

National Oceanic and Atmospheric Administration

GCOS Atmospheric Observations Panel for
Climate (AOPC) - 19 September 2024

Climate Monitoring Activities at NCEI

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Climate Science and Services Division
NOAA's National Centers for Environmental Information

Overview

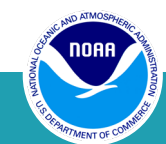
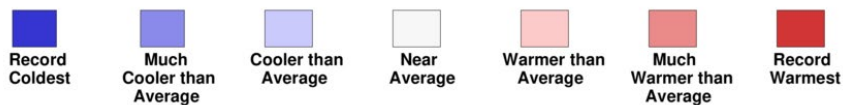
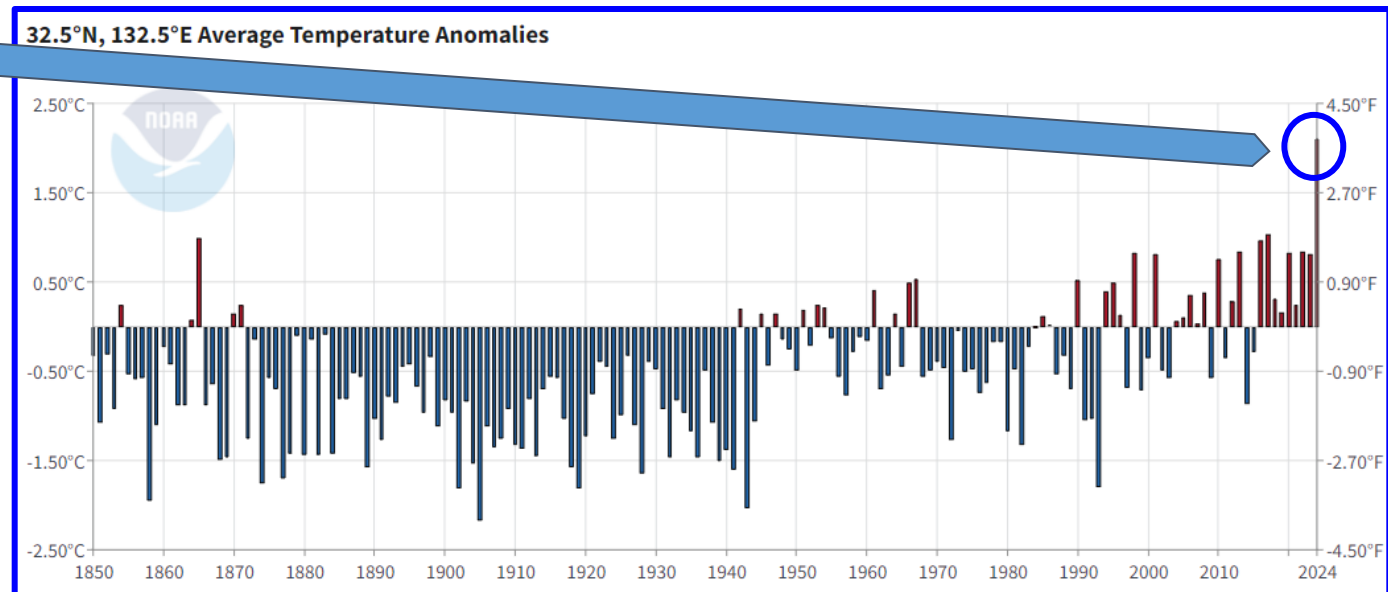
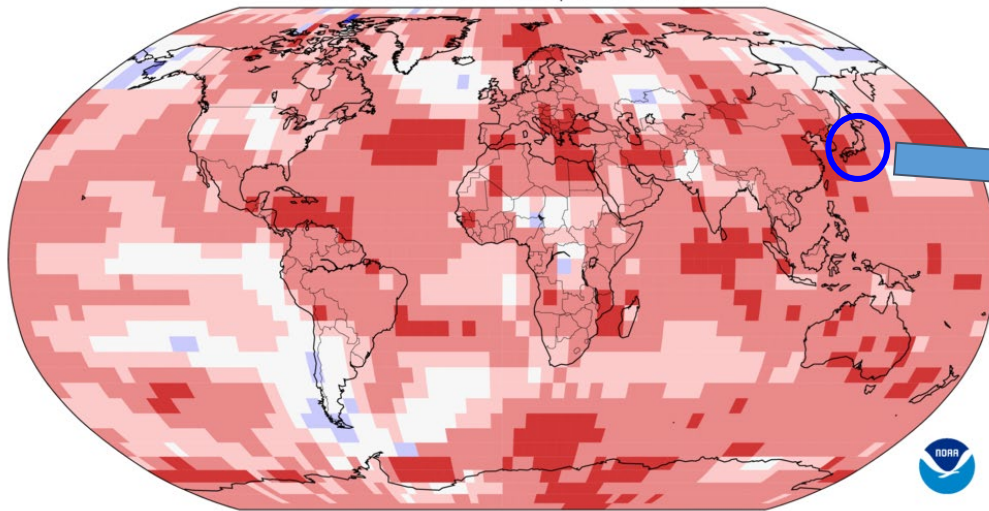
- What is Monitoring?
- How Monitoring Works
- Mission of Monitoring
- Highlights from Select Products/Tools



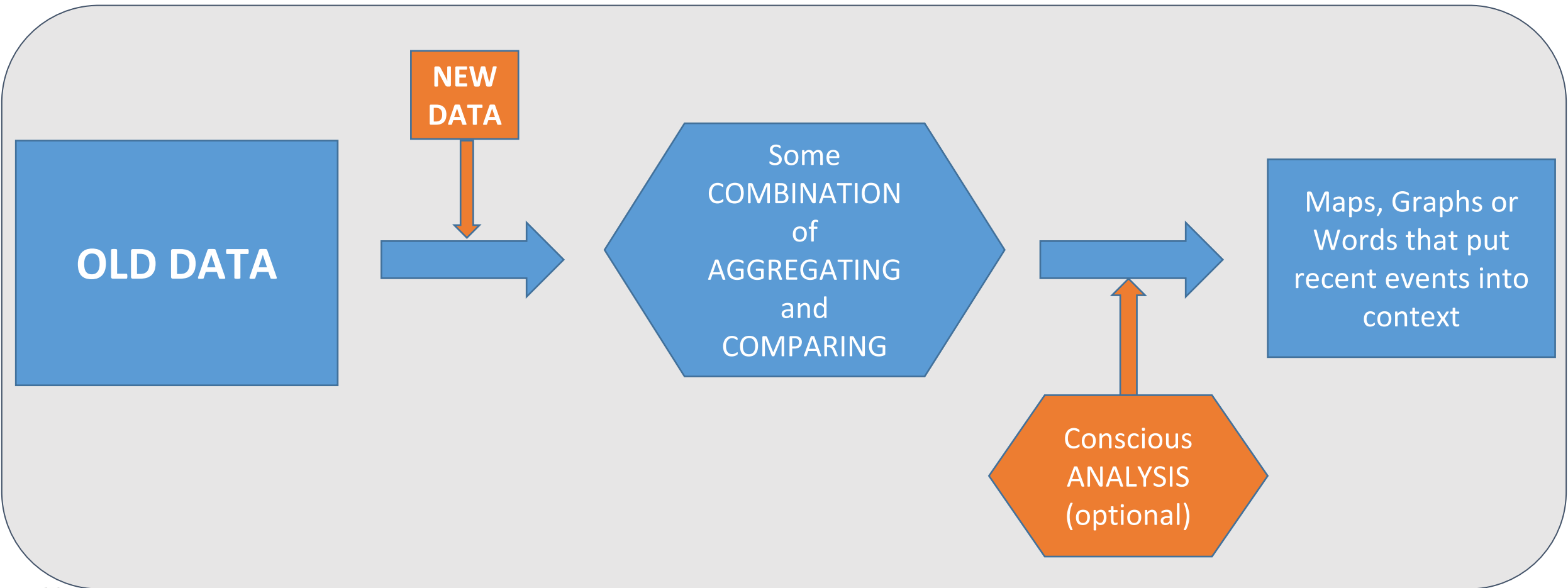
What is / Why Monitoring?

