

NOAA Climate Science and Services Monthly Climate Update

Karin Gleason

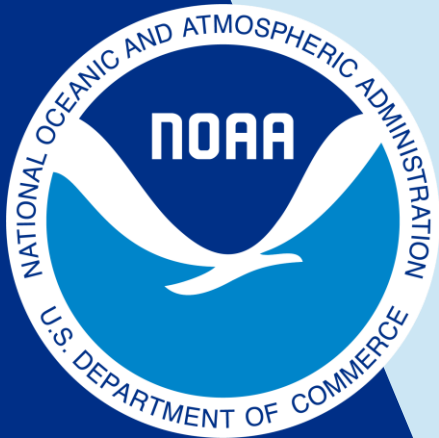
Monitoring Section Chief, NOAA National Centers for
Environmental Information (NCEI)

Robert Molleda

Warning Coordination Meteorologist, NOAA National Weather
Service Forecast Office, Miami

Johnna Infanti

Meteorologist, NOAA Climate Prediction Center (CPC)



National Oceanic and
Atmospheric Administration

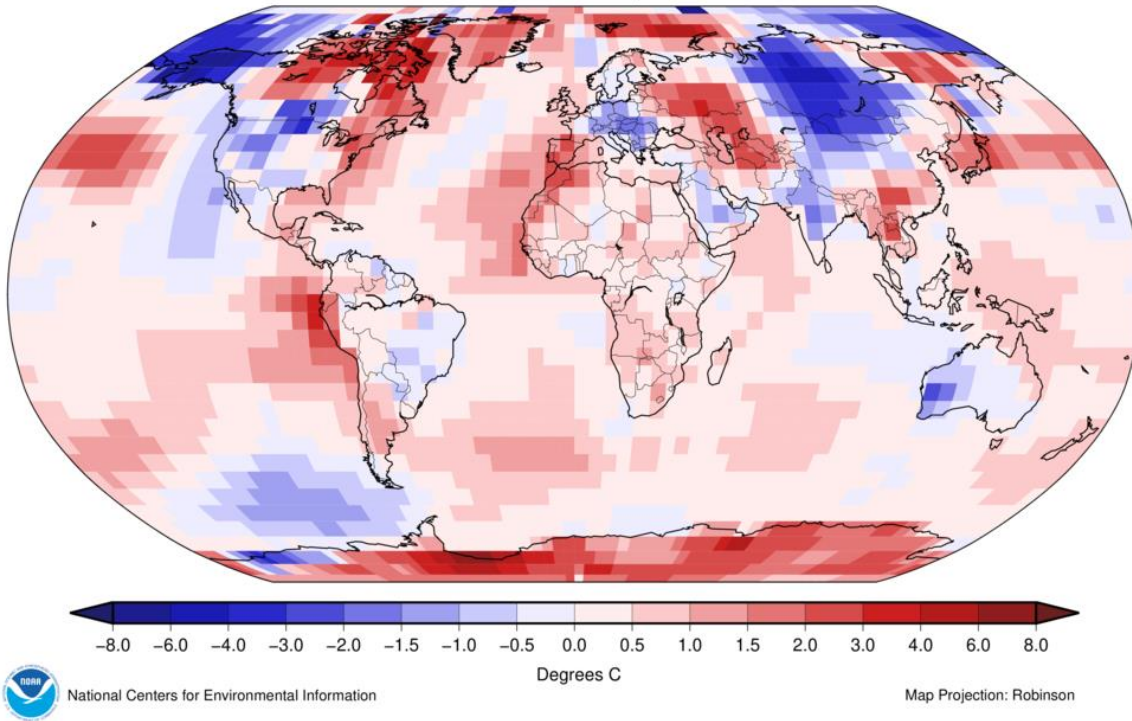
April 2023

April 2023 Global Temperature

The global temperature record dates back to 1850 (174 years)

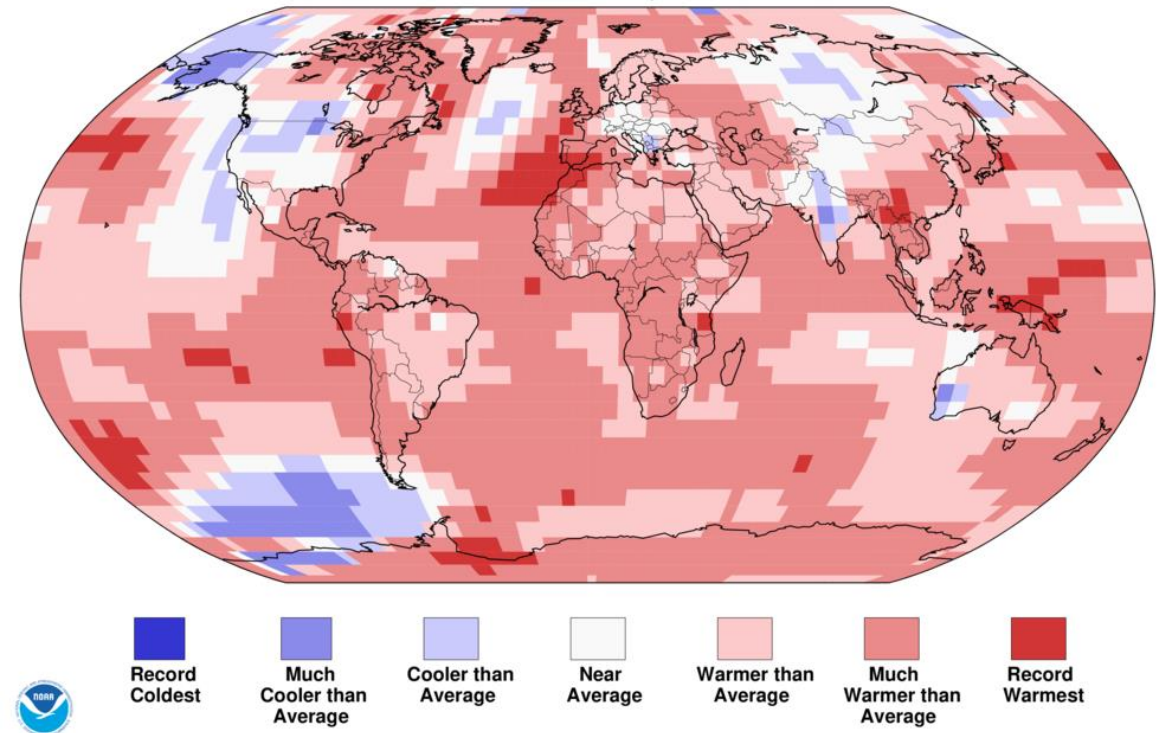
Land & Ocean Temperature Departure from Average Apr 2023
(with respect to a 1991–2020 base period)

Data Source: NOAA GlobalTemp v5.1.0–20230508



Land & Ocean Temperature Percentiles Apr 2023
NOAA's National Centers for Environmental Information

Data Source: NOAA GlobalTemp v5.1.0–20230508

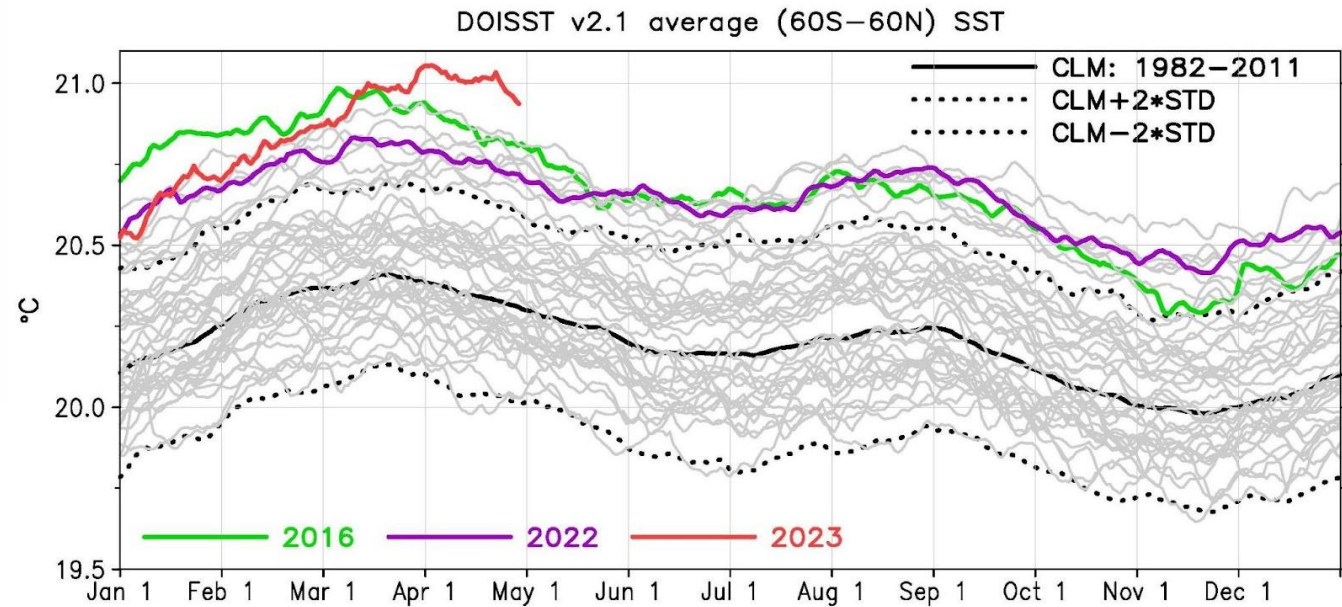
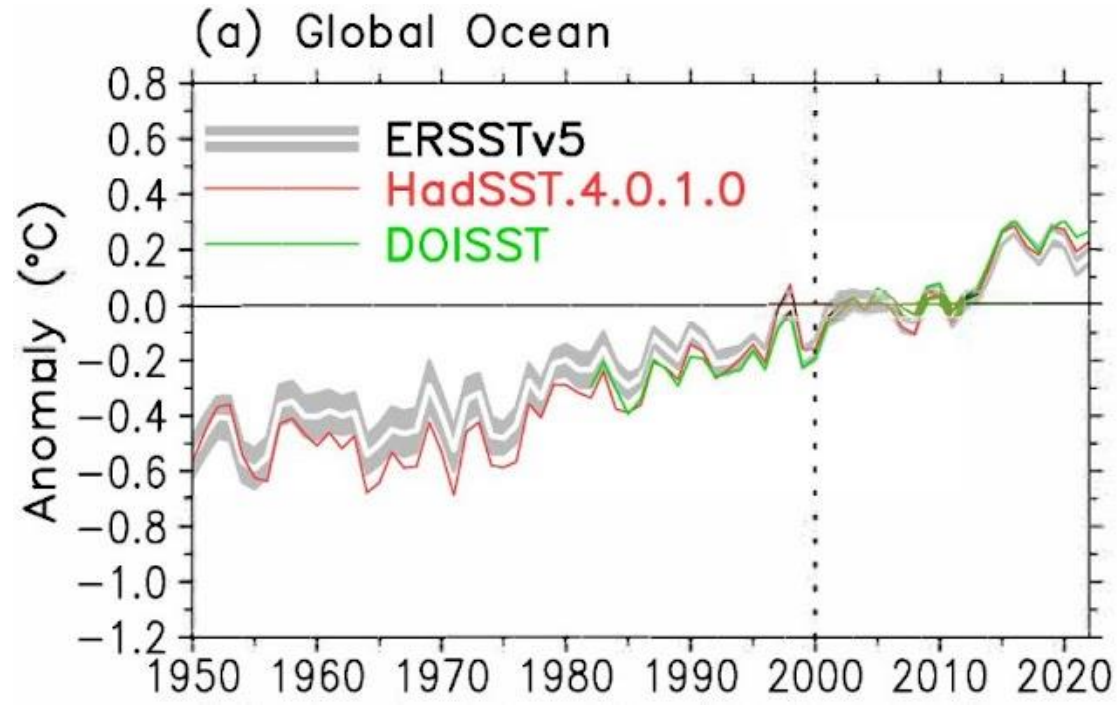


