Weather, Climate & Drought: Trends and Tools

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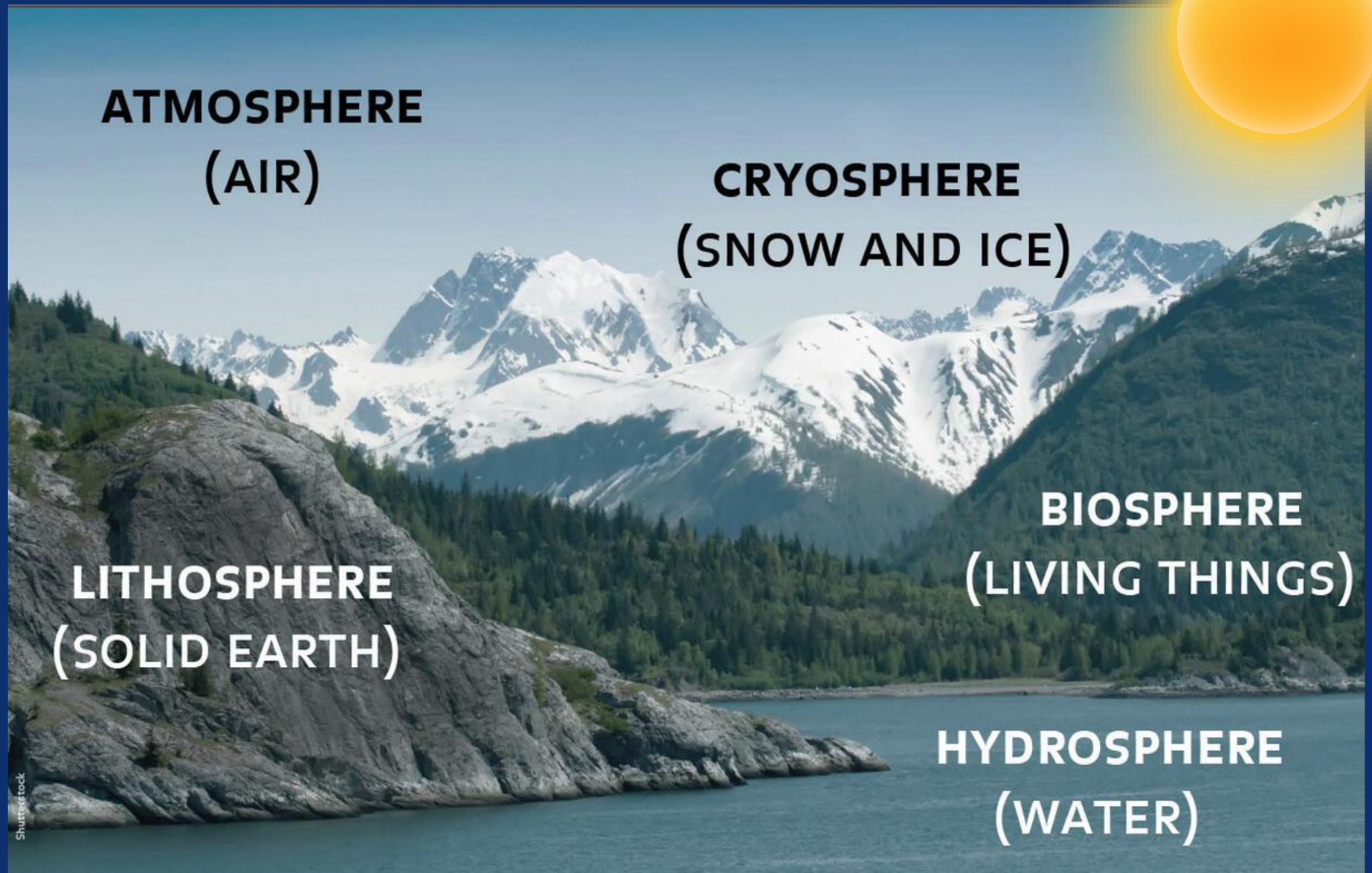
March 2025

UNIVERSITY OF CALIFORNIA
Agriculture and Natural Resources

Content

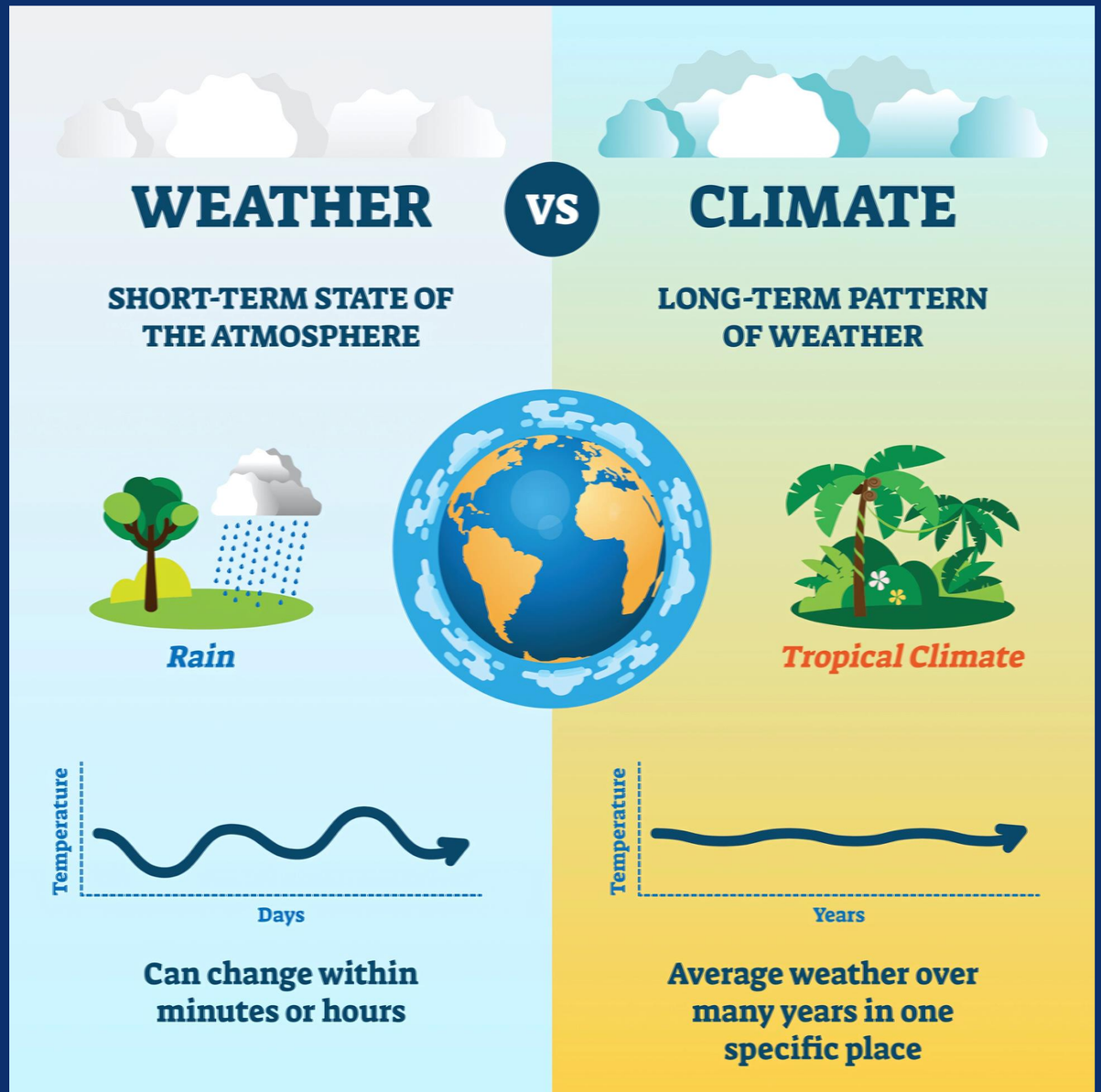
1. The basics: Climate system
2. What is the difference between:
   Weather, Climate, and Climate Change?
3. Status of 2025 (warm/cool and dry/wet year)
4. Droughts: Indicators and Historic droughts
5. Climate and Drought Adaptation Strategies

The Climate System



The Climate System determines:

What's the difference between...



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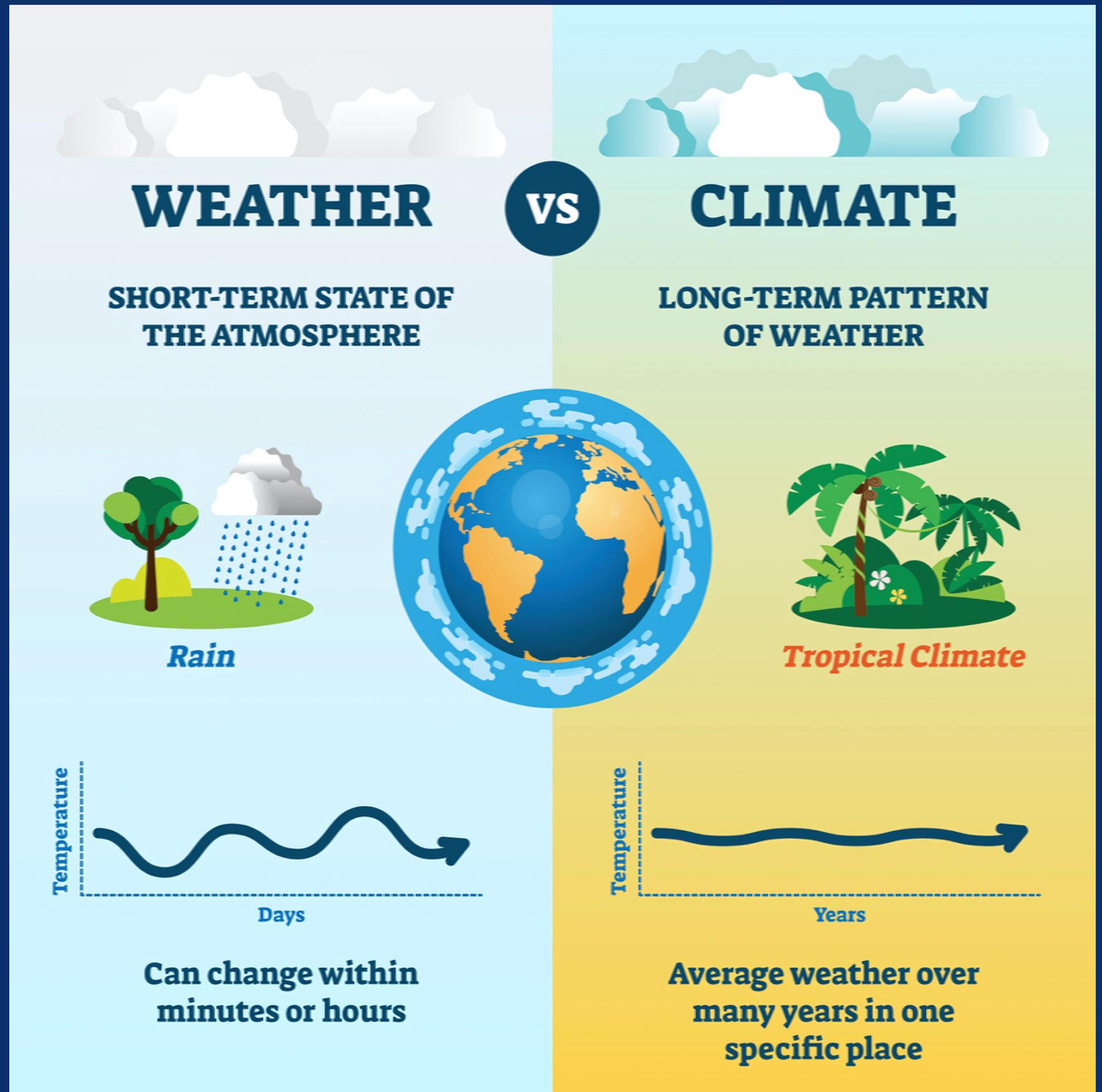


Lake and Mendocino experiences a Mediterranean-style climate

- **A long, dry, and warm summer**
- **A wet, mild winter with occasional snow on the mountaintops.**

The Climate System determines:

What's the difference between...

