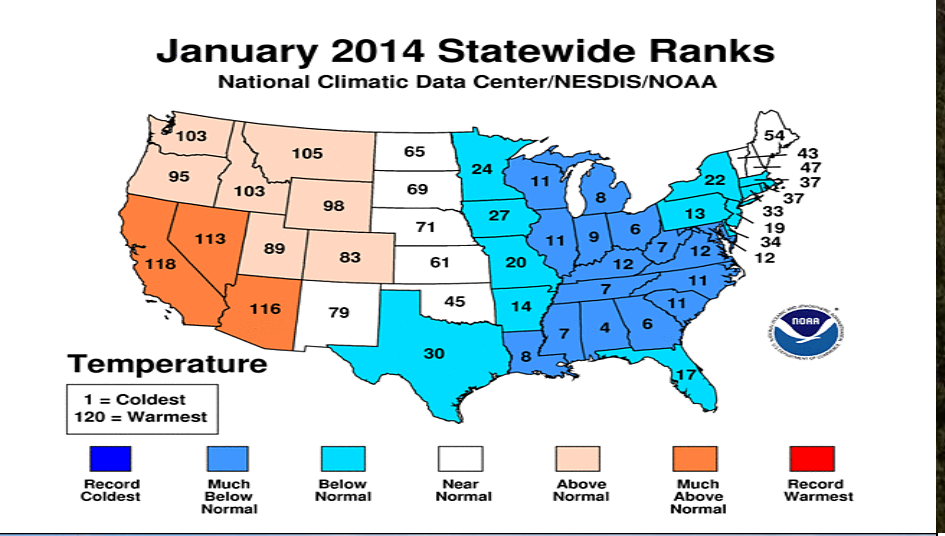


Distribution of January 12 UTC NARR CONUS 2m Temperature Extremes by Year (1979-2014)

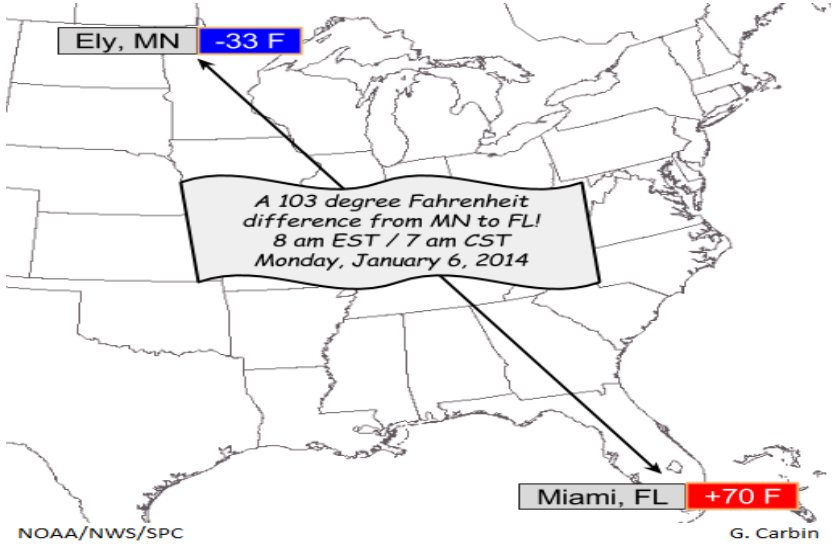


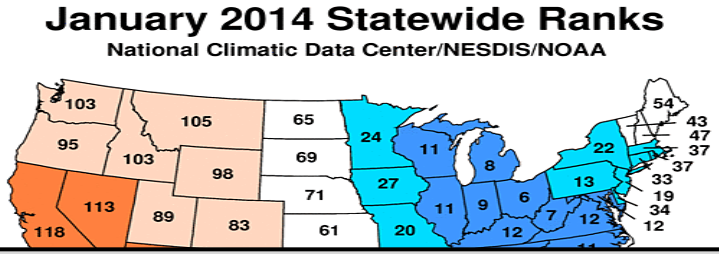
Southern U.S. Snowfall from January 27-29, 2014 Winter Storm




January 2014 Statewide Ranks
National Climatic Data Center/NESDIS/NOAA
103
105
65
54
43
95
103
69
24
11
8
22
47
37
98
27
13
37
71
33
113
89
83
11
9
6
7
12
19
34
118
61
20
12
12
116
79
45
14
7
11
30
8
4
6
17
Temperature
1 = Coldest
120 = Warmest
Record Coldest
Much Below Normal
Below Normal
Near Normal
Above Normal
Much Above Normal
Record Warmest


DAVID TUSSAY/AP


Ely, MN
-33 F
A 103 degree Fahrenheit difference from MN to FL!
8 am EST / 7 am CST
Monday, January 6, 2014
Miami, FL
+70 F
NOAA/NWS/SPC
G. Carbin

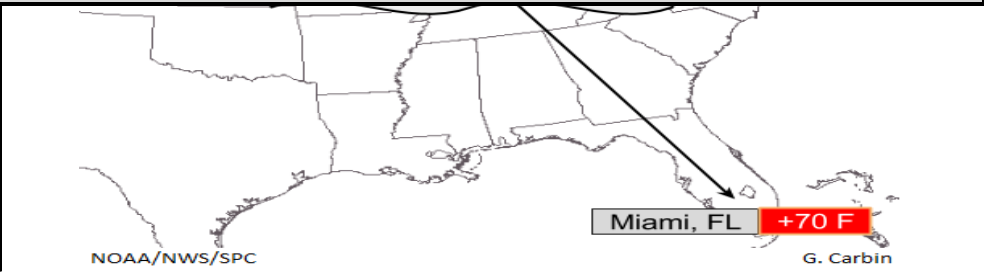


– January 2014 in Summary –

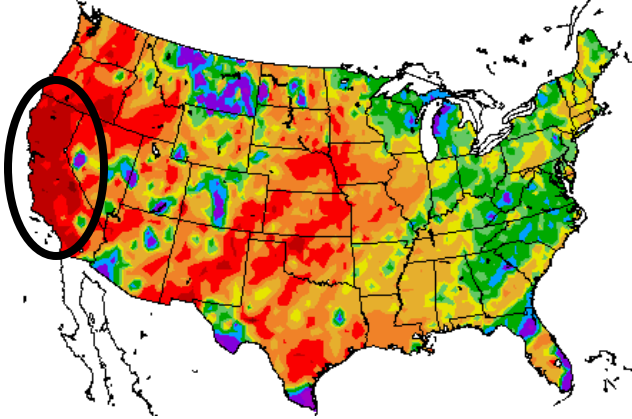
Midwest & Southeast Feel Brunt of Coldest Jan. in Many Years