- It's a play-by-play of the current state of the climate, but with historical context
- A way for NCEI to turn data into information that can help a variety of users make more informed decisions
- Leverage and exercise full datasets
- Can showcase information/products
- Better inform the public about if/how our climate is changing

Land & Ocean Temperature Percentiles Aug 2024
NOAA's National Centers for Environmental Information
Data Source: NOAAGlobalTemp v6.0.0-20240908

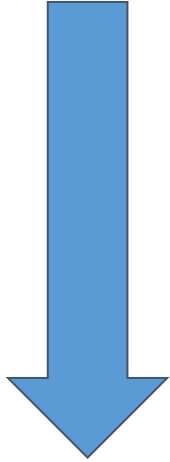


The Monitoring Process



Tiers of Handling in Monitoring

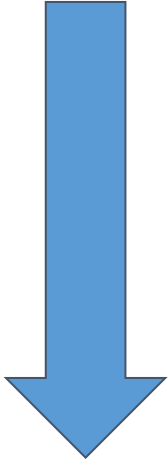
Generally
costlier as
you move
down this
list



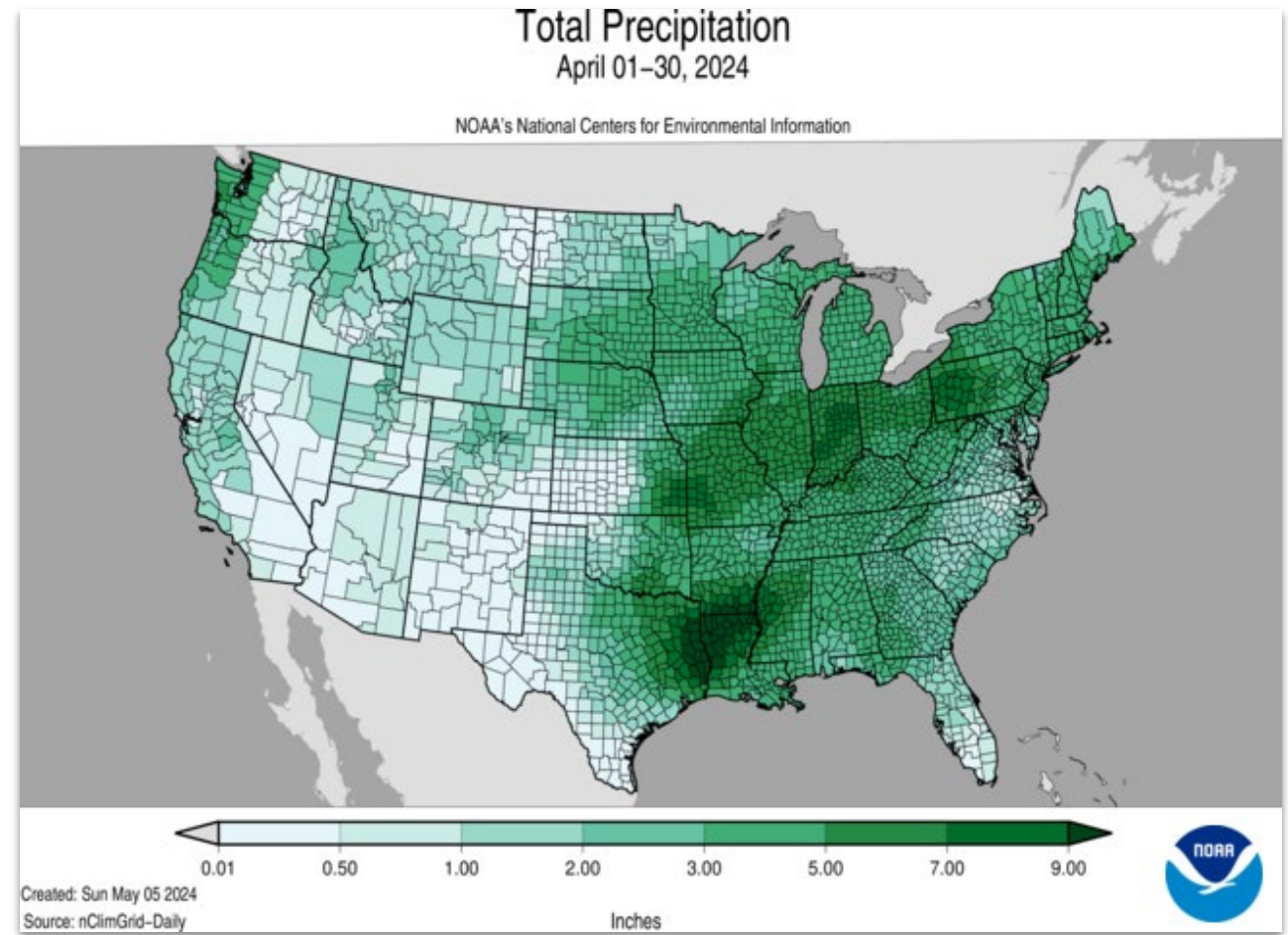
1. Observation
2. Departure
3. Unusualness
4. Trend
5. Impact

Tiers of Handling in Monitoring

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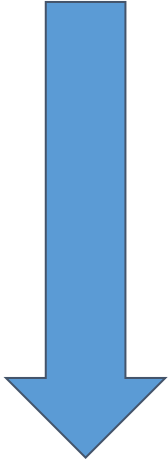