Global land + ocean: +1.00°C (+1.80°F); the *4th-warmest* April on record

Global land: temperature was 11th warmest April on record

Global ocean: temperature was *warmest* on record for April

Sea Surface Temperatures

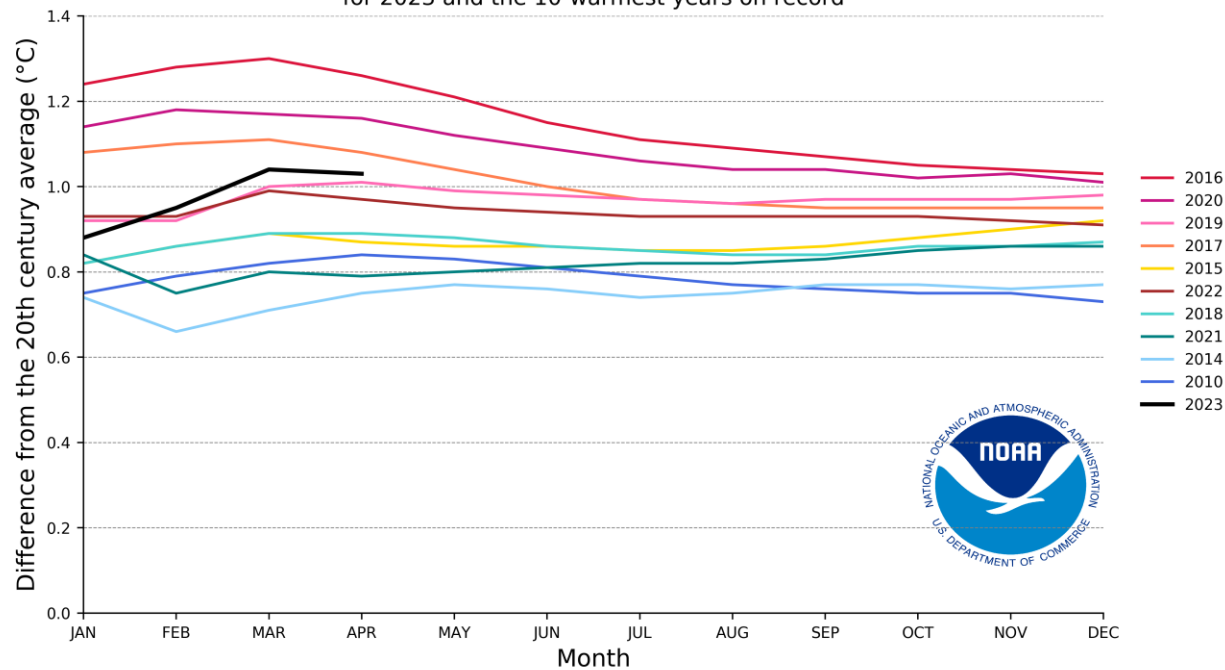


- OISST showed record warm SSTs at end of March/early April
- Global SST products show rapid ocean surface warming – not all record breaking

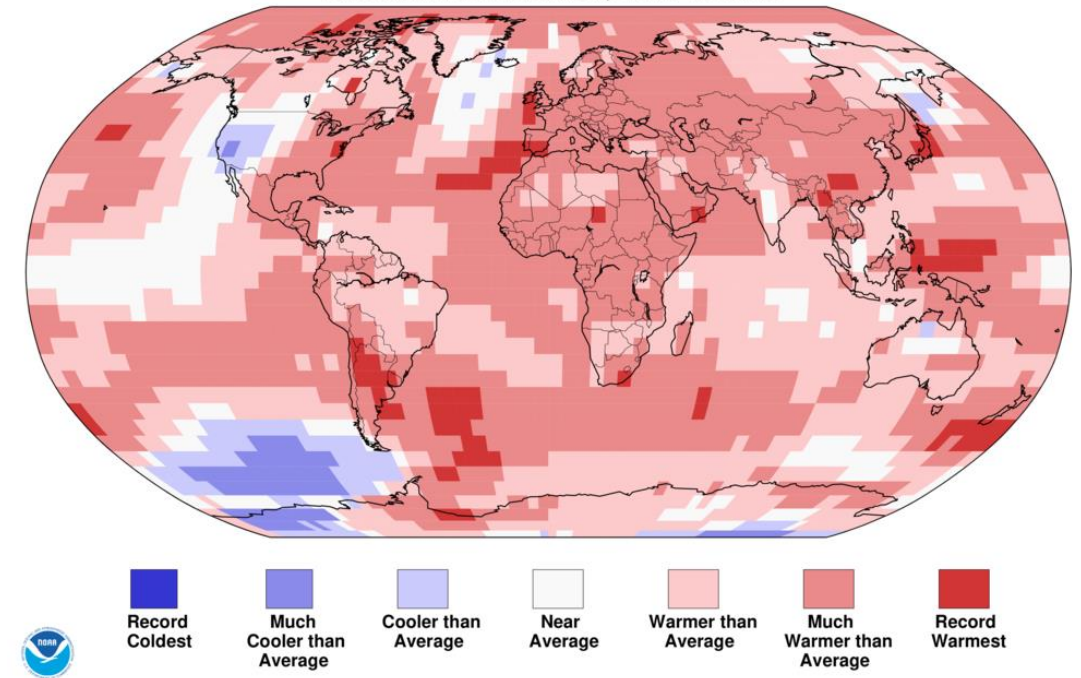
January-April Global Temperature

The global temperature record dates back to 1850 (174 years)

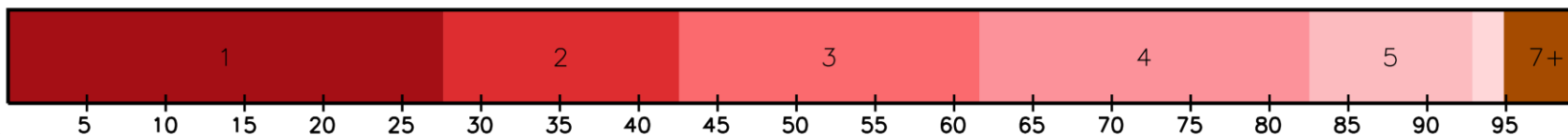
Global Year-to-Date Temperature Anomalies
for 2023 and the 10-warmest years on record



Land & Ocean Temperature Percentiles Jan–Apr 2023
NOAA's National Centers for Environmental Information
Data Source: NOAA GlobalTemp v5.1.0–20230508



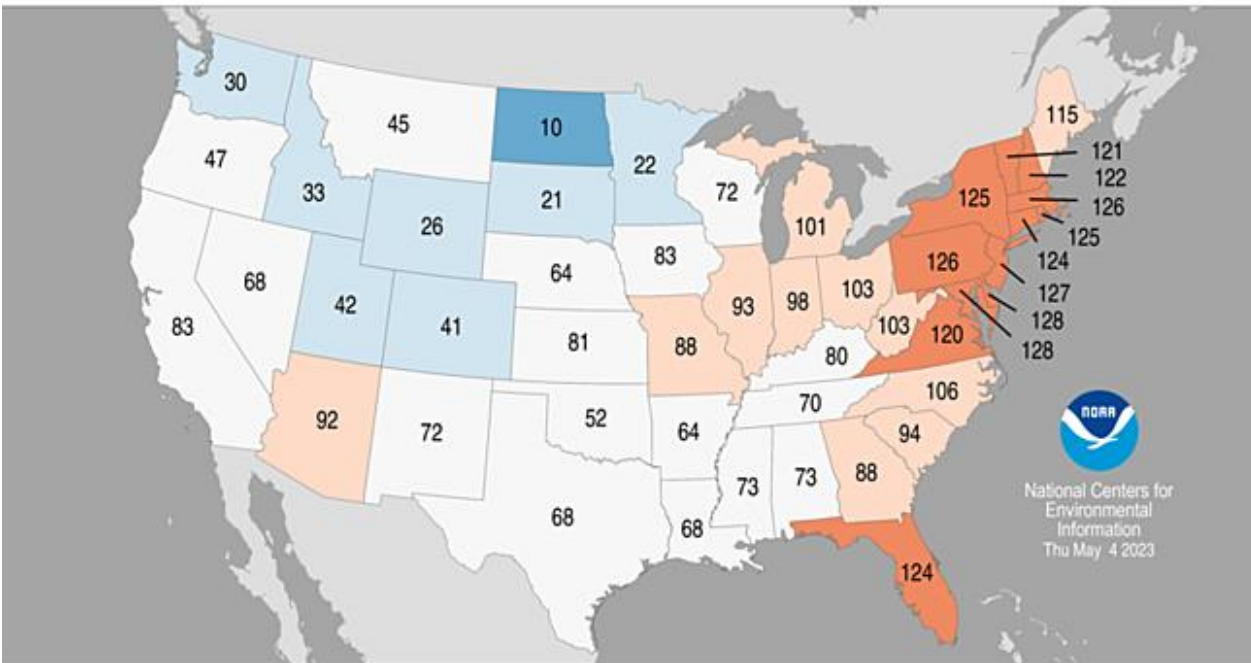
- **Global land + ocean: +1.03°C (+1.85°F); the *4th-warmest* January-April on record**