Thousands Stranded by Winter Storm in the South, 27th-29th

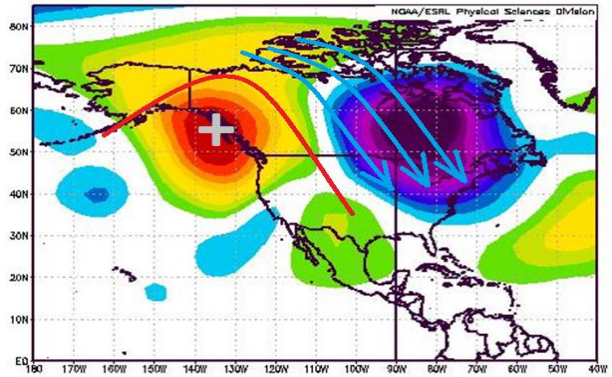
Fewer Jan. Mornings with Extreme Cold Recent ~2 Decades



2

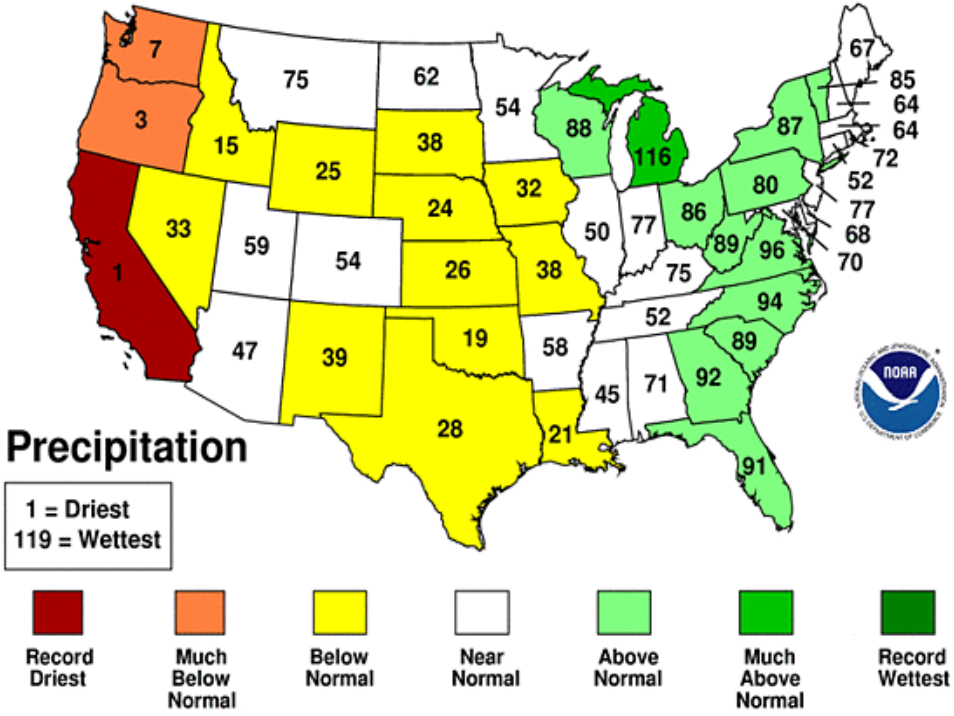


California’s Drought Nightmare



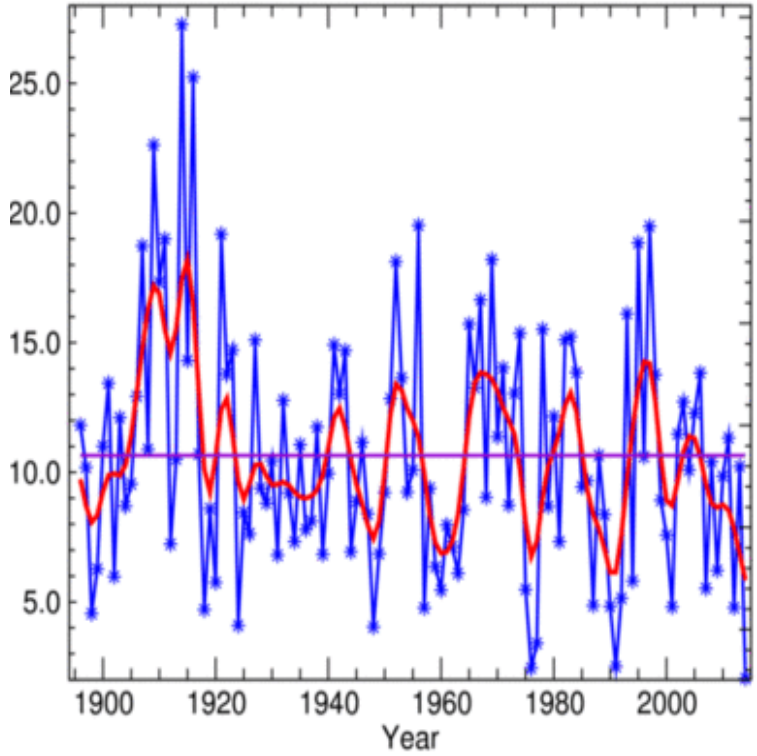
Nov 2013-Jan 2014 Statewide Ranks

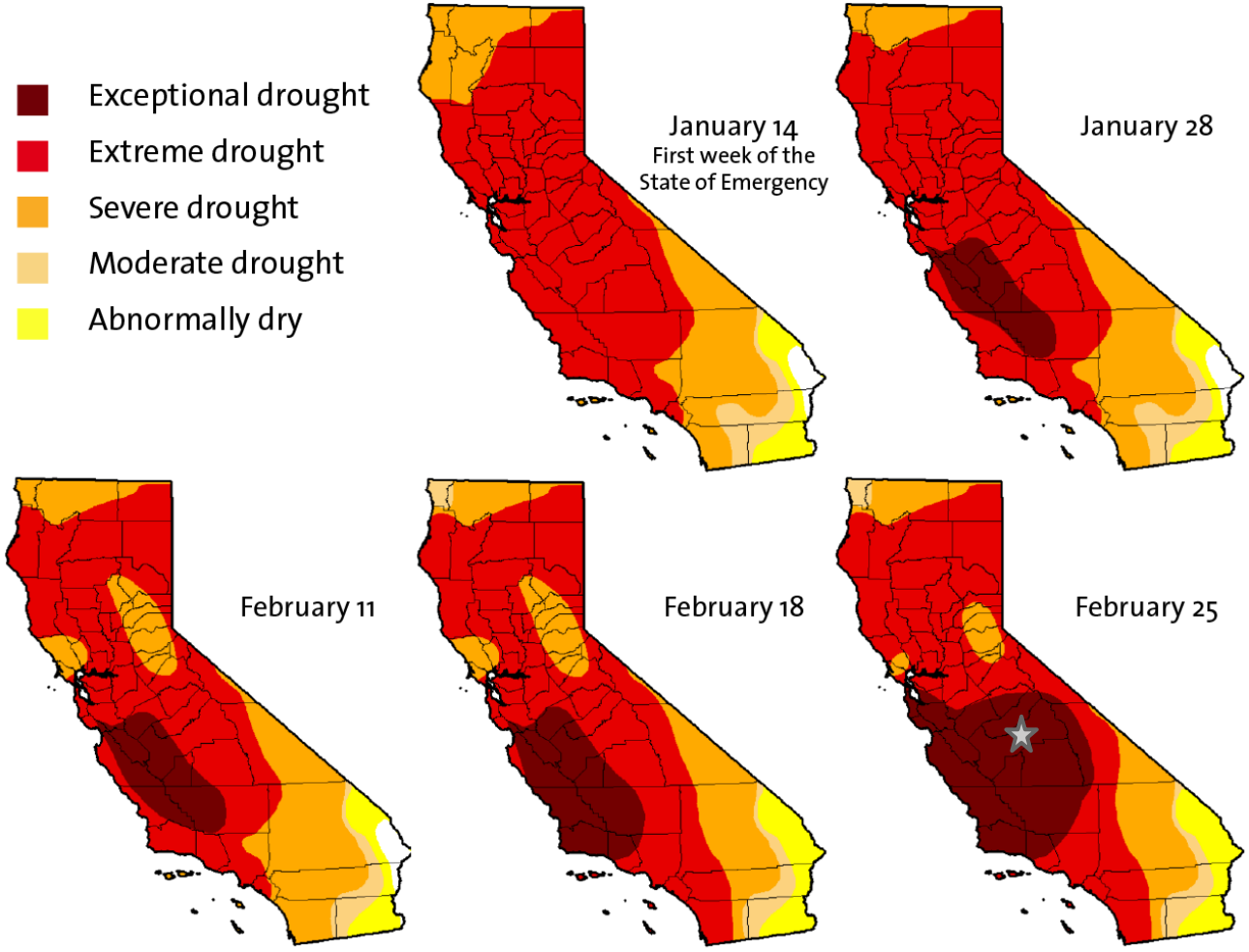
National Climatic Data Center/NESDIS/NOAA