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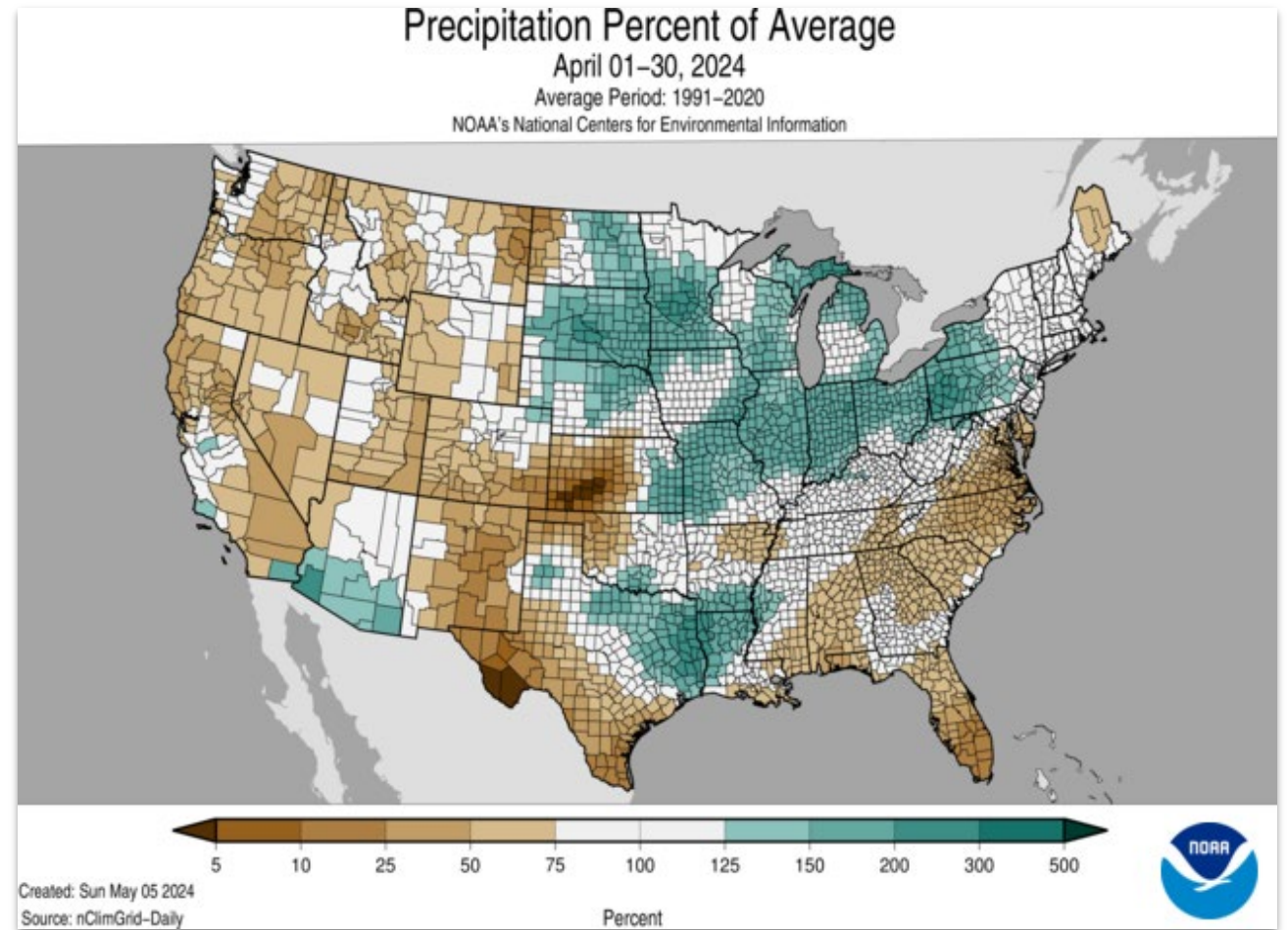


Tiers of Handling in Monitoring

Generally costlier as you move down this list

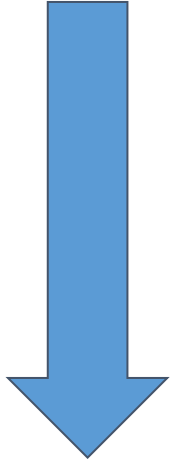


1. Observation
2. **Departure**
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5. Impact

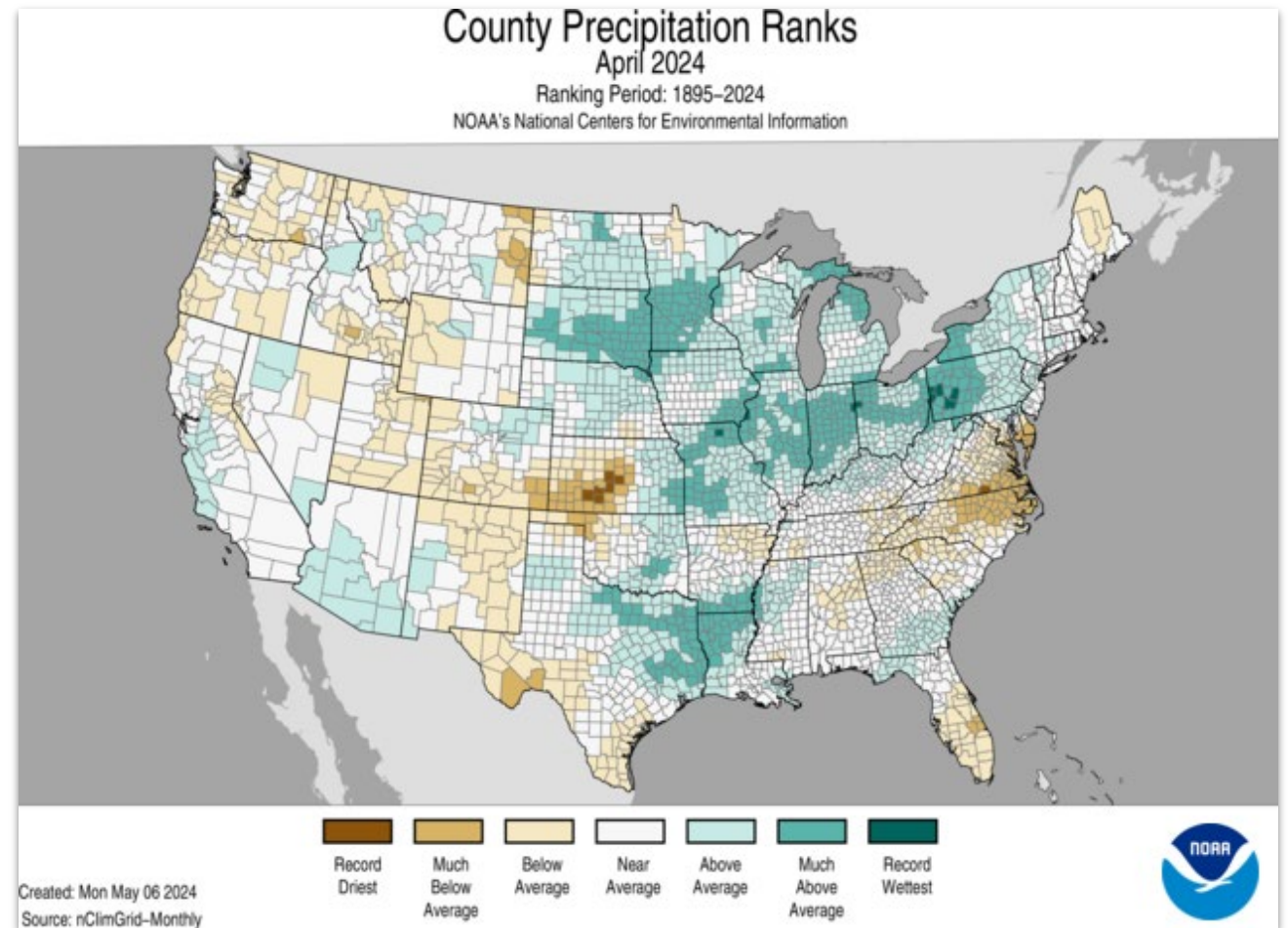


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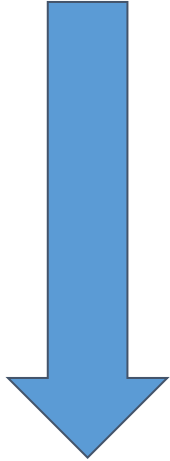


