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USDA Southwest Climate Hub
U.S. DEPARTMENT OF AGRICULTURE

Southwest Climate Hub Bulletin

News and events for the Southwest Hub region

June 2023

Happy Summer from the Southwest Climate Hub Team

It is time to celebrate. Last winter we had plentiful snow across many parts of the Southwest leading to a reprieve in **drought conditions** in most of the region. Despite our current drought reprieve, we anticipate future drought in the Southwest. We are grateful to the more than 40 USDA Agricultural Research Service scientists who volunteered their time to develop and share this national **Water Research Vision** to 2050. In addition, our team began cataloging water scarcity solutions via the **Water Adaptation Techniques Atlas** and we invite you to share your solutions with us. And the **Southwest Drought Learning Network** (DLN) remains committed to planning for and responding to future droughts. Please join us at the end of September in Albuquerque for the annual DLN meeting (registration below) or submit an abstract to our session (**GC001: Adaptive Solutions to Water Scarcity**) at the American Geophysical Union meeting in December.

A few weeks ago, **Dr. David R. DeWalle** was presented with the **Warren A. Hall Medal** by the Universities Council on Water Resources. Some of you may remember Dr. DeWalle by his book on the **Principles of Snow Hydrology** written with Dr. Al Rango, the first Director of the Southwest Climate Hub. Congratulations Dr. DeWalle.

We wish you a delightful summer and invite you to continue to work with us on Southwestern water scarcity solutions.

Register Here

New Grass-Cast video series for 2023

Caiti Steele

Grass-Cast is an online mapping tool that provides a forecast of potential rangeland forage production in the Great Plains and Southwest (Arizona and New Mexico). The maps are created using almost 40 years of historical weather, vegetation clippings data, and seasonal precipitation forecasts for the growing season. And these maps are updated every two weeks throughout the growing season. The **Drought Learning Network**'s Projections to People team want to help potential users understand what the Grass-Cast maps are showing this year and how best to interpret them for a given location, so they decided to create some online videos that explain the 2023 biweekly projections. The first of these videos features the June 16th projection for forage in the Southern Great Plains. Follow this link **https://youtu.be/4W4gYY258YY** to watch the video!

Grass-Cast is led by the **Northern Plains Climate Hub** and hosted by the National Drought Mitigation Center, to learn more about Grass-Cast, we encourage you to check out **these tutorials** on the National Drought Mitigation Center's website.

The Water Within Us

Gina McGuire

"This piece was written following my recent visit to the Sinagua Cliff Dwellings, commonly known as Montezuma's Castle. This site, of significance to many Indigenous peoples, including the Ak-Chin Indian Community, Fort McDowell Yavapai Nation, Gila River Indian Community, The Hopi Tribe, Pueblo of Zuni, Salt River Prima-Maricopa Indian Community, Tohono O'odham Nation, Yavapai-Apache Nation, and Yavapai Prescott Indian Tribe, persists on contemporary Yavapai-Apache territory. This site instilled within me a great sense of awe and appreciation for other Indigenous peoples, and I hope here to convey a 'look back' to ancestral knowledges of groundwater and lifeways to inform the future. This piece is my first venturing to write about a climate and land within which I am a visitor and guest. My thoughts in the Hawaiian language are included to acknowledge my positionality and role as a Native Hawaiian author." Read the poem **here**.

When tackling a problem as big as climate change, we may find ourselves feeling a little overwhelmed by the problems. But those feelings are exactly what the hub's newest education module aims to tackle. The Water Conservation Data Jam module for middle and high school will be released for the 2023-2024 school year. In the project, students move through data analysis, to understanding and communicating scientific ideas, into action. This spring Asombro has been pilot testing activities in which students investigate water resources and climate change by analyzing local water use data, inspiring them to create innovative and surprising plans for our water future! Check out the **Southwest Climate Hub's Education Resources**.

Need for Climate Ready Trees Demonstration Sites Across State of New Mexico
Lauren Kramer

The New Mexico Energy, Minerals and Natural Resources Department (EMNRD) Forestry Division's Climate Ready Trees Program is introducing climate-adaptable tree species into urban landscapes. These trees will grow in current conditions while having the capability to survive in the future with changing conditions. View the entire Climate Ready Trees Report **here**. Demonstration sites are needed to plant Climate Ready trees throughout the state of New Mexico to help growers and communities learn more about these species and understand how they will perform in regional climatic and environmental conditions. New Mexico municipalities or public schools can apply for a demonstration site on publicly accessible land. View the **Goals & Requirements** to check the eligibility of your public space. To apply for a demonstration site, complete the **Demonstration Site Application** and return it to Alyssa O'Brian at **Alyssa.obrian@state.nm.us**.

