



2023 Winter Forum

Weather Overview and Forecast

September 21, 2023

Jeff Jensen

Bachelor of Science | Meteorology | Iowa State University

Broadcast Meteorologist | Alabama, Kentucky, Iowa and Nebraska

Customer Service Representative | Northern Natural Gas | Omaha,
Nebraska | 2008 - present



The Seasons

Fall:

September – October – November

Winter:

December – January – February

Spring:

March – April – May

Review of Jeff's 2022 – 2023 Forecast

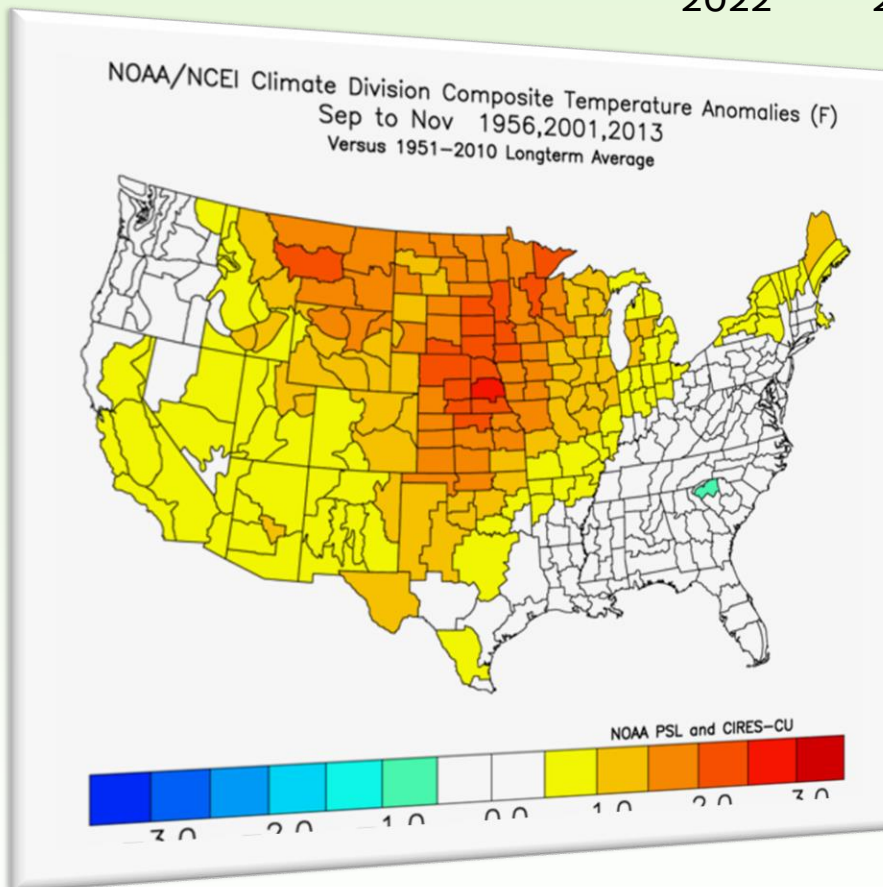
Last Fall's Forecast

September – October – November

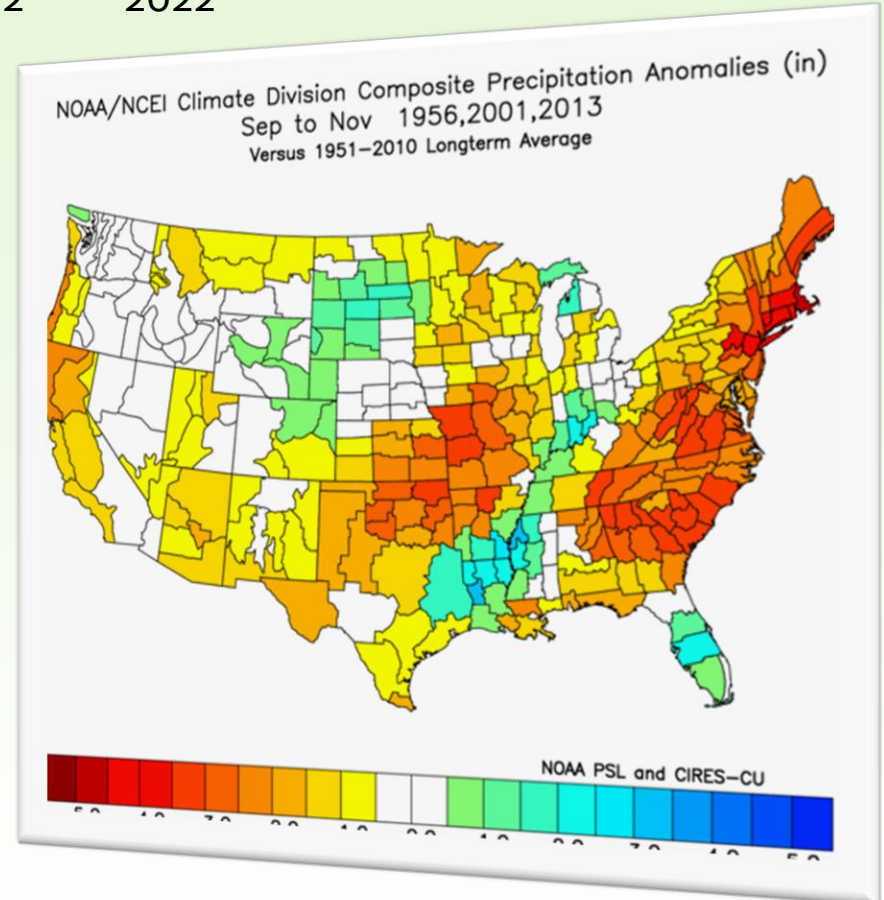
2022

2022

2022



TEMPERATURE



PRECIPITATION

Actual Fall Departures

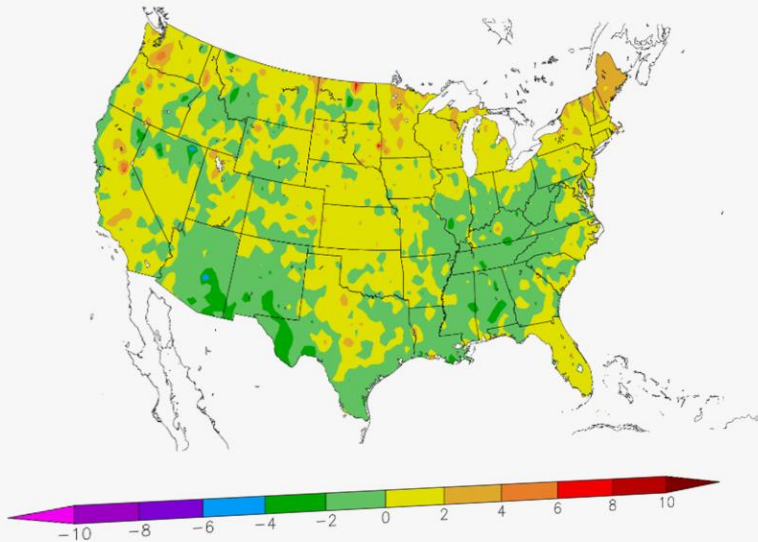
September – October – November

2022

2022

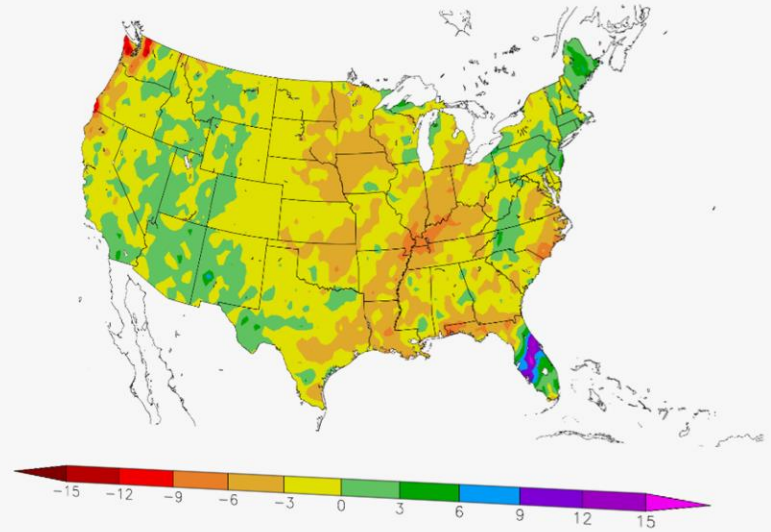
2022

Departure from Normal Temperature (F)
9/1/2022 – 11/30/2022



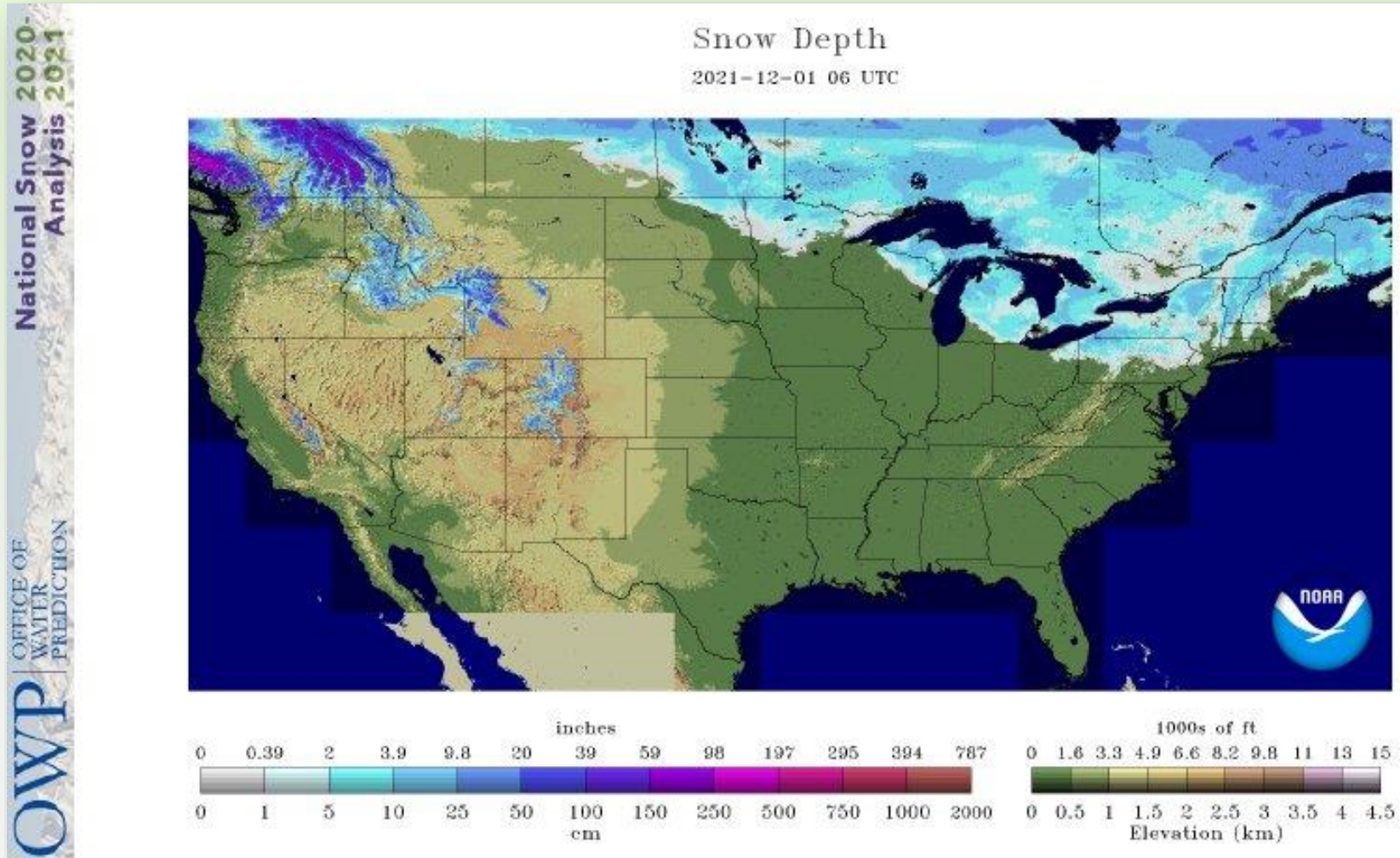
TEMPERATURE

Departure from Normal Precipitation (in)
9/1/2022 – 11/30/2022



PRECIPITATION

December 1, 2022