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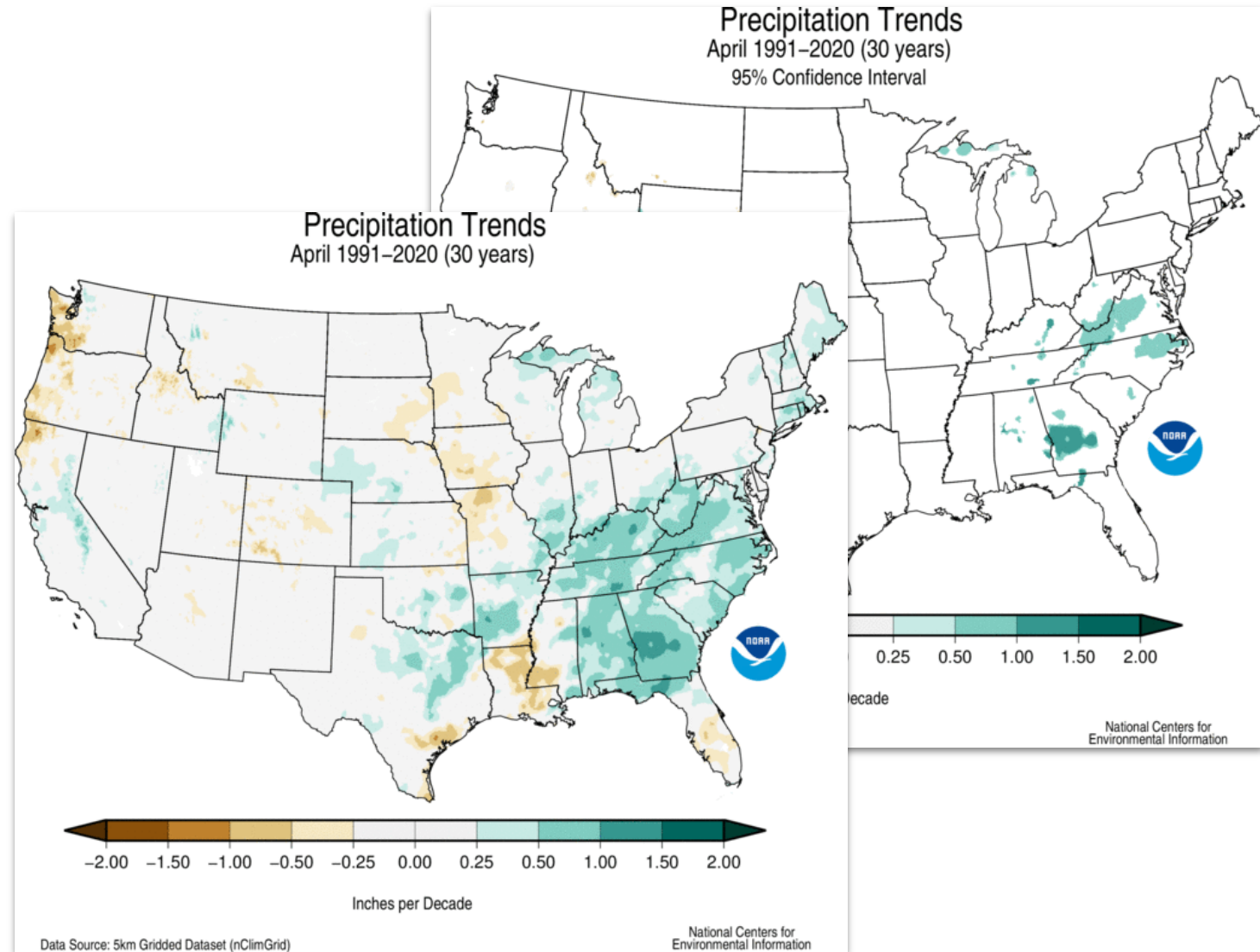


Tiers of Handling in Monitoring

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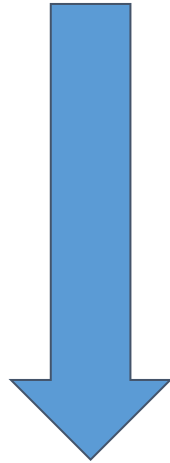


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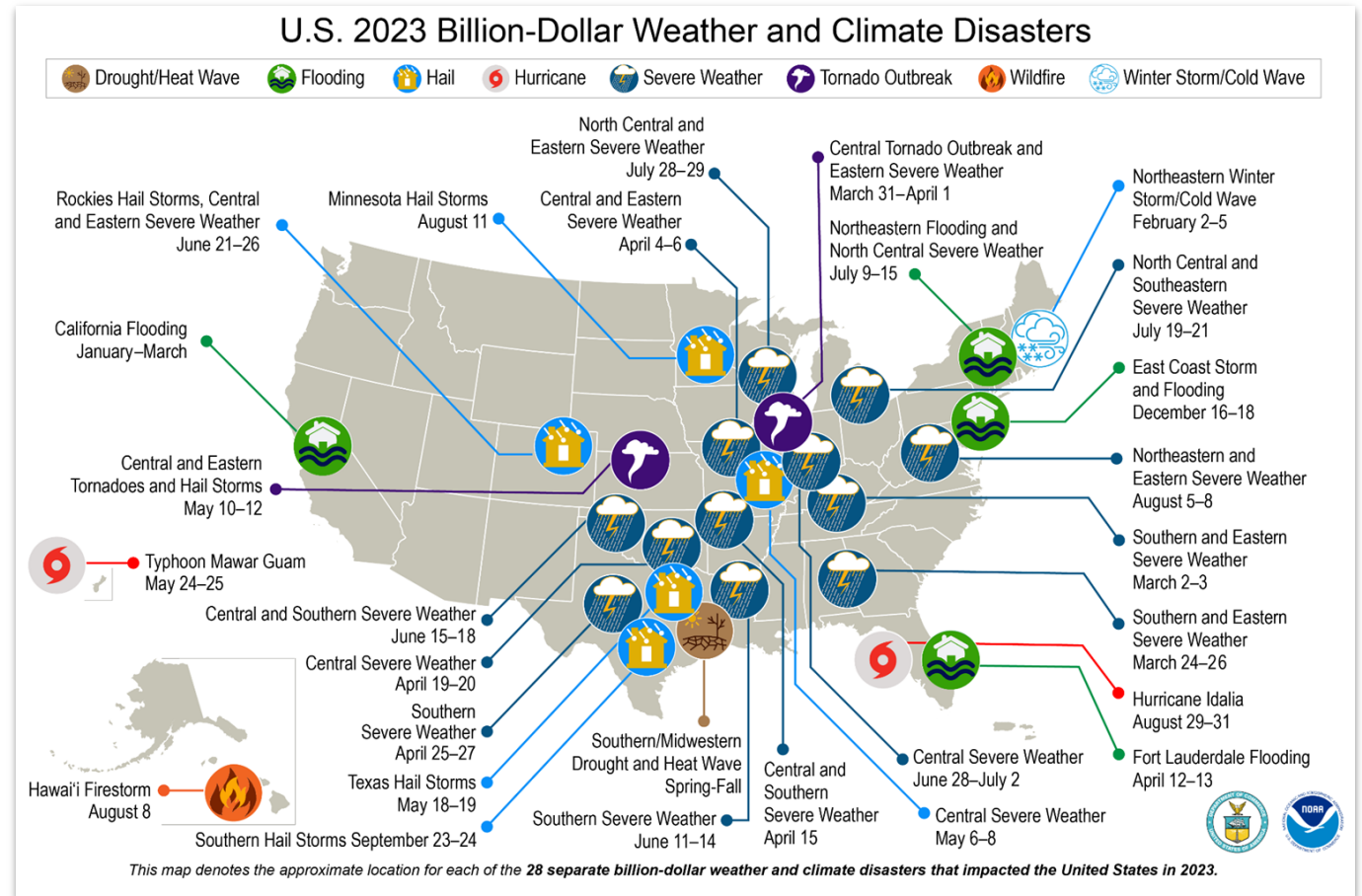


Tiers of Handling in Monitoring

Generally costlier as you move down this list



1. Observation
2. Departure
3. Unusualness
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5. Impact



Monitoring Mission & Vision

- Provide accurate, timely, and accessible environmental information to support science, research, and decision-making
- Strive to improve data accuracy, expand the collection of data/products available to customers, enhance data management, and increase accessibility
- Incorporate stakeholder input, including government agencies, research institutions, industries, and the public to understand their data needs and priorities

The Monitoring Section plays a crucial role in advancing environmental monitoring and the provision of valuable information to support science, research, and policy decisions



Monitoring Reports

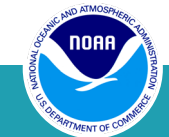
Click for
schedule of
upcoming
releases

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

Every month, Monitoring releases a U.S and a global report.