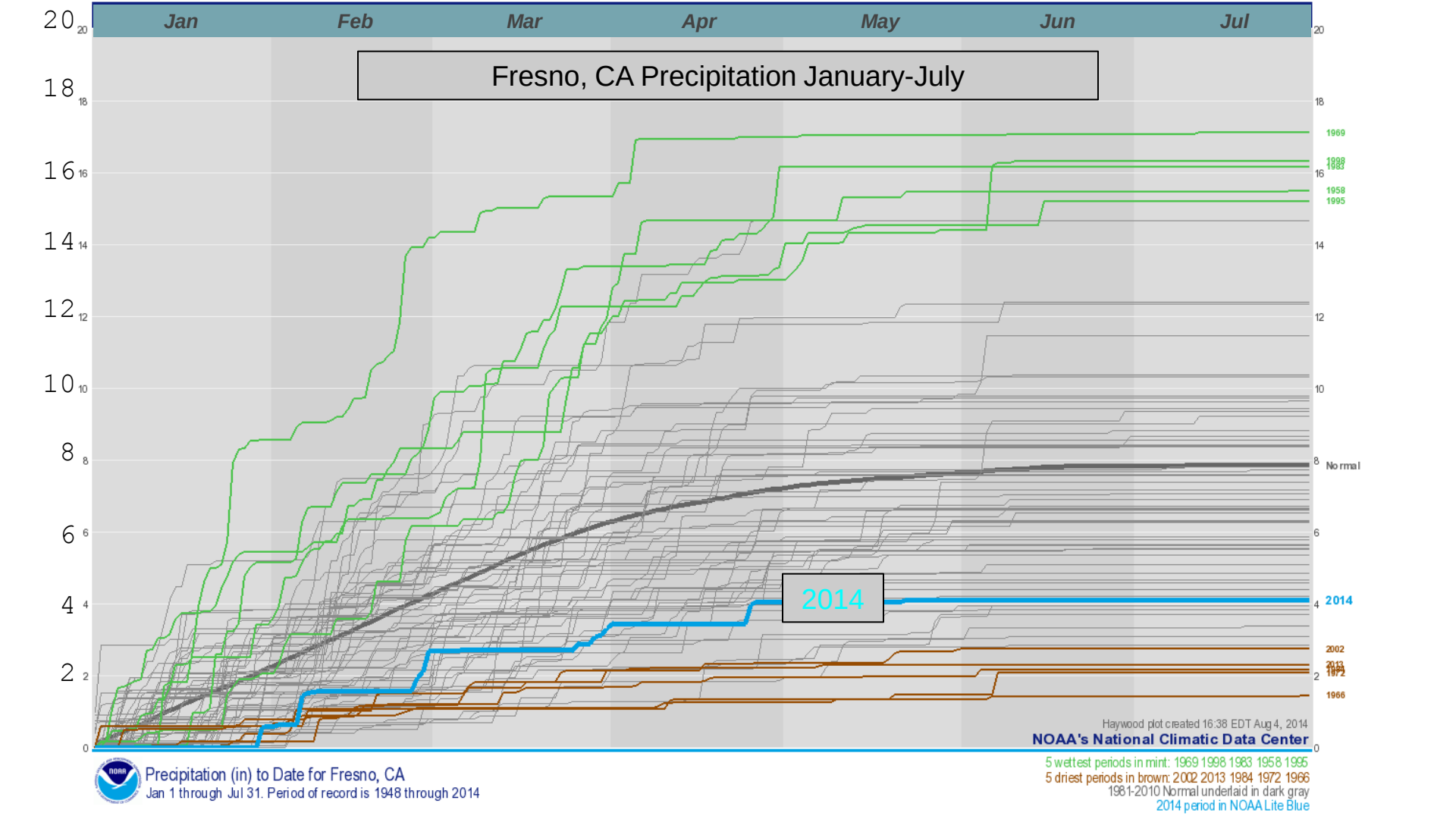
California Statewide Precipitation

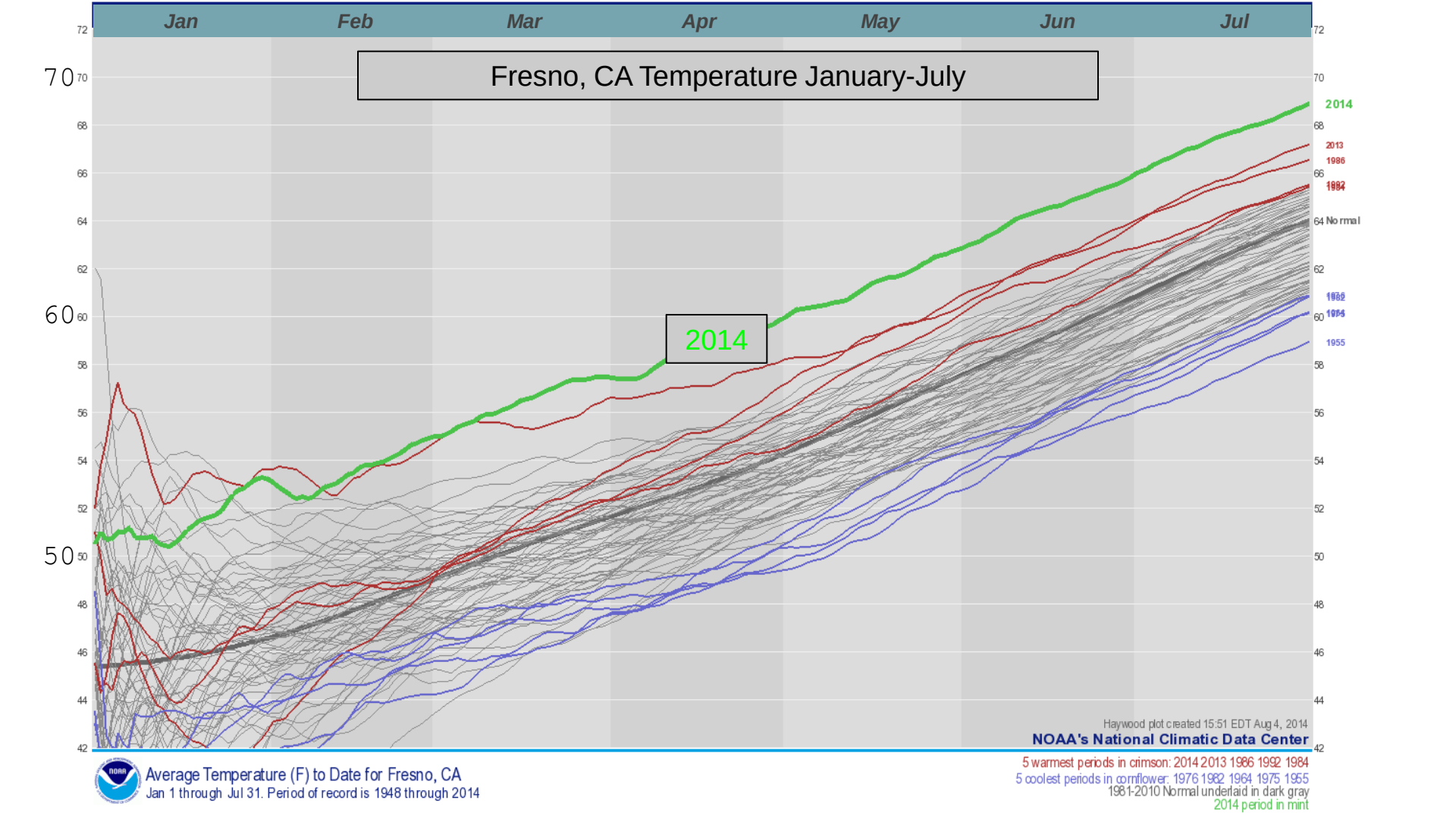
November - January, 1895 - 2014

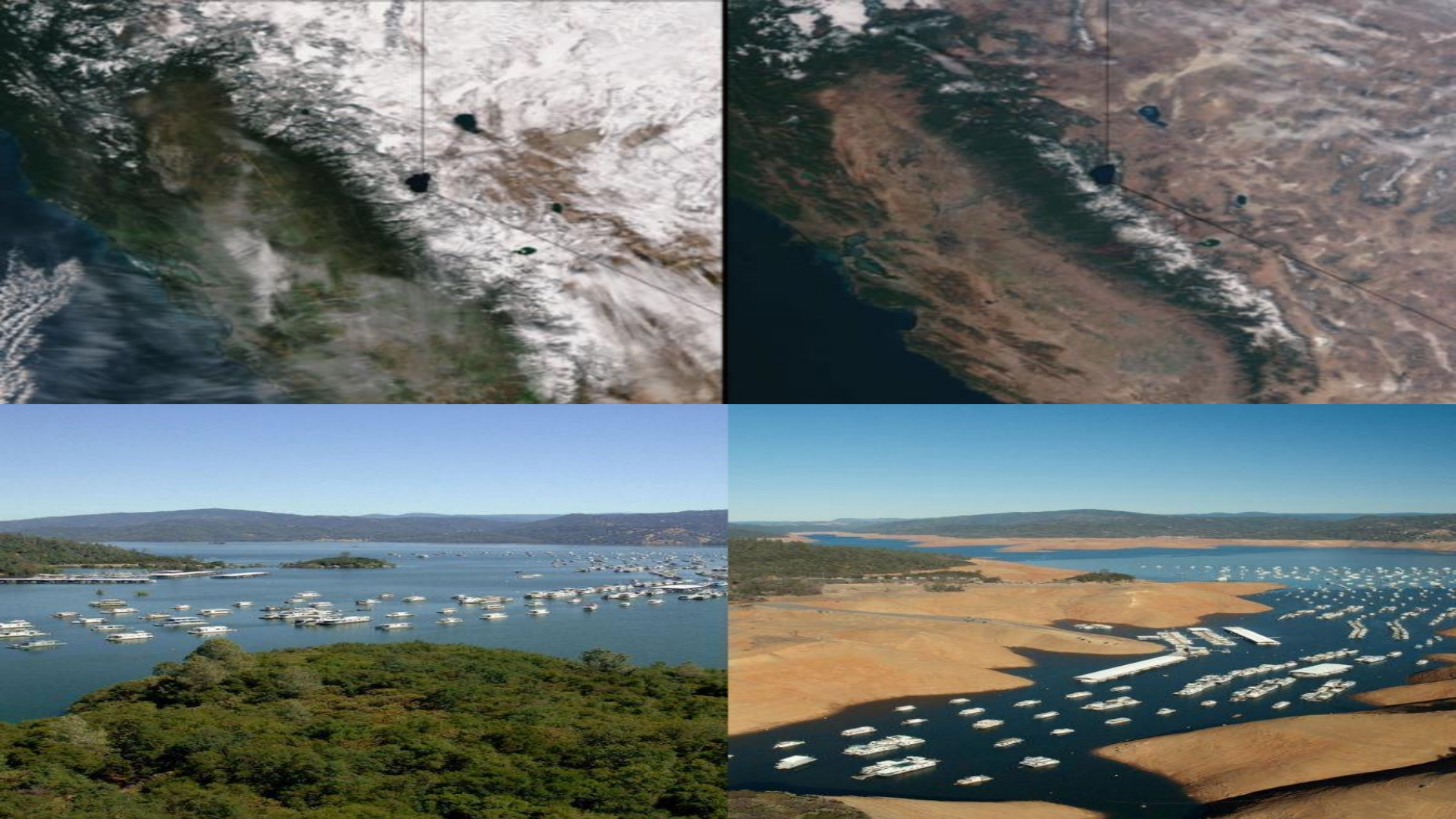




Source: US Drought Monitor. The Drought Monitor is a project of the US Department of Agriculture and the National Drought Mitigation Center at the University of Nebraska-Lincoln.