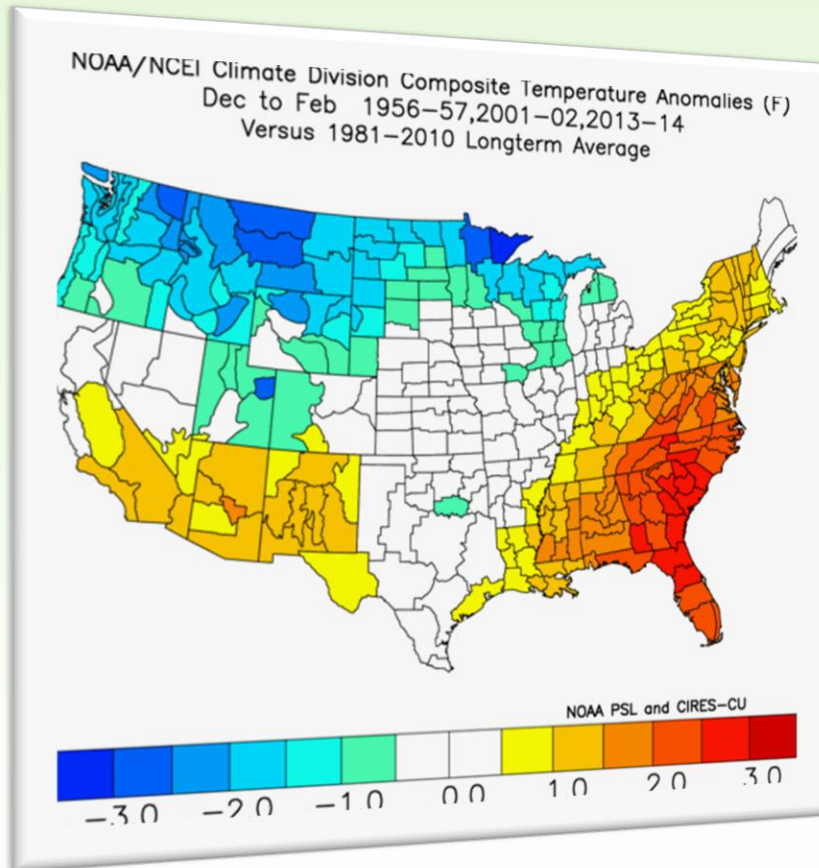
Last Winter's Forecast

December – January – February

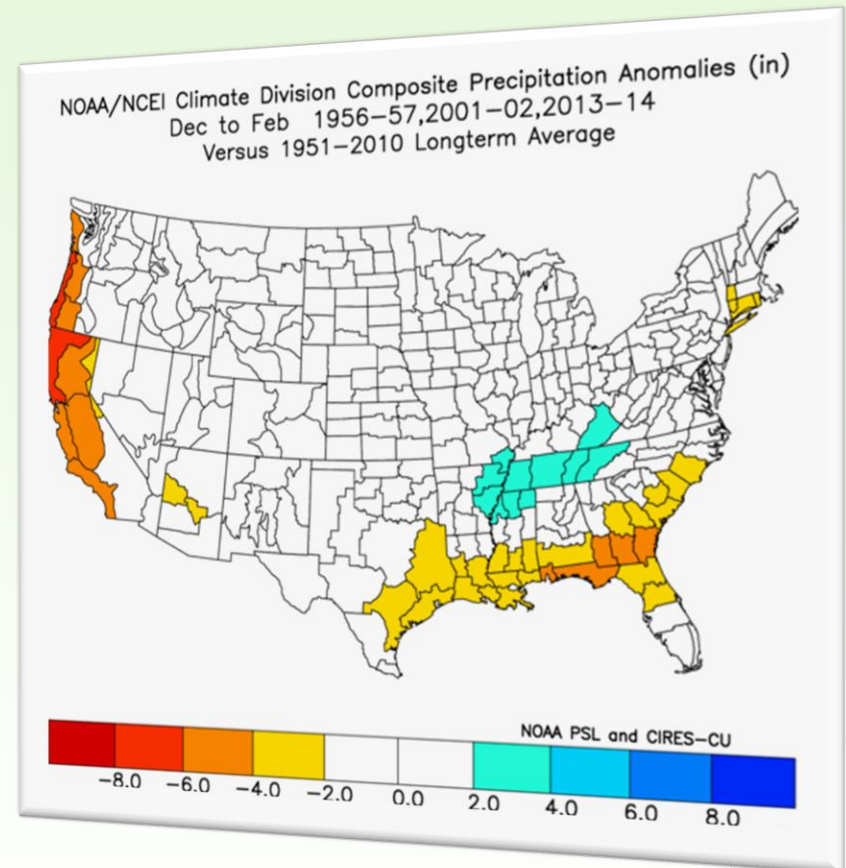
2022

2023

2023

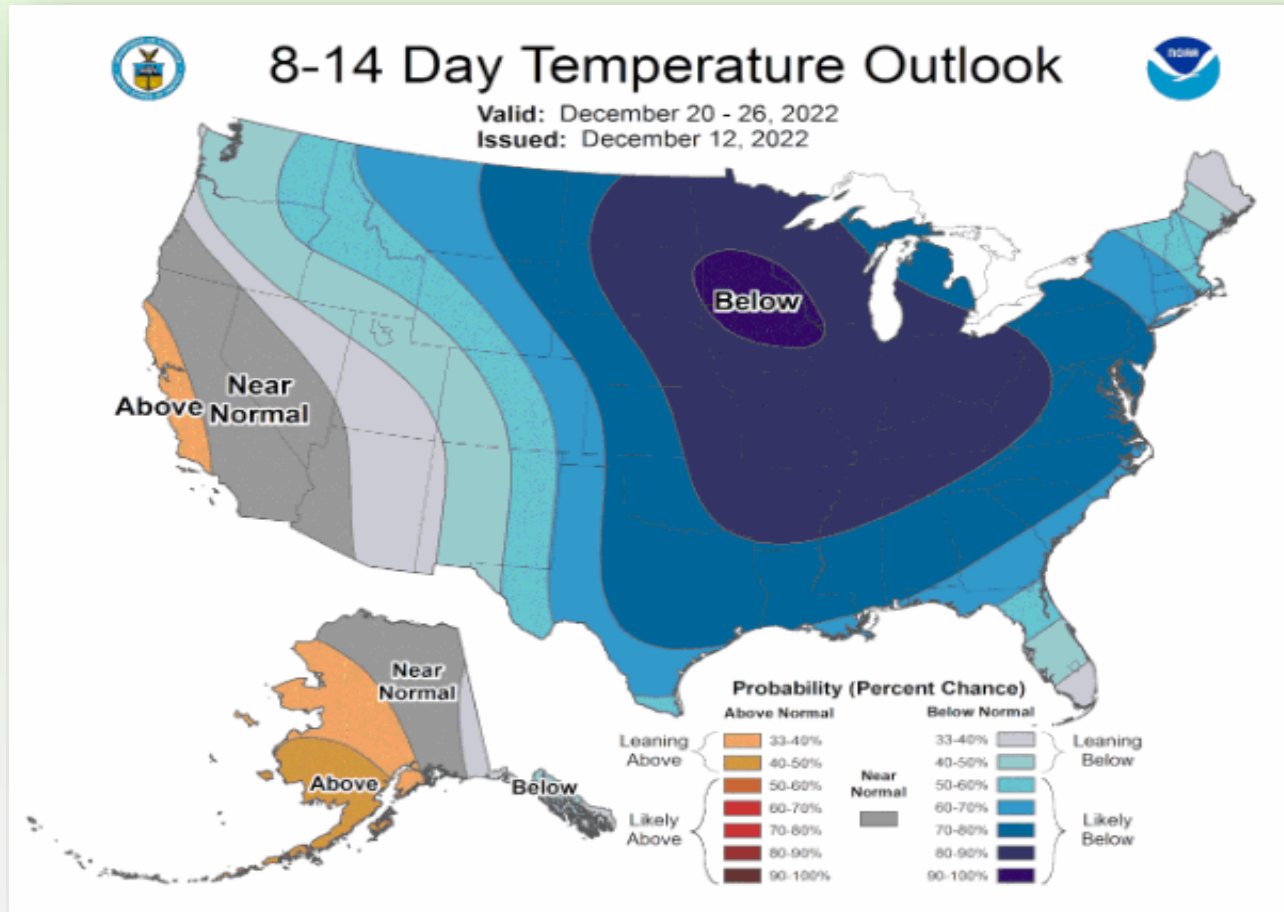


TEMPERATURE

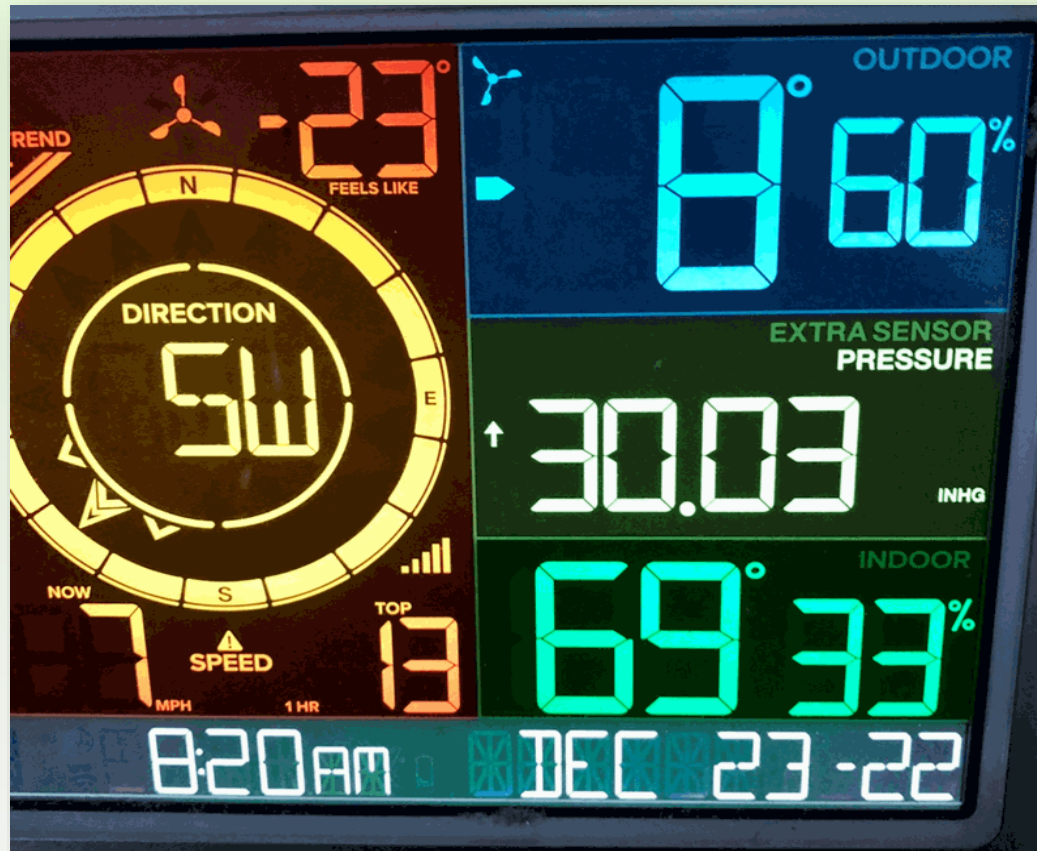


PRECIPITATION

Arctic Outbreak in late December



Arctic Outbreak in late December

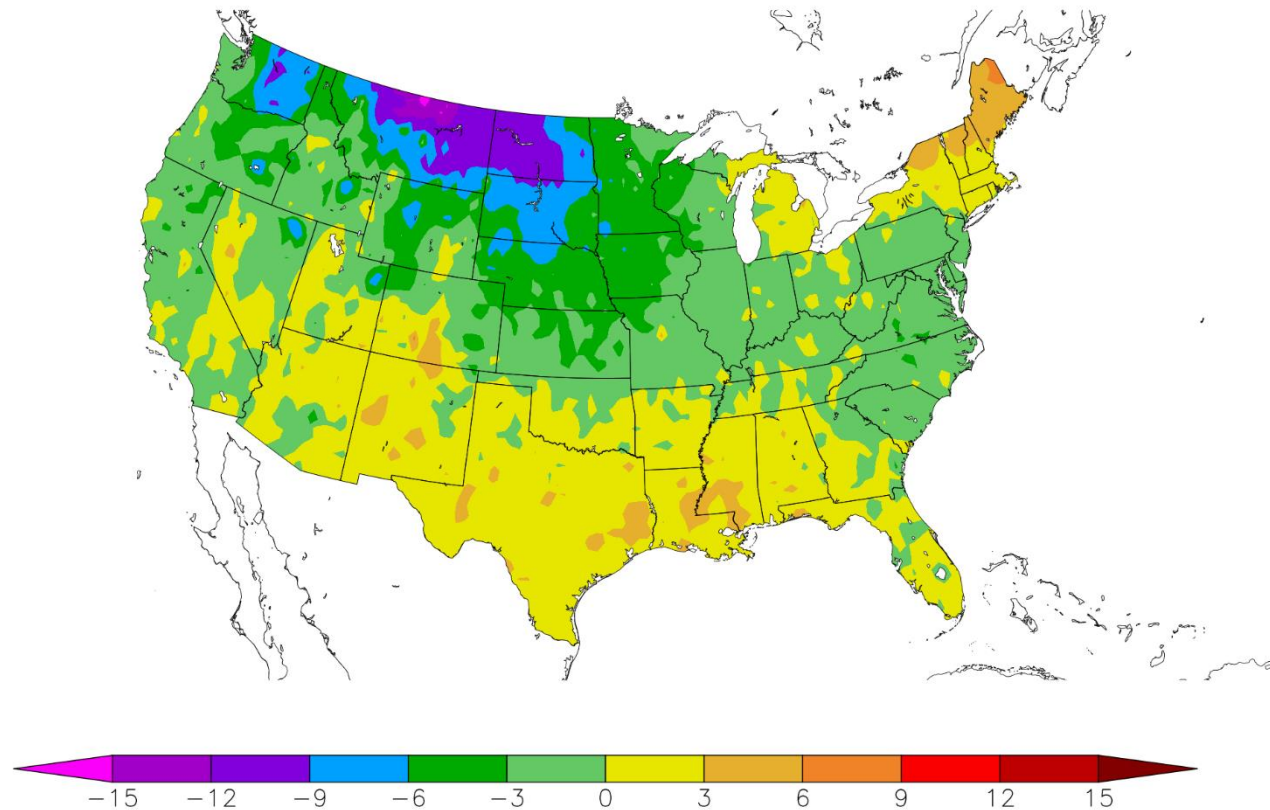


Lexington, Kentucky

Arctic Outbreak in late December



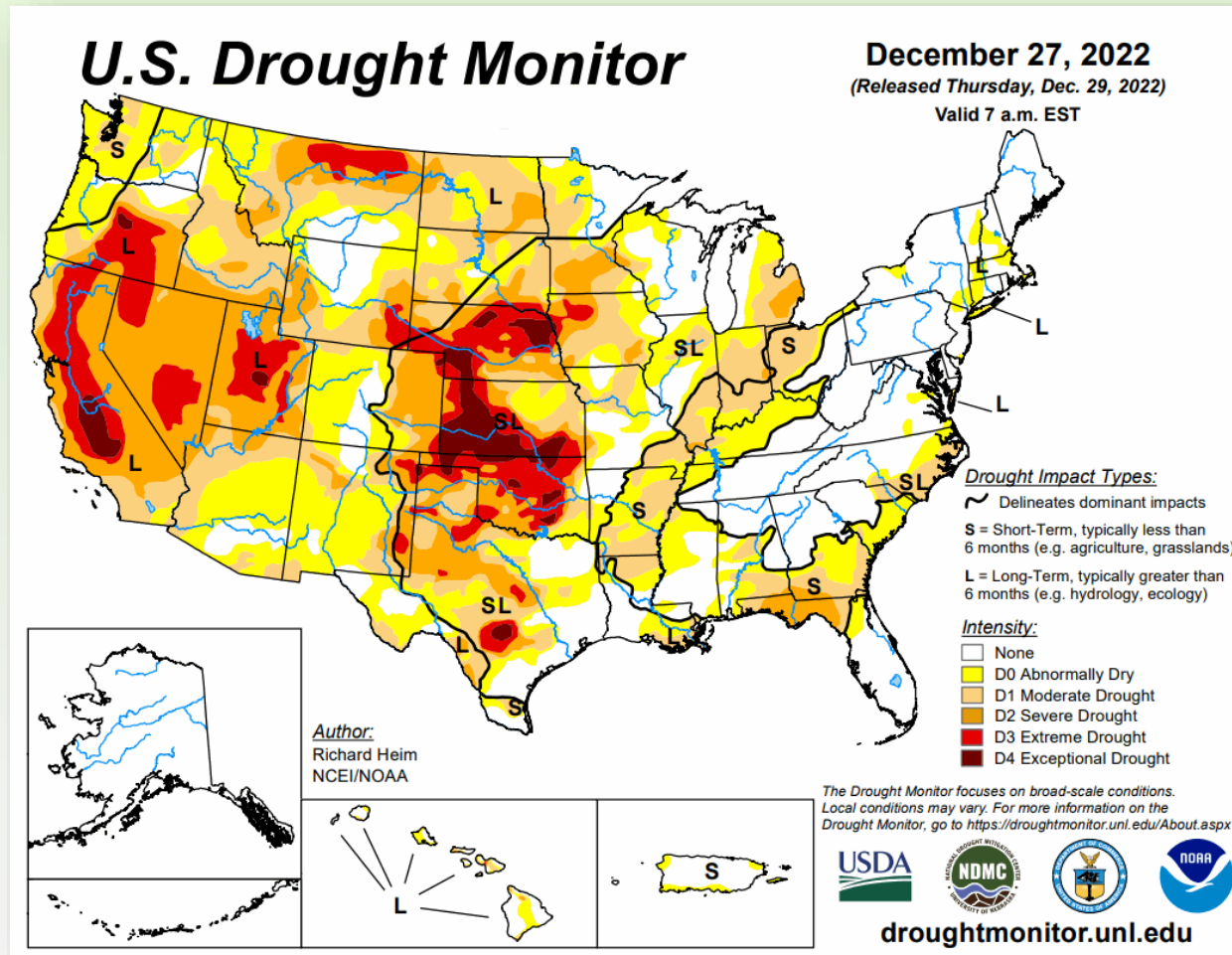
Departure from Normal Temperature (F) 12/1/2022 – 12/31/2022



Generated 1/6/2023 at HPRCC using provisional data.

NOAA Regional Climate Centers

Drought over much of the United States



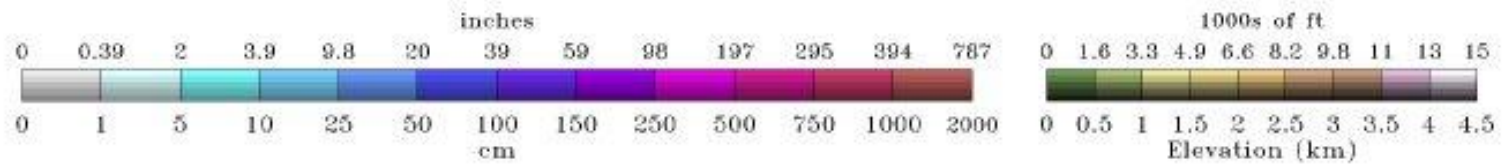
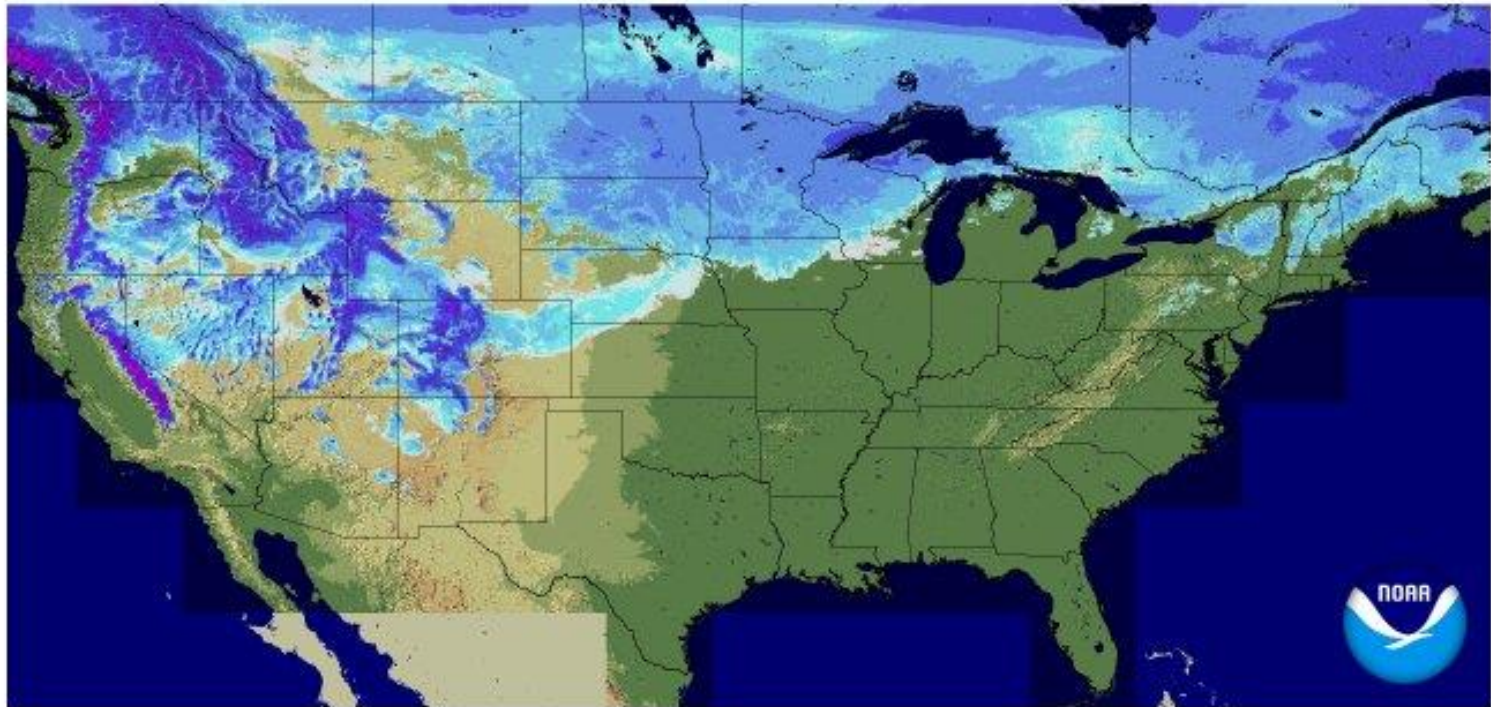
January 1, 2023

National Snow
Analysis

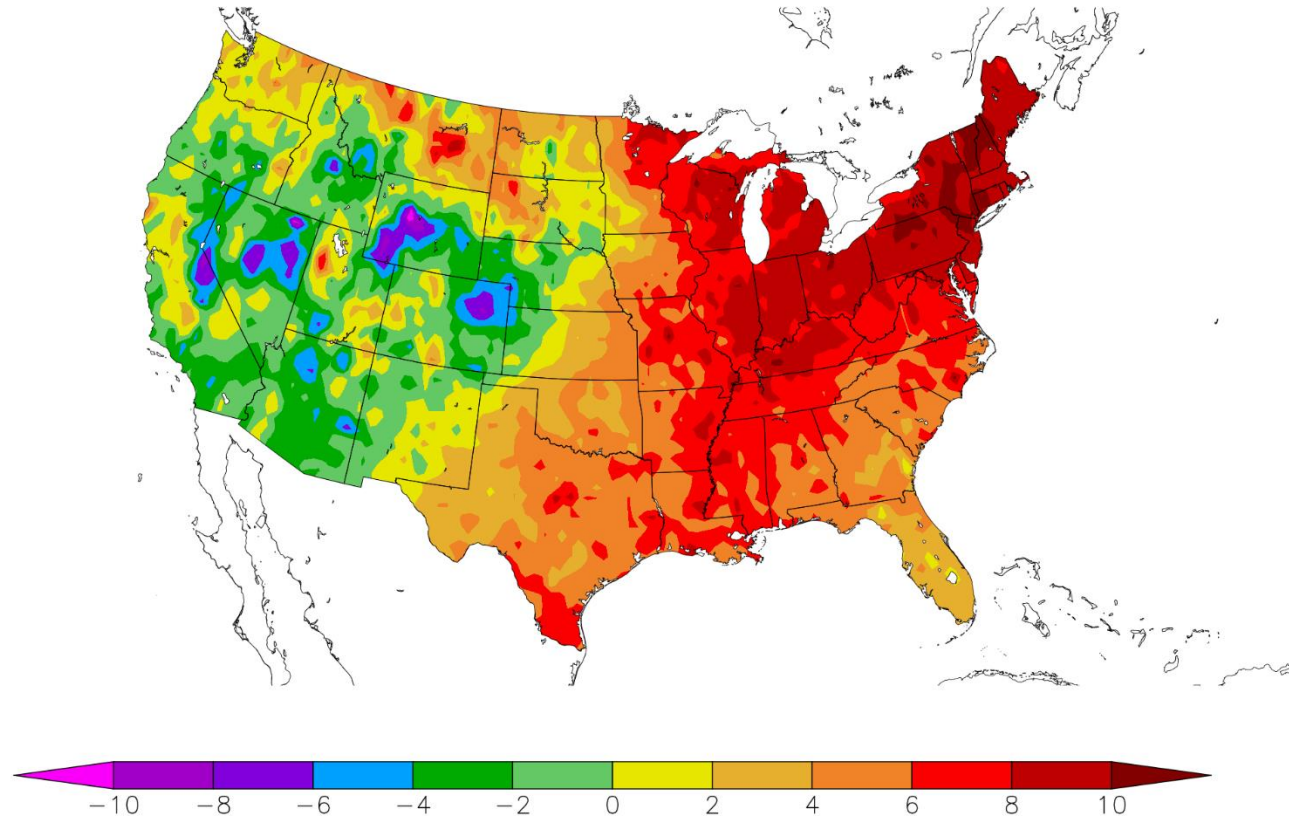
OWP
OFFICE OF
WATER
PREDICTION

Snow Depth

2023-01-01 06 UTC



Departure from Normal Temperature (F) 1/1/2023 – 1/31/2023



Generated 2/10/2023 at HPRCC using provisional data.