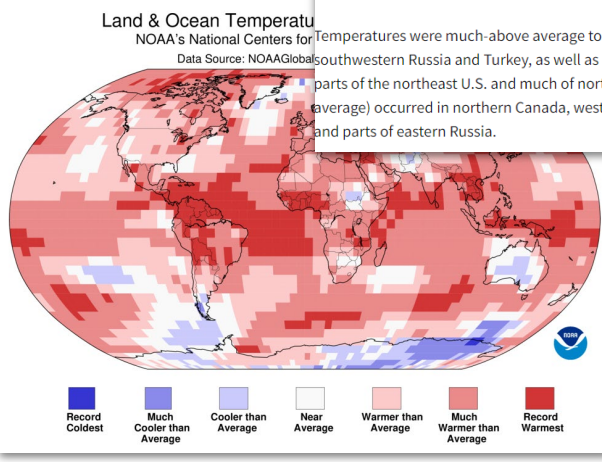
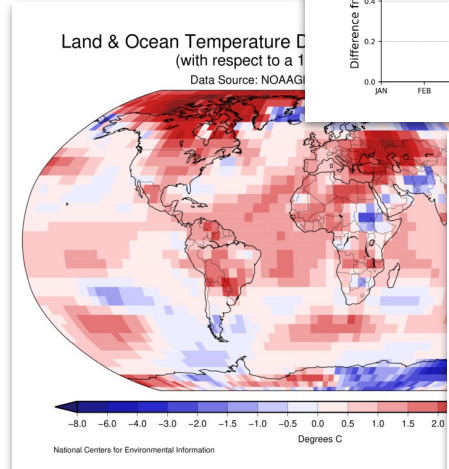
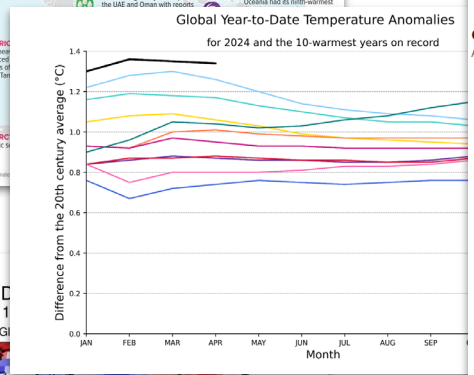
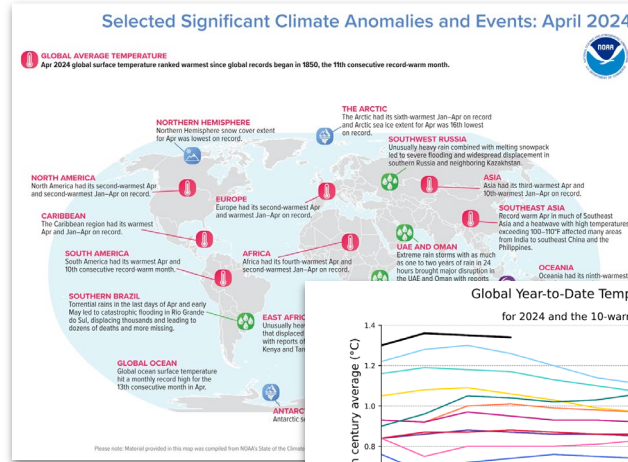
- Release of U.S. data/highlights: 6th-8th of following month, full report 3 business days later
- Release of global report: 10th-13th of following month

The screenshot displays the NOAA State of the Climate website. At the top, the NOAA logo and 'National Centers for Environmental Information' are visible. The page title is 'State of the Climate'. A search bar is present in the top right. Below the header, a navigation bar includes 'Home / Climate Monitoring / State of the Climate' and a date announcement: 'October US Release: Tue, 8 Nov 2022, 11:00 AM EST'. The main content area features a 'Monthly Reports' section with a 'View Report' button. Below this, there are filters for 'Report' (Global Climate Report), 'Year' (2022), and 'Month' (September). A grid of report cards is shown, including 'National Summary Information', 'National Climate Report', 'Drought Report', 'Wildfires Report', 'National Snow and Ice Report', 'Tornadoes Report', 'Synoptic Discussion', and 'Global Summary Information'. Each card has an 'Access Now' button.



Monitoring Reports - Global

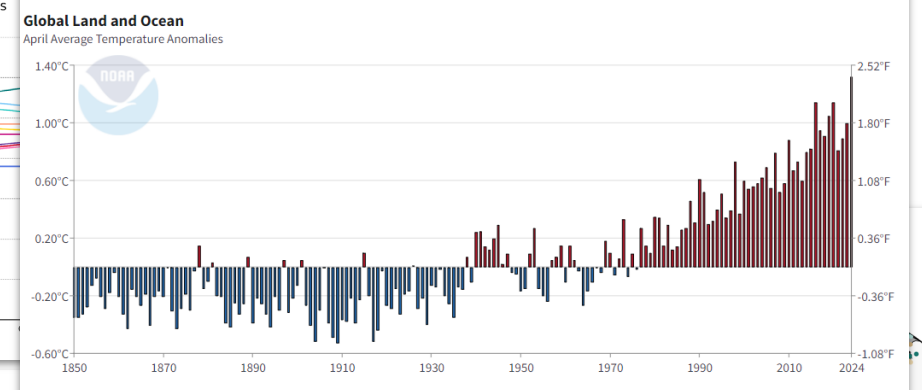
- Significant Events Map
- Temperature summary (month/season/YTD)
- Interactive temperature timeseries plot
- Hemispheric/continental stats
- Departure and Percentiles maps
- Regional highlights
- Precipitation summary
- Global drought summary



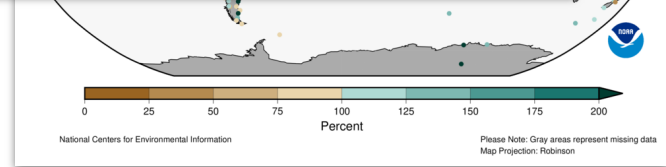
April 2024

April 2024 was the warmest April on record for the globe in NOAA's 175-year record. The April global surface temperature was 1.32°C (2.38°F) above the 20th-century average of 13.7°C (56.7°F). This is 0.18°C (0.32°F) warmer than the previous April record set most recently in 2020, and the eleventh consecutive month of record-high global temperatures. April 2024 marked the 48th consecutive April with global temperatures, at least nominally, above the 20th-century average.

Global land-only April temperature was warmest on record at 1.97°C (3.55°F) above average. The ocean-only temperature also ranked warmest on record for April at 1.03°C (1.85°F) above average, 0.17°C (0.31°F) warmer than the second warmest April of 2023, and the 13th-consecutive monthly ocean record high. These temperatures occurred as the current El Niño episode nears its end. El Niño conditions that emerged in June 2023 weakened further in April, and according to NOAA's Climate Prediction Center, a transition from El Niño to ENSO-neutral is likely in the next month, with odds of La Niña developing by June–August (49% chance) or July–September 2024 (69% chance).



Temperatures were much-above average to record warm throughout much of South America, Africa, central and southern Europe, southwestern Russia and Turkey, as well as much of Asia's Far East. Temperatures were also much warmer-than-average across large parts of the northeast U.S. and much of northern Canada. The largest temperature anomalies (greater than 3°C or 5.4°F above average) occurred in northern Canada, western and northern Greenland, eastern Europe, central Asia, southeast Asia, eastern China and parts of eastern Russia.