WEATHER

SHORT-TERM STATE OF THE ATMOSPHERE

Rain

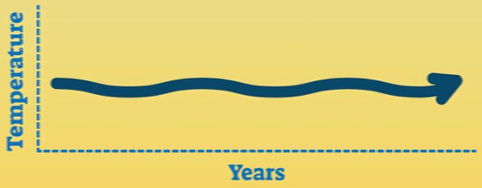
Can change within minutes or hours

VS

CLIMATE

LONG-TERM PATTERN OF WEATHER

Tropical Climate



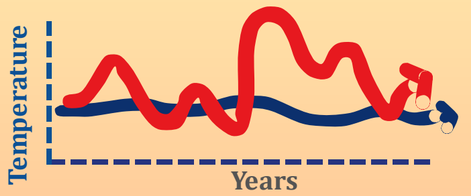
Average weather over many years in one specific place

VS

CLIMATE CHANGE

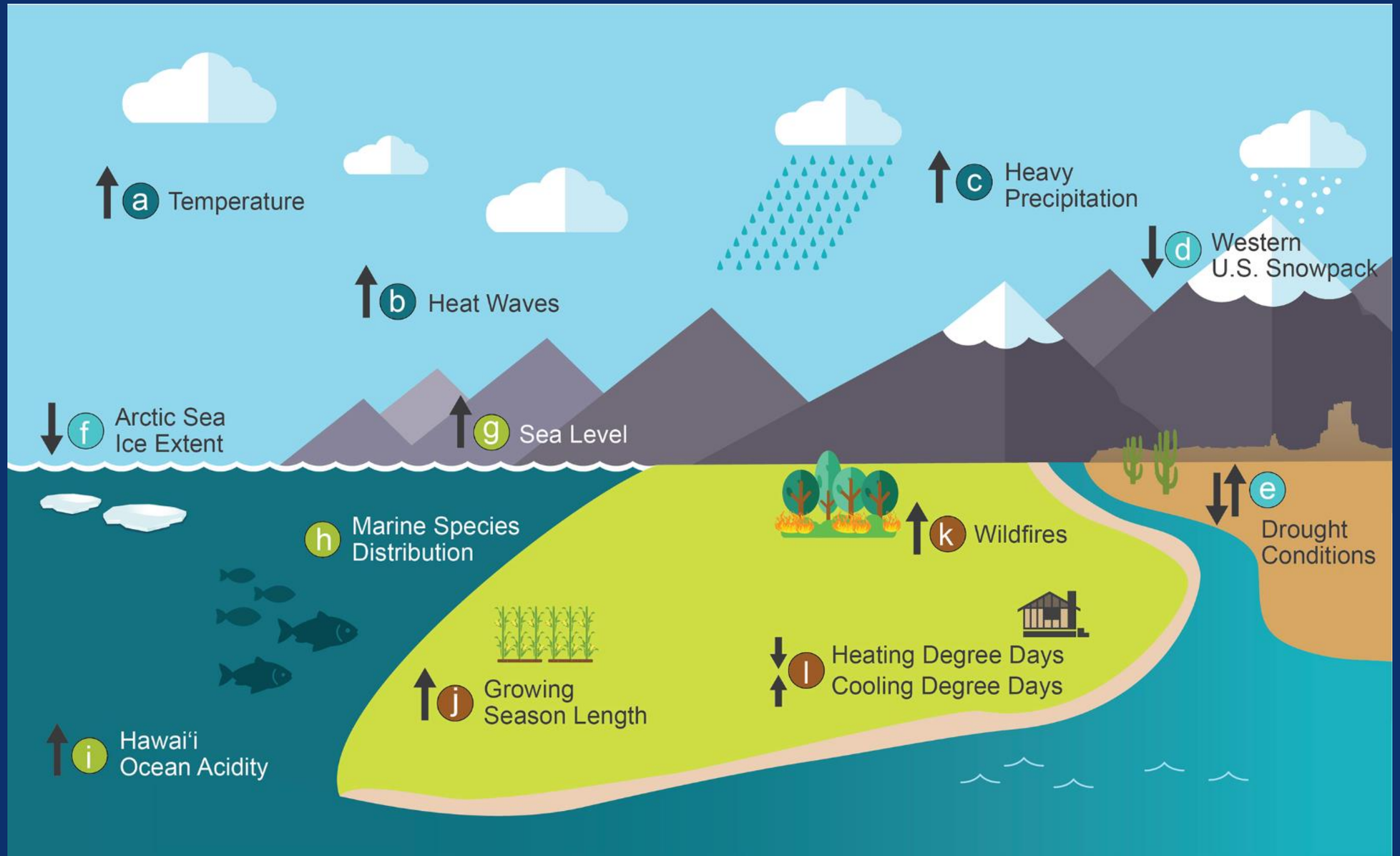
CHANGE FROM AVERAGE OF HISTORIC CLIMATE

Intense floods and droughts



Changes in the average state of the climate or in its variability through an extended period (typically decades or longer).

Indicators of Change



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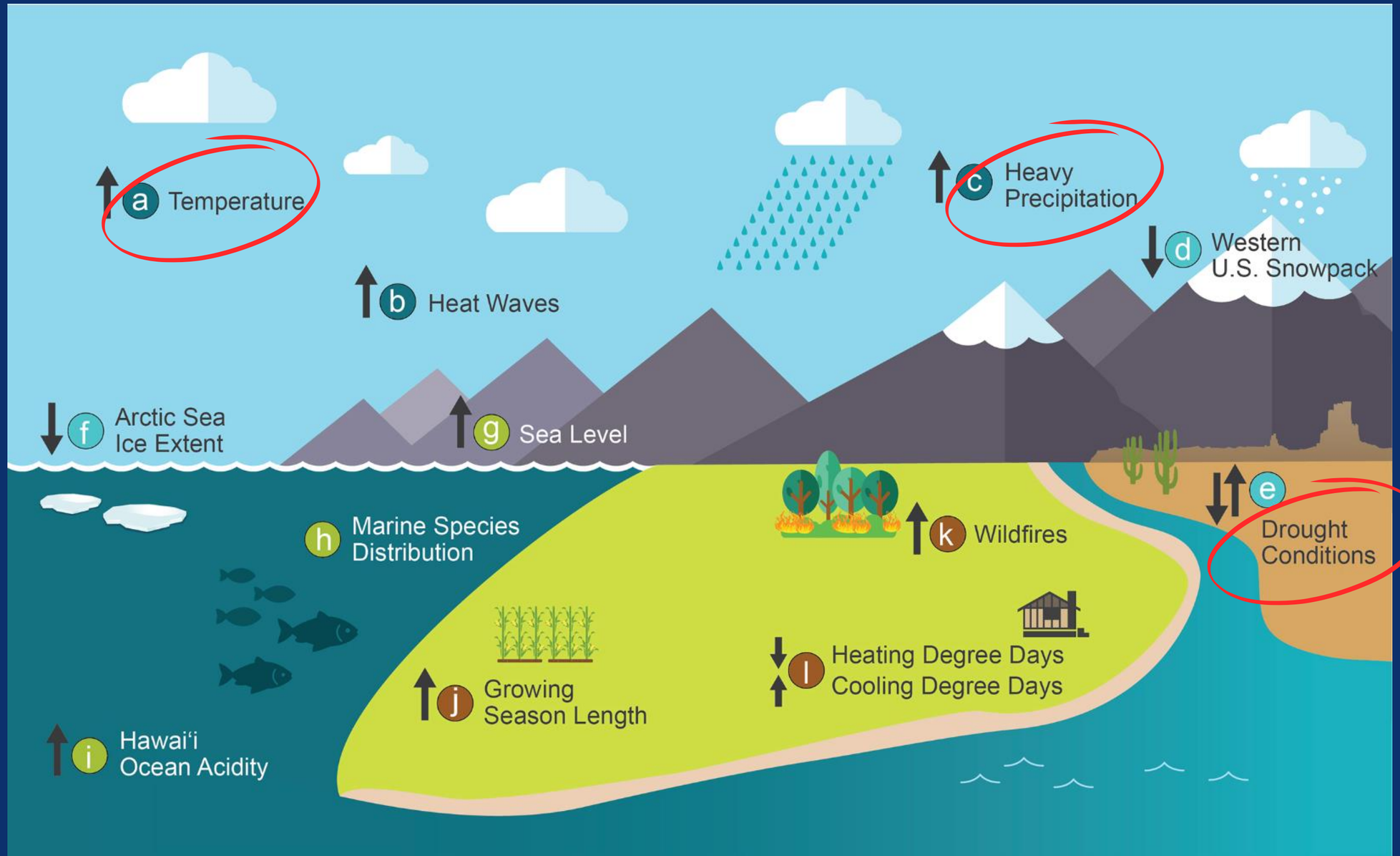


How’s 2025 looking…

- Is it warmer or colder than normal?
- Is it wetter or drier than normal?
- Are there any early warnings of a drought?

Some insights…

REGION GROWERS NEWS & EVENTS ABOUT

LAKE COUNTY WINEGROWERS

Weather & Climate Reports

These reports are written and published by Dr. Gregory Jones. They provide a synopsis of recent weather conditions and trends with forecasts for the coming months.