NOAA Regional Climate Centers

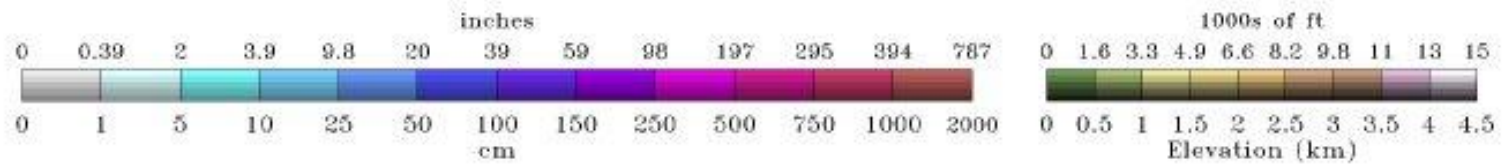
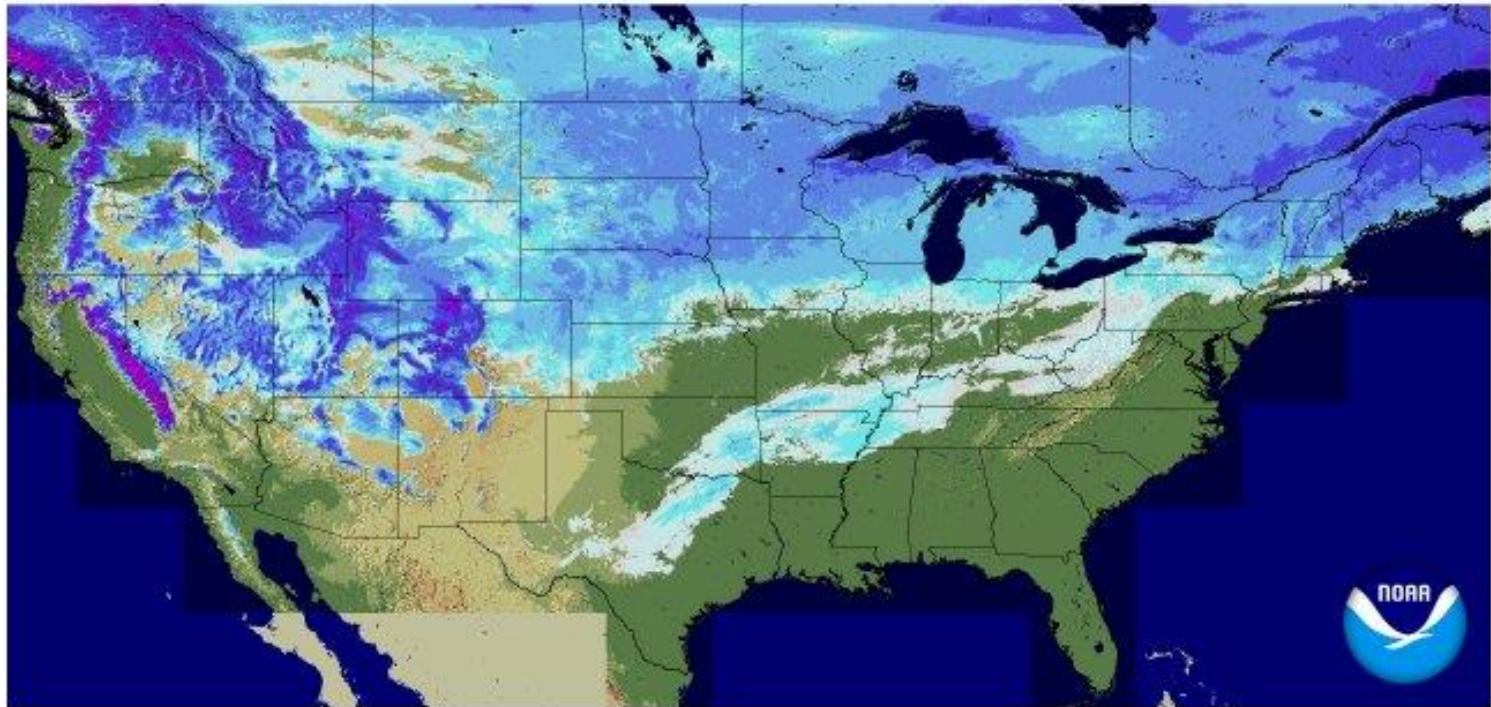
February 1, 2023

National Snow
Analysis

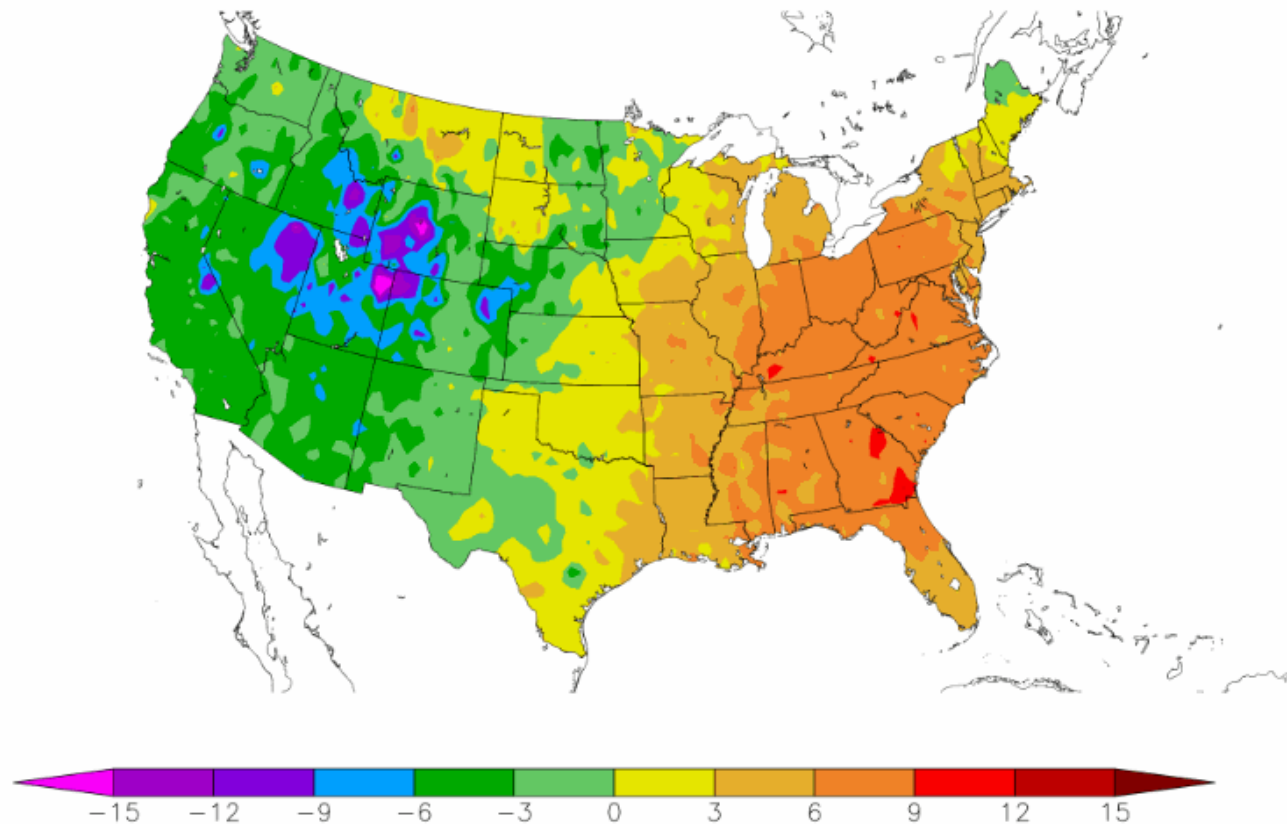
OWP
OFFICE OF
WATER
PREDICTION

Snow Depth

2023-02-01 06 UTC



Departure from Normal Temperature (F)
2/1/2023 – 2/28/2023



Generated 3/2/2023 at HPRCC using provisional data.