Fresno, CA Precipitation January-July
Jan
Feb
Mar
Apr
May
Jun
Jul
0
2
4
6
8
10
12
14
16
18
20
2014
Normal
1969
1998
1983
1958
1995
2002
2013
1984
1972
1966
Haywood plot created 16:38 EDT Aug 4, 2014
NOAA's National Climatic Data Center
Precipitation (in) to Date for Fresno, CA
Jan 1 through Jul 31. Period of record is 1948 through 2014
5 wettest periods in mint: 1969 1998 1983 1958 1995
5 driest periods in brown: 2002 2013 1984 1972 1966
1981-2010 Normal underlaid in dark gray
2014 period in NOAA Lite Blue


Jan
Feb
Mar
Apr
May
Jun
Jul
Fresno, CA Temperature January-July
2014
2013
1986
1992
1984
Normal
1982
1976
1964
1975
1955
Haywood plot created 15:51 EDT Aug 4, 2014
NOAA's National Climatic Data Center
Average Temperature (F) to Date for Fresno, CA
Jan 1 through Jul 31. Period of record is 1948 through 2014
5 warmest periods in crimson: 2014 2013 1986 1992 1984
5 coolest periods in cornflower: 1976 1982 1964 1975 1955
1981-2010 Normal underlaid in dark gray
2014 period in mint



– California Drought In Summary –

Feb. 2013 - Jan. 2014: Driest 12-months on Record

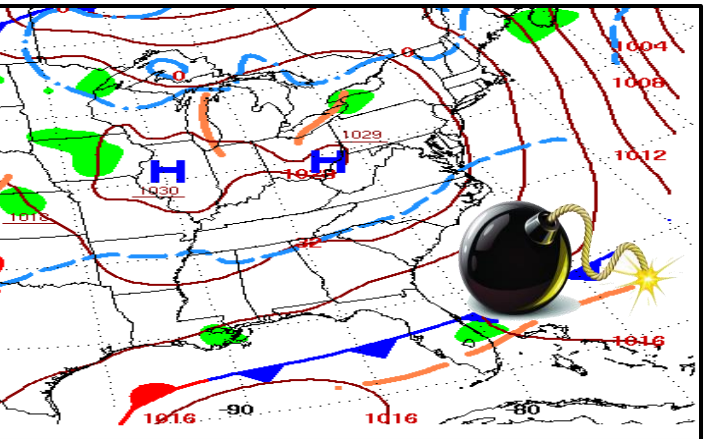
More of CA in Extreme Drought than Ever (80% by late July)

At Least $1 Billion in Agricultural Losses

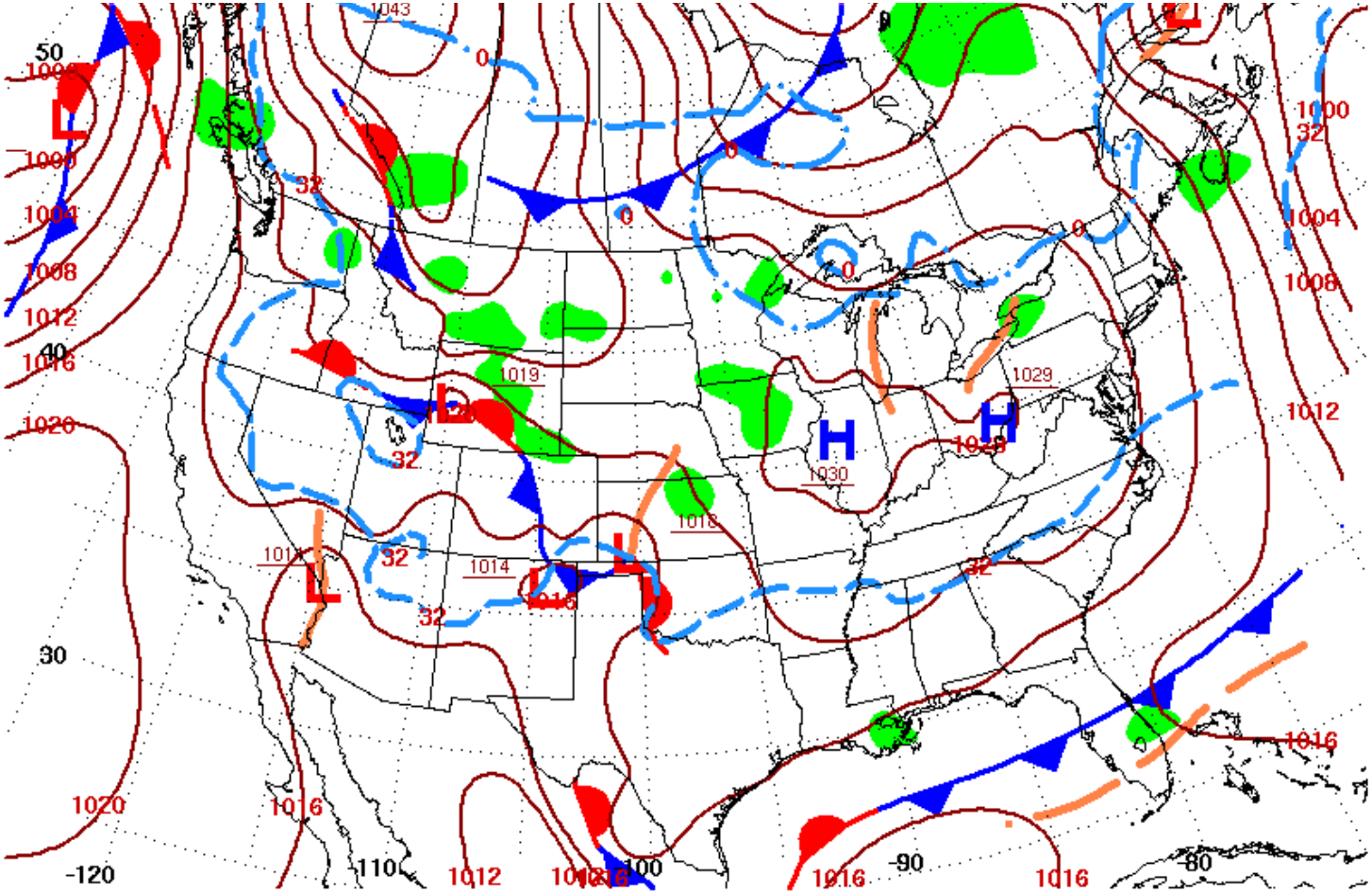
Hydroelectric Power Generation ~50% of Average