March 2025

"The forecast for February held to a cool and wet month in the PNW and northern states and a dry month in California and the southwest. However, portions of California and the Basin were warmer than forecast…"
View Report

February 2025

"After a relatively warm and wet December, January turned cooler and generally drier over the western US…"
View Report

January 2025

"December over the western US was warmer than normal, although much cooler than December 2023…"
View Report

November 2024

"October continued a run of very nice conditions to end the 2024 vintage. Generally mild to warm temperatures and not much precipitation until late in October made for a vintage with little to no pressure to pick until the fruit was showing its best flavors and acidity. Overall, October 2024 was largely warmer than normal over the western US…" View Report

Meetings

< FEB MARCH 2025 APR >

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26 LCWC E	27	28	29
30	31					

News

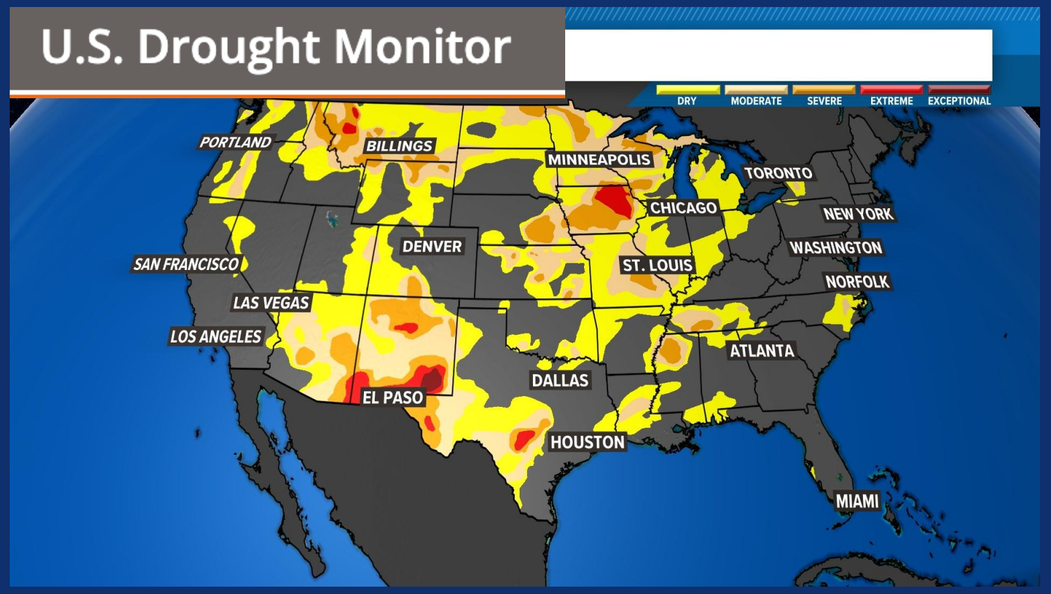
Community Spotlight: Erica Lundquist, NRCS District Conservationist

Recently appointed as District Conservationist, USDA…

Climate and Drought tool kit

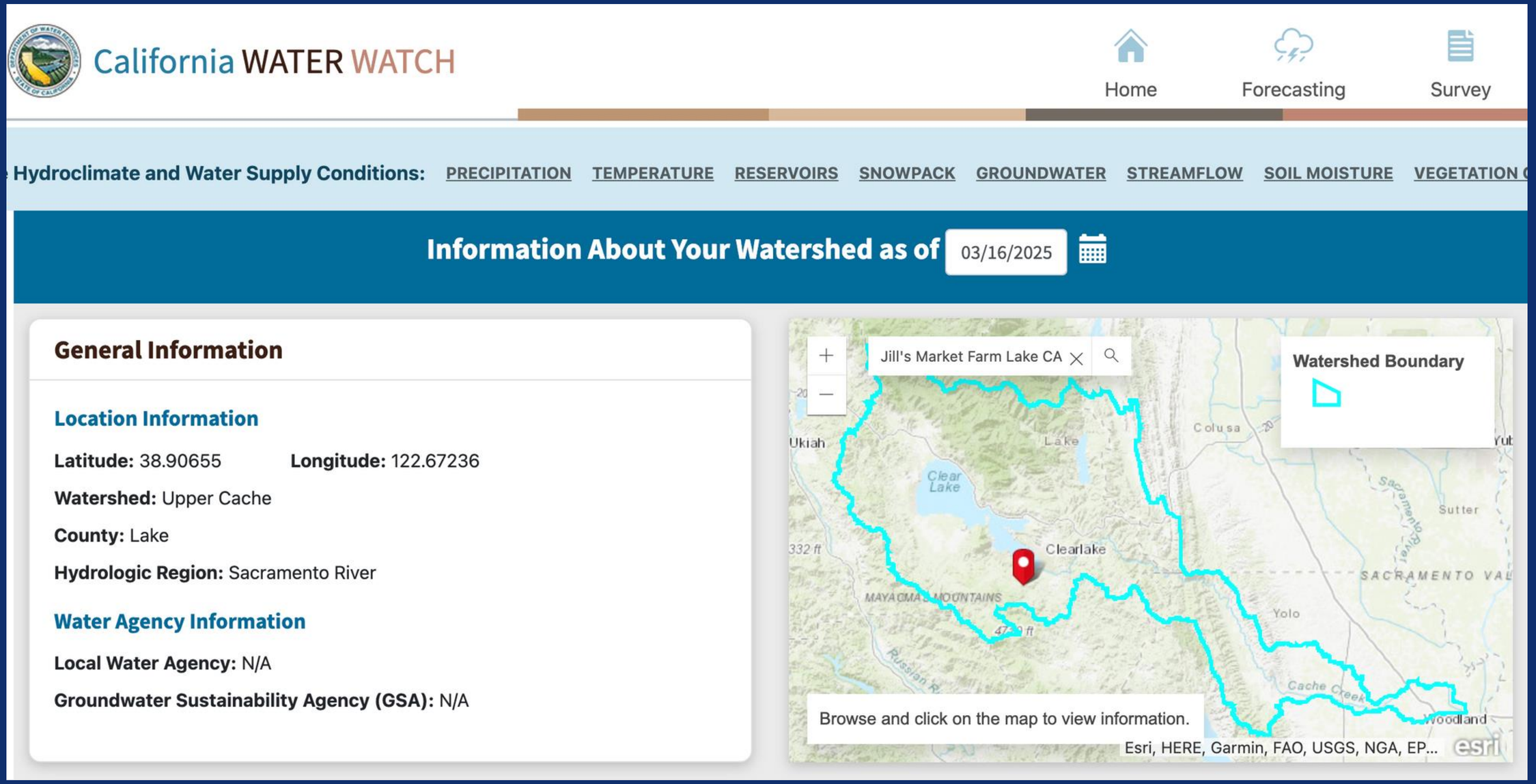
California WATER WATCH

NOAA NIDIS Drought.gov
National Integrated Drought Information System



Are we in a warm or cool year?

Let’s use some tools



Are we in a warm or cool year?

Temperature Index

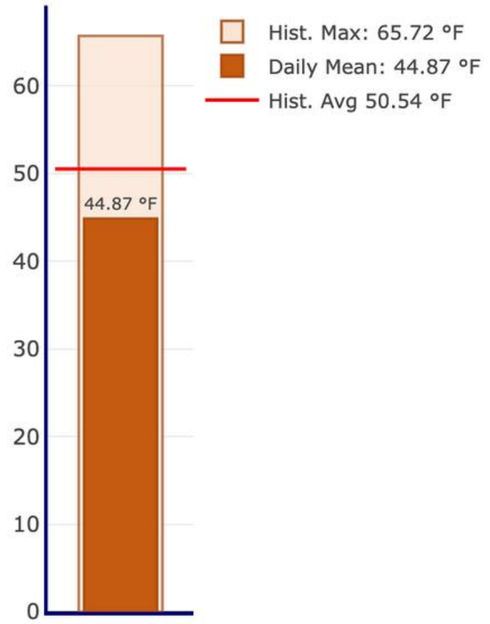
Temperature Statistics (period of record: 1981-current)

Upper Cache Watershed as of 03/16/2025

Mean Temp: **44.87 °F**
% of Average: **89%**

Historical Record:
Max: **65.72 °F**
Mean: **50.54 °F**
Min: **39.14 °F**

Download Image



Temperature is
89% of historical average

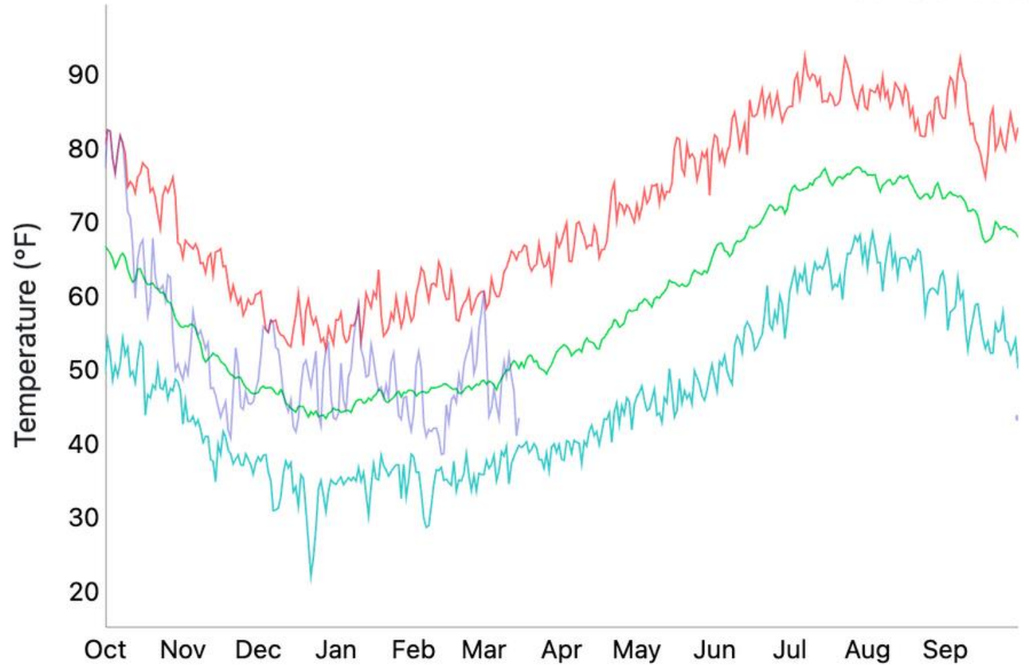
The first trimester of 2025 is cooler than historic average

Mean Temperature (period of record: 1981-current)