NOAA Regional Climate Centers

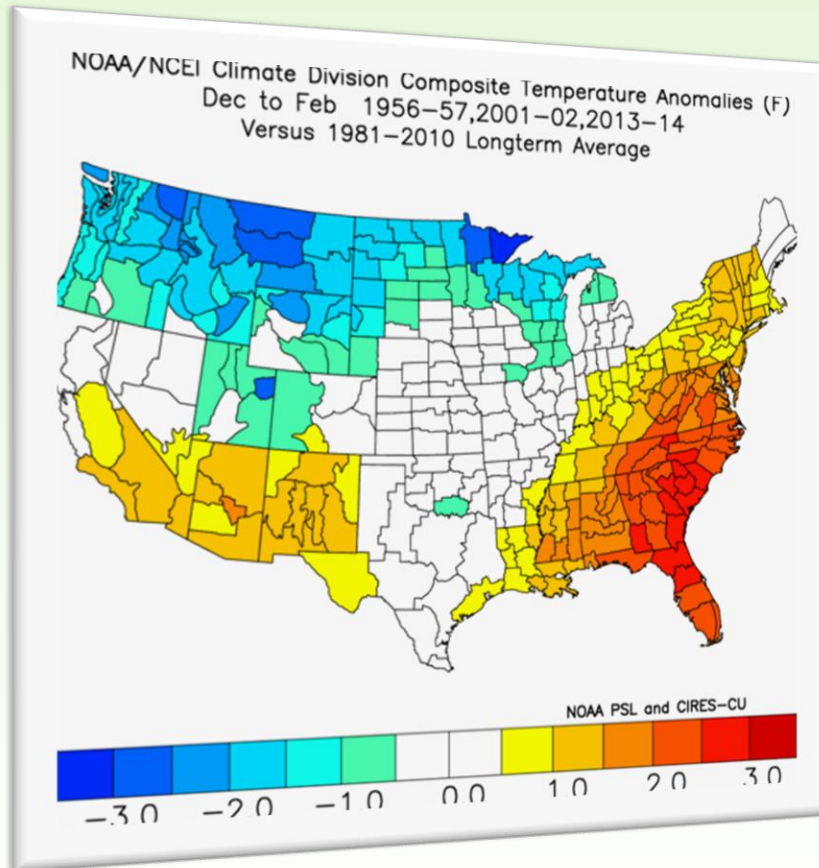
Last Winter's Forecast

December – January – February

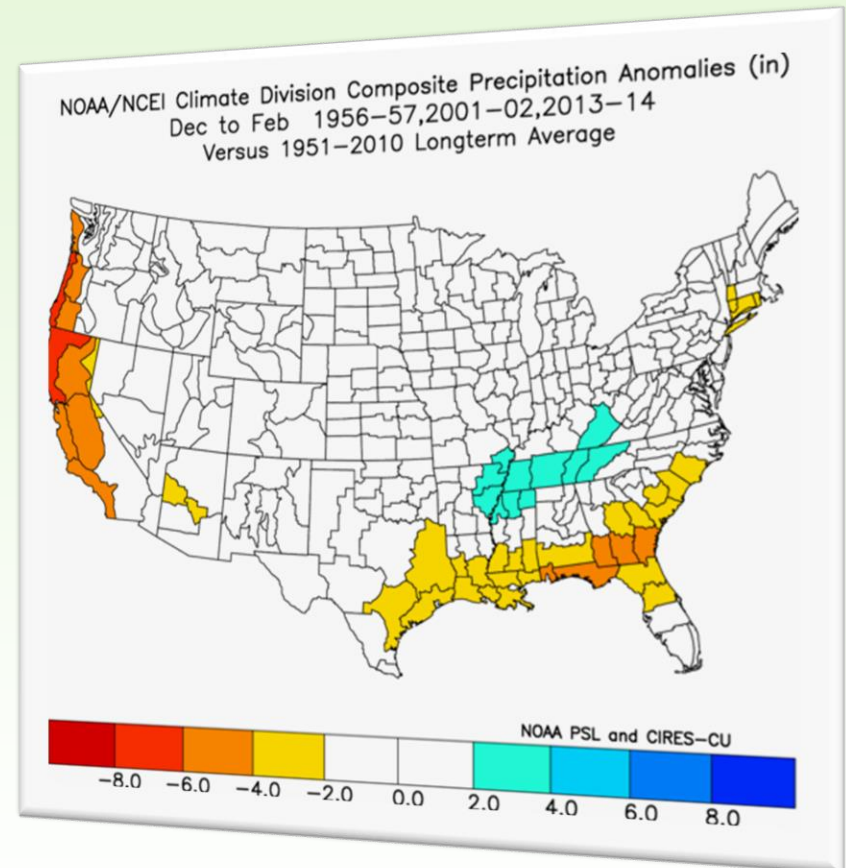
2022

2023

2023



TEMPERATURE



PRECIPITATION

Actual Winter Departures

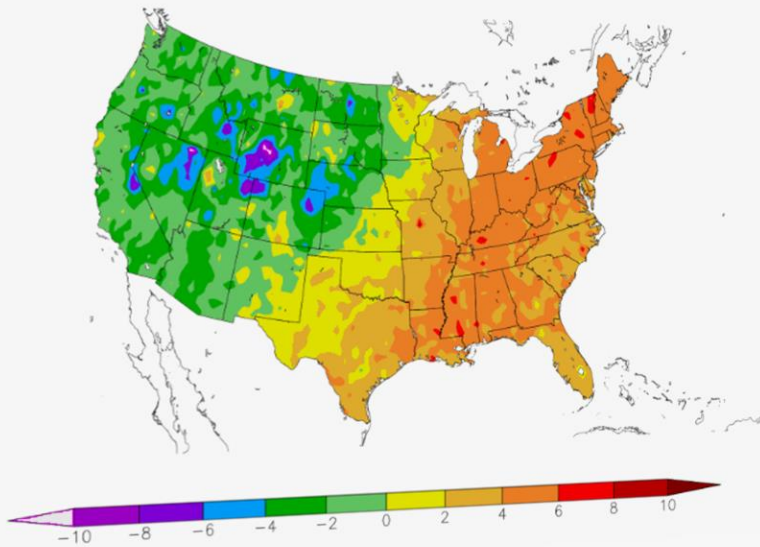
December – January – February

2022

2023

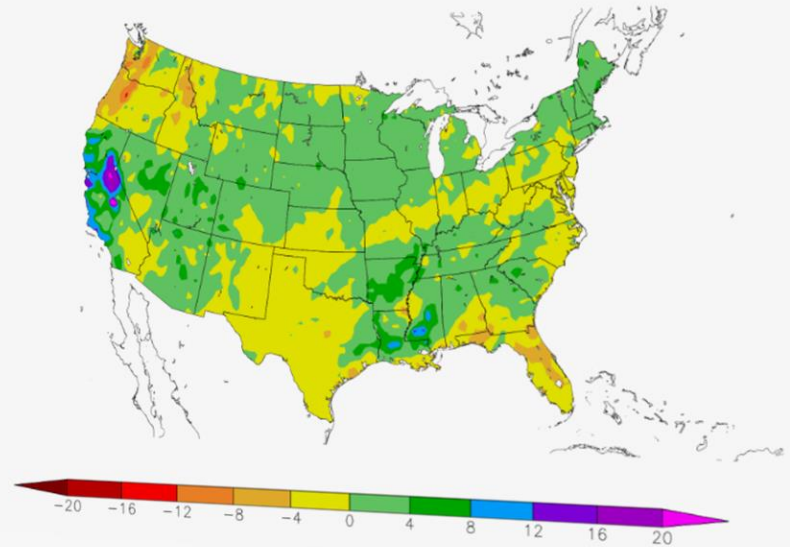
2023

Departure from Normal Temperature (F)
12/1/2022 – 2/28/2023



TEMPERATURE

Departure from Normal Precipitation (in)
12/1/2022 – 2/28/2023

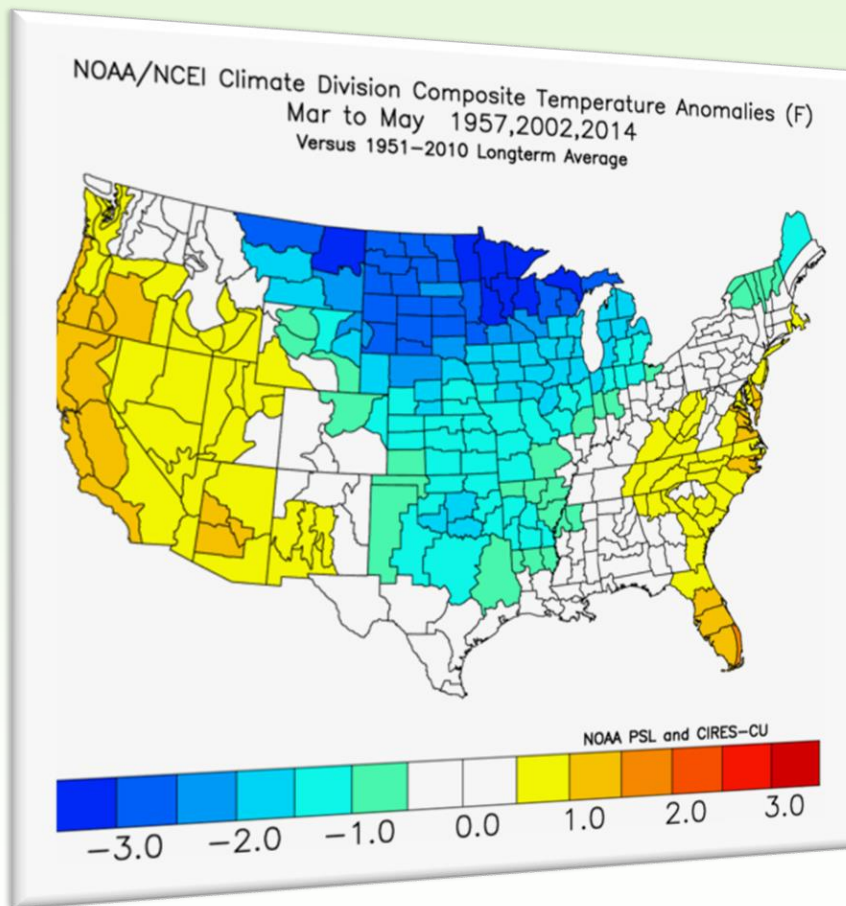


PRECIPITATION

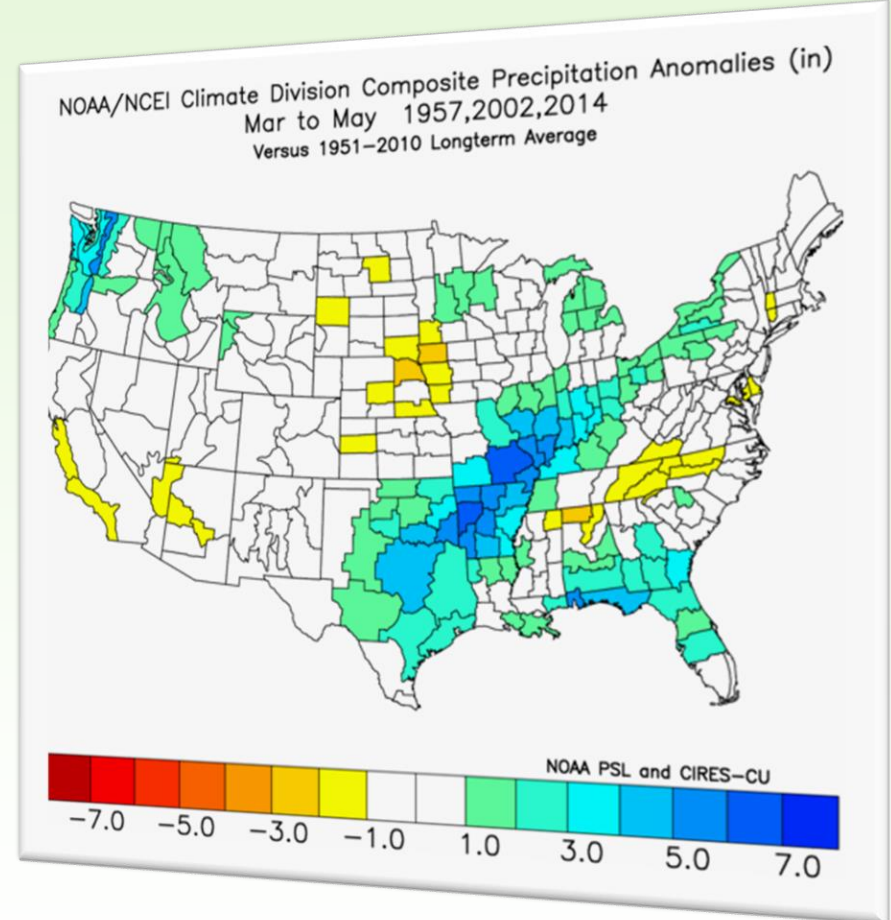
Last Spring's Forecast

March – April – May

2023 2023 2023



TEMPERATURE

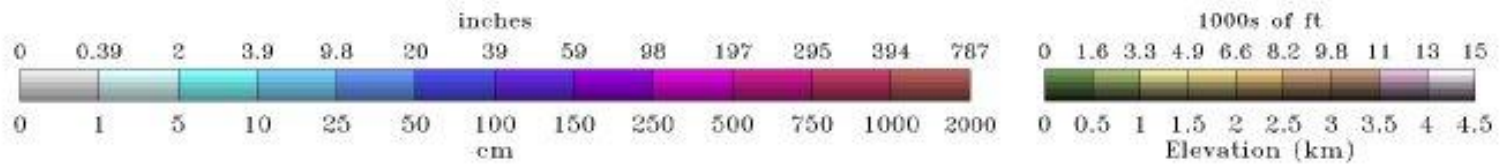
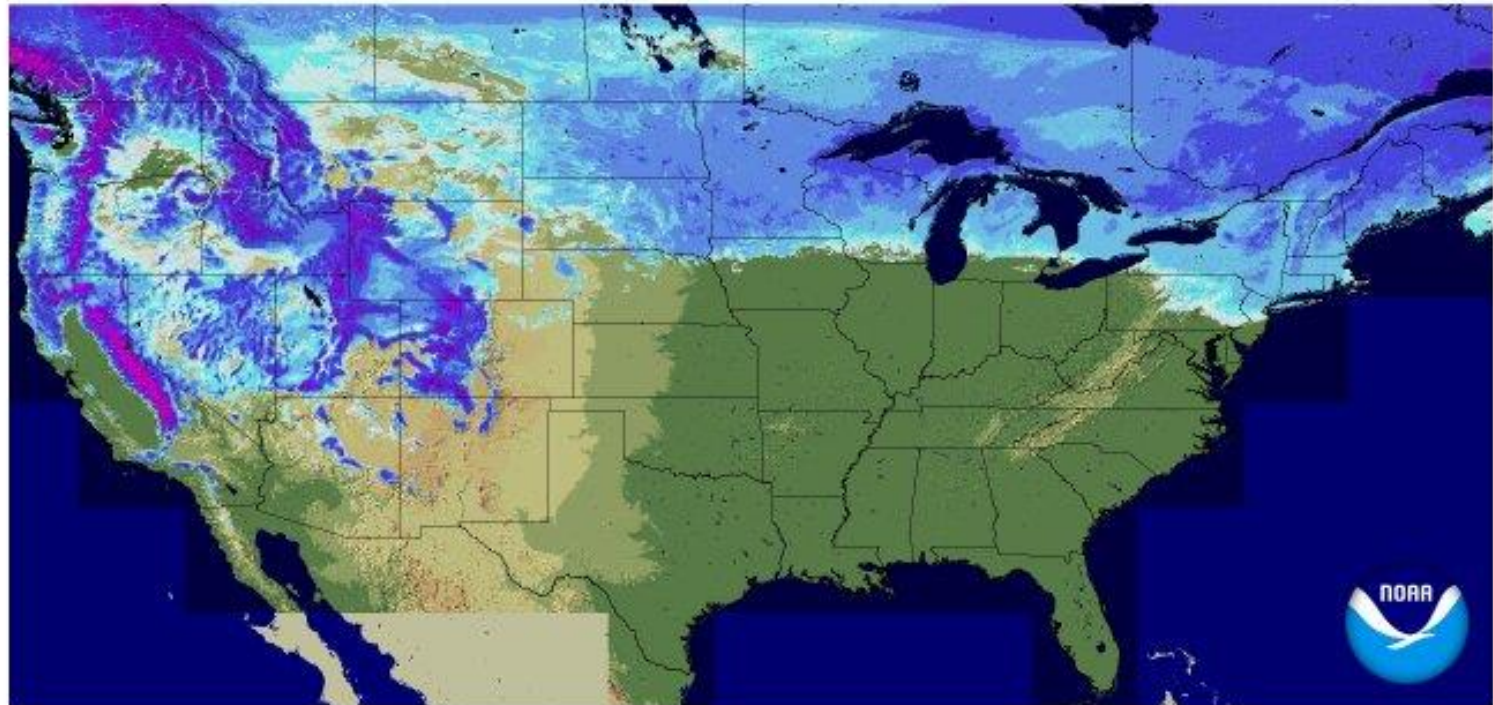


PRECIPITATION

March 1, 2023

Snow Depth

2023-03-01 06 UTC



March Mississippi Tornadoes

March 24, 2023



West of Rolling Fork, Mississippi

March Mississippi Tornadoes

March 24, 2023



Rolling Fork, Mississippi

March Mississippi Tornadoes

March 24, 2023



Rolling Fork, Mississippi

March Mississippi Tornadoes

March 24, 2023



*Rolling Fork, Mississippi EF4 damage
(winds up to 200 mph)*

March Iowa Tornadoes

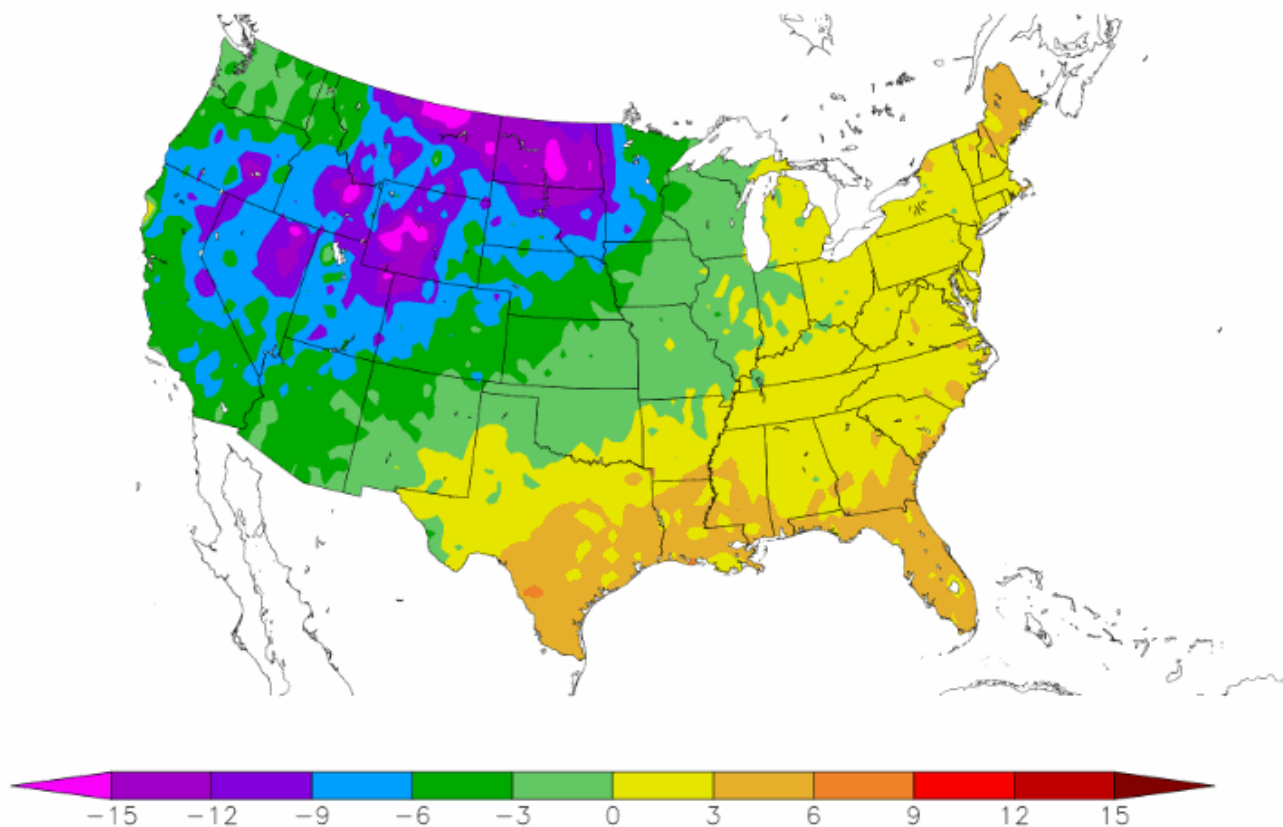
March 31, 2023



Near Ottumwa, Iowa



Departure from Normal Temperature (F) 3/1/2023 – 3/31/2023

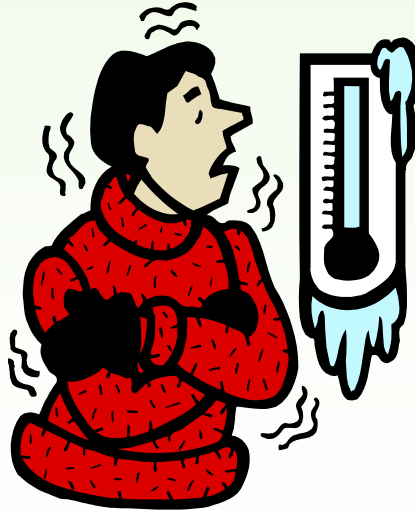


Generated 4/2/2023 at HPRCC using provisional data

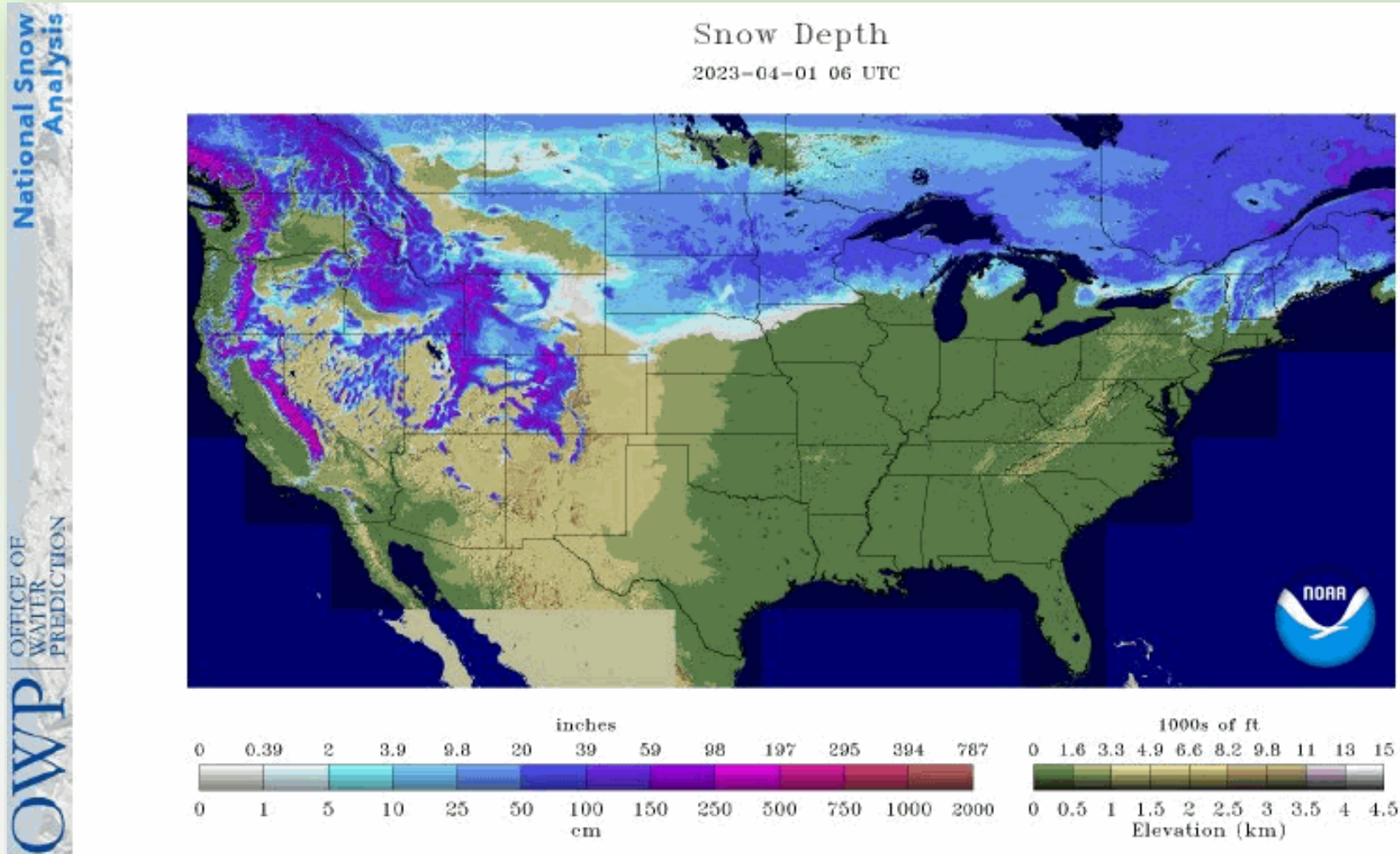
NOAA Regional Climate Centers

2022 – 2023 Heating Season Results

Northern's Market Area temperatures were **7% colder than normal** during the heating season of November 1 – March 31.



April 1, 2023



Another dry Omaha winter!

Omaha's '*Normal*'
Seasonal Snowfall

27.1"

2022 – 2023 Snowfall

13.8" (-13.2")



Near record snow North!

Minneapolis' *'Normal'*
Seasonal Snowfall

45.3"

2022 – 2023 Snowfall

95.9" (+50.9")



Not much snow here either!

Nashville's '*Normal*'
Seasonal Snowfall

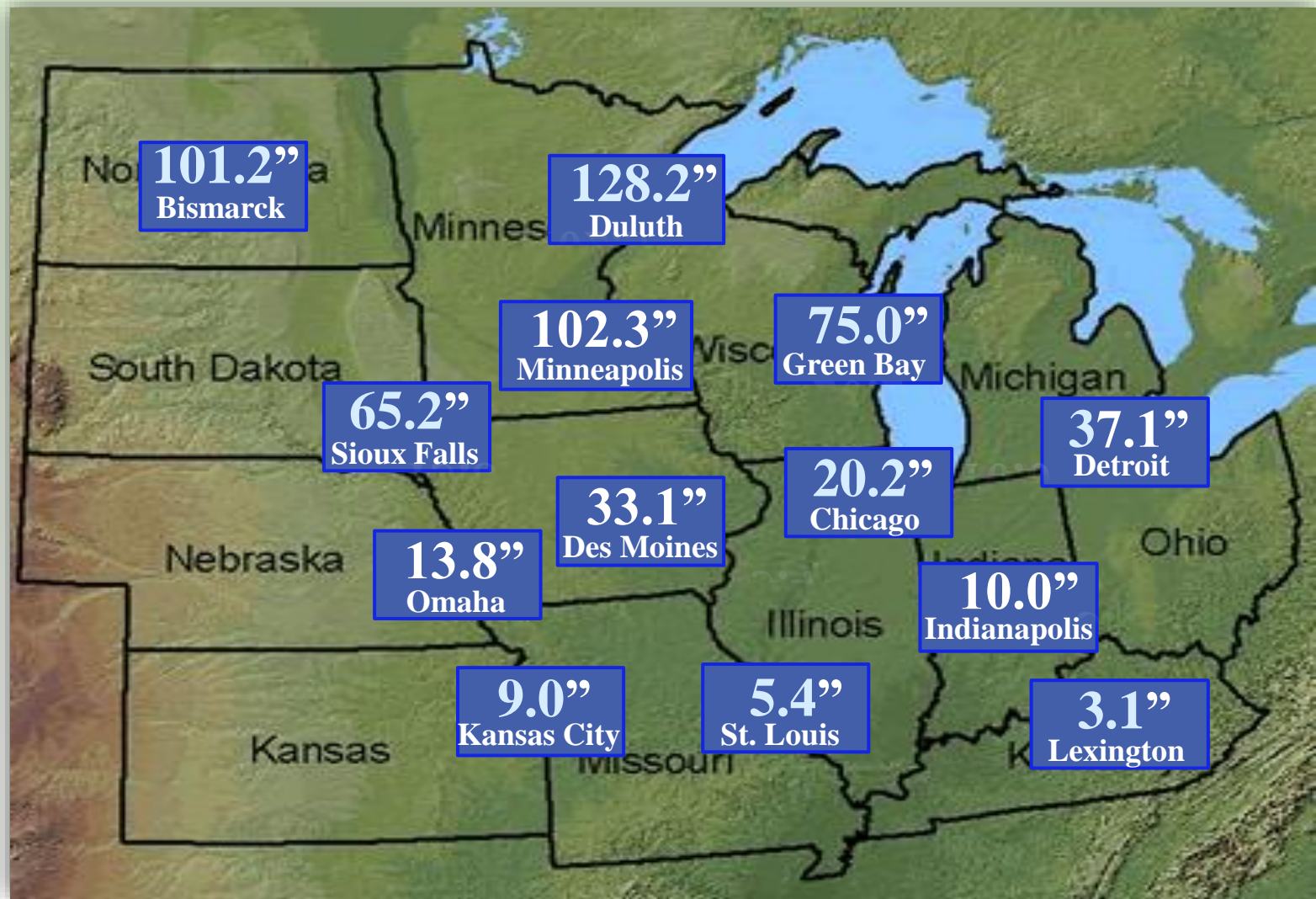
4-7"

2022 – 2023 Snowfall

1.2" (-3.5")