## A Clearinghouse for Urban and Community Forestry Resources in the Southwest Region
Lauren Kramer

The Southwest Climate Hub has developed an Urban and Community Forestry (UCF) database to house helpful resources and information to assist in UCF stewardship in the Southwest Climate Hub Region including Arizona, Nevada, New Mexico, Utah, and Hawaii. Read more **here**.

Goats as a Tool for Fire Management on the Pueblo of Sandia

Lauren Kramer
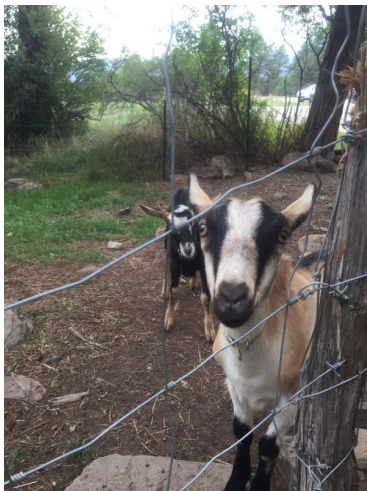
The team at the Conservation and Adaptation Resources Toolbox (CART) (previously CCAST), recently published a case study titled, "**Goats as a Tool for Fire Management on the Pueblo of Sandia**". Managing New Mexico's dense bosque ecosystems has become challenging as wildfire risk continues to increase and threaten nearby agricultural and suburban areas. In response to this increased wildfire risk, the Sandia Pueblo Environment Department in collaboration with Galloping Goat Pumpkin Patch Ranch, with funding from the Forest and Watershed Restoration Act through the New Mexico State Forestry Division implemented a goat grazing program in 2021. The grazing goats reduce fuel loads of invasive plants and make way for native plants to grow while improving soil quality. View the case study handout **here**.

Welcoming New Interns to the USDA Southwest Climate Hub

Maude Dinan and Courtney Peterson

We need talented, innovative individuals to work on science delivery and communication of how managers are adaptively responding to compounding climate change impacts. The Southwest Climate Hub is grateful to welcome two new interns to the team for the summer to support science and management information sharing! Read more **here**.

On Ranch Demonstration at Rancho Corta Madera

Skye Aney

On May 4th, 2023, The Sustainable Southwest Beef Project hosted an On-Ranch Demonstration at Ranch Corta Madera in Pine Valley, CA, attended by around 50 participants. Presentations included grazing management and research, digital tools, field trips to see the ranch's heritage Raramuri Criollo cattle, and a demonstration of a virtual fence collar in action. On-Ranch Demonstrations provide producers, consumers, and other stakeholders an opportunity to see the application of novel strategies and evaluate if and how these strategies might be useful in their own operations. Next year, the On-Ranch Demonstration will be held in June in Custer, South Dakota.

"Putting Actionable Climate Adaptation on the Land in the Southwest" at the SWERI Cross-Boundary Landscape Restoration Workshop

Courtney Peterson and Lauren Kramer

The Southwest Climate Hub offers many resources (a few listed below) that our forestry partners could use in their work, however, not all of them are well known. During the 2023 Southwest Ecological Restoration Institute's (SWERI) Cross-Boundary Landscape Restoration Workshop in Fort Collins, CO, Southwest Climate Hub members Lauren Kramer and Courtney Peterson presented a suite of climate adaptation tools to expand awareness of the resources the Southwest Climate Hub offers, as well as build partnership opportunities.

- **After Fire: Toolkit for the Southwest**
- Facilitating climate adaptation planning and practices courses using the **Adaptation Workbook**
- Forest Resource Index for Decisions in Adaptation (FRIDA) – for more information contact Lauren Kramer at **lauren.kramer@usda.gov**
- Climate Analogs: Inferring Climate Change to Forest Composition – for more information contact **Bryce Richardson**, USDA Forest Service Rocky Mountain Research Station

Community-Driven Water Management: The Tomorrow's Water Model for Playa Restoration

Maude Dinan

The Southwest Drought Learning Network (**DLN**) works closely with the Conservation and Adaptation Resources Toolbox (**CART**, previously CCAST) to highlight Case Studies on drought and climate change adaptations. The DLN's latest CART Case Study details how **Playa Lakes Joint Venture** is helping communities incorporate playa restoration into water management plans to ensure water availability under current and future drought conditions. The online StoryMap may be found **here**, and its accompanying two-page handout **here**.