Upper Cache Watershed as of 03/15/2025

Download Image

Plot More Years



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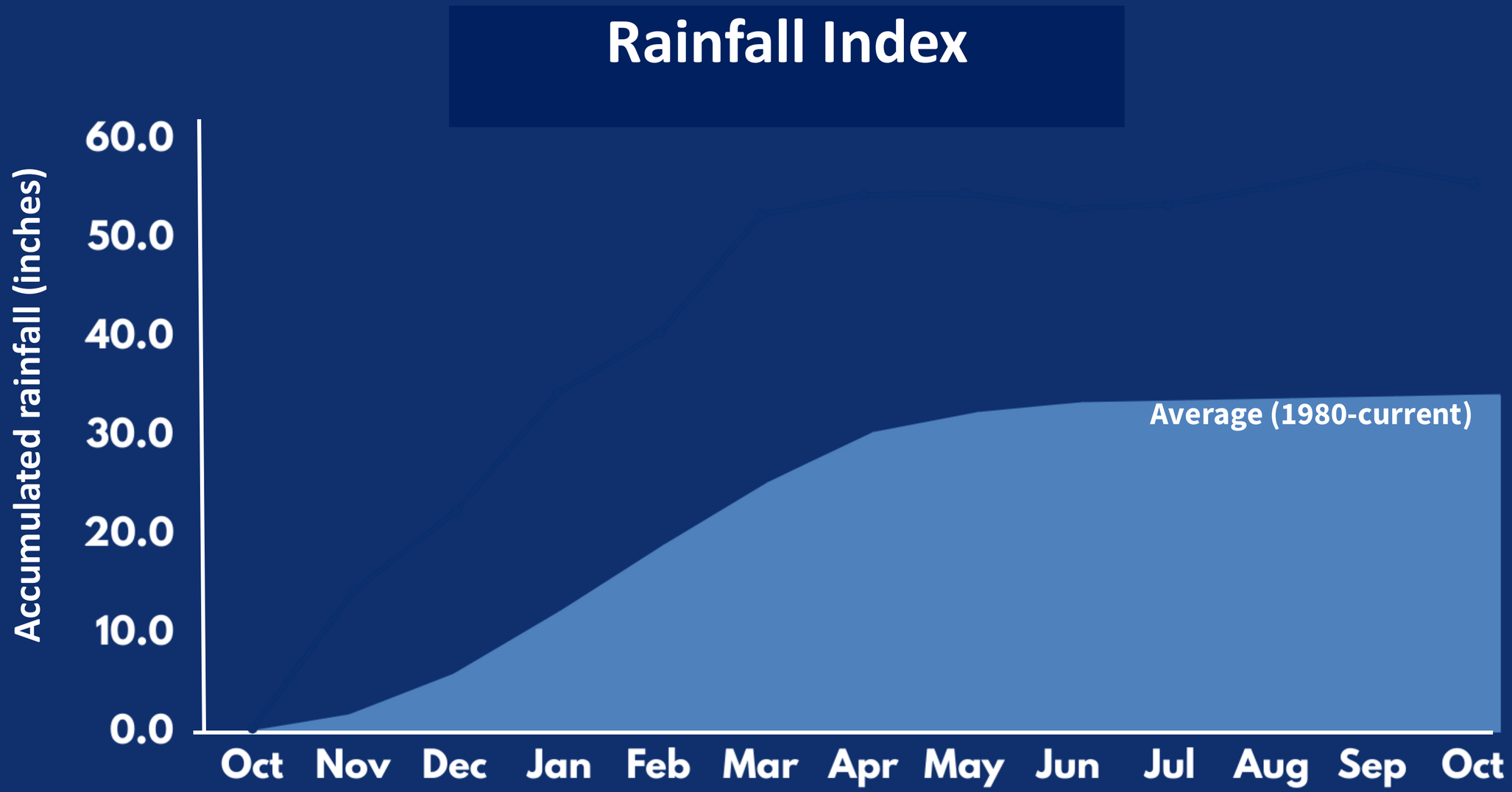

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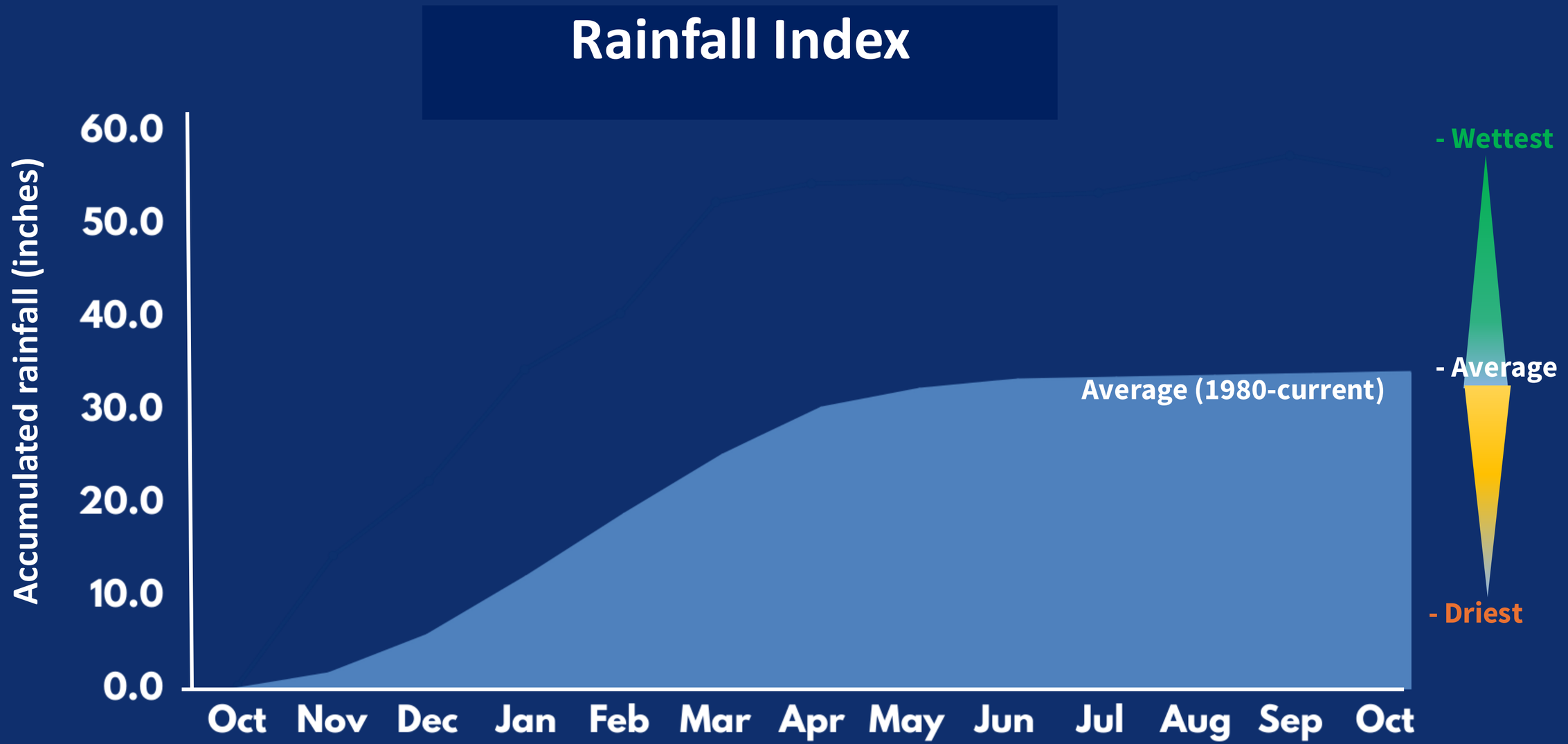

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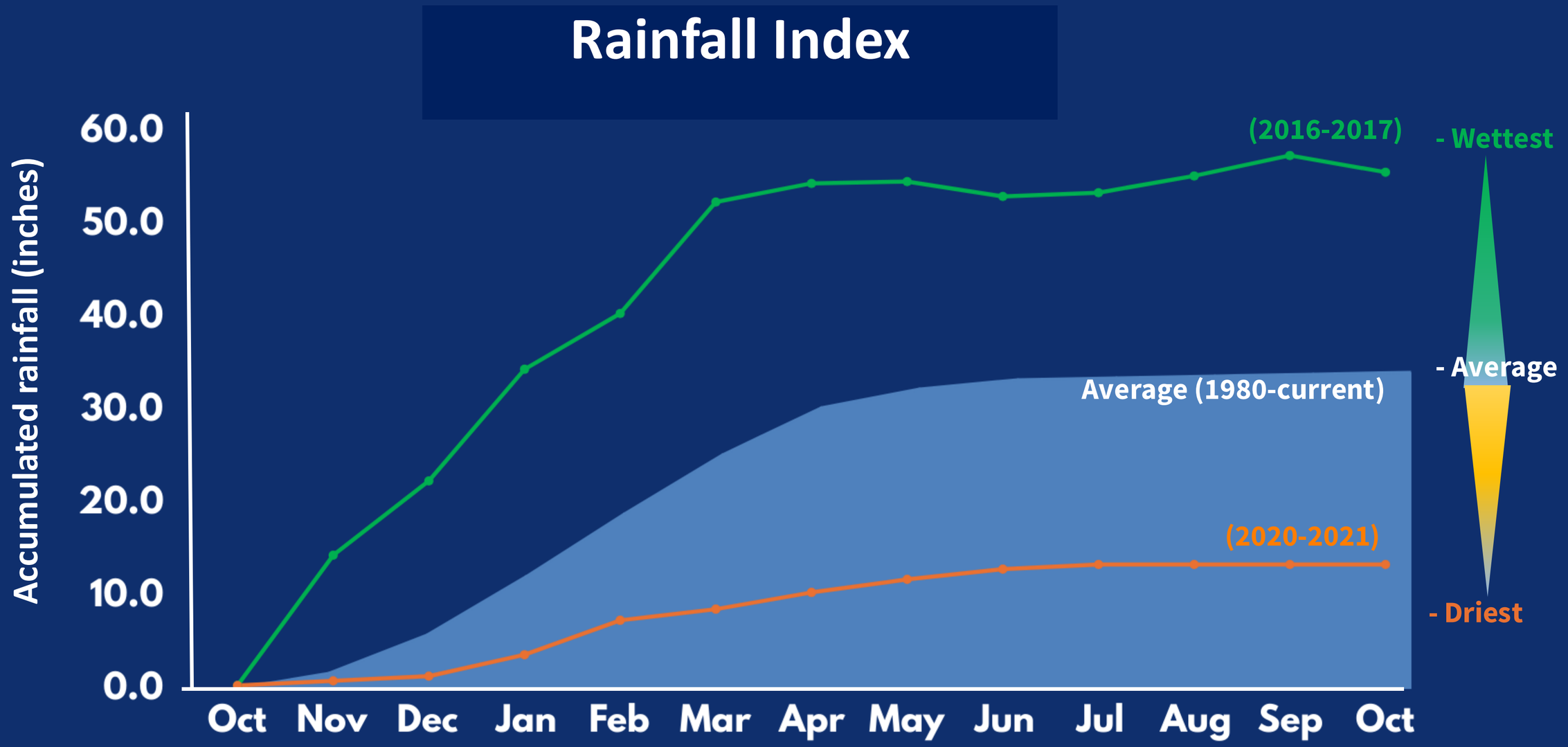