2022 – 2023 Snowfall Totals



Fort Lauderdale Flooding

April 12, 2023



*More than 25.9" rain in 6
hours*

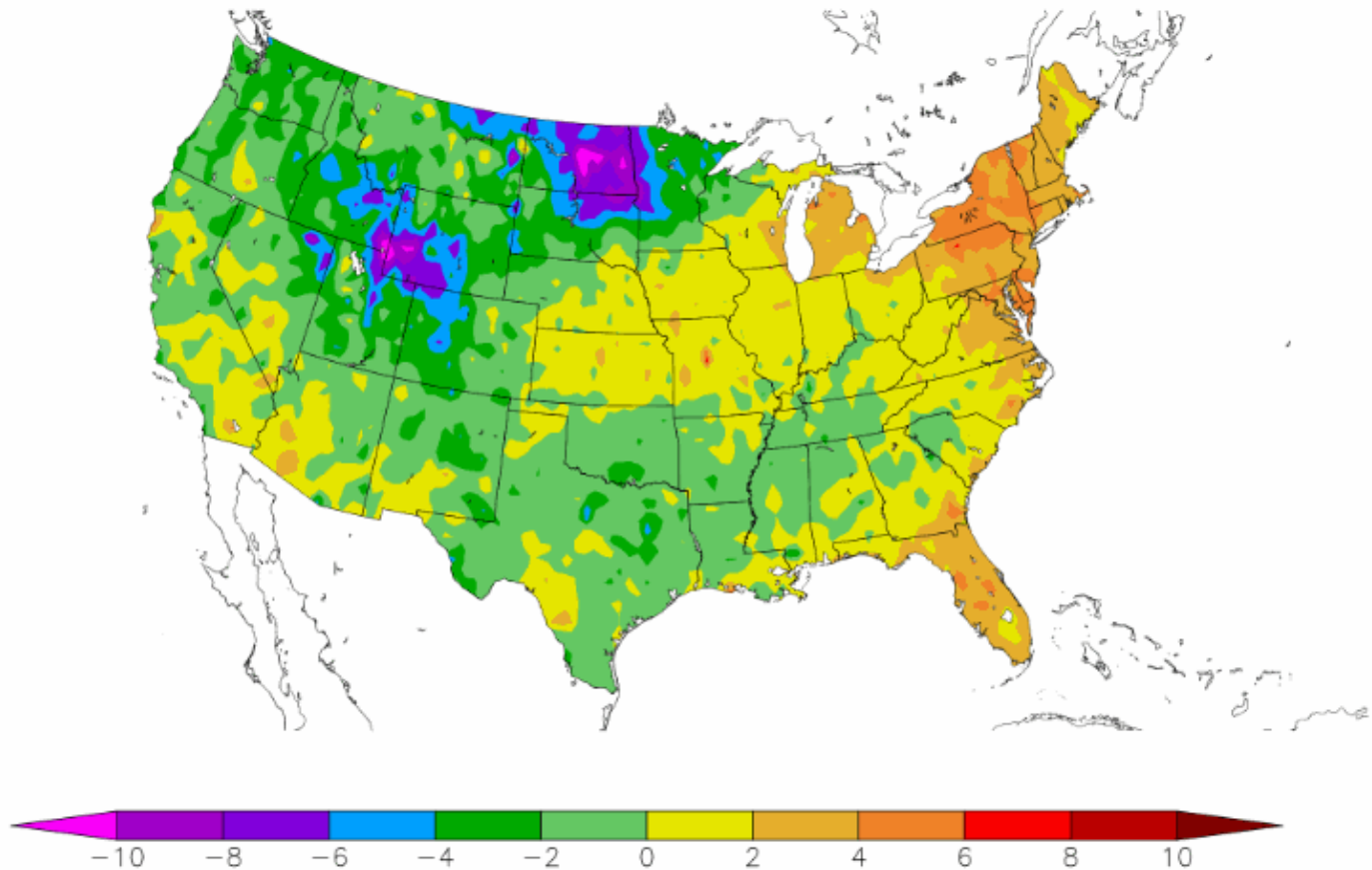
Fort Lauderdale Flooding

April 12, 2023

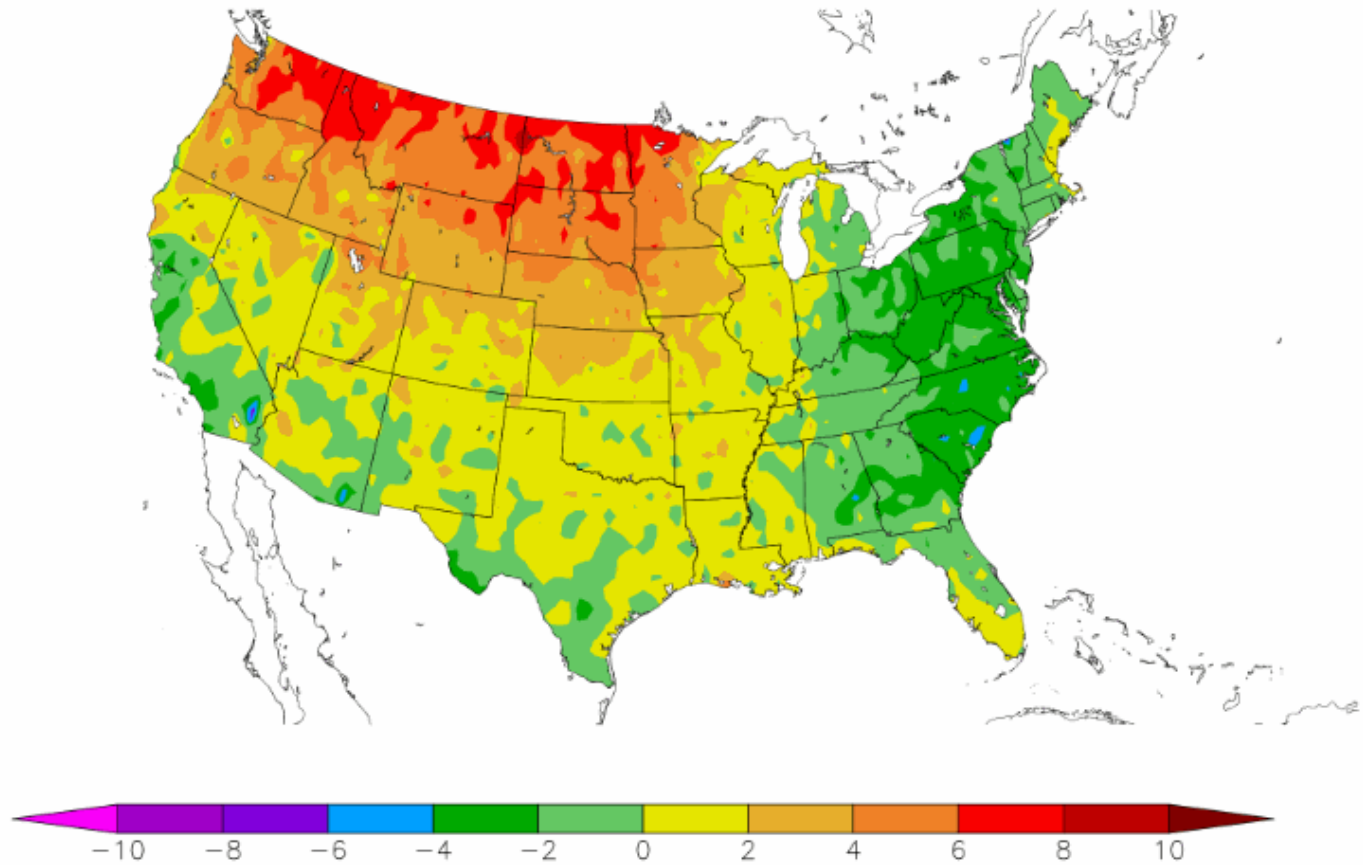


*More than 25.9" rain in 6
hours*

Departure from Normal Temperature (F)
4/1/2023 – 4/30/2023



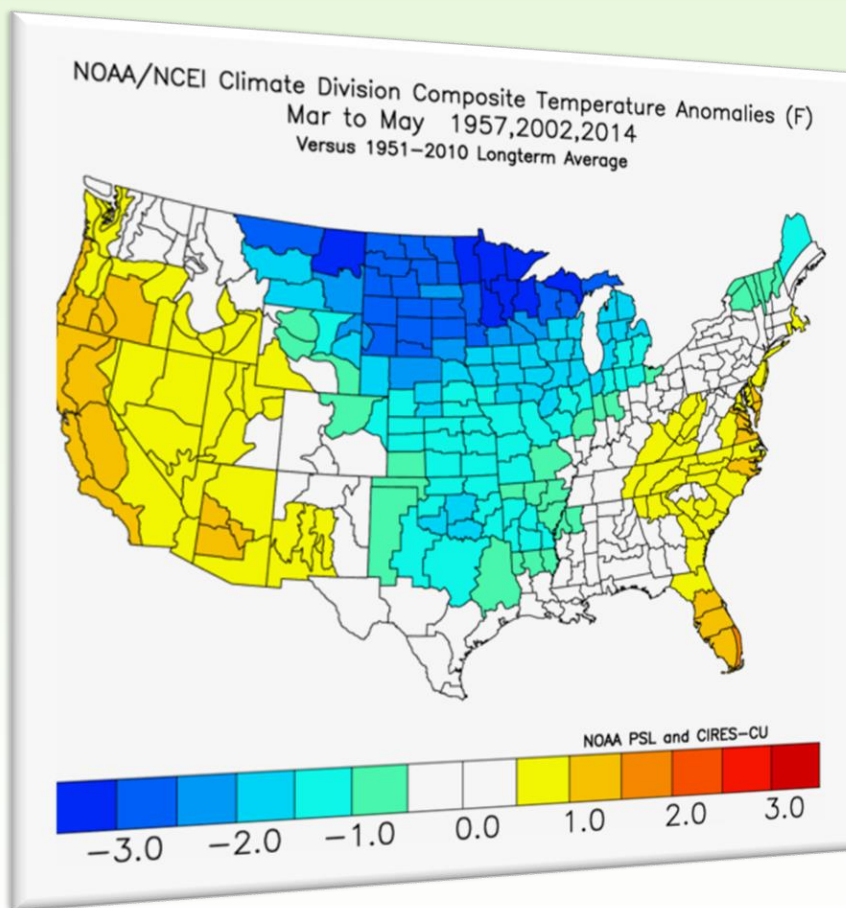
Departure from Normal Temperature (F)
5/1/2023 – 5/31/2023



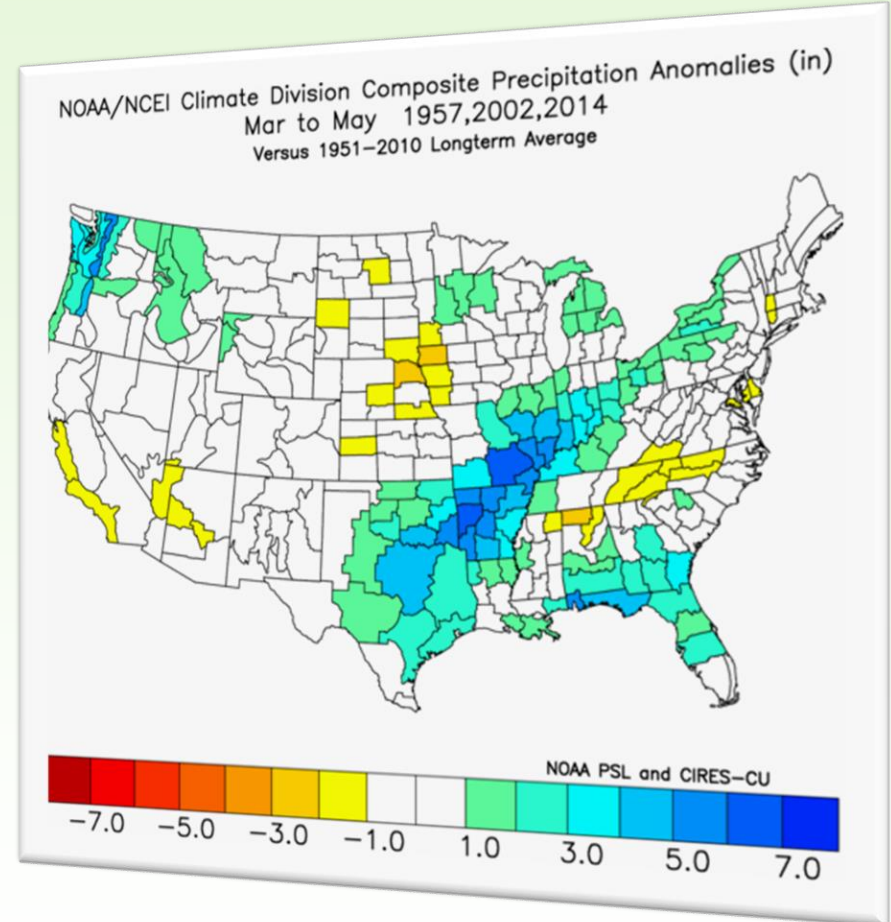
Last Spring's Forecast

March – April – May

2023 2023 2023



TEMPERATURE



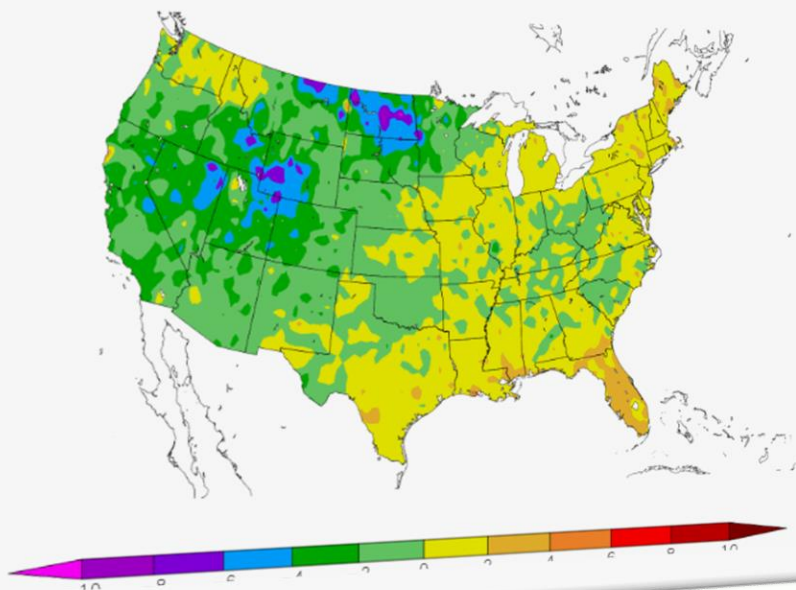
PRECIPITATION

Actual Spring Departures

March – April – May

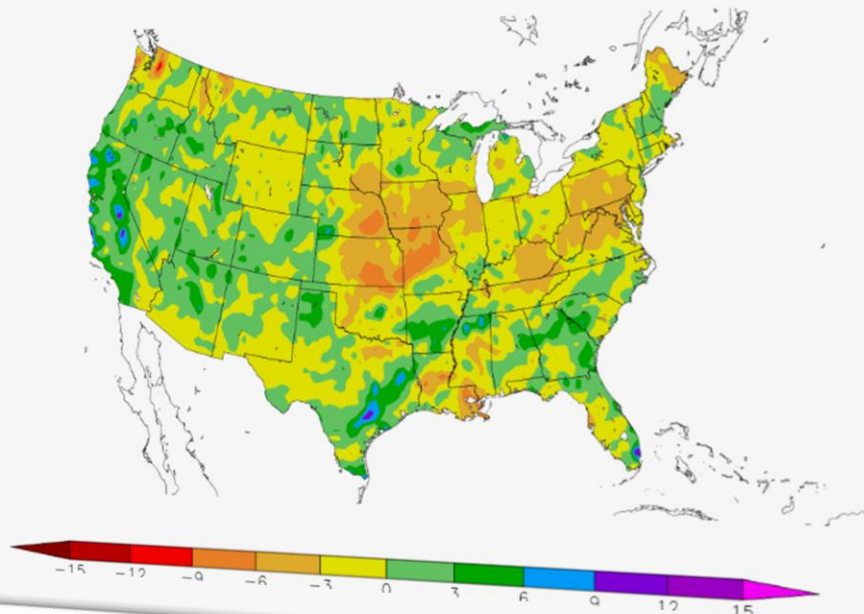
2023 2023 2023

Departure from Normal Temperature (F)
3/1/2023 – 5/31/2023



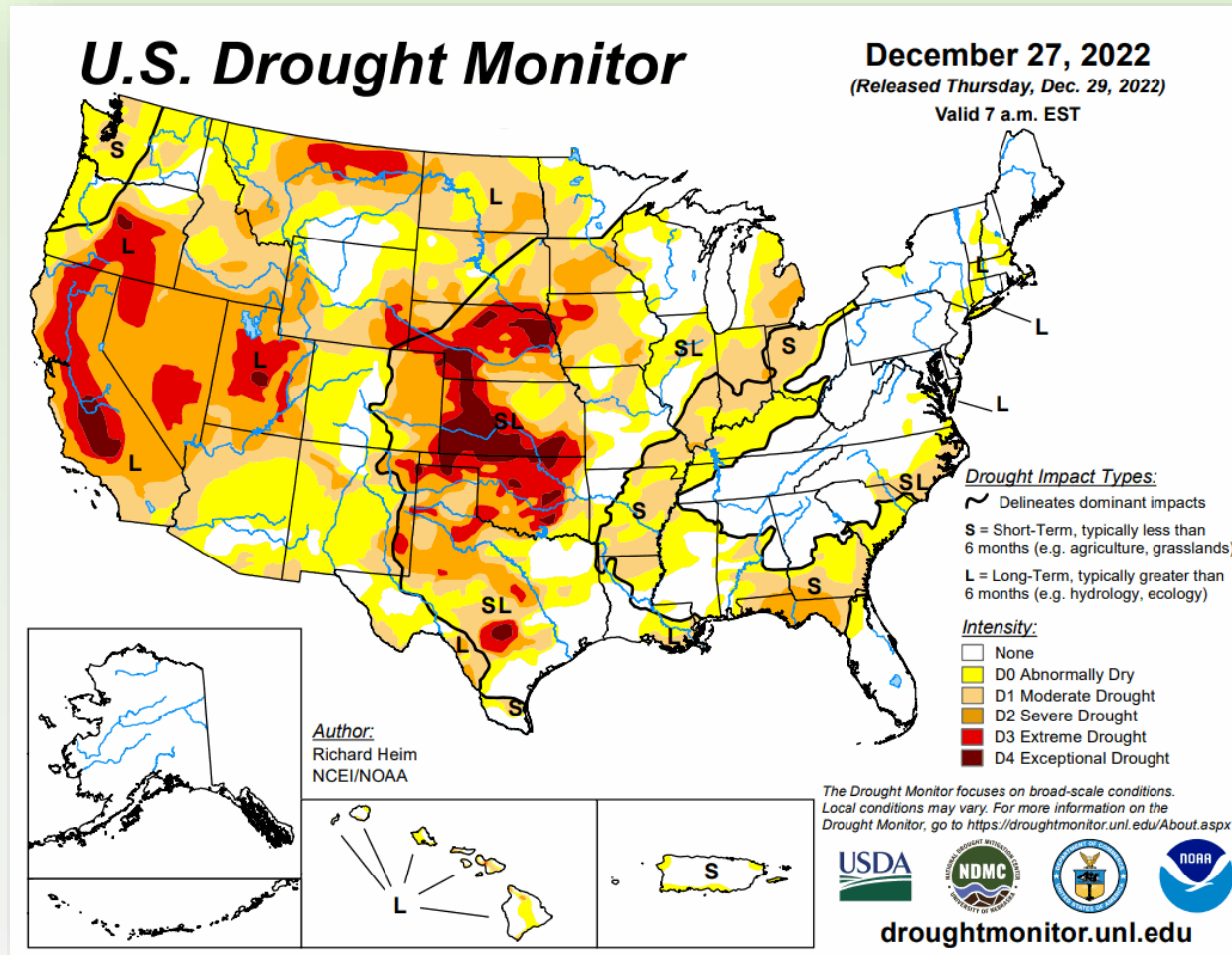
TEMPERATURE

Departure from Normal Precipitation (in)
3/1/2023 – 5/31/2023

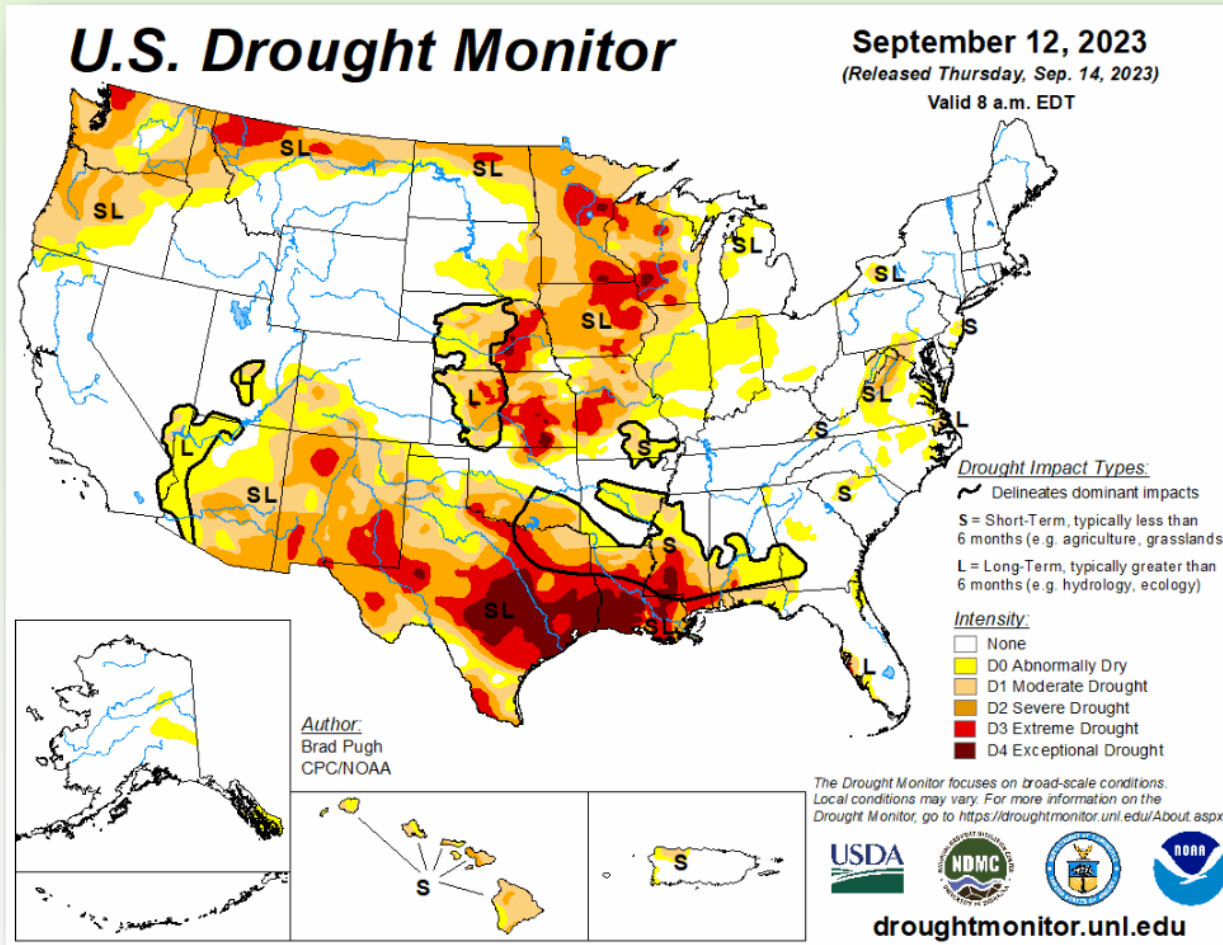


PRECIPITATION

Drought over much of the United States



Drought improved over the United States



Weather Trivia Time

What is the name of this weather phenomena?