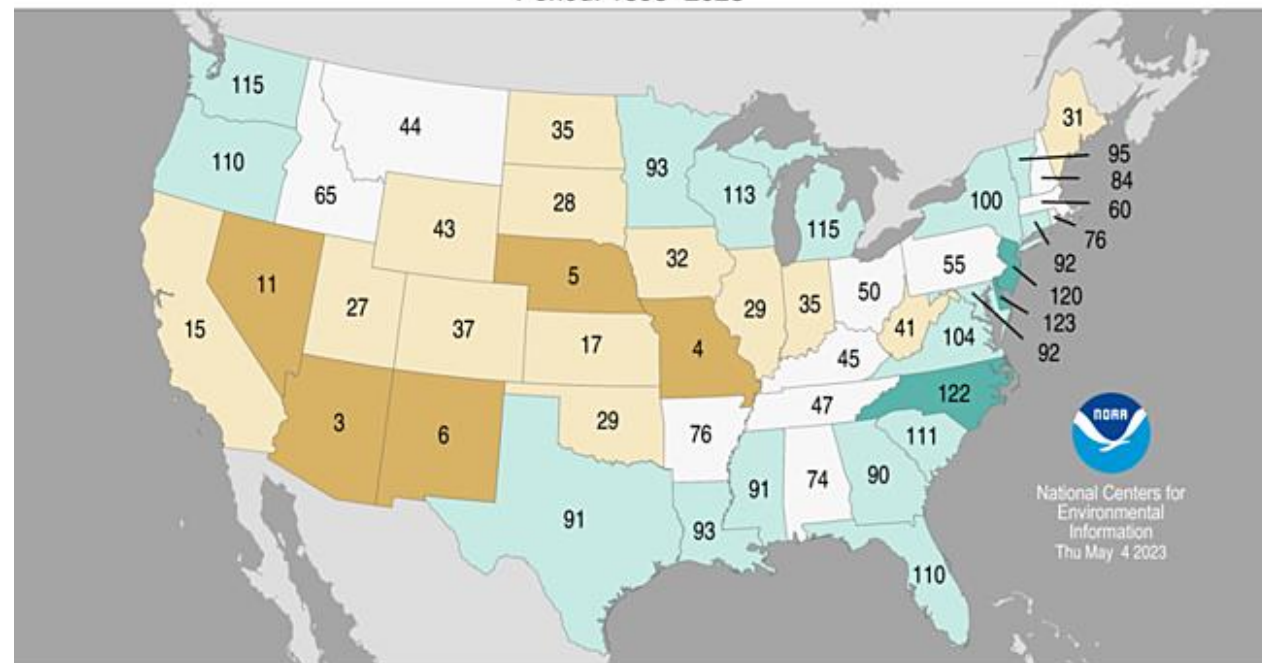
~ 28% chance of warmest year
~ 93% chance of a top 5 year
> 99% chance of a top 10 year

Contiguous U.S. April 2023

Statewide Average Temperature Ranks
April 2023
Period: 1895–2023



Statewide Precipitation Ranks
April 2023
Period: 1895–2023



Record Coldest (1)
Much Below Average
Below Average
Near Average
Above Average
Much Above Average
Record Warmest (129)

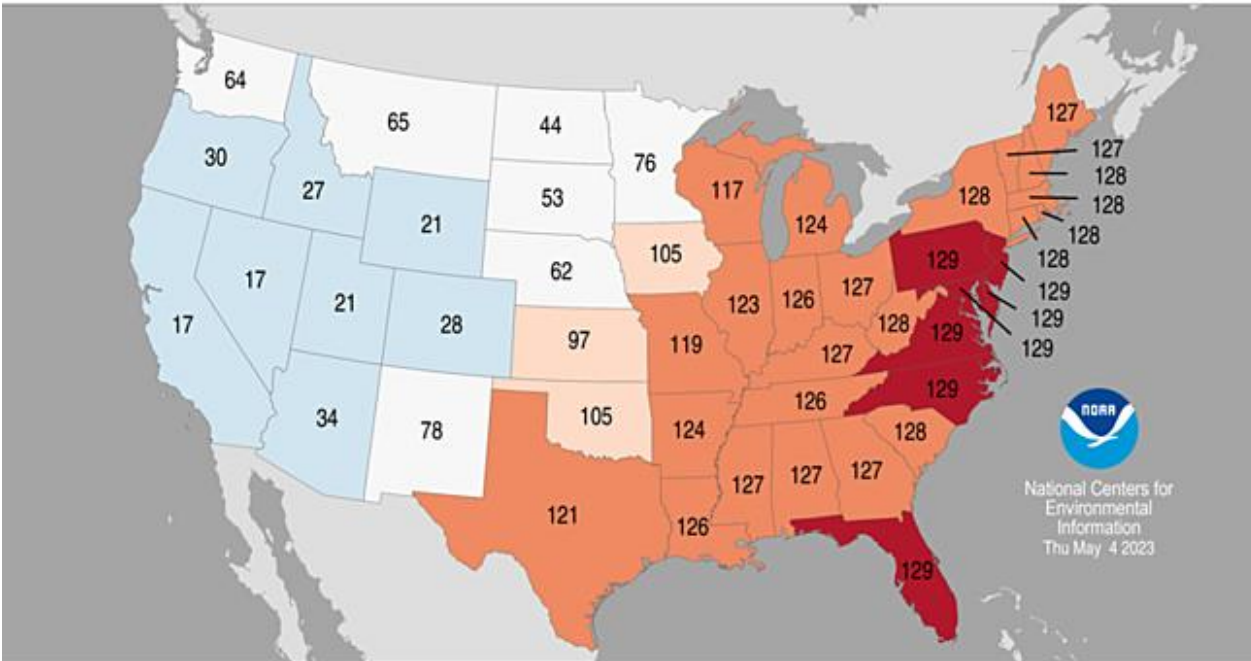
Record Driest (1)
Much Below Average
Below Average
Near Average
Above Average
Much Above Average
Record Wettest (129)

- **Temperature:** 51.4°F (+0.3°F); ranked in the middle third of the 129-year record
- **Precipitation:** 2.40 inches (+0.12 inch); ranked in the middle third of the historical record