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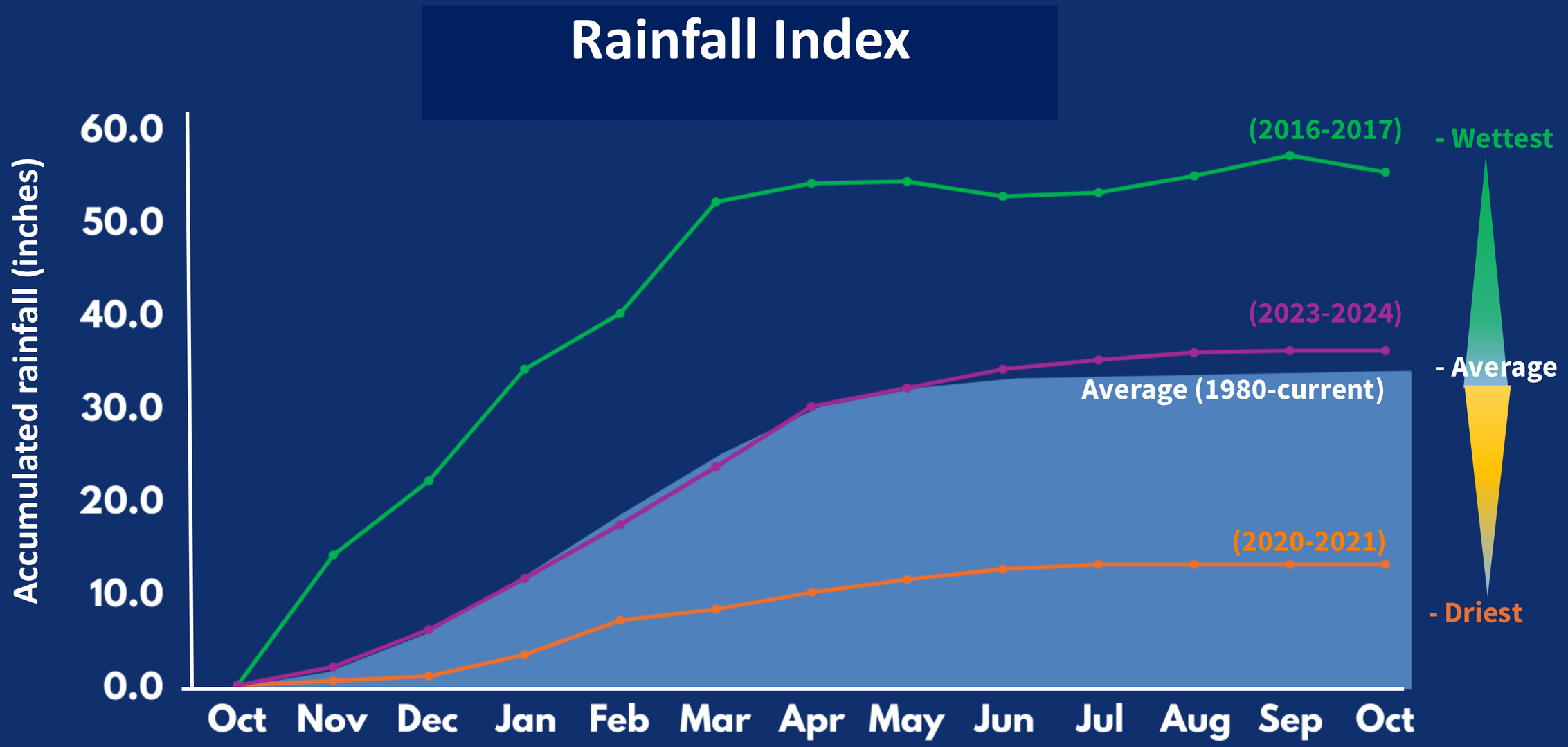

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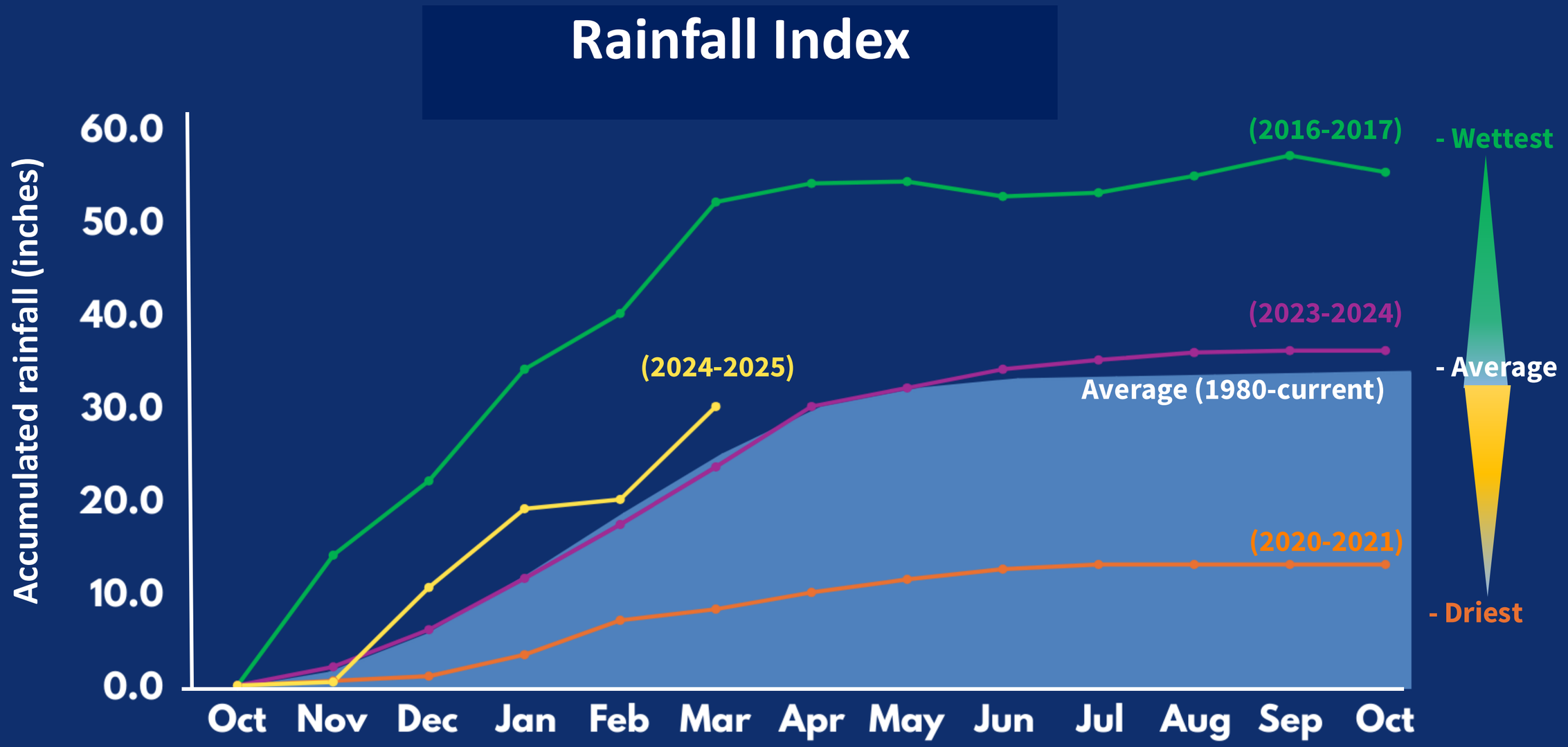

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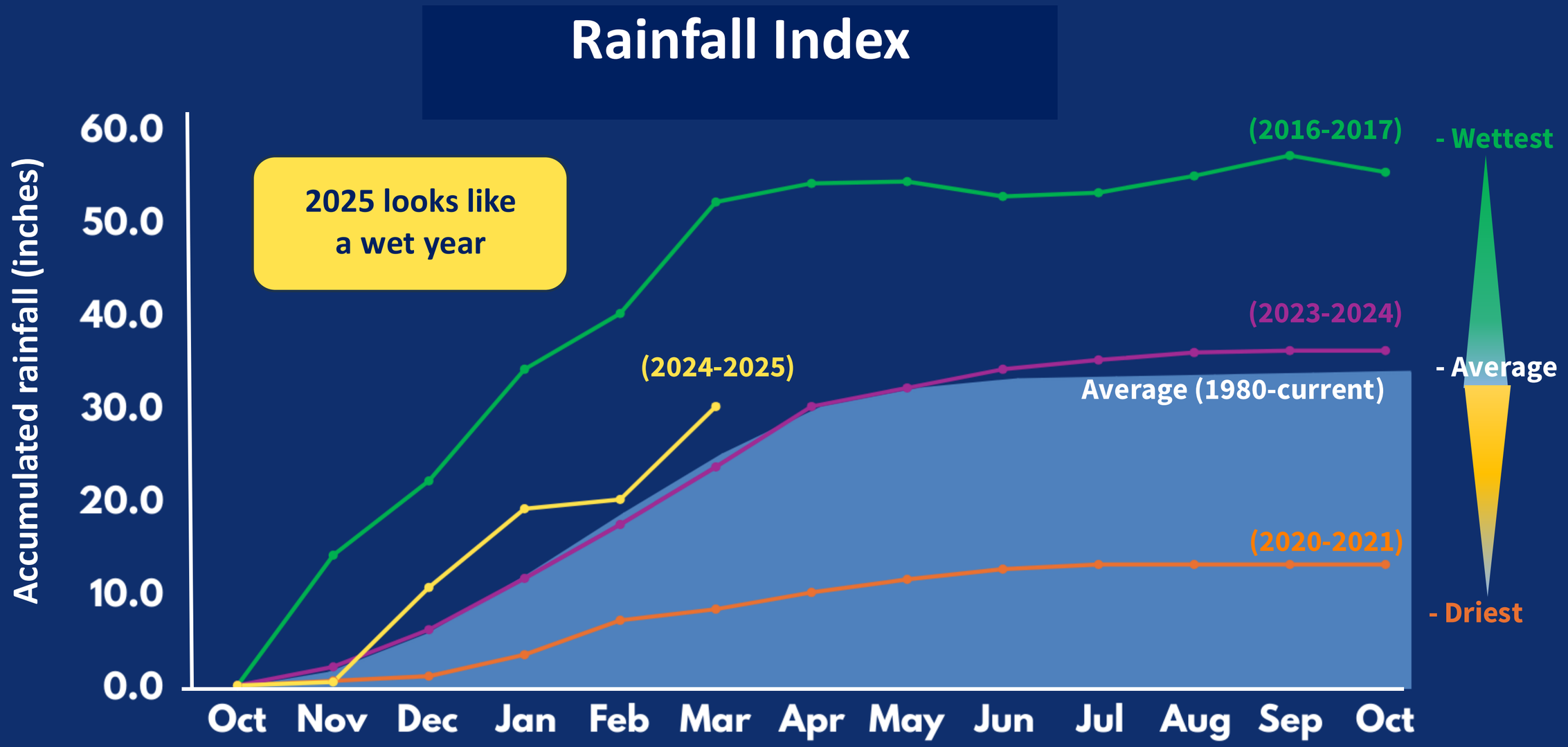


How’s 2025 looking...