Monitoring Reports - U.S.

- Significant Events Map
- Temperature & precipitation summary & maps (month/season/YTD)
- Regional highlights
- Billion Dollar Wx/Cx Disasters
- Drought summary
- Snow/ice summary
- Tornado summary
- Synoptic summary

U.S. Selected Significant Climate Anomalies and Events April 2024

On Apr 19, a rare tornado was reported in AK's Chugach State Park, making this the fifth tornado on record since its statehood in 1959.

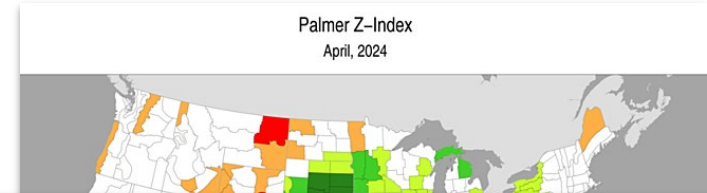
On Apr 30, about 17% of the contiguous U.S. was in drought, down about 1% from the beginning of Apr. Drought conditions expanded or intensified in much of the central and southern Plains, and parts of the Northwest and Southeast this month. Drought contracted or was reduced in intensity across much of the central MS Valley and Upper Midwest, and in parts of the Southwest, northern Plains, HI and PR.

Snowpack usually peaks from early to mid Apr, but many basins in WA, ID and western MT saw only 60–70% of normal this year.

Flash droughts over KS and western OK and poor wheat crop.

A strong low-pressure system brought heavy rain and thunderstorms to Kauai on Apr 11–12, with over 10 in. of rainfall in less than 12 hours, prompting several evacuations and multiple road closures.

On Apr 25–28, over one hundred parts of the Mid damage and lo



Regional Highlights

These regional summaries were provided by the six [Regional Climate Centers](#) and reflect conditions in their respective regions. These six regions differ spatially from the [nine climatic regions](#) of the National Centers for Environmental Information.

Northeast (Information provided by the [Northeast Regional Climate Center](#))

While conditions were variable, April leaned to the warm and wet side of normal for the Northeast as a whole.

National Overview April Highlights

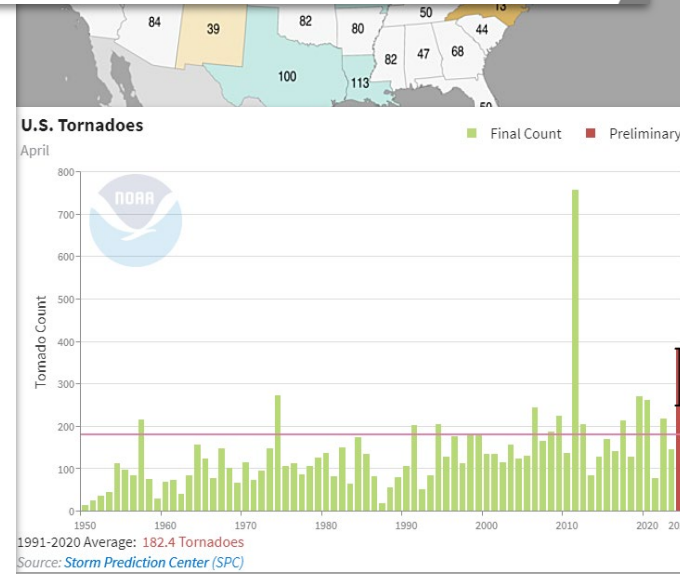
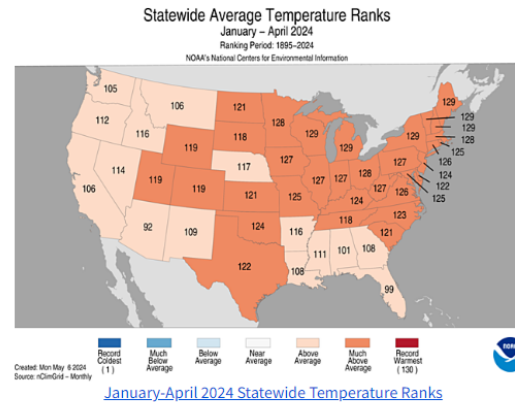
January–April Temperature

For the January-April period, the average contiguous U.S. temperature was 43.0°F, 3.8°F above average, ranking fifth warmest on record for this period.

[Temperatures](#) were above average across nearly all of the contiguous U.S., while record-warm temperatures were observed in parts of the Northeast and Great Lakes.

[Wisconsin](#), [Michigan](#), [New York](#), [Vermont](#), [New Hampshire](#) and [Maine](#) each ranked second warmest on record, while an additional 22 states ranked in their top-10 warmest year-to-date period. No state experienced a top-10 coldest event for this four-month period.