Contiguous U.S. January-April 2023

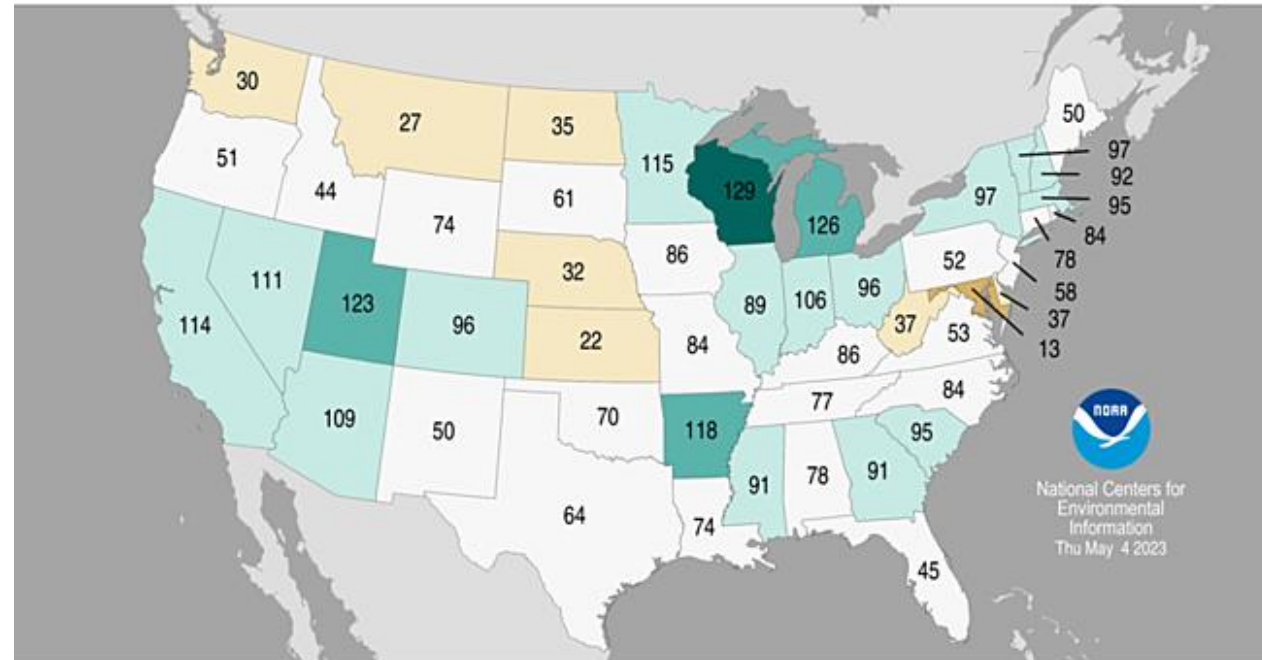
Statewide Average Temperature Ranks

January – April 2023
Period: 1895–2023



Statewide Precipitation Ranks

January – April 2023
Period: 1895–2023



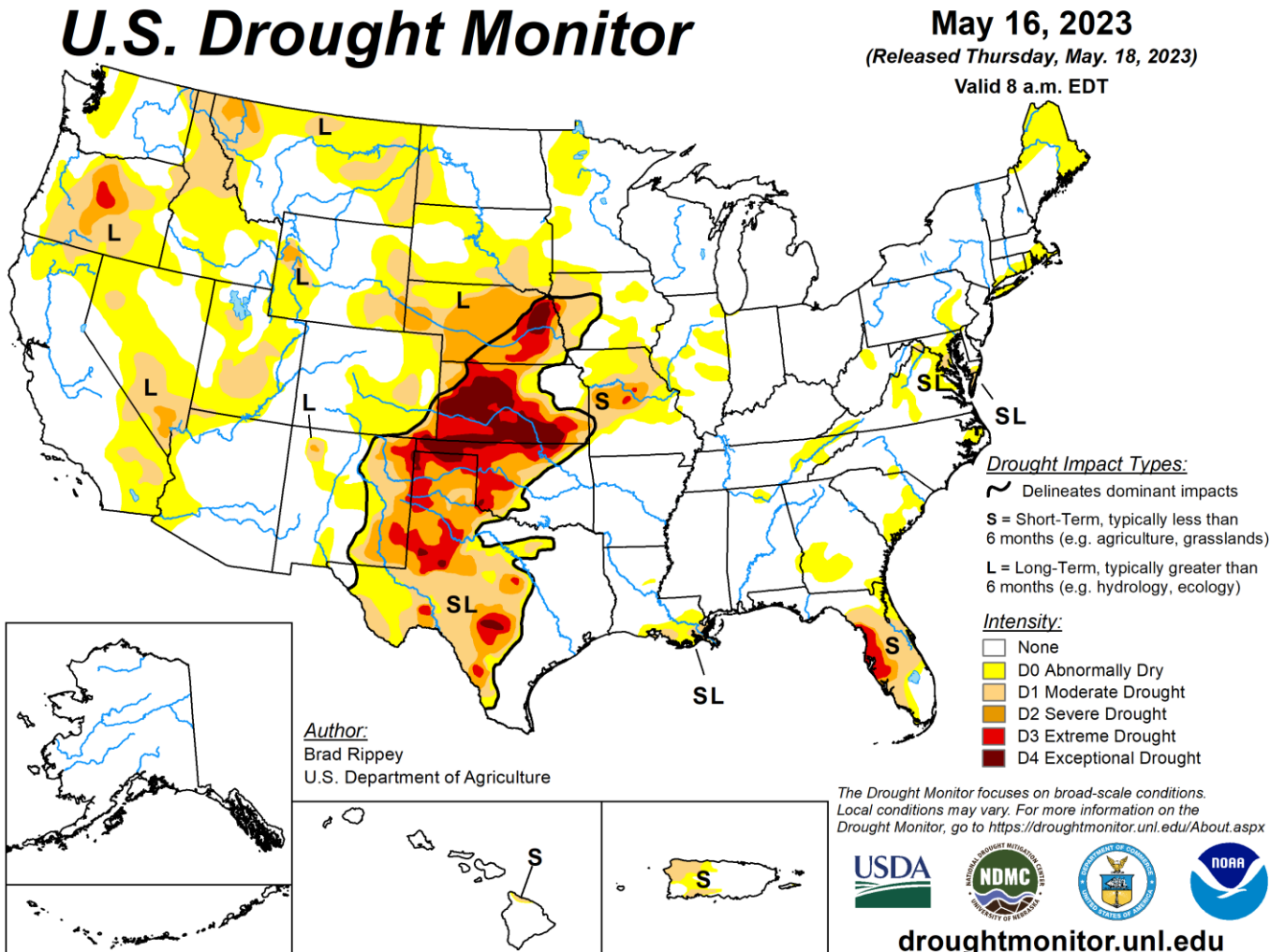
Record Coldest (1)
Much Below Average
Below Average
Near Average
Above Average
Much Above Average
Record Warmest (129)

Record Driest (1)
Much Below Average
Below Average
Near Average
Above Average
Much Above Average
Record Wettest (129)

- **Temperature:** 40.9°F (+1.8°F); ranked in the warmest third of the 129-year record
- **Precipitation:** 10.22 inches (+0.74 inch); ranked in the wettest third of the historical record

Current U.S. Drought

~ 20% of the Contiguous U.S. in Drought



Drought conditions lessened/diminished:
Mid-Atlantic, Plains, Florida

Drought conditions expanded/intensified:
portions of Midwest, Florida

Outside the contiguous U.S.:
Drought coverage lessened across
Puerto Rico

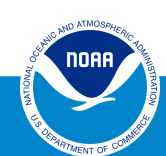


Extreme Rainfall Event in Fort Lauderdale, FL on April 12th, 2023

Robert Molleda

Warning Coordination Meteorologist
National Weather Service
Miami/South Florida Forecast Office

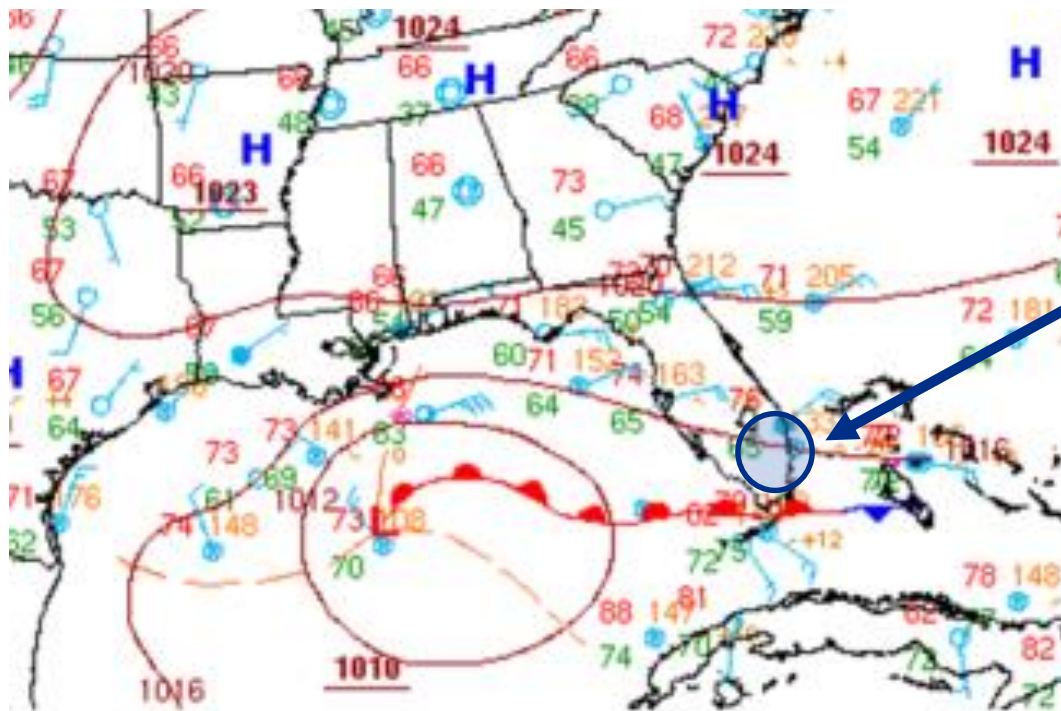
Robert.Molleda@noaa.gov



Extreme Rainfall Event in Fort Lauderdale, FL on April 12th, 2023

Weather Map for morning of April 12th

- Warm front just south of the Florida peninsula slowly advancing north
- Low pressure developing in the Gulf of Mexico
- General weather pattern was predicted in advance . Flood Watch issued for all of South Florida on the morning of April 11th

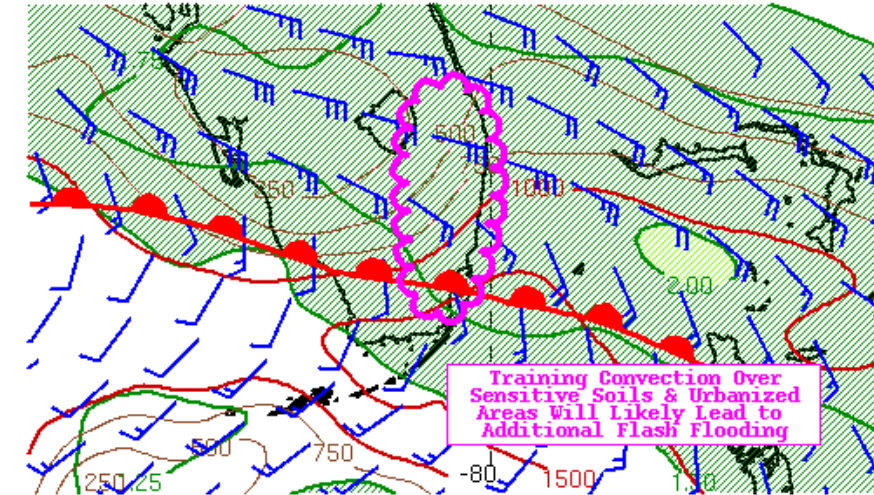
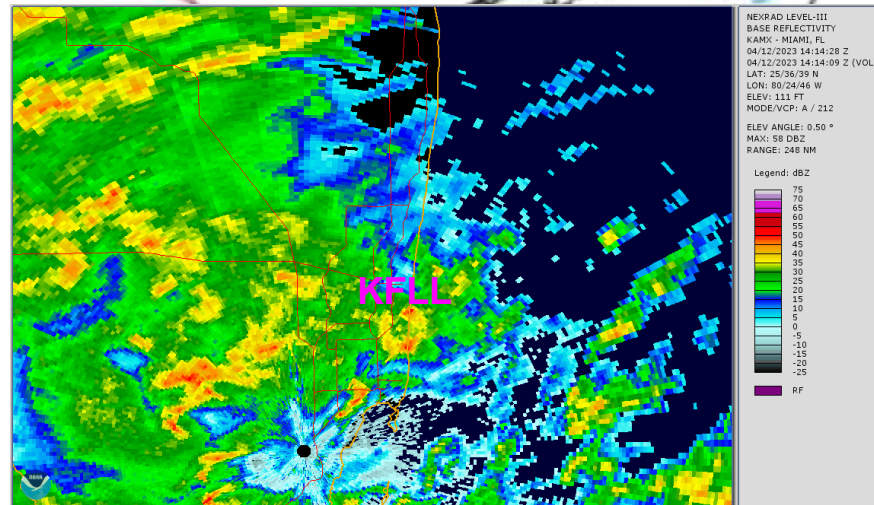
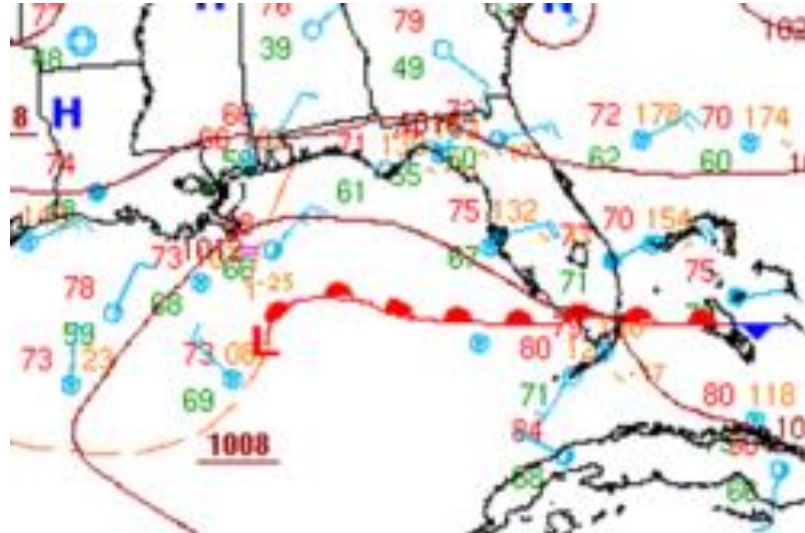