- **Is it warmer or colder than normal?**
  - **The beginning of 2025 is colder... but only in average for the first trimester.**
    - **As the spring transition progresses, the weather patterns tend to become more established, and it becomes clearer whether the year is trending towards warmer or cooler temperatures (April - May - June)**

- **Is it wetter or drier than normal?**
  - **2025 is a wet year! Hurray!**
    - **In California, it's generally safe to say whether a year will be wet or dry by the end of March, as the bulk of the state's precipitation typically falls between November and March.**

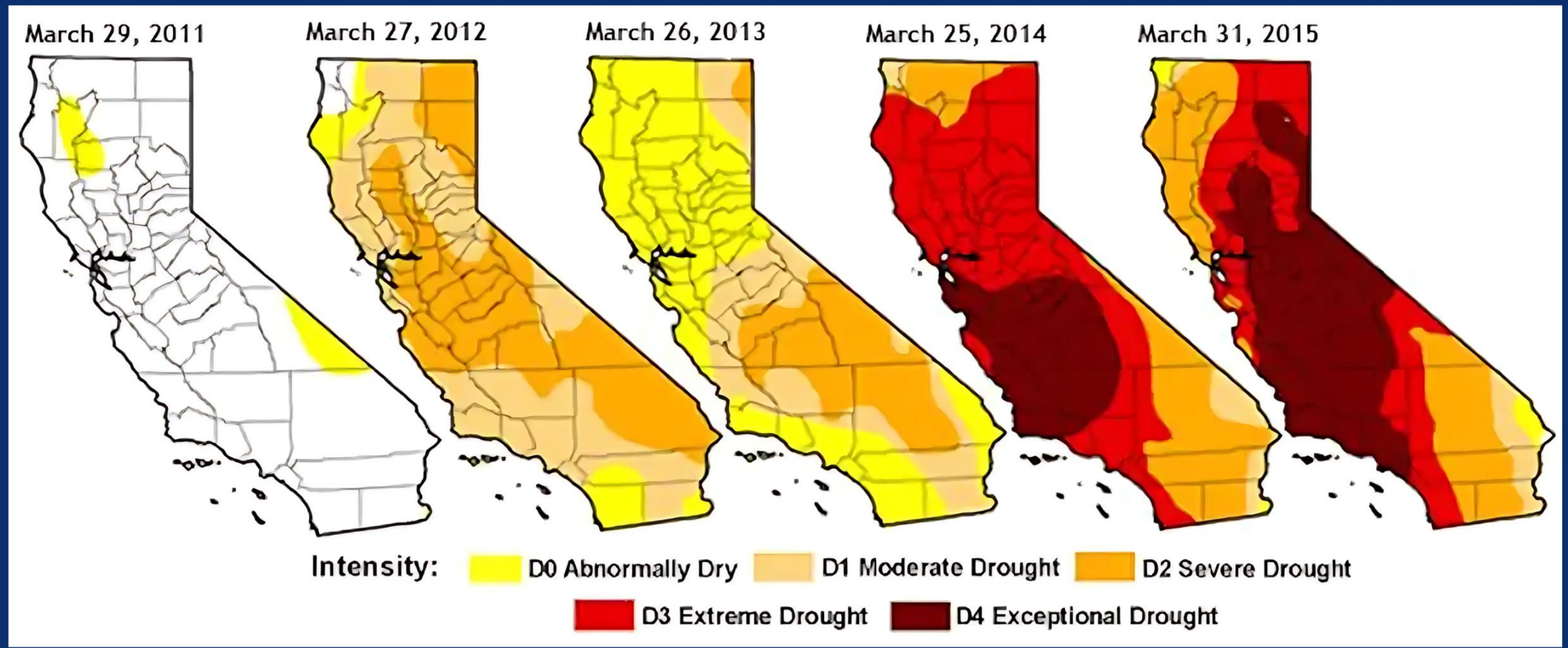
So, what about... Droughts?

- How can I monitor the status of Droughts in Lake, Mendo, California, or other states?

Droughts

A Drought is the lack of precipitation over an extended period of time. It is a normal, recurrent feature of climate that occurs in virtually all climate zones.

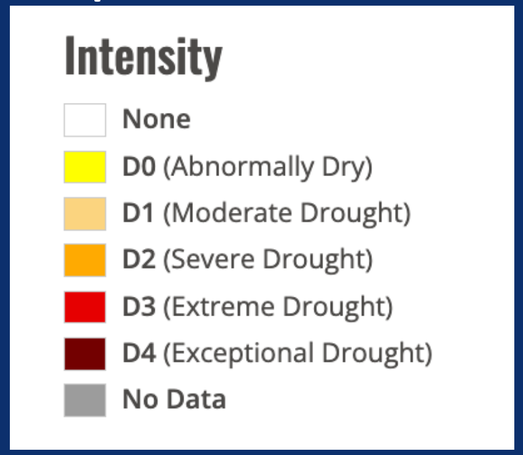
The duration of droughts varies widely: from months and years, to decades.

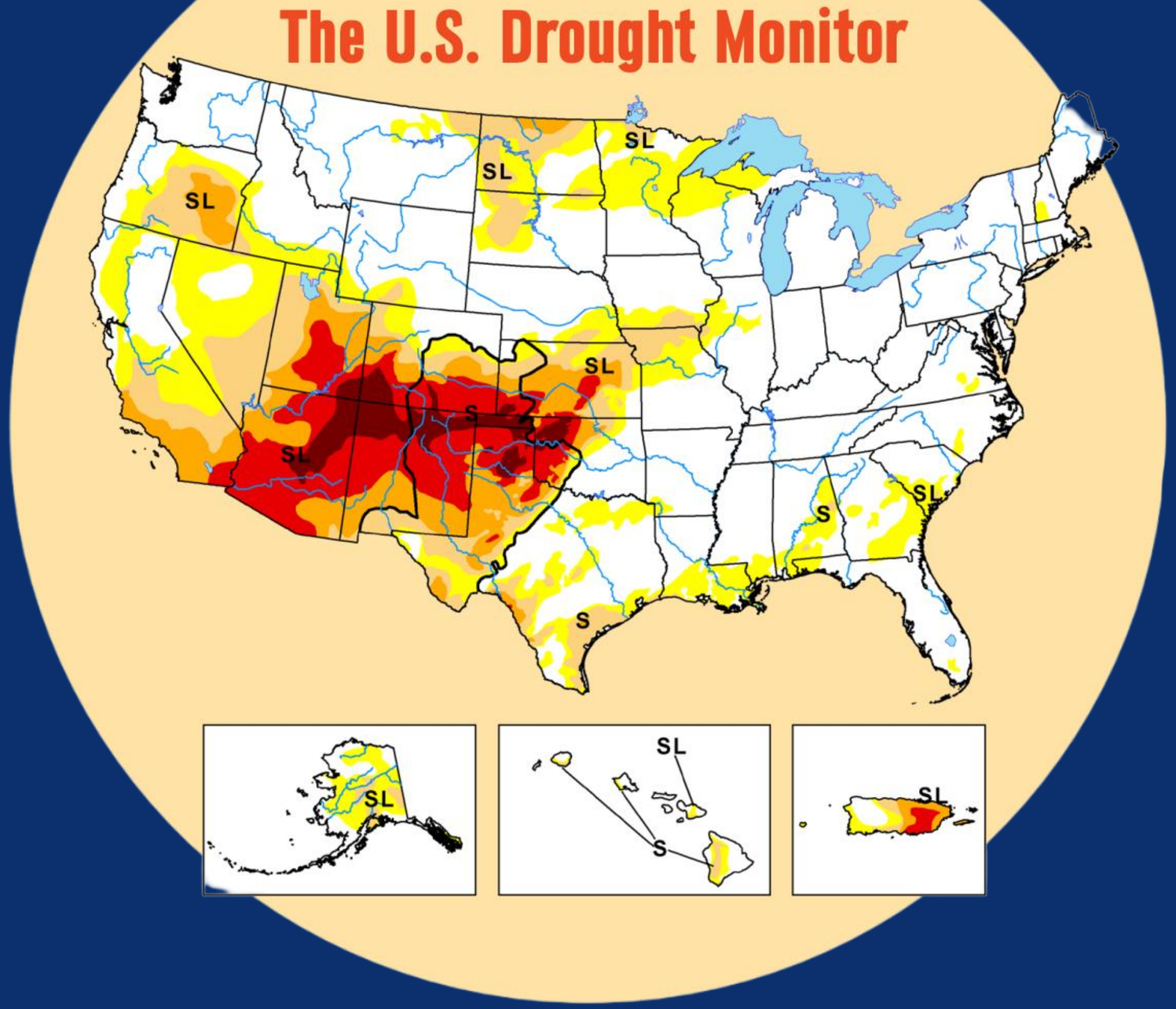


Drought Indicator

This indicator considers many data sources. The inputs include precipitation, streamflow, reservoir levels, temperature and evaporative demand, soil moisture and vegetation health.

The map uses six classifications:





Drought Indicator

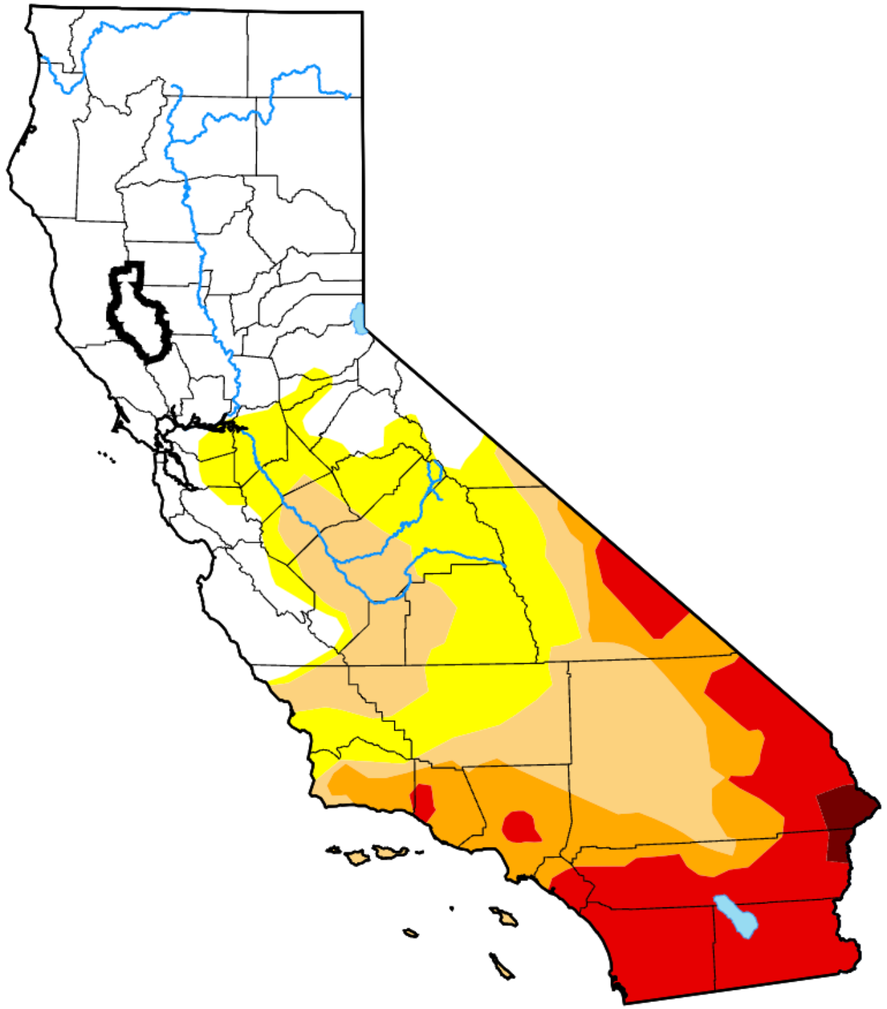
The U.S. Drought Monitor map is released every Thursday, showing parts of CA and the U.S. that are in drought.