Rainbow

Snow bow

Sundog

Ice Crystals



Weather Trivia Time

What is the name of this weather phenomena?

Rainbow

Snow bow

Sundog

Ice Crystals



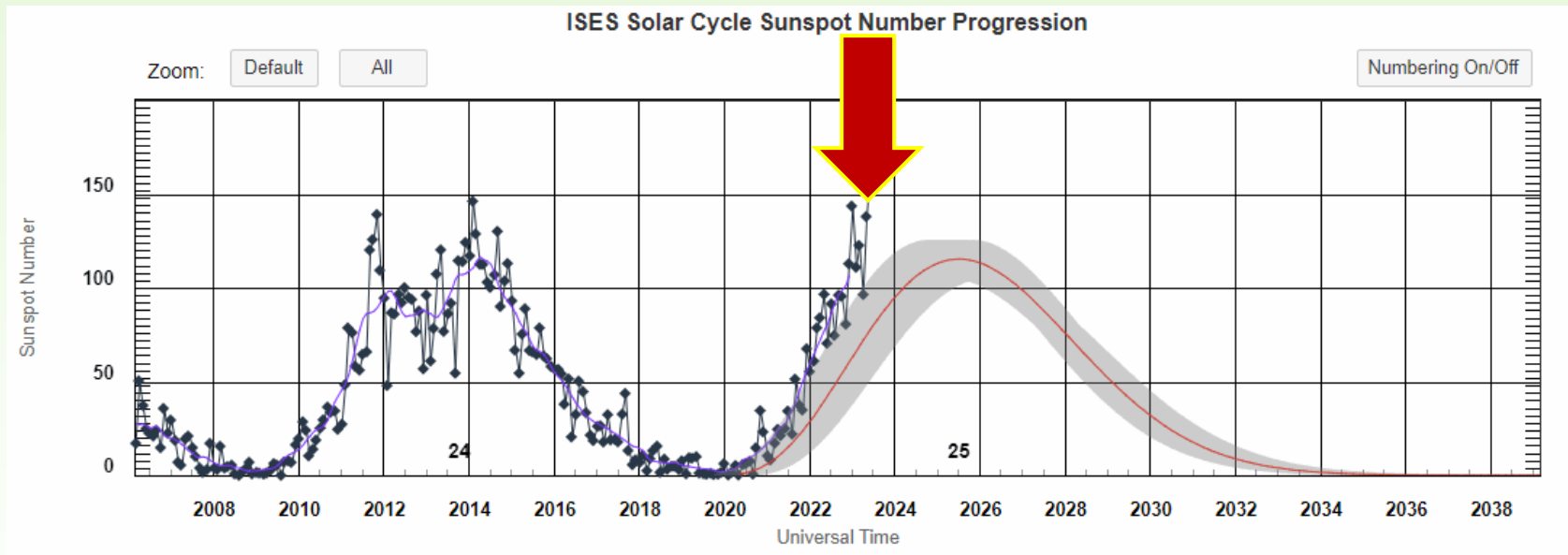
Long Range Forecasting

The Woolly Bear Caterpillar Technique

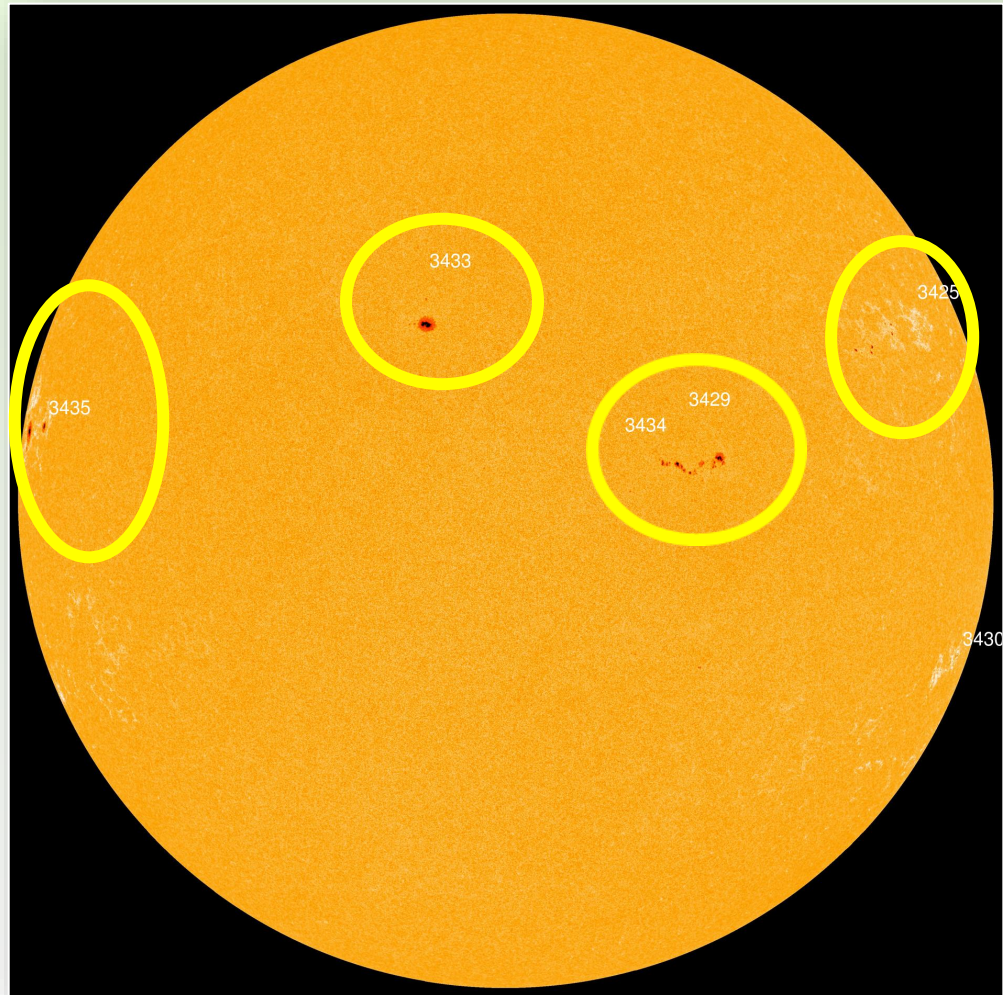


13 weeks of winter. 13 bands on the Woolly Bear caterpillar. The more brown seen, a milder forecast. The more black, the colder it should be.