Area of
interest
inside
blue circle

Extreme Rainfall Event in Fort Lauderdale, FL on April 12th, 2023

Weather Map for Afternoon of April 12th

- Warm front moving north over the area acting as a focus for deep moisture to converge over SE Florida
- Rain rates increased during the late afternoon
- First Flash Flood Warning issued at 2:35 PM



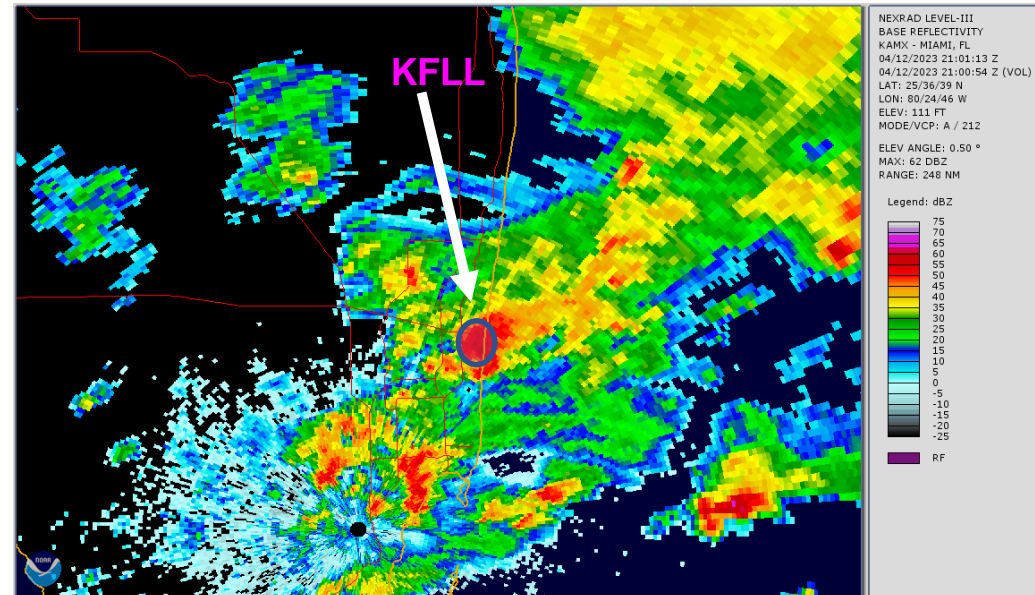
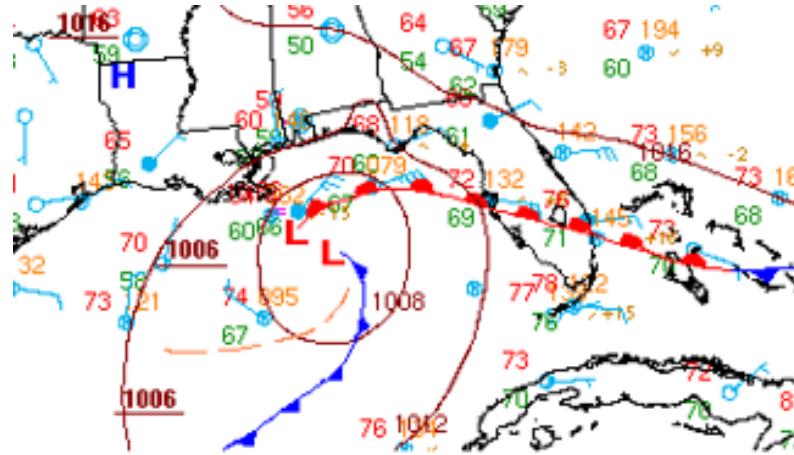
RAP32 PRECIP WATER 230412/2000f002
RAP32 ML CAPE (lowest 90MB) j/kg 230412/2000f002
RAP32 850 MB WINDS 230412/2000f002
WPC MPD #0179

Doppler Radar analysis

Extreme Rainfall Event in Fort Lauderdale, FL on April 12th, 2023

Evening of April 12th

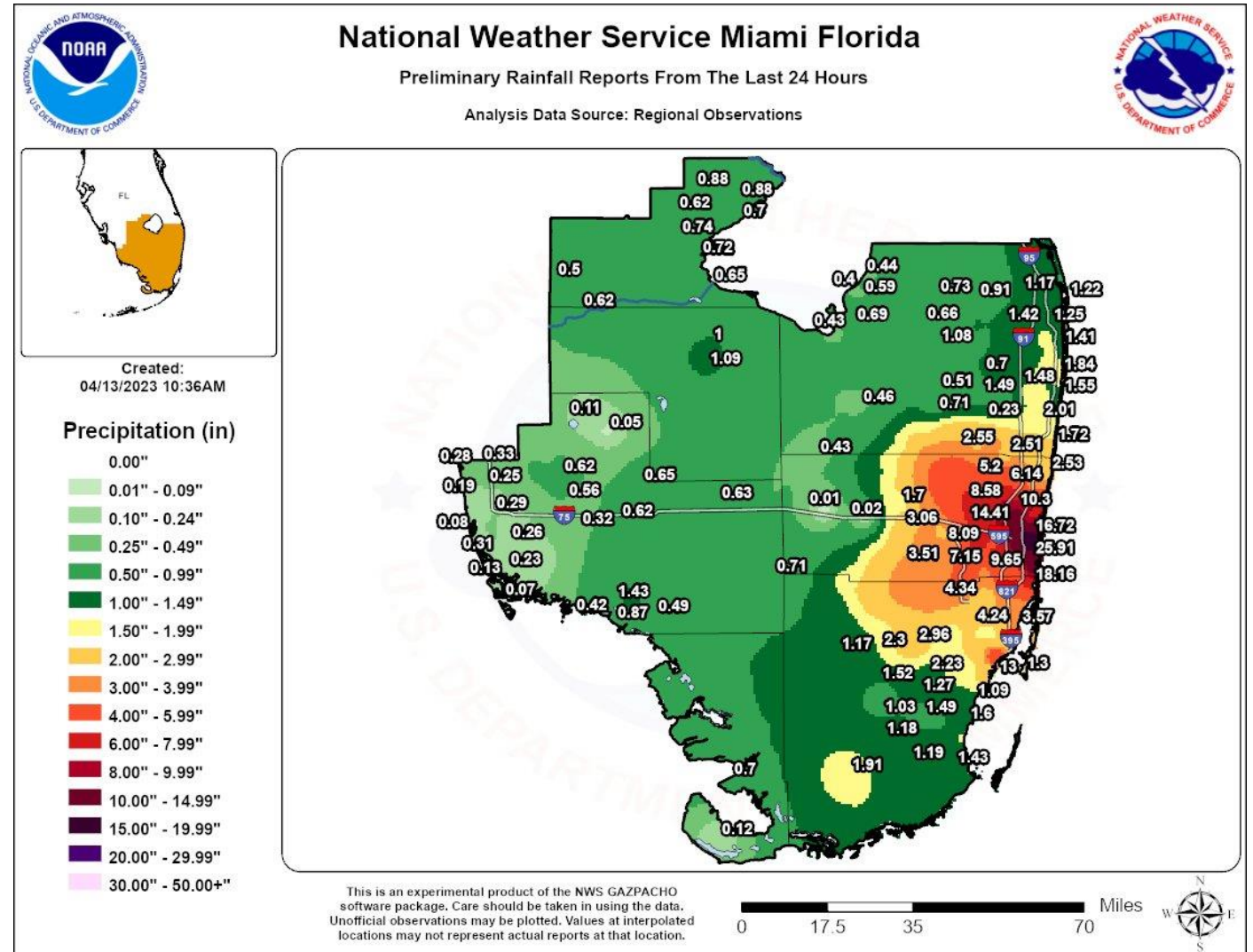
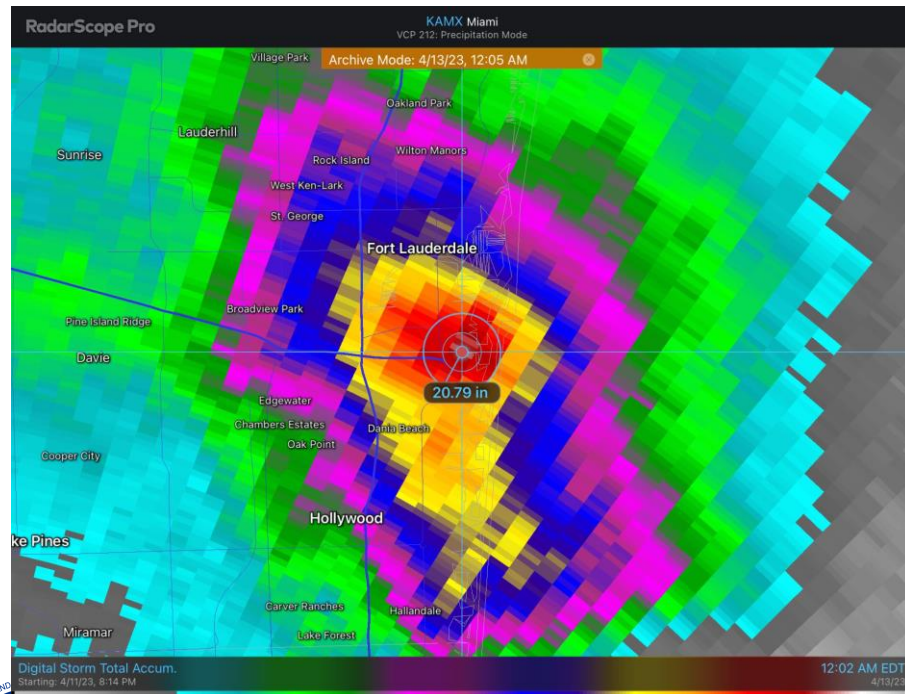
- Stationary storm over FLL beginning around 5 PM and continued to back-build over the area.
- Between 5 PM and Midnight, nearly continuous heavy rainfall at the airport.
- Flash Flood Emergency Issued at 7:58 PM