U.S. Drought Monitor

Current | Maps | Data | Summary | About | Conditions & Outlooks | Ag in Drought | En Español | NADM

Lake County, CA

Hom



Map released: Thurs. March 13, 2025

Data valid: March 11, 2025 at 8 a.m. EDT

Intensity

- None
- D0 (Abnormally Dry)
- D1 (Moderate Drought)
- D2 (Severe Drought)
- D3 (Extreme Drought)
- D4 (Exceptional Drought)
- No Data

Authors

United States and Puerto Rico Author(s):

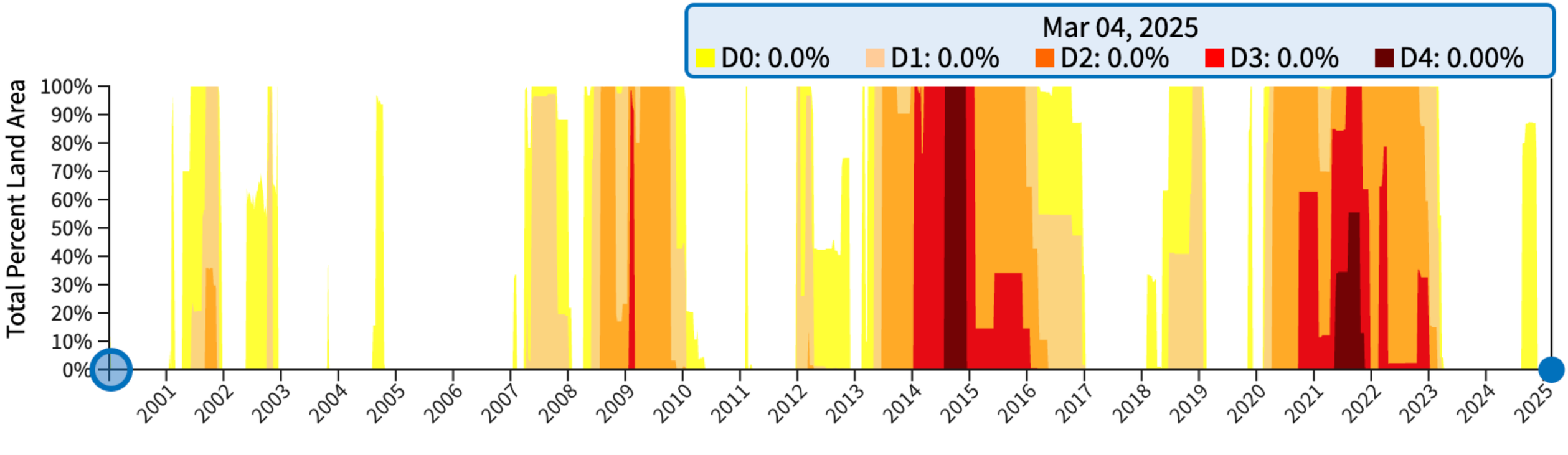
Richard Tinker, NOAA/NWS/NCEP/CPC

Pacific Islands and Virgin Islands Author(s):

Brad Rippey, U.S. Department of Agricultu

Droughts Indicators

Mendocino and Lake Counties
Drought Records from 2000-2025

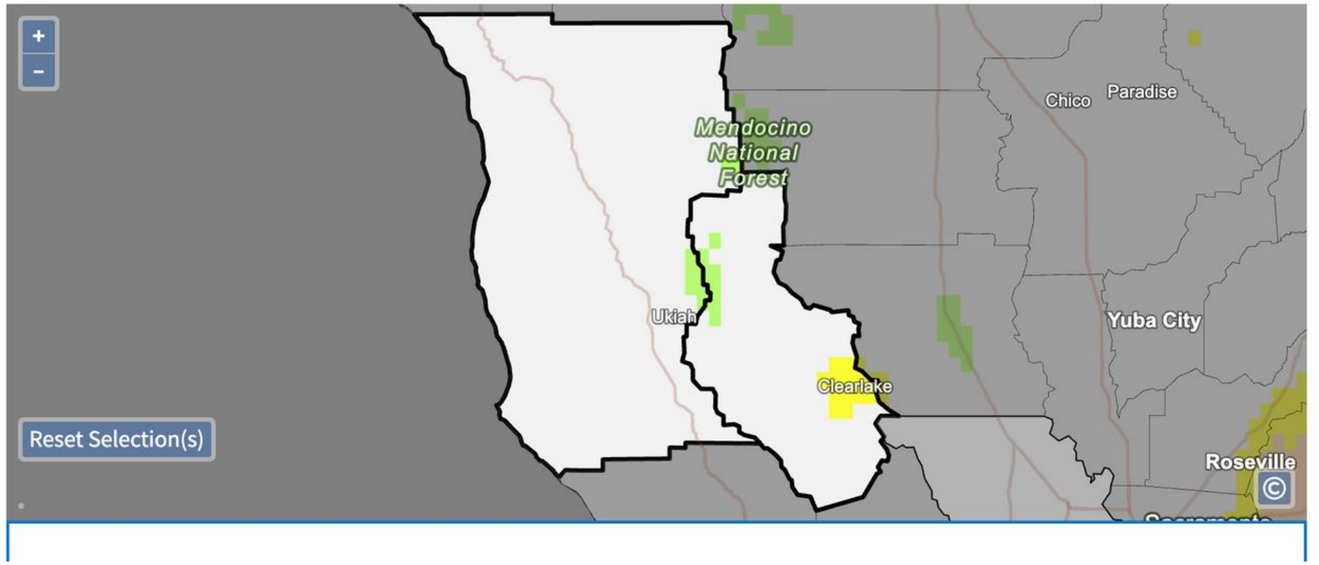


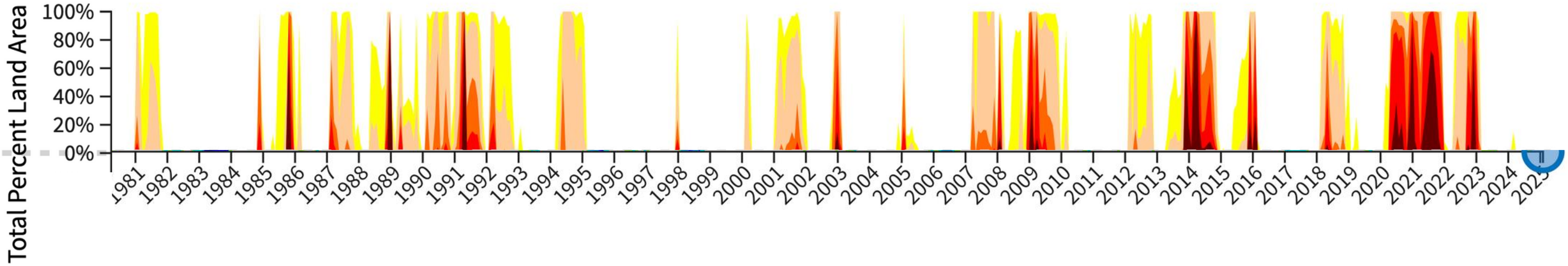
Historic Drought Indicators

Drought.gov
National Integrated Drought Information System

Explore Historical Drought Conditions

U.S. Drought Monitor (2000 - Present) | 9-Month SPI (1895 - Present) | Paleoclimate Data (0 - 2017)





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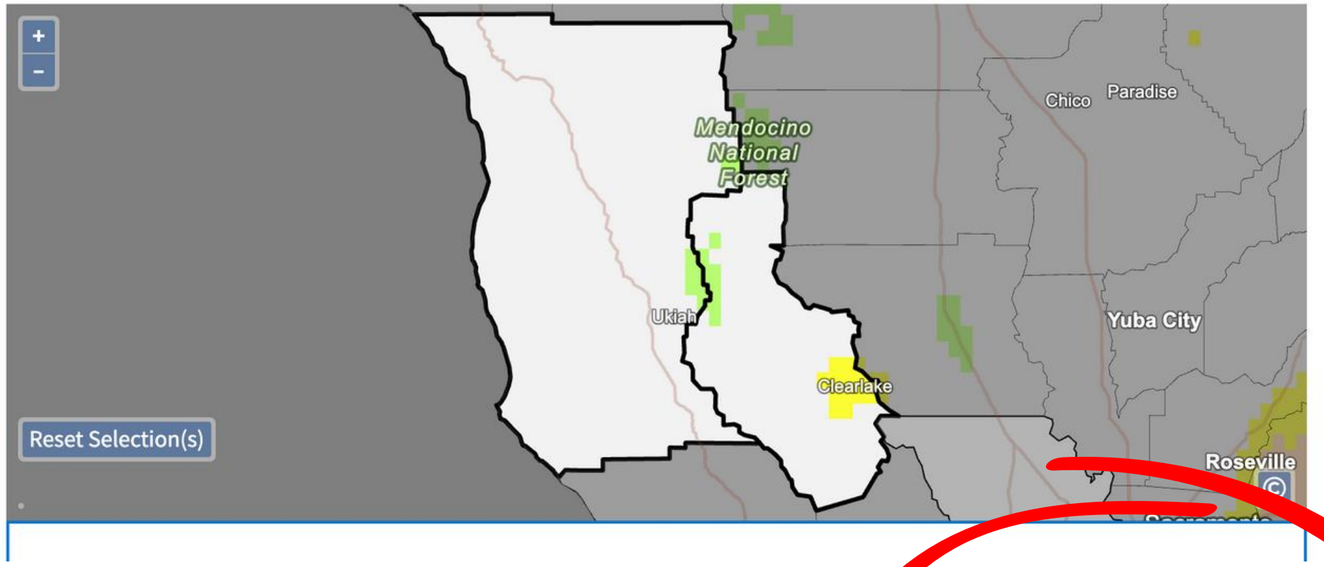