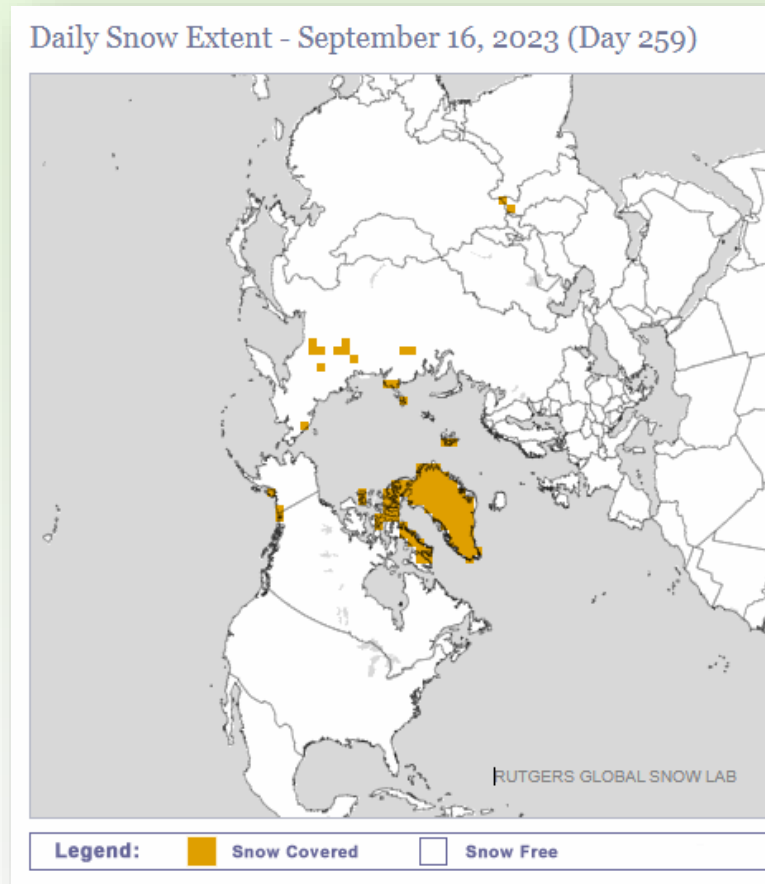
Recent Sunspot Cycles



Current Sunspot Activity



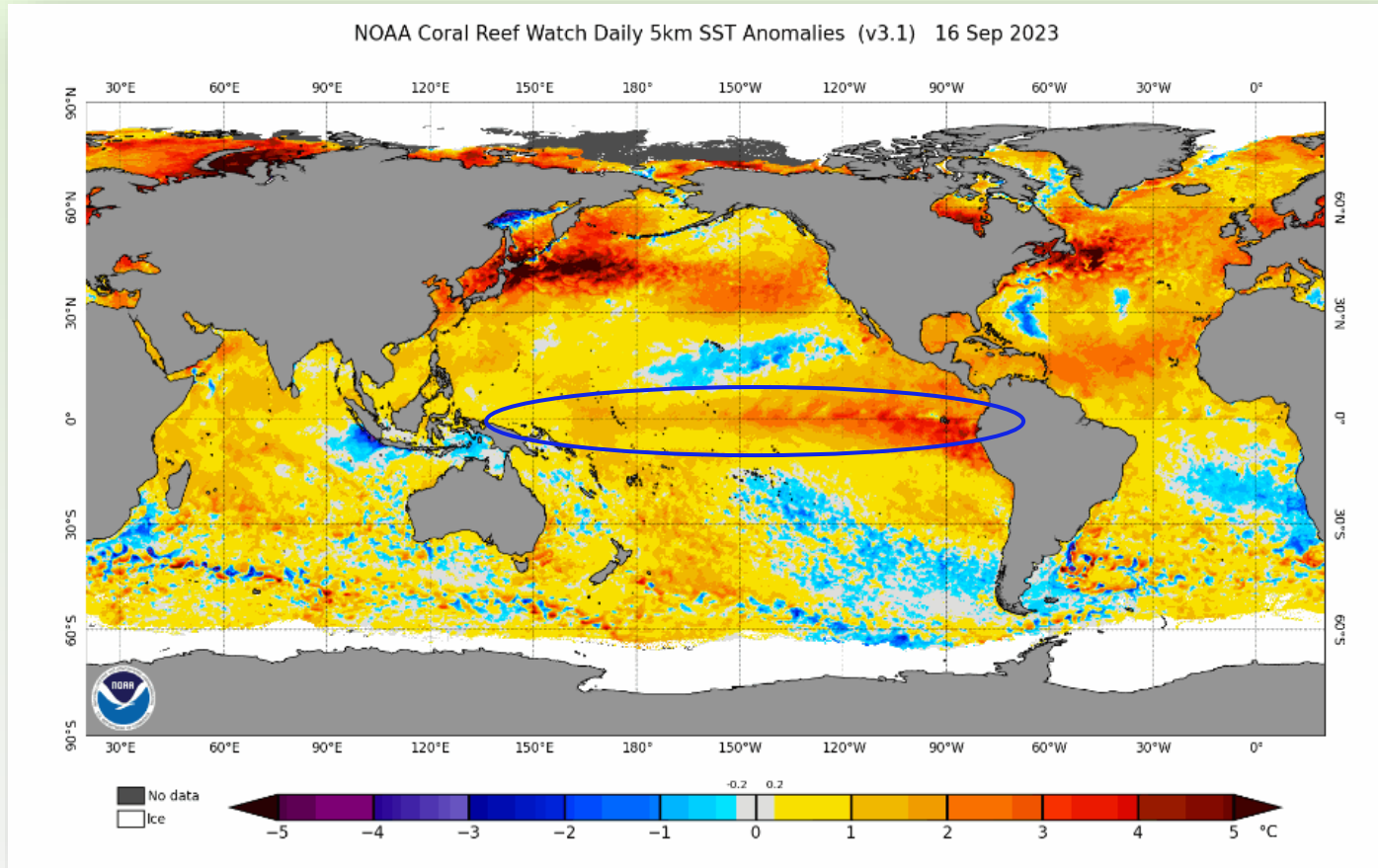
Snow Cover in the Northern Hemisphere



September 16, 2023

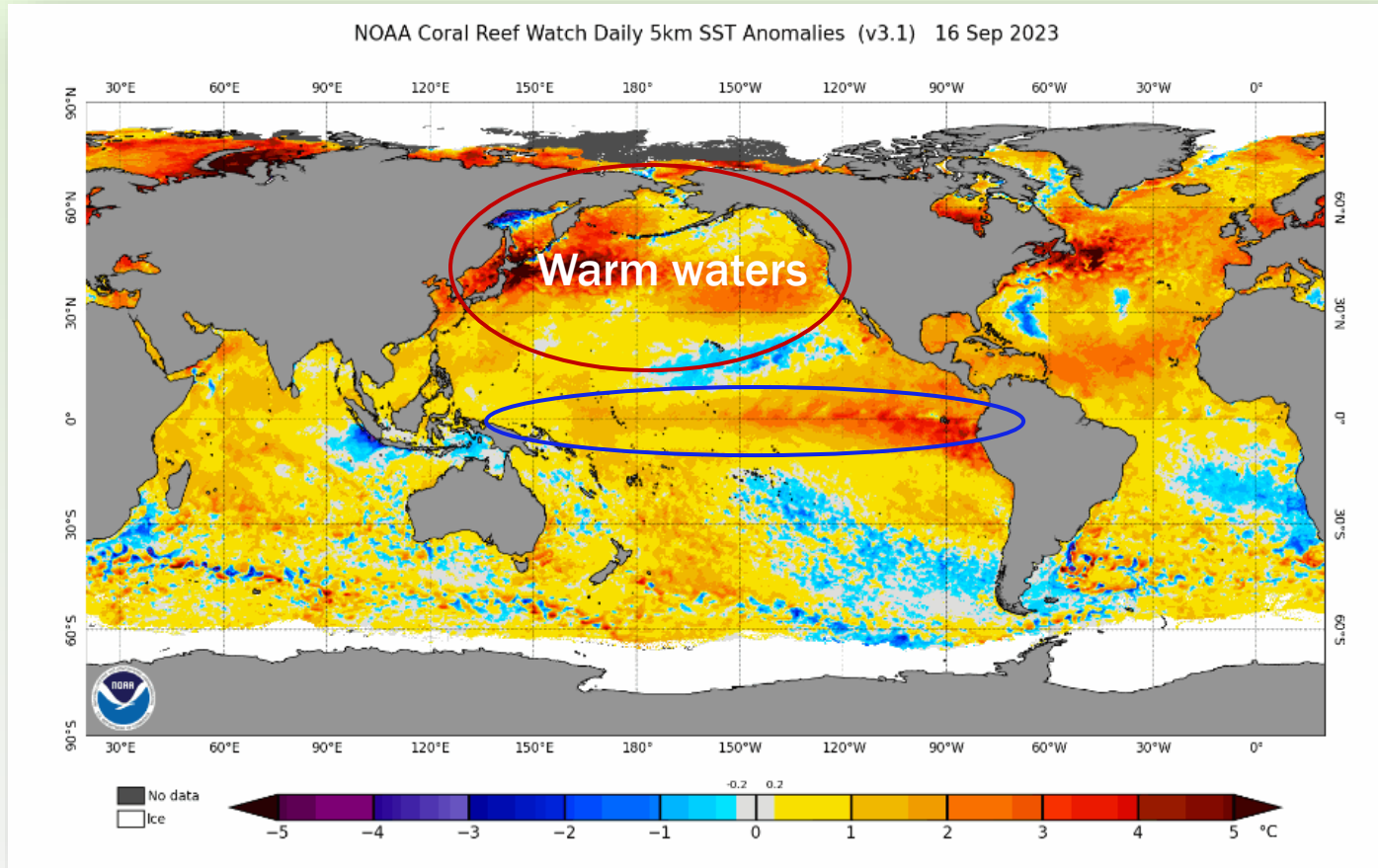
Sea Surface Temperature Anomalies

September 16, 2023

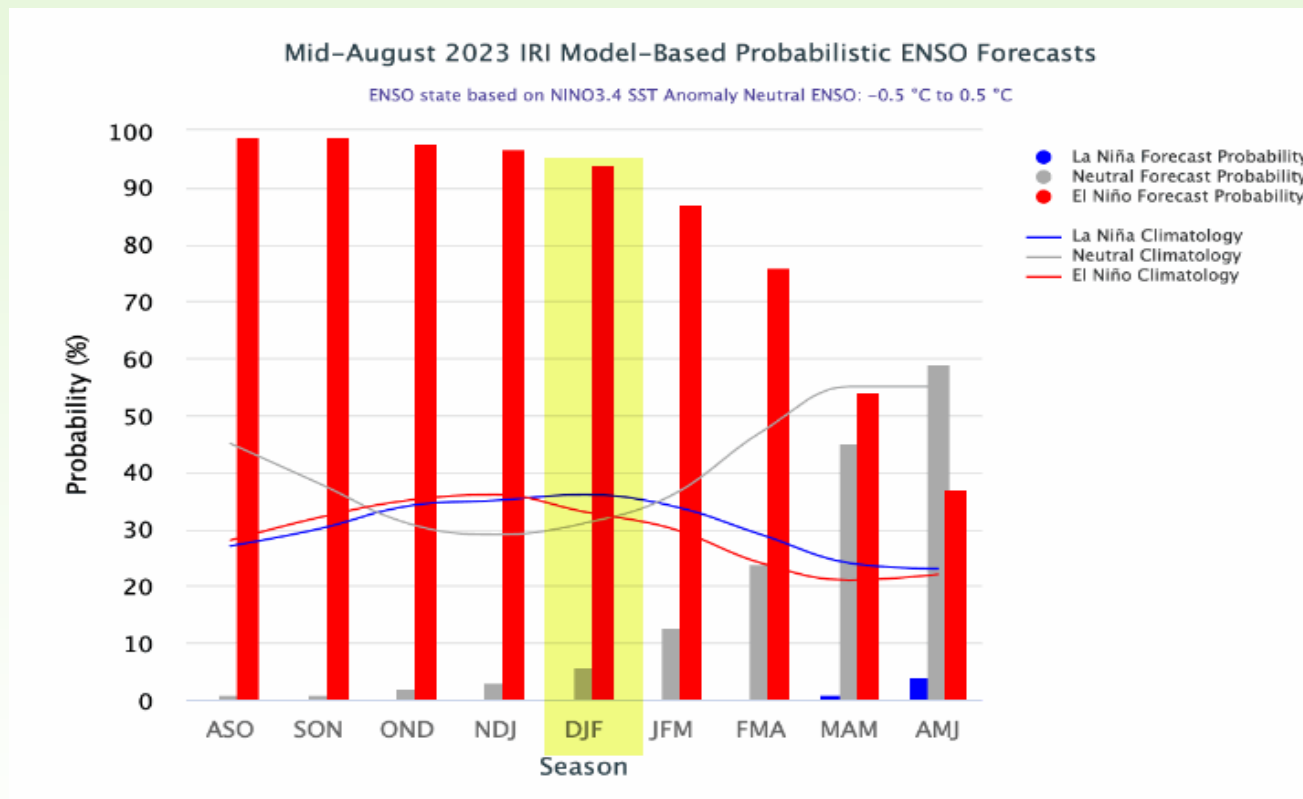


Sea Surface Temperature Anomalies

September 16, 2023

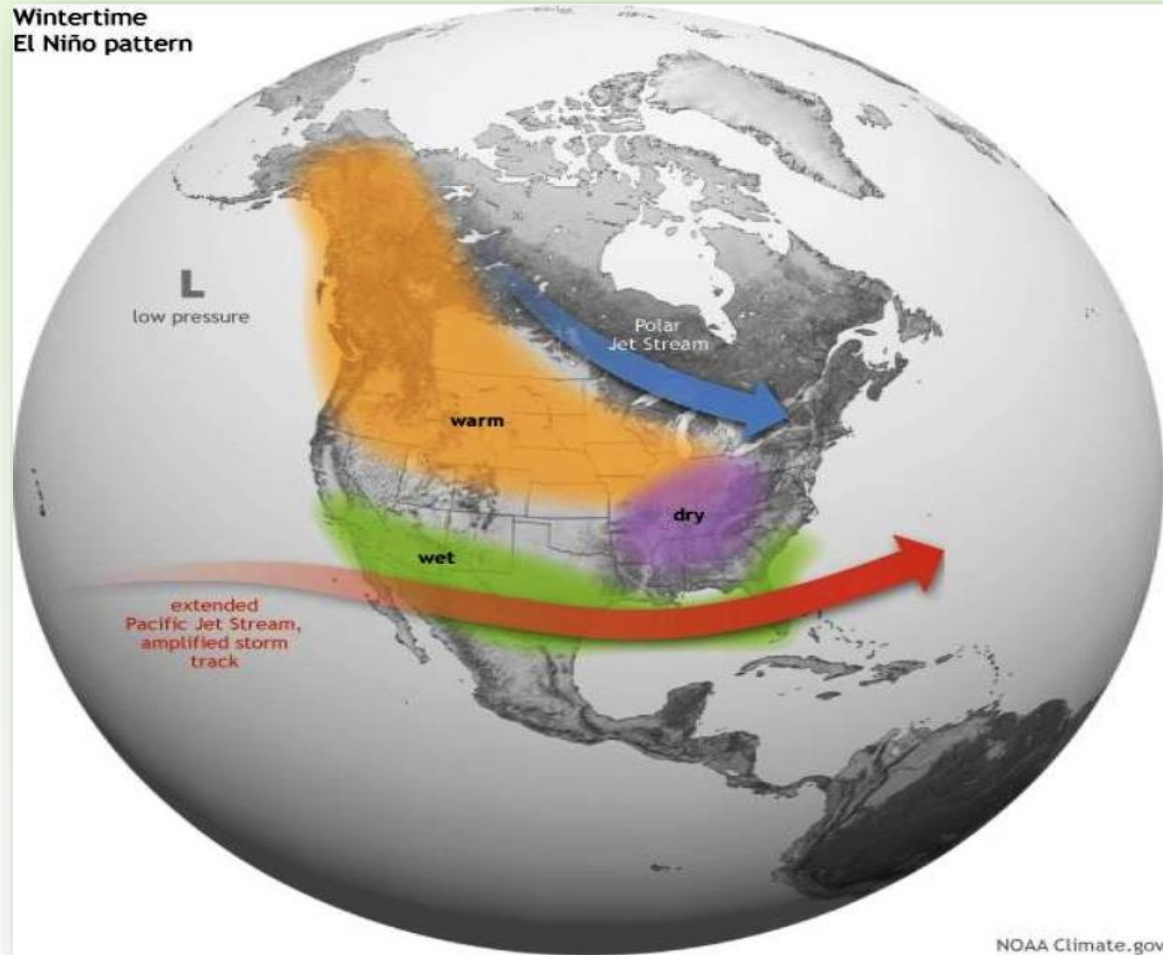


El Nino in progress for Winter 2023 – 2024?

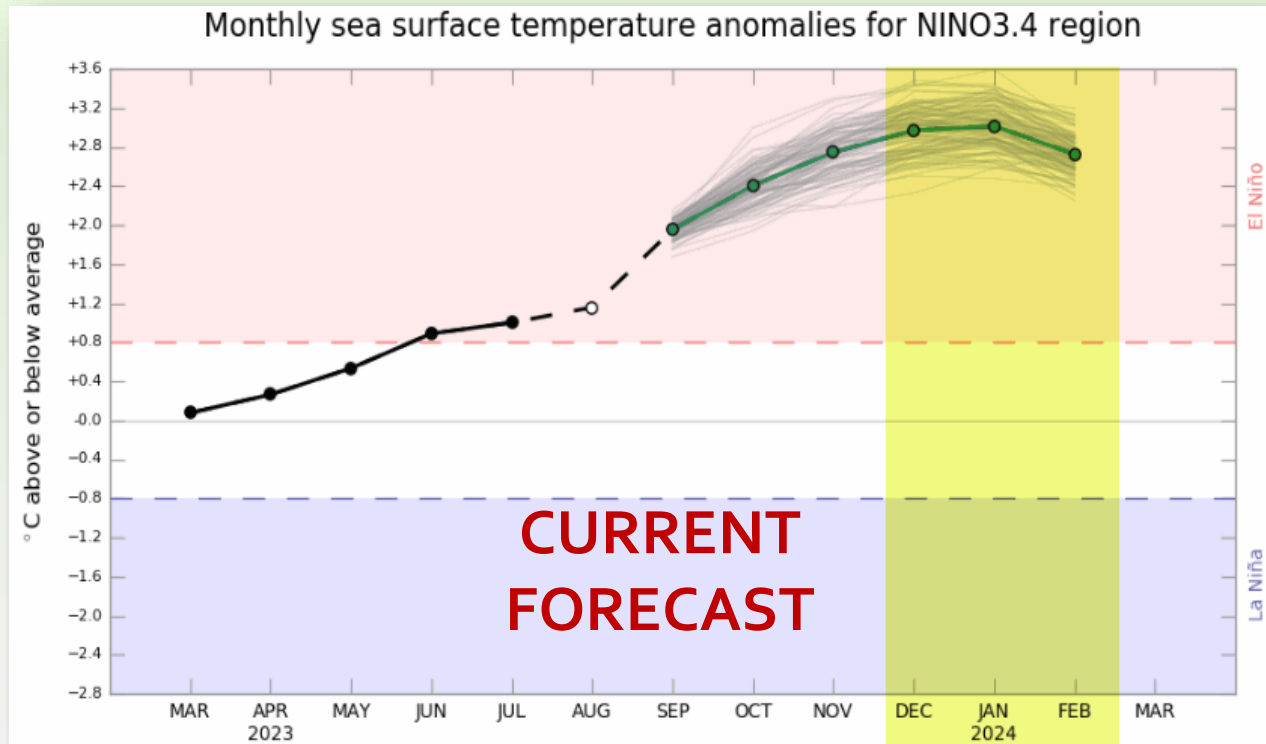


August 2023

El Nino Effects on North America



Predictive Ocean Atmosphere Model from Australia



Last Winter = a “weak” La Nina Winter

El Niño - 26				La Niña - 25		
Weak - 11	Moderate - 7	Strong - 5	Very Strong - 3	Weak - 12	Moderate - 6	Strong - 7
1952-53	1951-52	1957-58	1982-83	1954-55	1955-56	1973-74
1953-54	1963-64	1965-66	1997-98	1964-65	1970-71	1975-76
1958-59	1968-69	1972-73	2015-16	1971-72	1995-96	1988-89
1969-70	1986-87	1987-88		1974-75	2011-12	1998-99
1976-77	1994-95	1991-92		1983-84	2020-21	1999-00
1977-78	2002-03			1984-85	2021-22	2007-08
1979-80	2009-10			2000-01		2010-11
2004-05				2005-06		
2006-07				2008-09		
2014-15				2016-17		
2018-19				2017-18		
				2022-23		

The last “strong” El Nino winter was nearly 30 years ago!

El Niño - 26				La Niña - 25		
Weak - 11	Moderate - 7	Strong - 5	Very Strong - 3	Weak - 12	Moderate - 6	Strong - 7
1952-53	1951-52	1957-58	1982-83	1954-55	1955-56	1973-74
1953-54	1963-64	1965-66	1997-98	1964-65	1970-71	1975-76
1958-59	1968-69	1972-73	2015-16	1971-72	1995-96	1988-89
1969-70	1986-87	1987-88		1974-75	2011-12	1998-99
1976-77	1994-95	1991-92		1983-84	2020-21	1999-00
1977-78	2002-03			1984-85	2021-22	2007-08
1979-80	2009-10			2000-01		2010-11
2004-05				2005-06		
2006-07				2008-09		
2014-15				2016-17		
2018-19				2017-18		
				2022-23		

A Look at Jeff's 2023 – 2024 Forecast

NOAA Fall Outlook

September – October – November

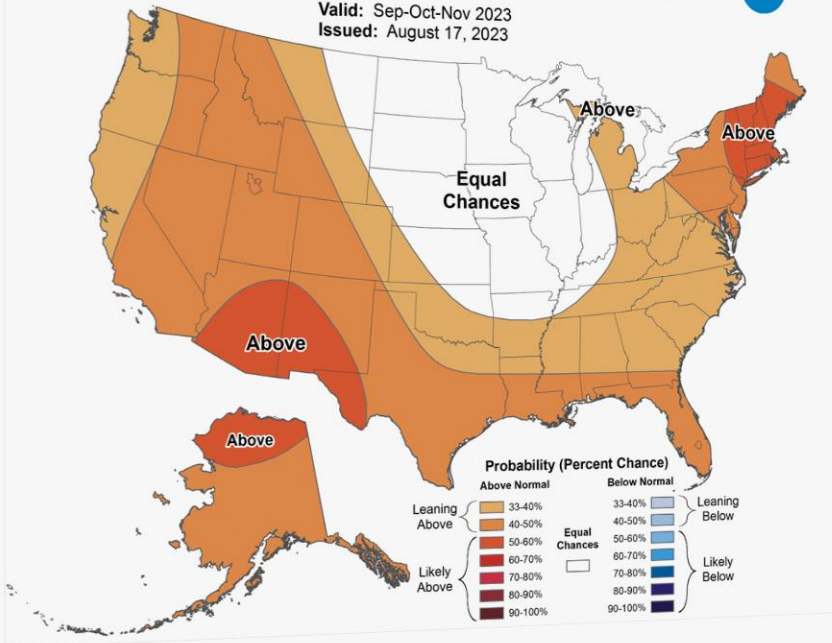
2023

2023

2023

Seasonal Temperature Outlook

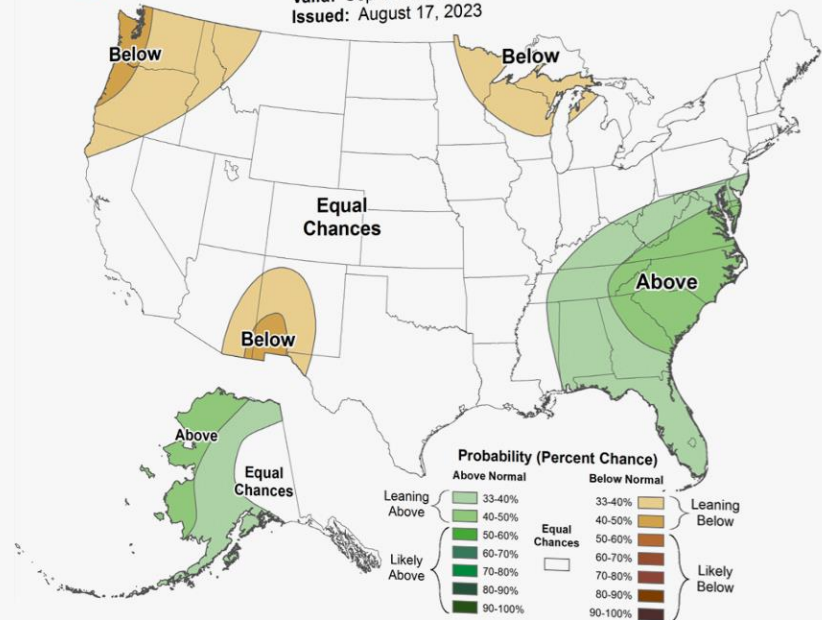
Valid: Sep-Oct-Nov 2023
Issued: August 17, 2023



TEMPERATURE

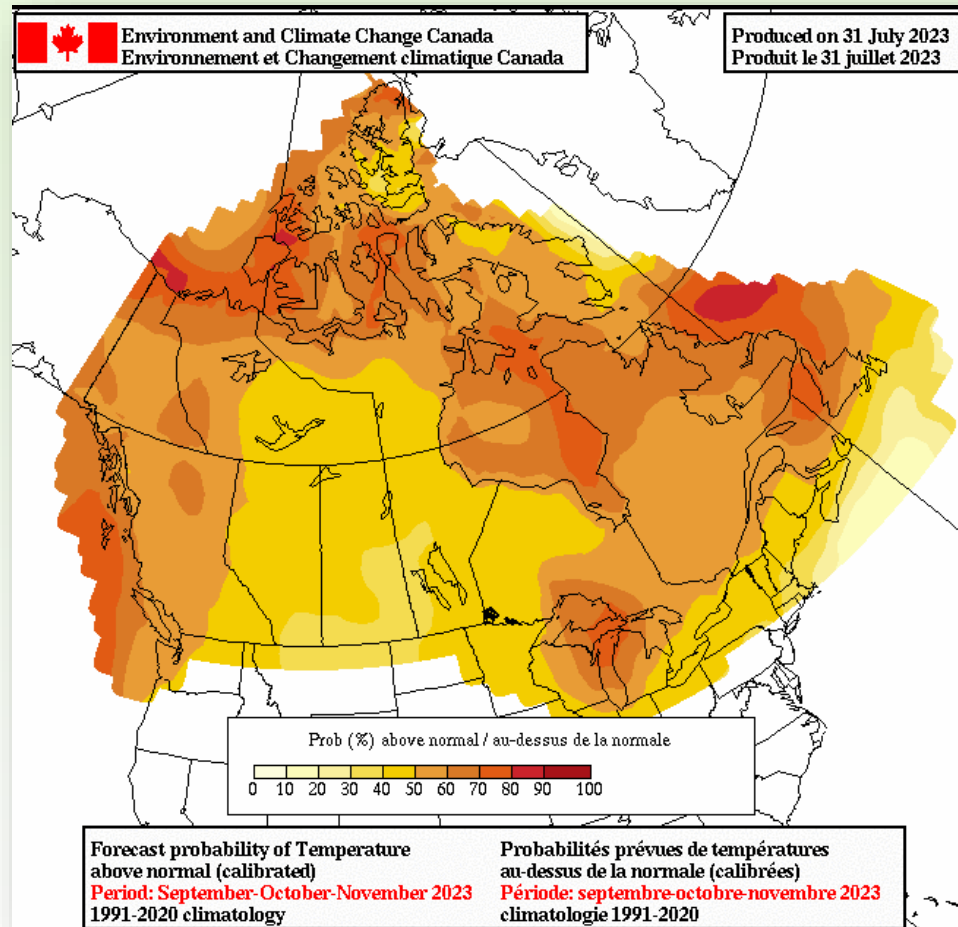
Seasonal Precipitation Outlook

Valid: Sep-Oct-Nov 2023
Issued: August 17, 2023



PRECIPITATION

Fall Long Range Forecast, Temperatures



Environment Canada



Jeff's Fall Forecast

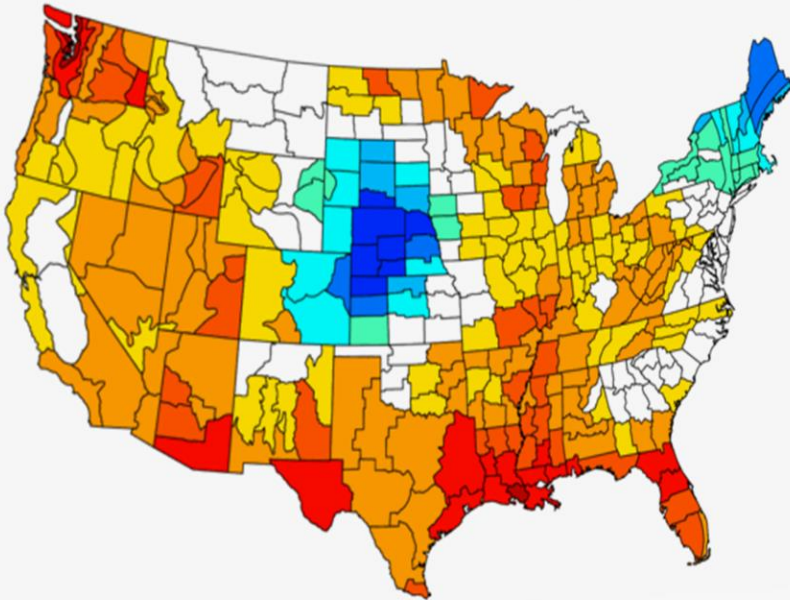
September – October – November

2023

2023

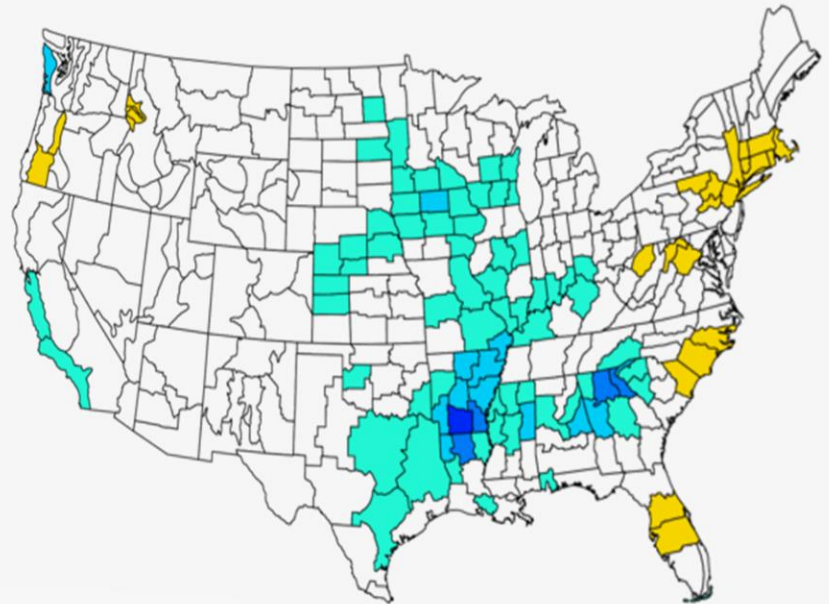
2023

NOAA/NCEI Climate Division Composite Temperature Anomalies (F)
Sep to Nov 1965,2009
Versus 1951–2010 Longterm Average