Doppler
Radar
analysis

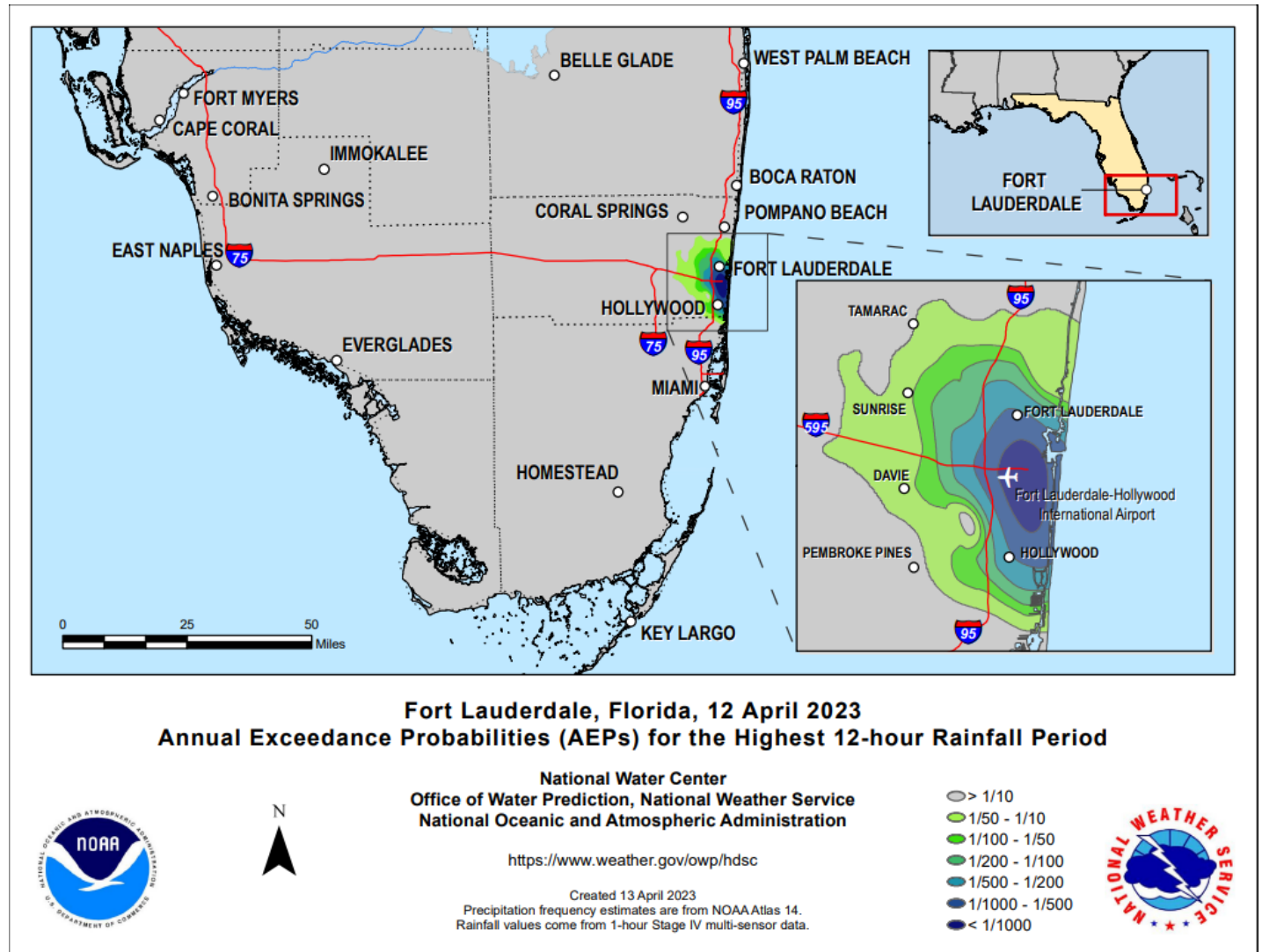
Extreme Rainfall Event in Fort Lauderdale, FL on April 12th, 2023

- Area of 15-25" in Fort Lauderdale/Hollywood areas



Extreme Rainfall Event in Fort Lauderdale, FL on April 12th, 2023

- 12-hour **Annual Exceedance Probability (AEP)** of 0.1% (less than 1 in 1000) in airport area and Dania Beach
- This is **NOT** the same as a “1000-year flood”

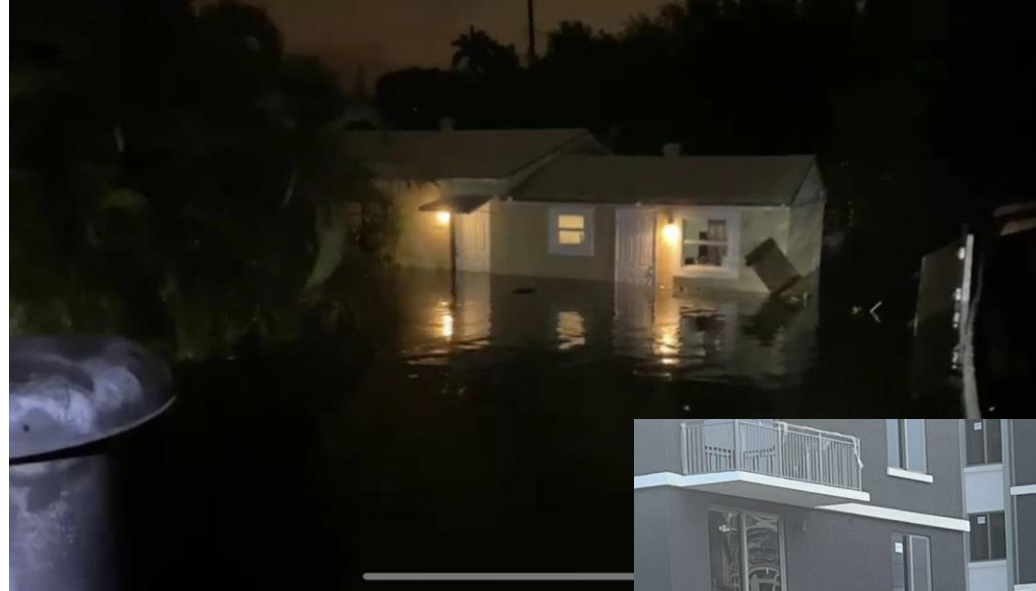


Extreme Rainfall Event in Fort Lauderdale, FL on April 12th, 2023



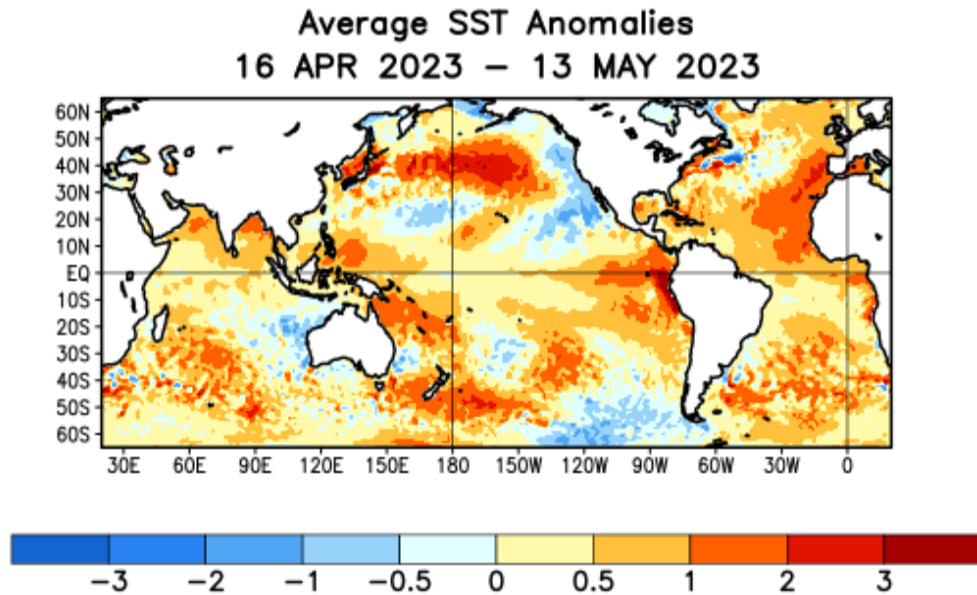
Impacts

Extreme Rainfall Event in Fort Lauderdale, FL on April 12th, 2023



Number of vehicles damaged by flooding likely in the “thousands”

Sea Surface Temperatures and ENSO



- Sea surface temperatures

- During the last four weeks, equatorial SSTs were above average in the eastern and western Pacific Ocean and across most of the Atlantic and Indian Oceans.
- The oceanic and atmospheric observations currently reflect El Niño Southern Oscillation (ENSO)-neutral conditions.