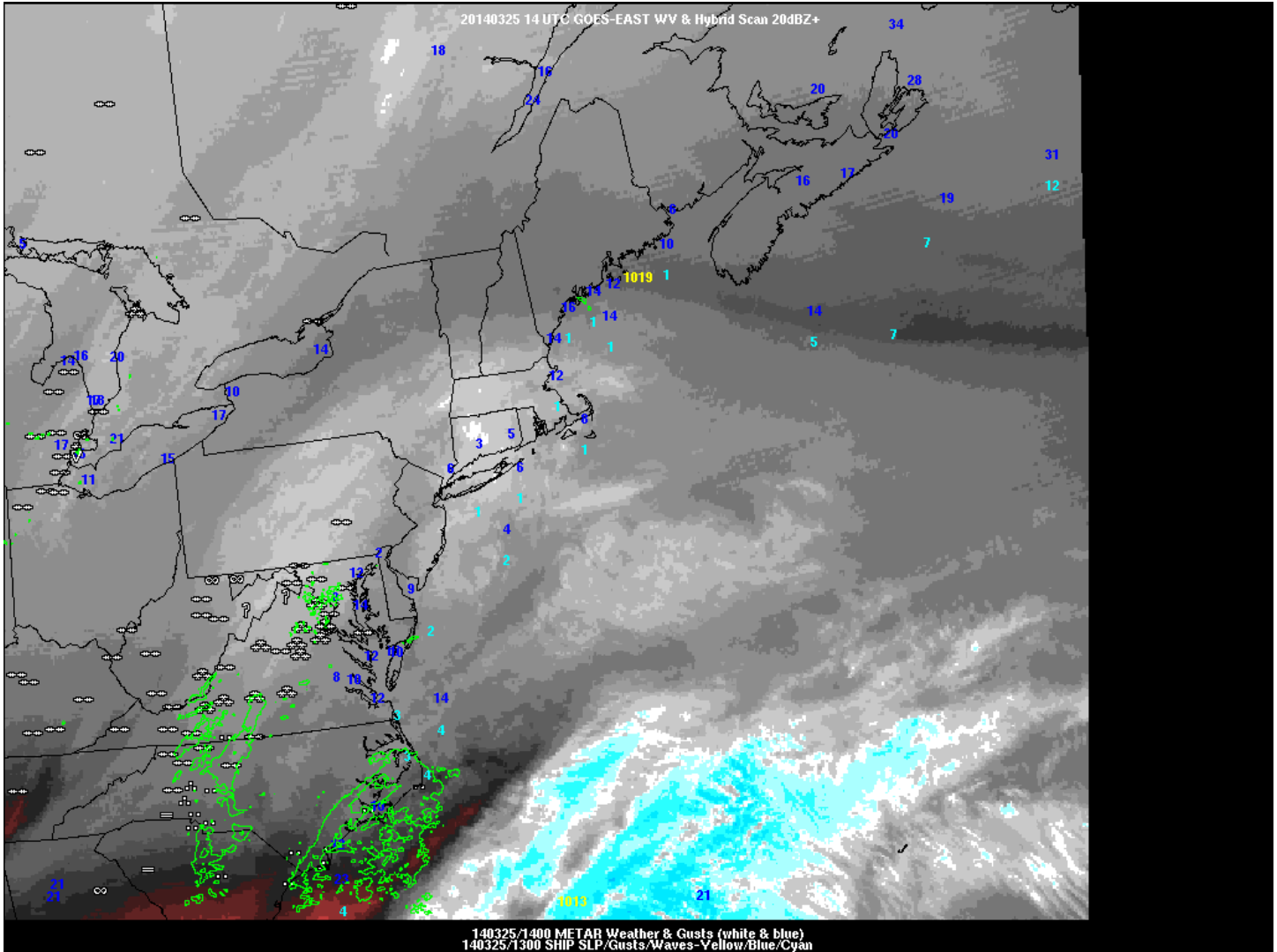
3

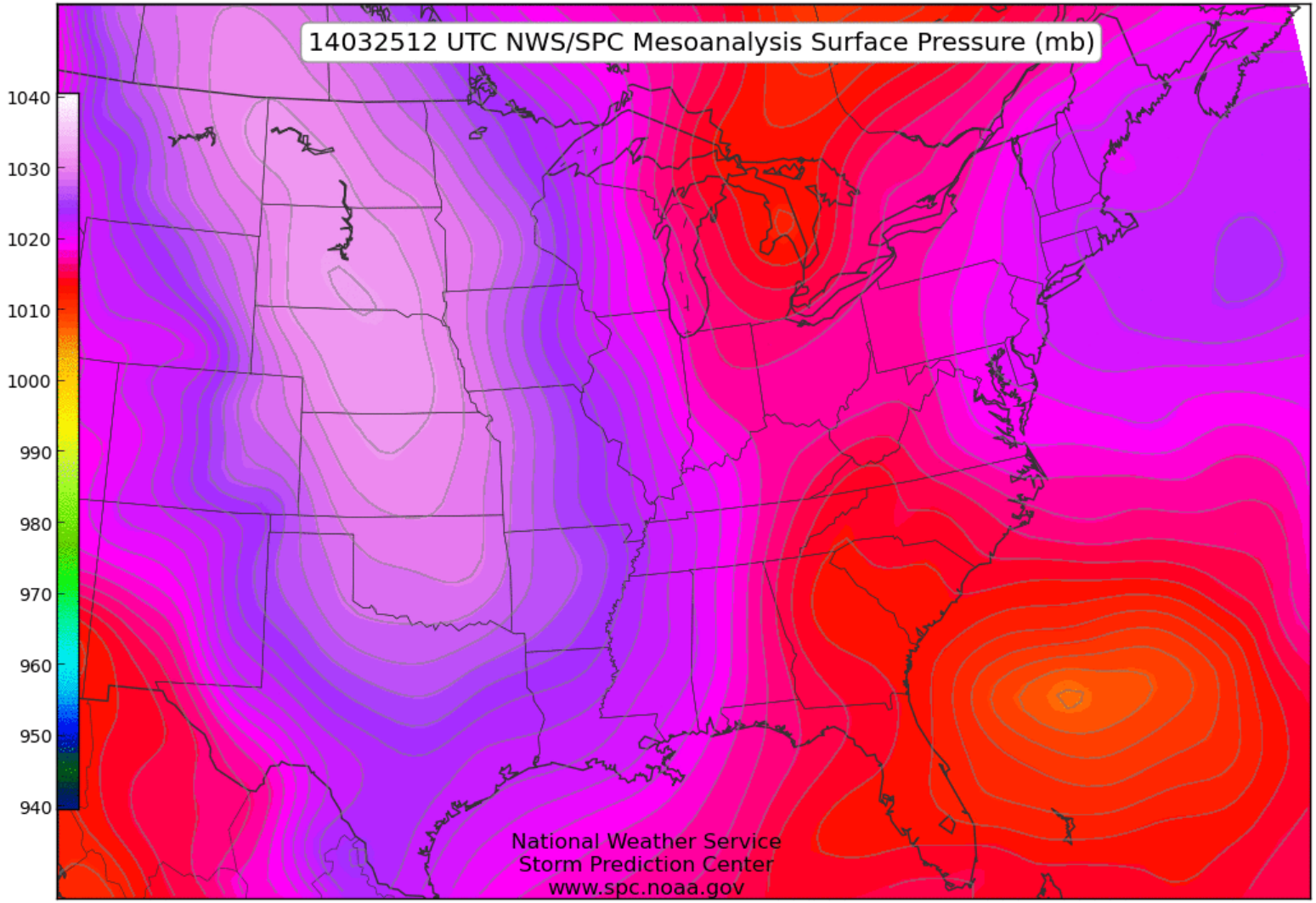
Atlantic Bomb – March 25-26