TEMPERATURE

NOAA/NCEI Climate Division Composite Precipitation Anomalies (in)
Sep to Nov 1965,2009
Versus 1951–2010 Longterm Average



PRECIPITATION

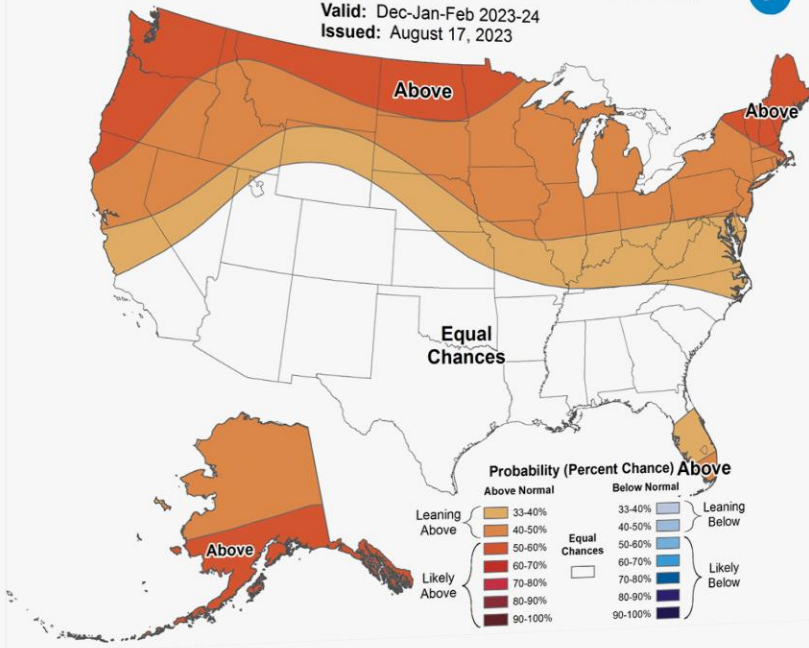
NOAA Winter Outlook

December – January – February

2023 2024 2024

Seasonal Temperature Outlook

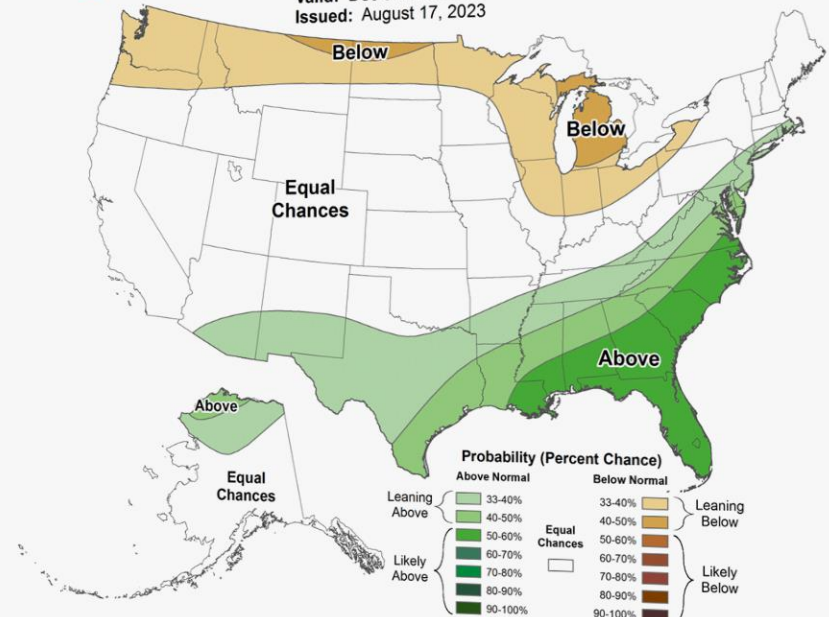
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TEMPERATURE

Seasonal Precipitation Outlook

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PRECIPITATION

Jeff's Winter Forecast

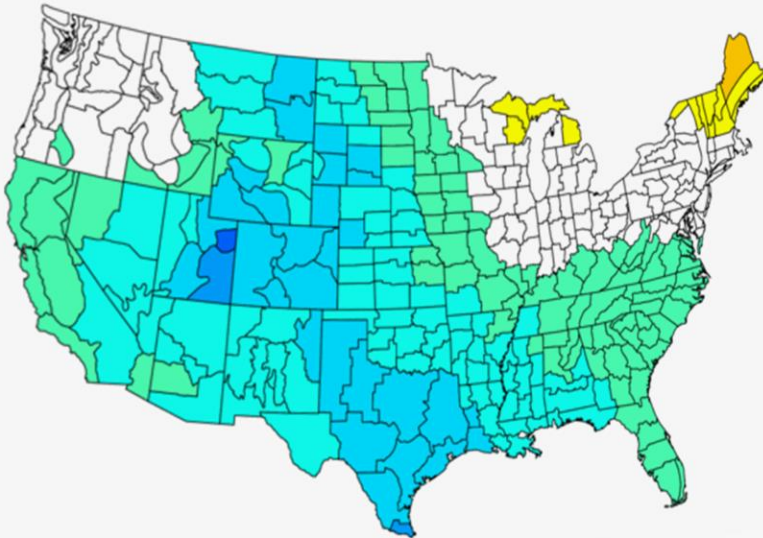
December – January – February

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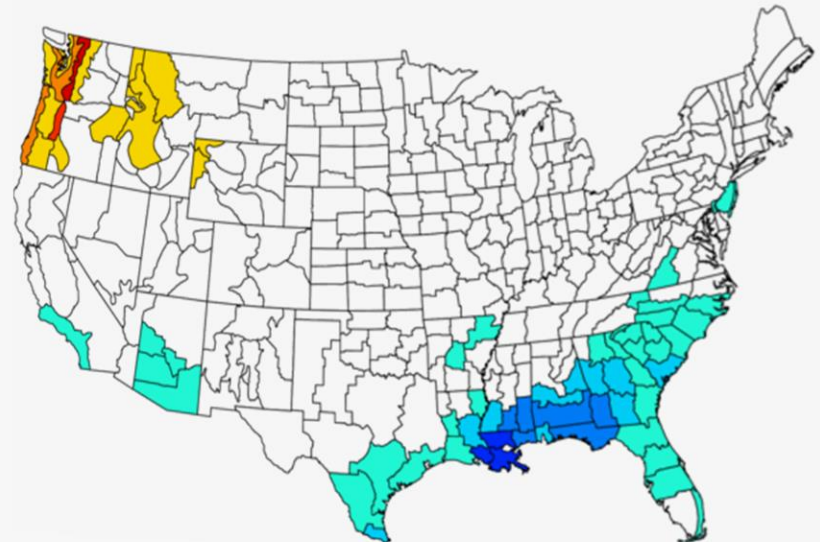
2024

NOAA/NCEI Climate Division Composite Temperature Anomalies (F)
Dec to Feb 1965–66, 1972–73, 2009–10
Versus 1951–2010 Longterm Average



TEMPERATURE

NOAA/NCEI Climate Division Composite Precipitation Anomalies (in)
Dec to Feb 1965–66, 1972–73, 2009–10
Versus 1951–2010 Longterm Average

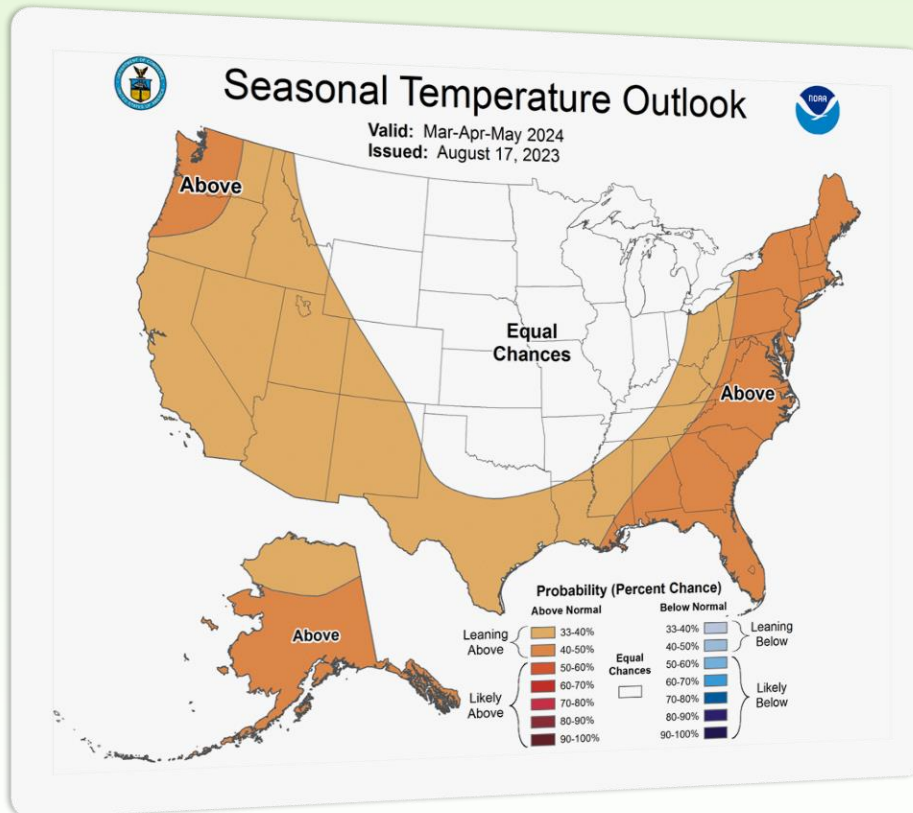


PRECIPITATION

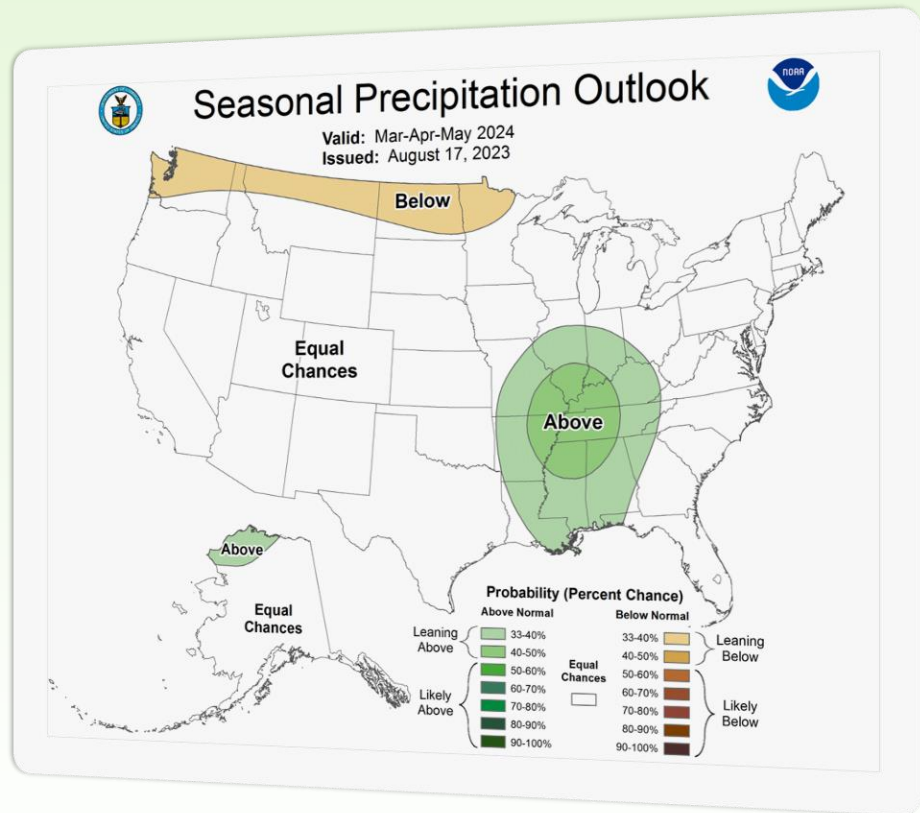
NOAA Spring Outlook

March – April – May

2024 2024 2024



TEMPERATURE



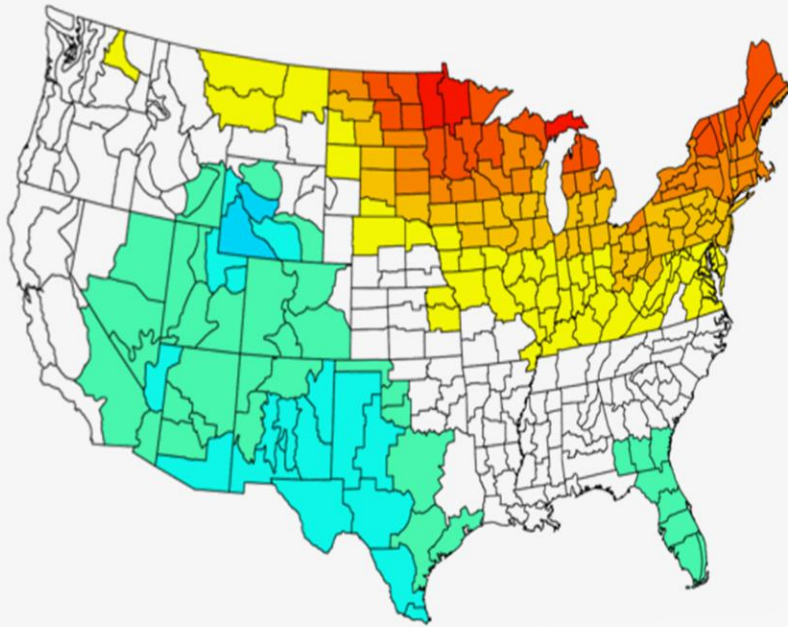
PRECIPITATION

Jeff's Spring Forecast

March – April – May

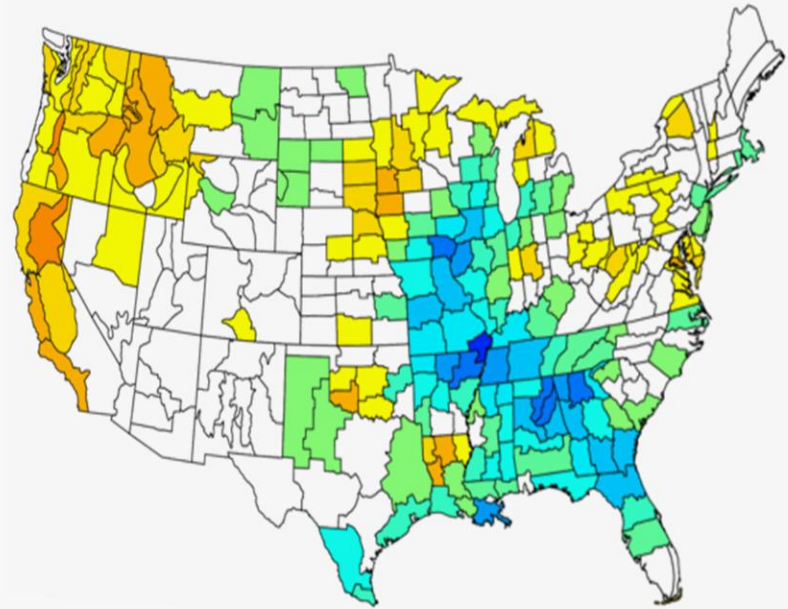
2024 2024 2024

NOAA/NCEI Climate Division Composite Temperature Anomalies (F)
Mar to May 1966,1973,2010
Versus 1951–2010 Longterm Average



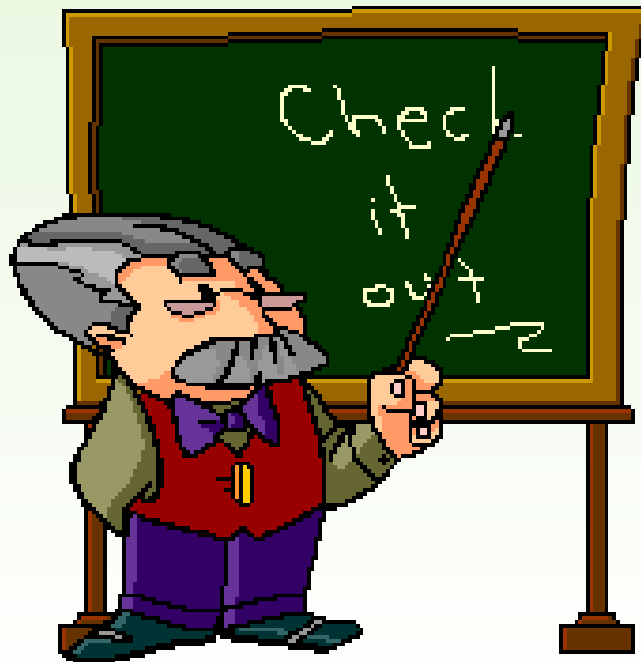
TEMPERATURE

NOAA/NCEI Climate Division Composite Precipitation Anomalies (in)
Mar to May 1966,1973,2010
Versus 1951–2010 Longterm Average



PRECIPITATION

To conclude.....



Jeff's 2023-2024 Forecast

FALL: *Slightly above normal temperatures* – Most of the nation
Near normal temperatures – Central Plains and Northeast
Wetter than normal weather – Southeastern states into Midwest

WINTER:

SPRING:

Jeff's 2023-2024 Forecast

FALL: *Slightly above normal temperatures* – Most of the nation
Near normal temperatures – Central Plains and Northeast
Wetter than normal weather – Southeastern states into Midwest

WINTER: *Slightly above temperatures* – Pacific NW
Seasonal to below normal temperatures – Most of the nation
Snowier & wetter than normal – Southern 1/3 of the nation
Below normal precipitation – Pacific NW

SPRING:

Jeff's 2023-2024 Forecast

FALL: *Slightly above normal temperatures* – Most of the nation
Near normal temperatures – Central Plains and Northeast
Wetter than normal weather – Southeastern states into Midwest

WINTER: *Slightly above temperatures* – Pacific NW
Seasonal to below normal temperatures – Most of the nation
Snowier & wetter than normal – Southern 1/3 of the nation
Below normal precipitation – Pacific NW

SPRING: *Mild temperatures* – East of the Rockies into New England states
Slightly cooler than normal – Rockies into Southwestern states
Above normal rainfall – Mississippi Valley & Southeastern states

Thank You!