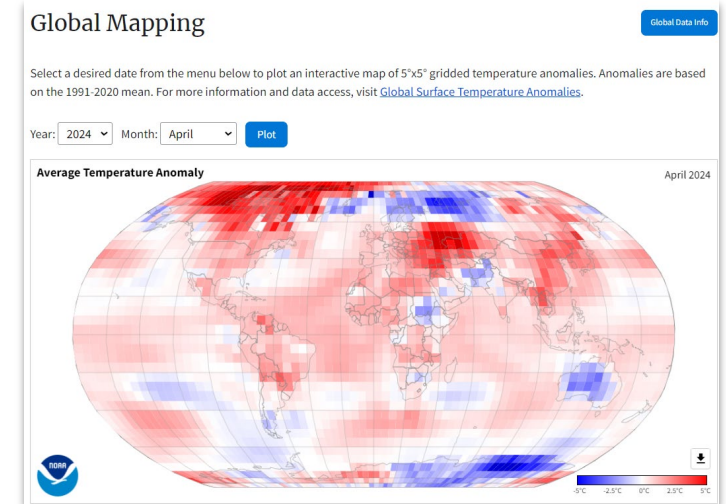
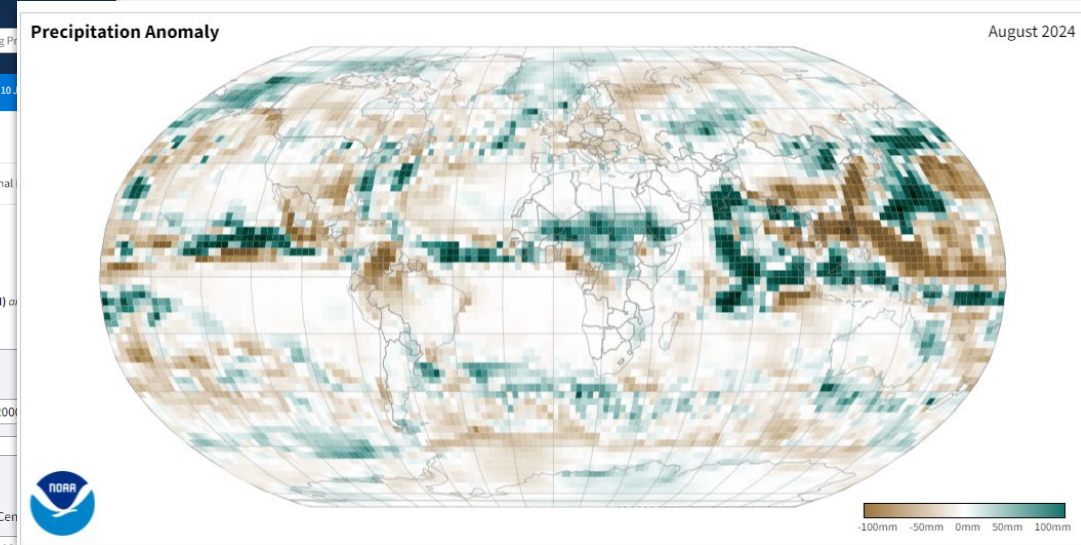
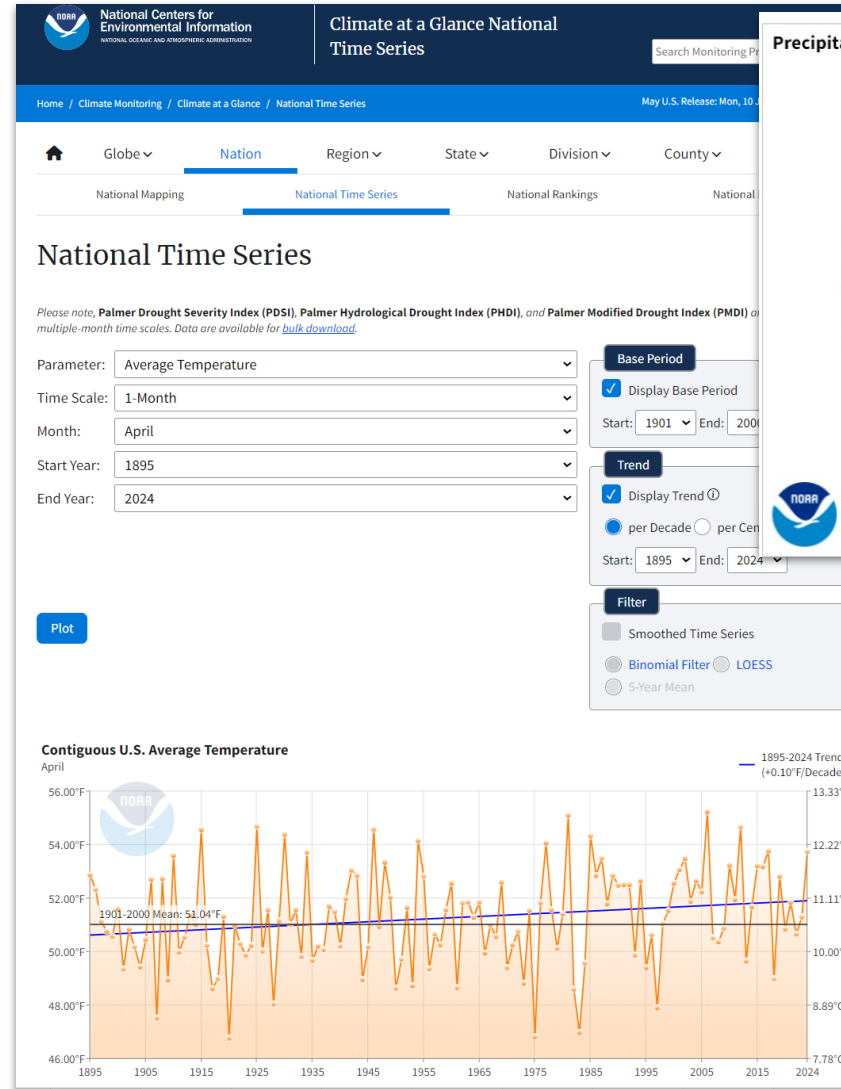
The [contiguous U.S. average maximum \(daytime\) temperature](#) during January-April was 54.0°F, 3.6°F above the 20th century average, ranking eighth warmest in the historical record. [Above-average temperatures](#) were observed across much of the conterminous U.S., while near- to below-average temperatures were observed in parts of the West, western Plains and Southeast. [Michigan](#) had its second-warmest January-April period on record for daytime temperatures. An additional 21 states ranked among their top-10 warmest for daytime temperatures during this period.



Climate at a Glance (CAG)

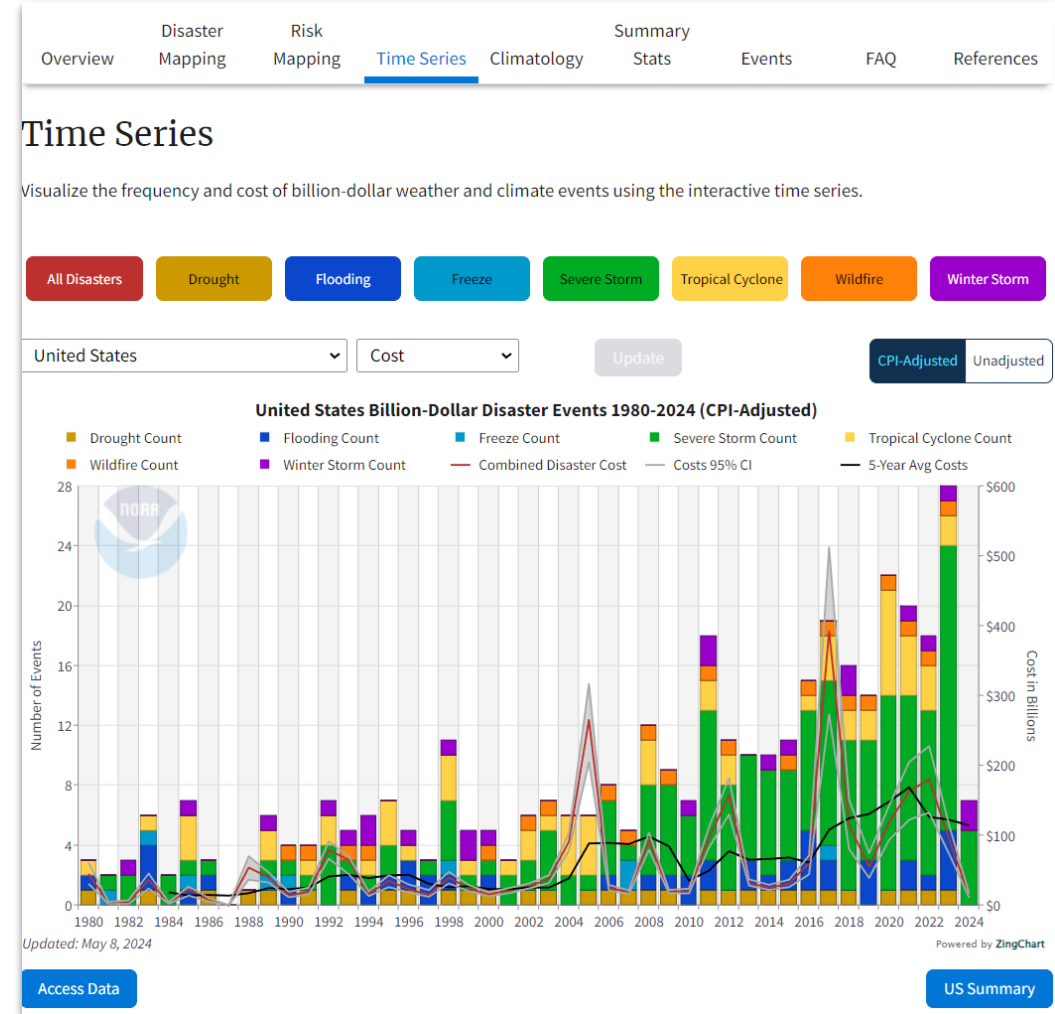
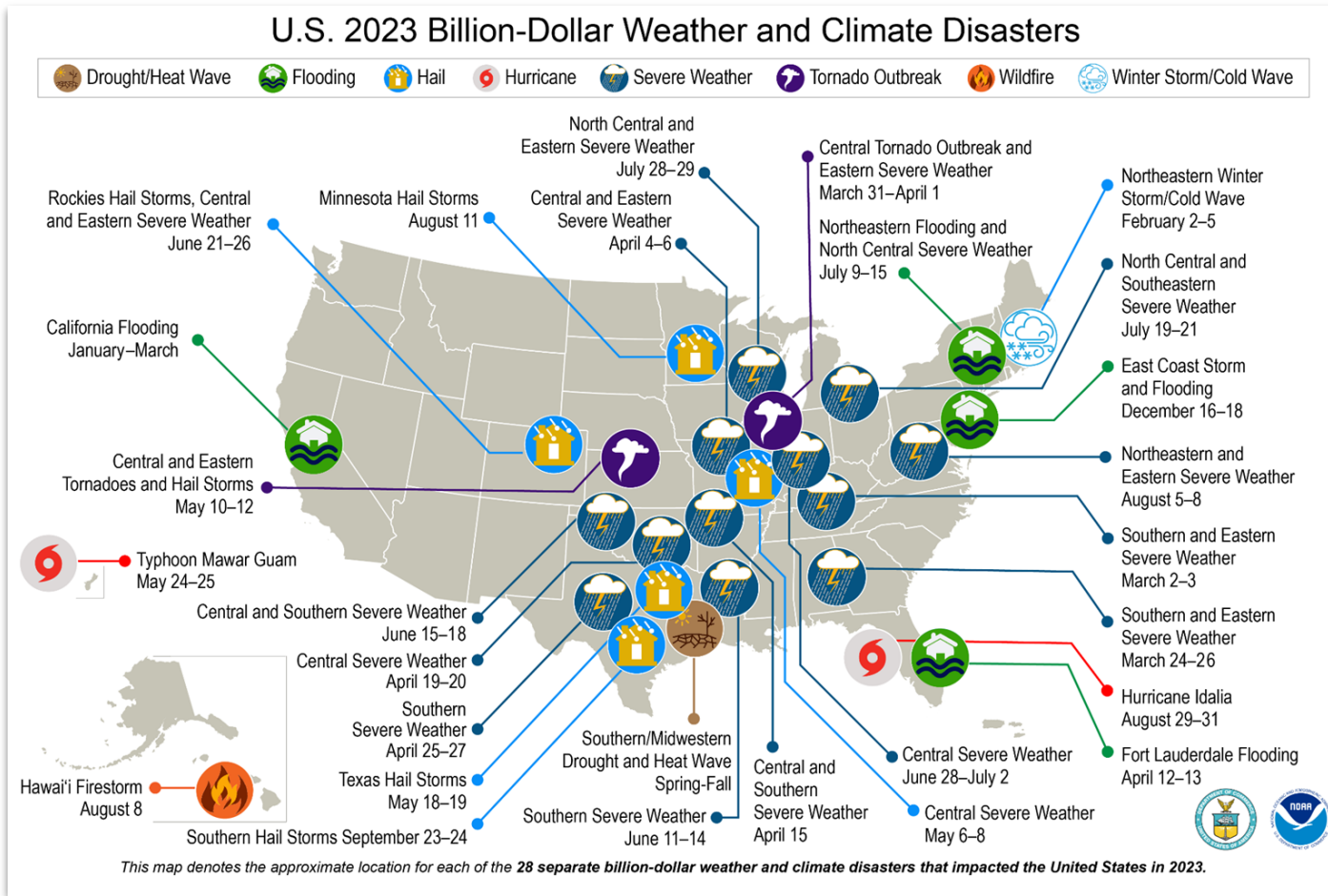
<https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/>