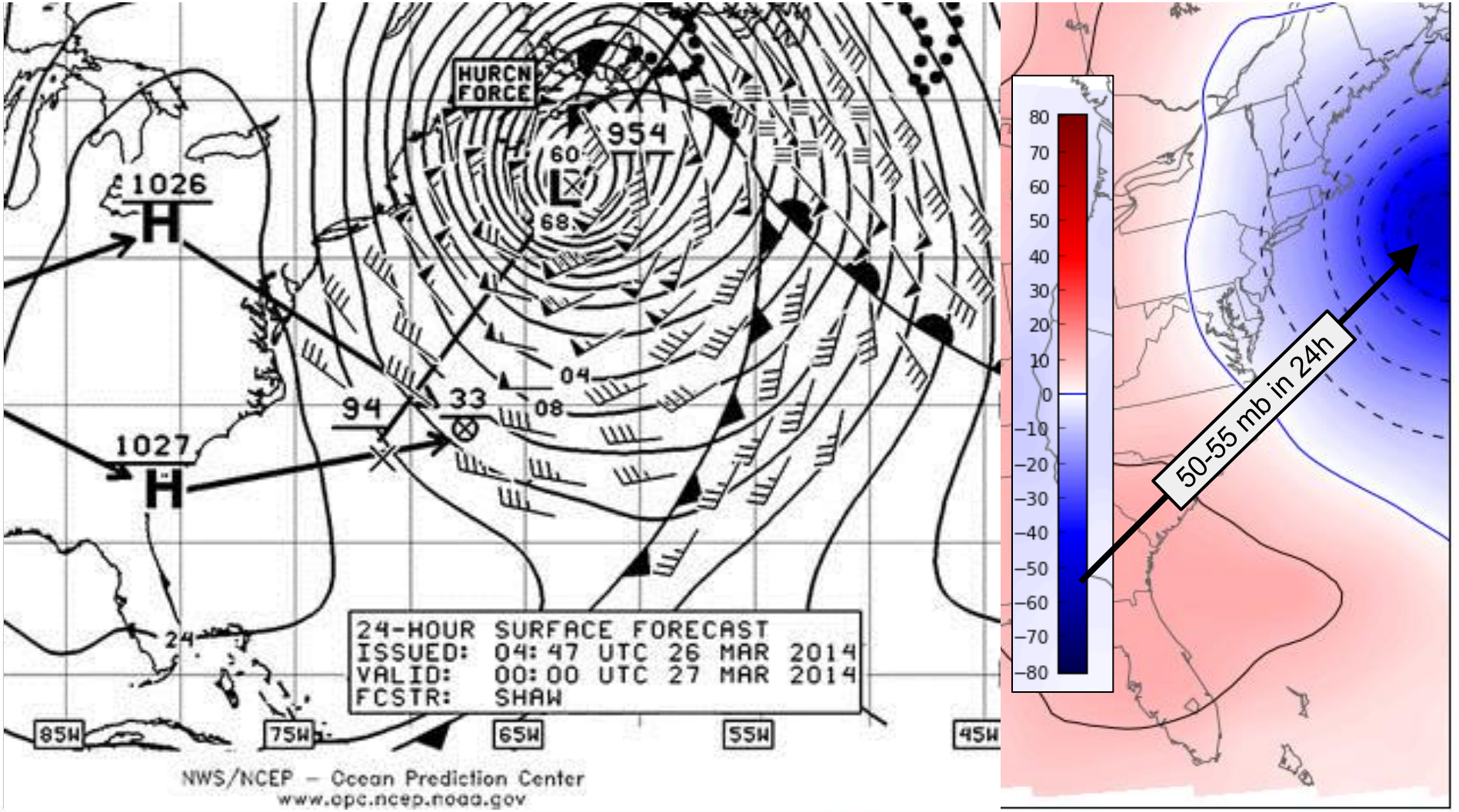


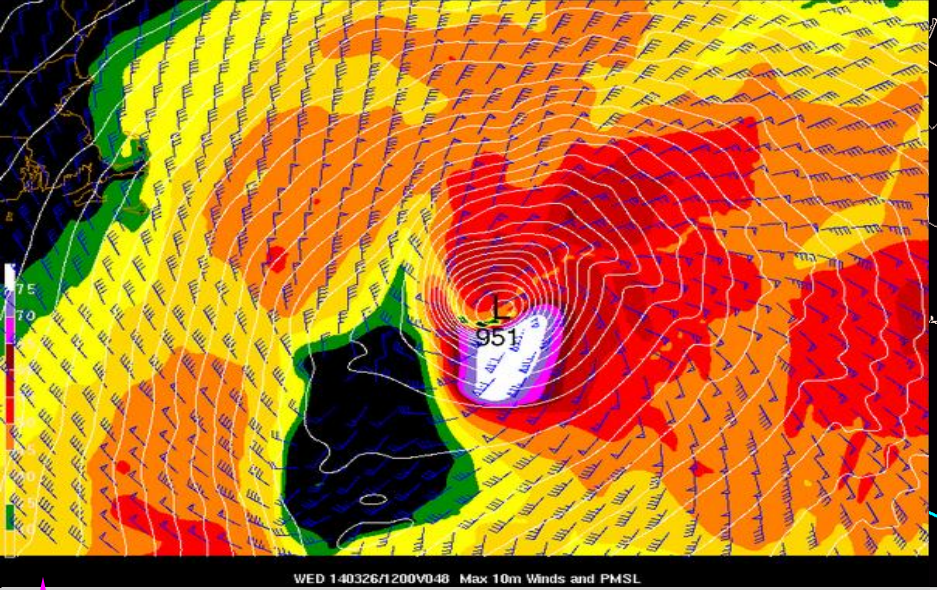
12 UTC Surface Maps “Ping-pong” Loop for Mar. 25-26-27