Official NOAA CPC ENSO Probabilities (issued May 2023)

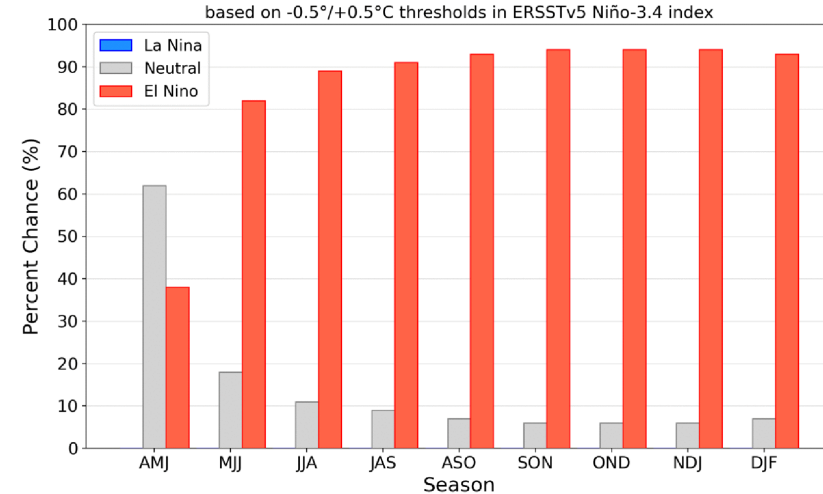


Figure 7. Official ENSO probabilities for the Niño 3.4 sea surface temperature index (5°N - 5°S , 120°W - 170°W). Figure updated 11 May 2023.

- ENSO forecast

- A transition from ENSO-neutral to El Niño is expected in the next couple of months, with a greater than 90% chance of El Niño persisting into the Northern Hemisphere winter.

Monthly Forecast (June)

June Average Temperature Probability

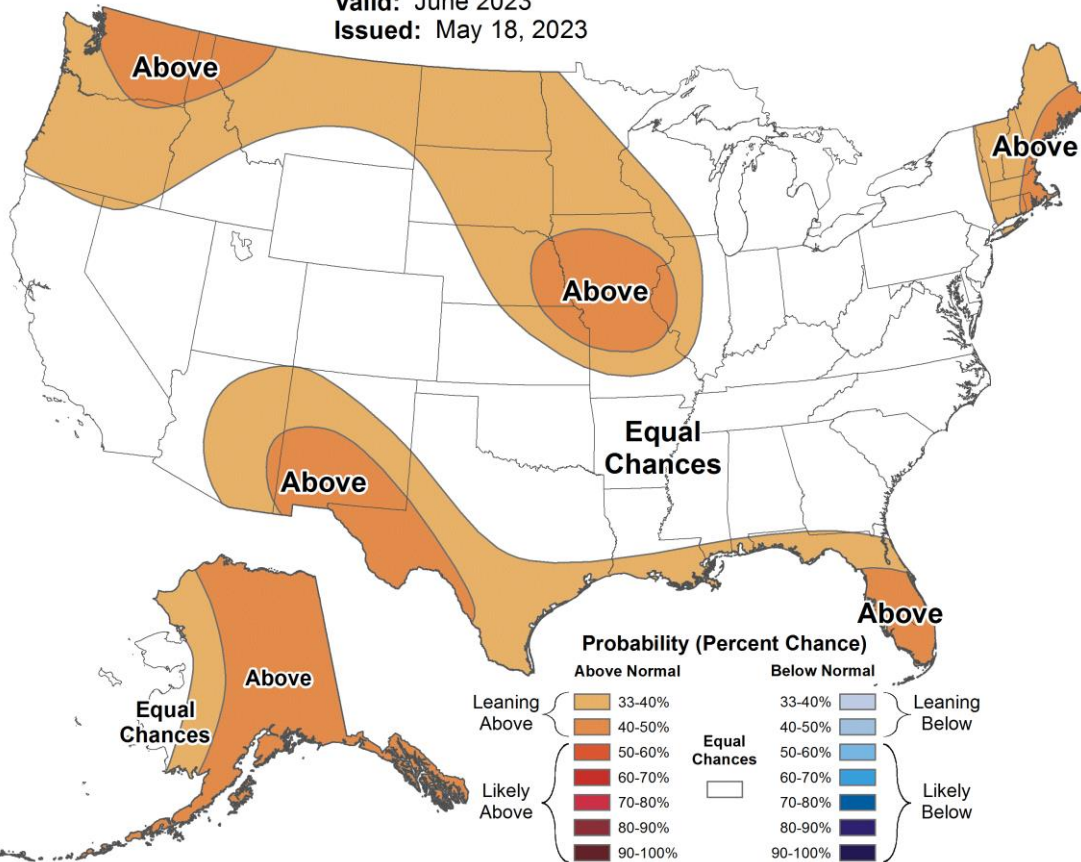
June Total Precipitation Probability



Monthly Temperature Outlook



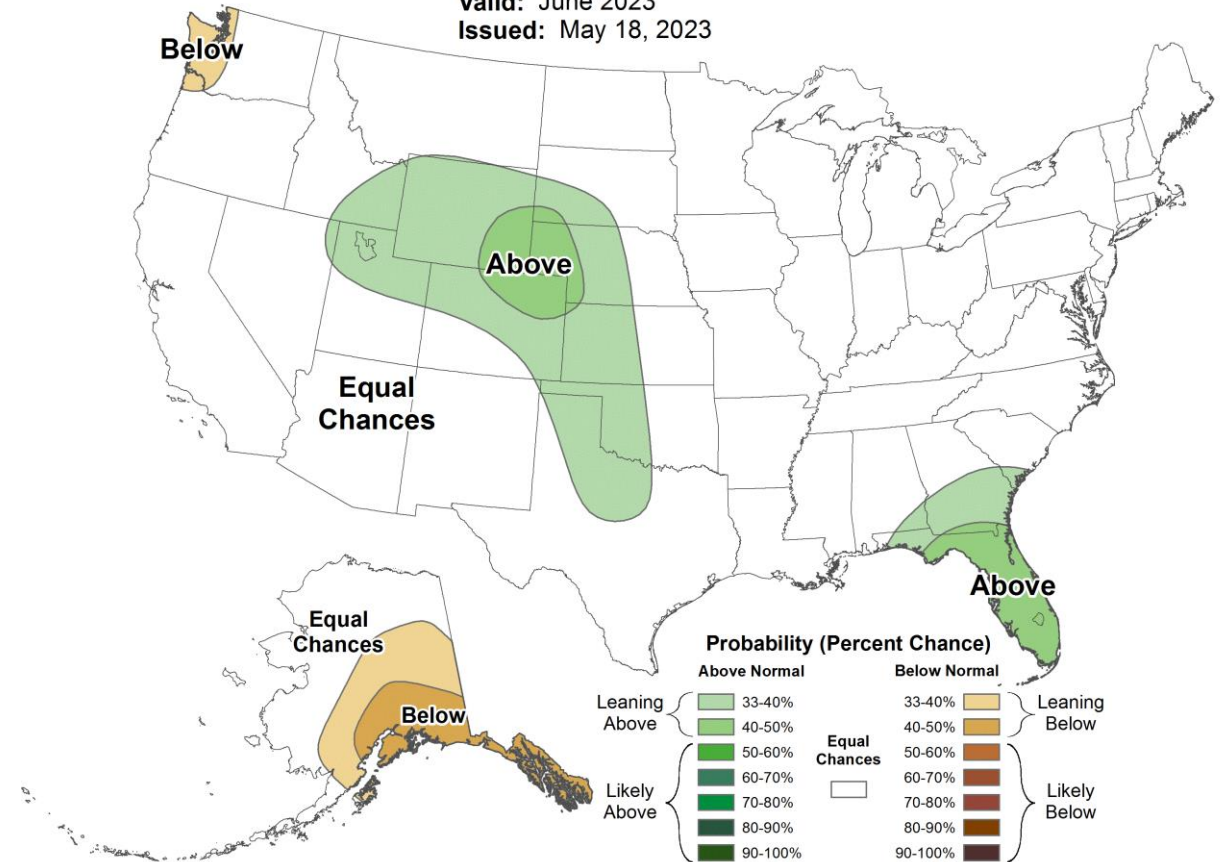
Valid: June 2023
Issued: May 18, 2023



Monthly Precipitation Outlook



Valid: June 2023
Issued: May 18, 2023



Three-Month Forecast (Jun, Jul, Aug)