- Menu-driven system to analyze global, national, regional, state, local trends
- Best climate data we have at this scale: homogenous, rural-dominated, corrected for artifacts
- Web services underneath the interface can be leveraged by outside apps

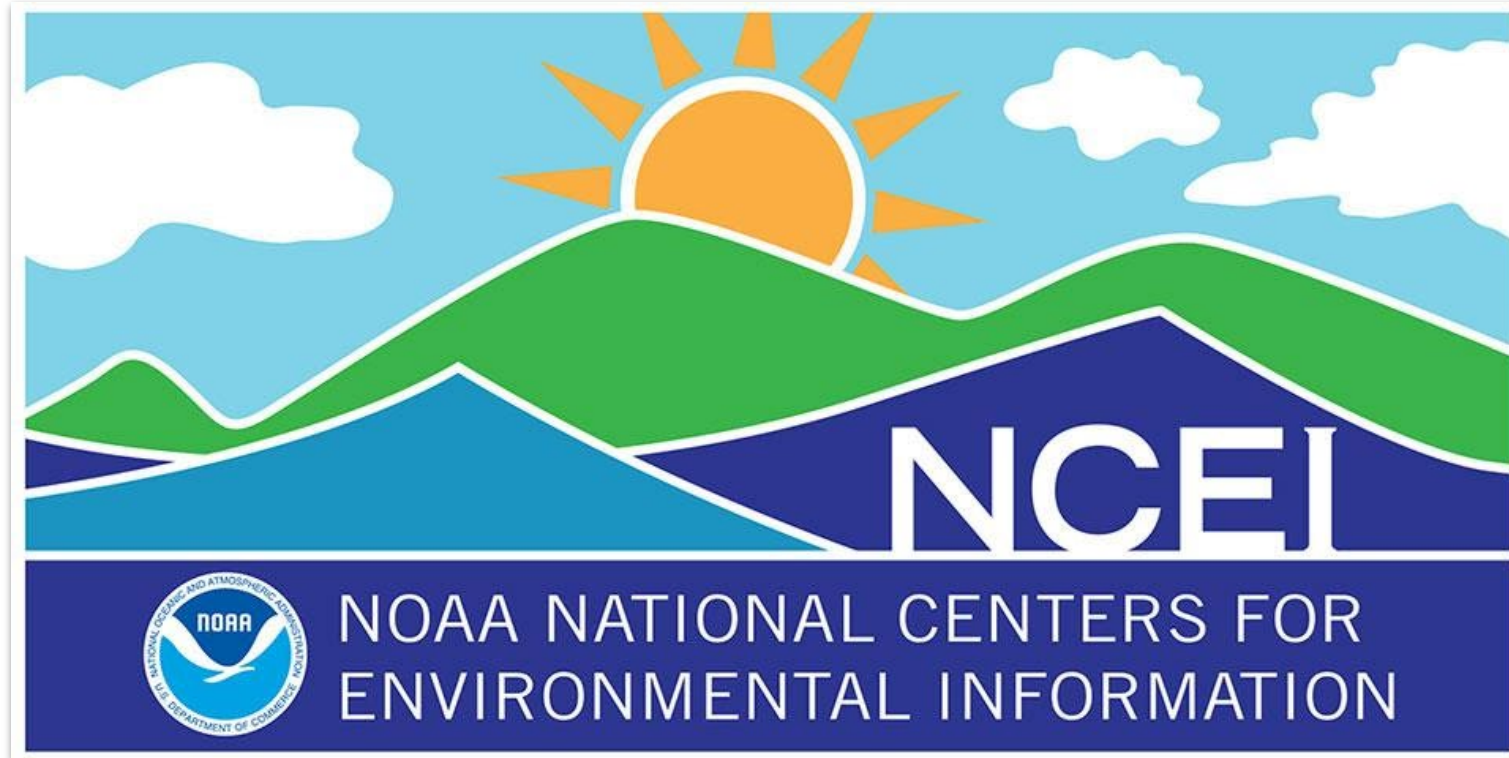


Billion Dollar Weather & Climate Disasters

<https://www.ncei.noaa.gov/access/billions/>



Thank You



Karin.L.Gleason@noaa.gov



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