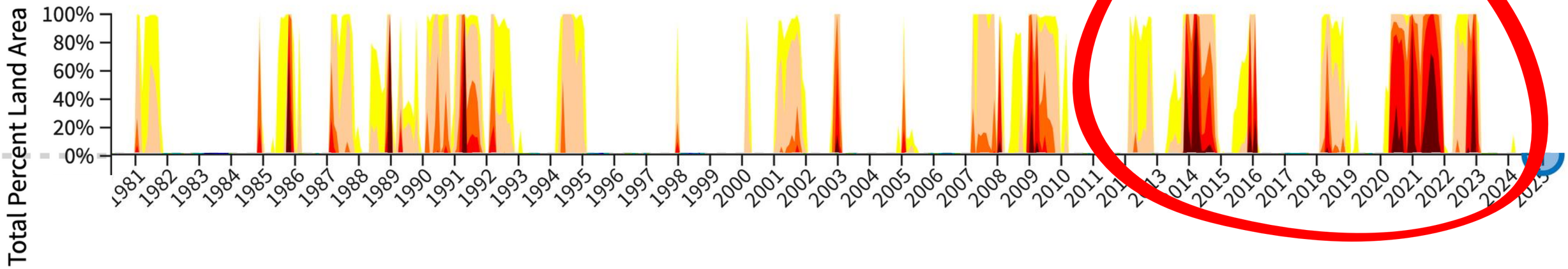

Historic Drought Indicators

In the last 45 years, there is an increase in the frequency and severity of droughts

Drought.gov
National Integrated Drought Information System

Explore Historical Drought Conditions

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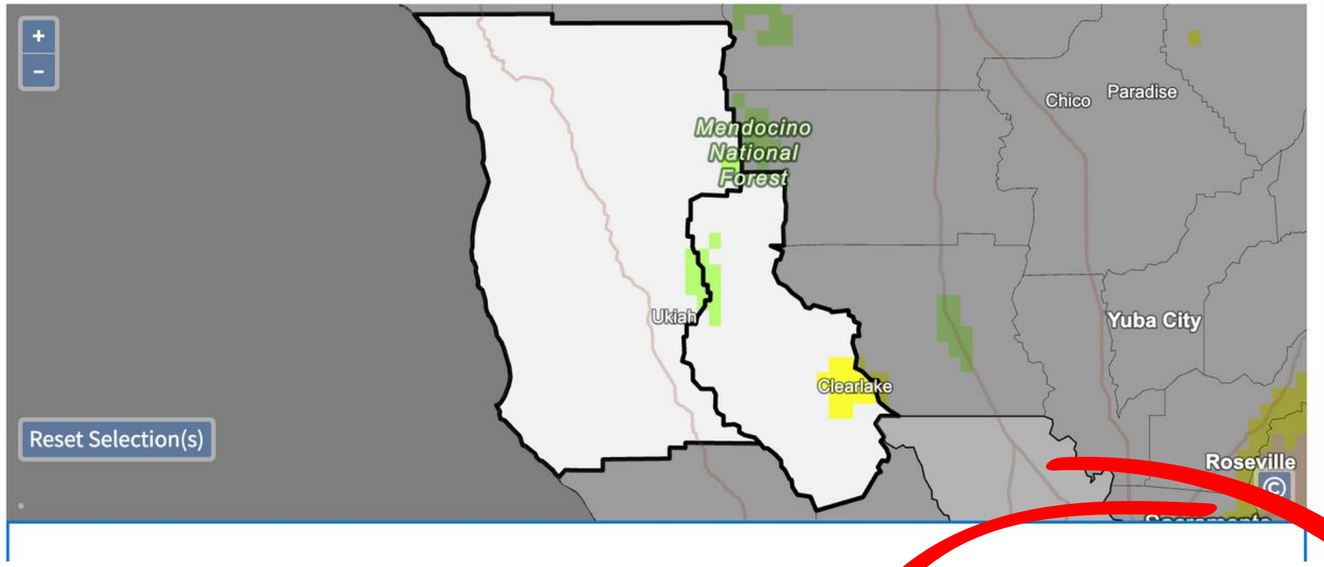
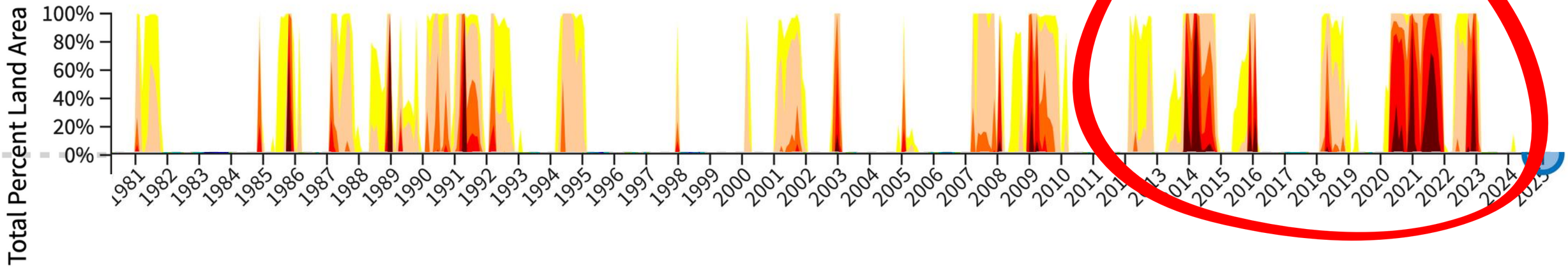




What can we do to be drought-prepared?

Climate and Drought Adaptation Strategies

Social Capacity

Enhance the ability of communities to effectively respond and cope with extreme climate events

Local Activities

Implementing water conservation activities and planning to enhance climatic resilience

Climate and Drought Adaptation Strategies

Social Capacity

Enhance the ability of communities to effectively respond and cope with extreme climate events

Skills & Knowledge

- Continuous education on water and climate change, water conservation practices,
- Follow early warning signals for drought indicators (U.S. Drought Monitor, Drought.gov, California Water Watch)

Social Networks

- Attend to seminars and workshops
- Farmers' cooperatives, CAFF, RCAC, Non-profits, local water user associations, tribal community networks, farmer-to-farmer knowledge exchanges, Cooperative Extension.

Financial Resources

- Drought relief funding, micro-loans, grants for conservation practices, diversified farm income (agritourism, value-added products, direct-to-consumer sales)

Climate and Drought Adaptation Strategies

Local Activities

Implementing water conservation activities and planning to enhance climatic resilience

Water demand Management

Before the Growing Season

- Winter crops, dry farming/low water use
- Regenerative Agriculture: Low/no tillage, IPM, composting, biodynamics
- Irrigation Uniformity
- Frost protection readiness

During the growing season

- Irrigation scheduling
- Deficit Irrigation
- Land rotation / Land fallowing

Water Supply Management

Before the Growing Season

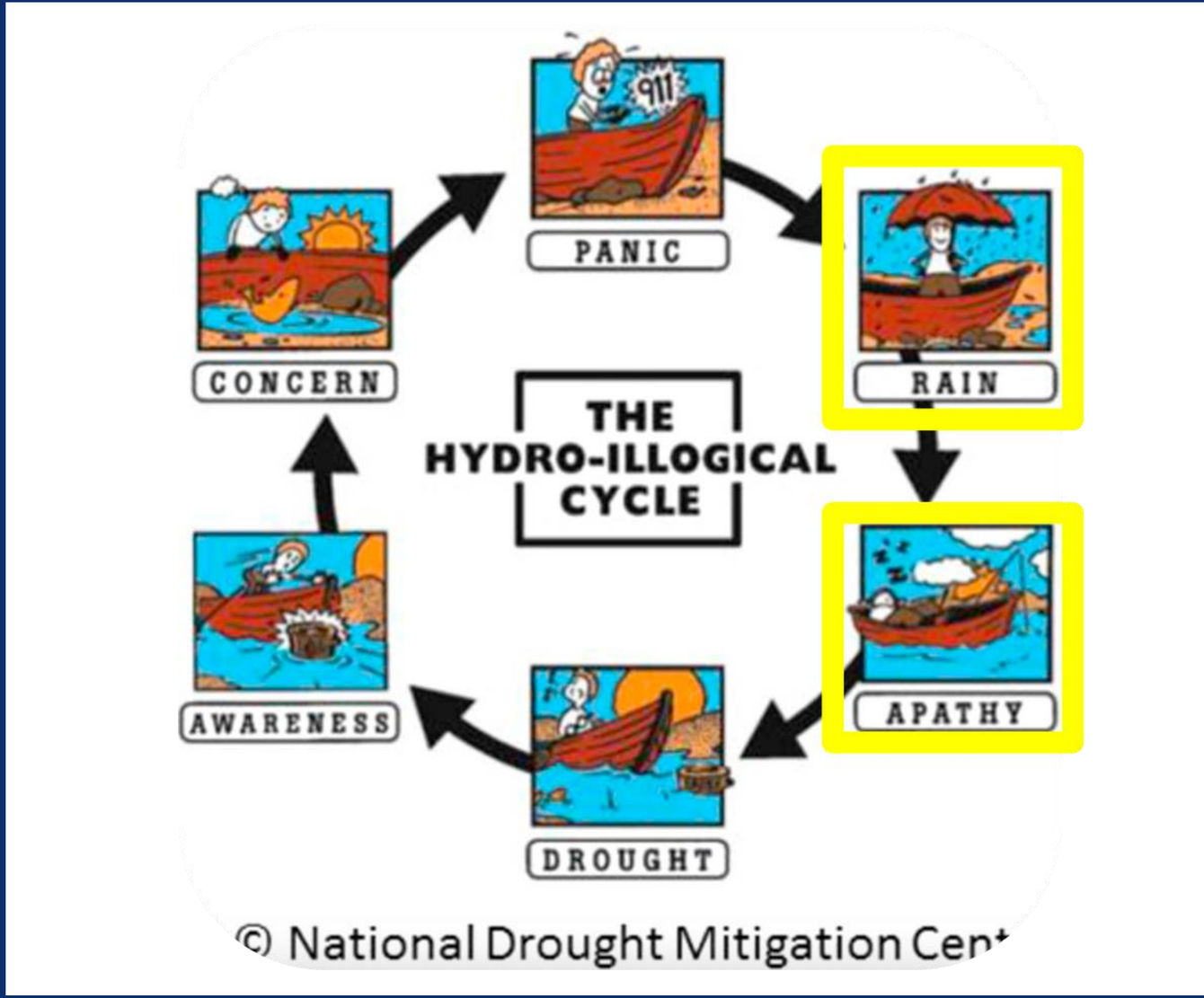
- Increase soil moisture storage
- Conjunctive use of water: Surface, Groundwater, snow, rain, fog, recycled water, desalination
- Building ponds
- Managed Aquifer Recharge

During the growing season

- Water transfers

Courtesy of Dr. Sam Sandoval

The Hydro-Illogical Cycle



Thank You.

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