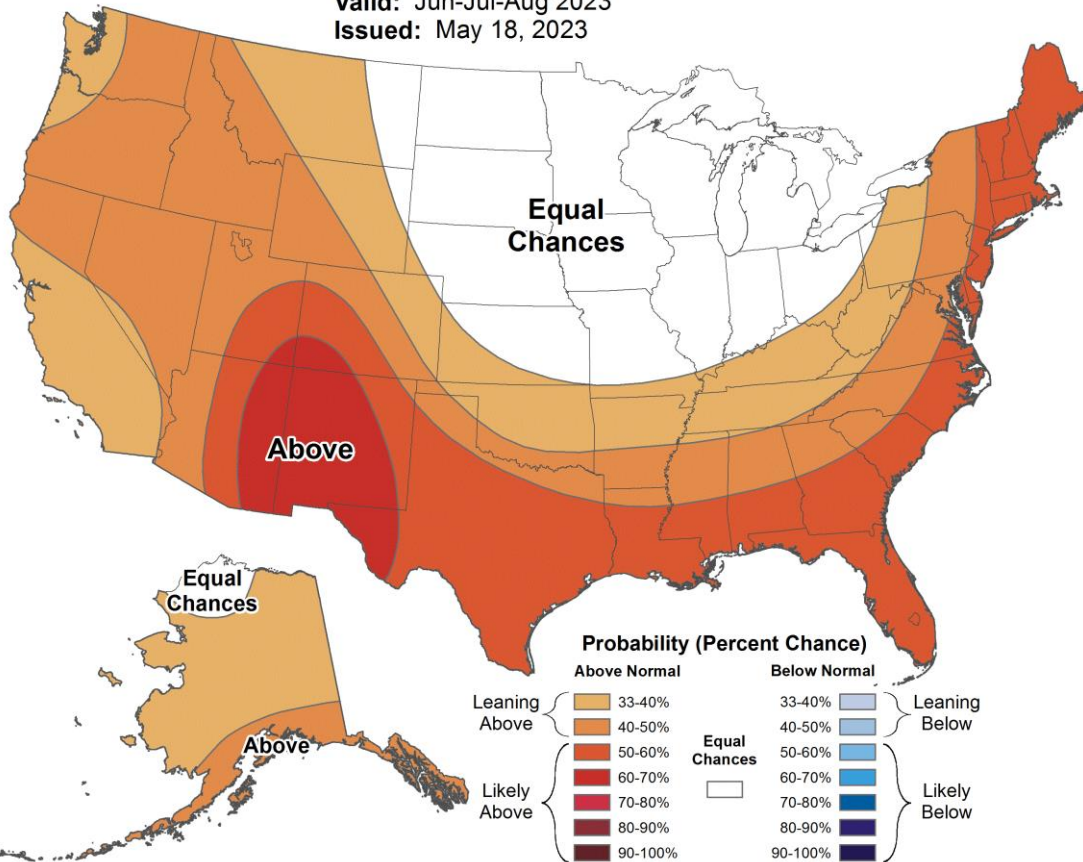
Jun-Jul-Aug Average
Temperature Probability

Jun-Jul-Aug Total
Precipitation Probability



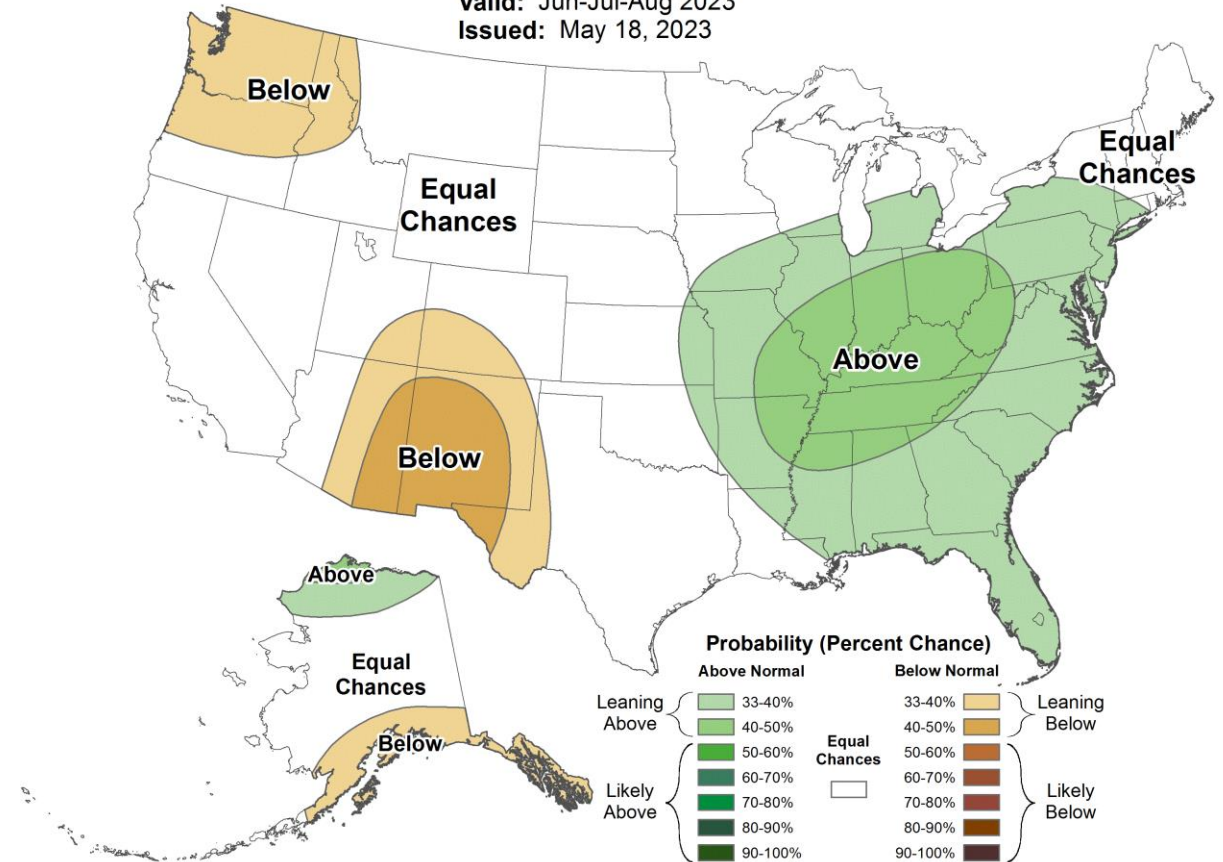
Seasonal Temperature Outlook

Valid: Jun-Jul-Aug 2023
Issued: May 18, 2023



Seasonal Precipitation Outlook

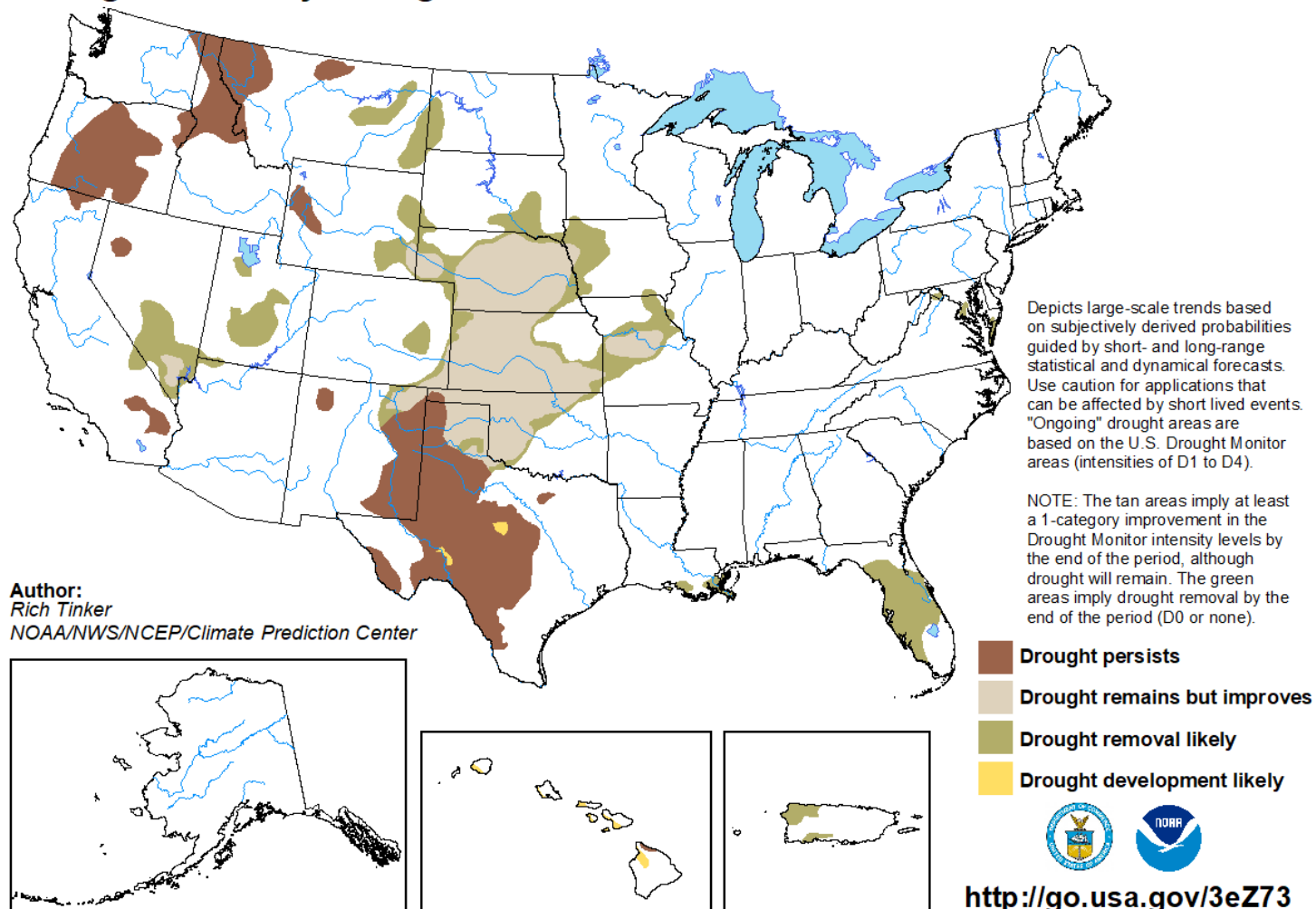
Valid: Jun-Jul-Aug 2023
Issued: May 18, 2023



Drought Outlook

U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period

Valid for May 18 - August 31, 2023
Released May 18



For More Information



Today's presentation:

- <https://www.ncei.noaa.gov/access/monitoring/monthly-report/briefings>

NOAA's National Centers for Environmental Information: www.ncei.noaa.gov

- Monthly climate reports (U.S. & Global): <https://www.ncei.noaa.gov/access/monitoring/monthly-report/>
- Dates for upcoming reports: <https://www.ncei.noaa.gov/access/monitoring/dyk/monthly-releases>

NOAA's Climate Prediction Center: www.cpc.ncep.noaa.gov

U.S. Drought Monitor: www.drought.gov

Climate portal: www.climate.gov

NOAA media contacts: john.jones-bateman@noaa.gov, 202-424-0929 (NOAA/NESDIS PAO)