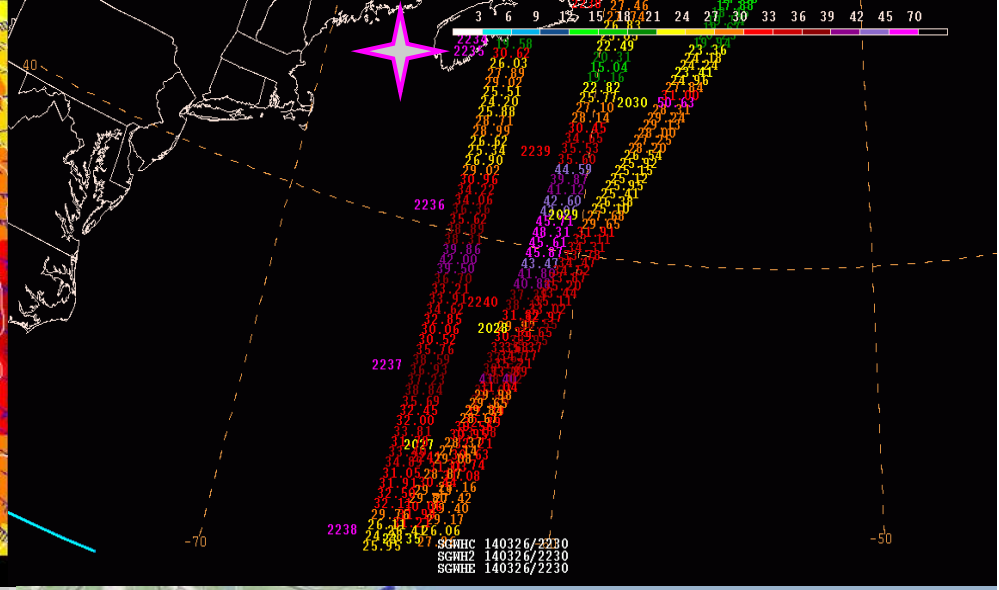


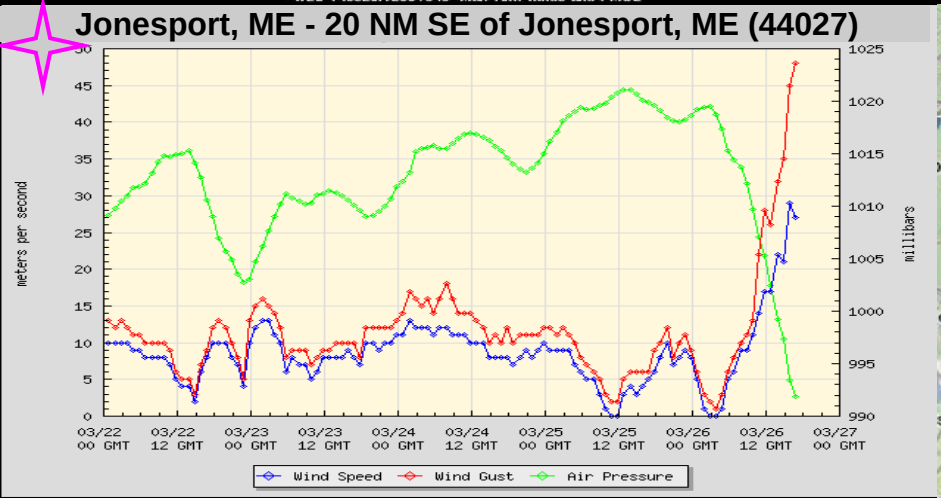

20140325 14 UTC GOES-EAST WV & Hybrid Scan 20dBZ+
1019
1013
140325/1400 METAR Weather & Gusts (white & blue)
140325/1300 SHIP SLP/Gusts/Waves-Yellow/Blue/Cyan


14032512 UTC NWS/SPC Mesoanalysis Surface Pressure (mb)
1040
1030
1020
1010
1000
990
980
970
960
950
940
National Weather Service
Storm Prediction Center
www.spc.noaa.gov

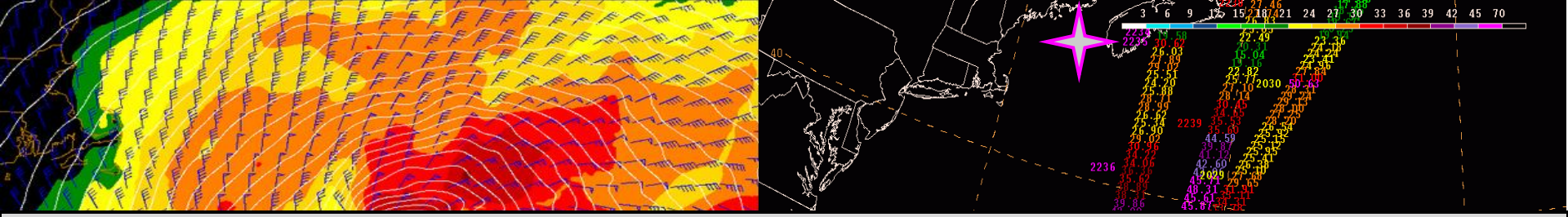

HURCN FORCE
954
60
68
1026
H
1027
H
94
33
04
08
24
24-HOUR SURFACE FORECAST
ISSUED: 04:47 UTC 26 MAR 2014
VALID: 00:00 UTC 27 MAR 2014
FCSTR: SHAW
85W
75W
65W
55W
45W
NWS/NCEP – Ocean Prediction Center
www.opc.ncep.noaa.gov
80
70
60
50
40
30
20
10
0
−10
−20
−30
−40
−50
−60
−70
−80
50-55 mb in 24h


L
951
WED 140326/1200V048 Max 10m Winds and PMSL


3 6 9 12 15 18 21 24 27 30 33 36 39 42 45 70
SGWHC 140326/2230
SGWH2 140326/2230
SGWHE 140326/2230


Jonesport, ME - 20 NM SE of Jonesport, ME (44027)
meters per second
millibars
03/22 00 GMT
03/22 12 GMT
03/23 00 GMT
03/23 12 GMT
03/24 00 GMT
03/24 12 GMT
03/25 00 GMT
03/25 12 GMT
03/26 00 GMT
03/26 12 GMT
03/27 00 GMT
Wind Speed
Wind Gust
Air Pressure


Coating- 2"
1-3"
3-6"
5-8"
6-10"
Stoughton
Rockland
Brockton
Pembroke
Duxbury
Plymouth
Taunton
Provincetown
Wellfleet
Cape Cod Bay
Orleans
Wareham
Sandwich
Dennis
Fall River
Marion
Barnstable
Chatham
Mashpee
New Bedford
Falmouth
Buzzards Bay

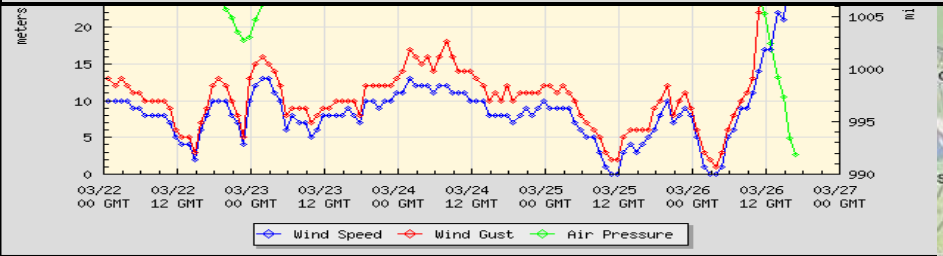


– March Meteorological Bomb In Summary –

Rapid Intensification: Pressure Falls > 50 mb/24h

Expansive Well-forecast Hurricane-Force Wind Field

Central Pressure Comparable to Sandy



Thank You!

Greg Carbin, NOAA / Storm Prediction Center

gregory.carbin@noaa.gov

www.spc.noaa.gov