The Come Rain or Shine Podcast reports actionable science to facilitate adaptation and resilience in the Southwest. Here's a look at some of our most recent episodes:

Cultural Burning in Northern California

Traditional burning, also known as cultural burning, is a form of under burning that has been used by Indigenous peoples for thousands of years to increase water runoff into streams, create habitats for plants and animals, recycle nutrients, and promote other ecosystem benefits. We interviewed Diana Almendariz (Maidu/Wintún/Hupa/Yurok), cultural fire practitioner, and Nina Fontana (Ukrainian and Italian), post-doctoral researcher at the University of California, Davis, to learn more about "good fire".

Sarah Ray on Navigating Climate Anxiety

We often talk about Climate Hope on this show, but what about Climate Anxiety? Perhaps even Climate Despair? These are very real emotions that many of us feel when thinking about this planet we call home. We sat down with Dr. Sarah Ray, author of the book *A Field Guide to Climate Anxiety: How to Keep Your Cool on a Warming Planet*. Dr. Ray shared with us some of her tips and advice on navigating the complex landscape of climate change related issues, and some things she recommends for moving past the anxiety and into a place of self-efficacy.

Microgravity Drip Irrigation: Innovative Way to Get "More Crop Per Drop"

Water scarcity solutions, especially those solutions that allow for continued food production while reducing water use, are a critical component of coping with reduced water availability now and into the future. We interviewed Dr. Manoj Shukla about a current research project of his using microgravity drip irrigation technologies from Israel on an experimental farm in Southern New Mexico.

Find us on Buzzsprout at: **https://rainorshine.buzzsprout.com/**

Want to know when a new episode is released? Sign-up for email alerts **here**.

Climate Reporting for the Southwest
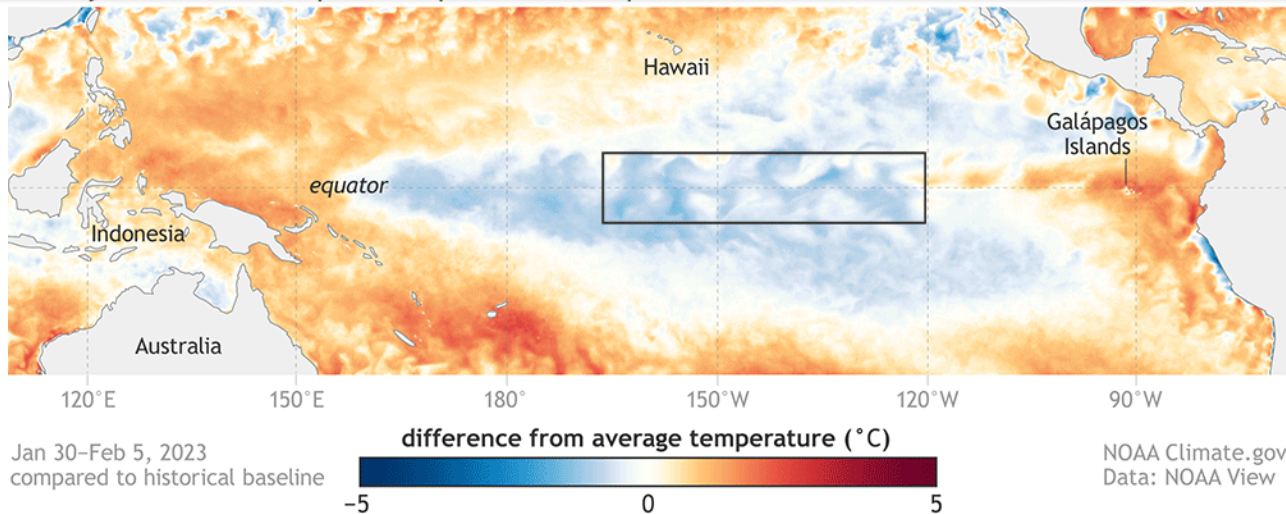
El Niño/Southern Oscillation (ENSO)

As of June 8, 2023, the ENSO alert system status is **El Niño Advisory**. Forecasters announce El Niño conditions are here and are expected to continue into winter. You can read more perspectives and analyses about ENSO available at the NOAA **ENSO Blog**.

Jan 30–Feb 5, 2023
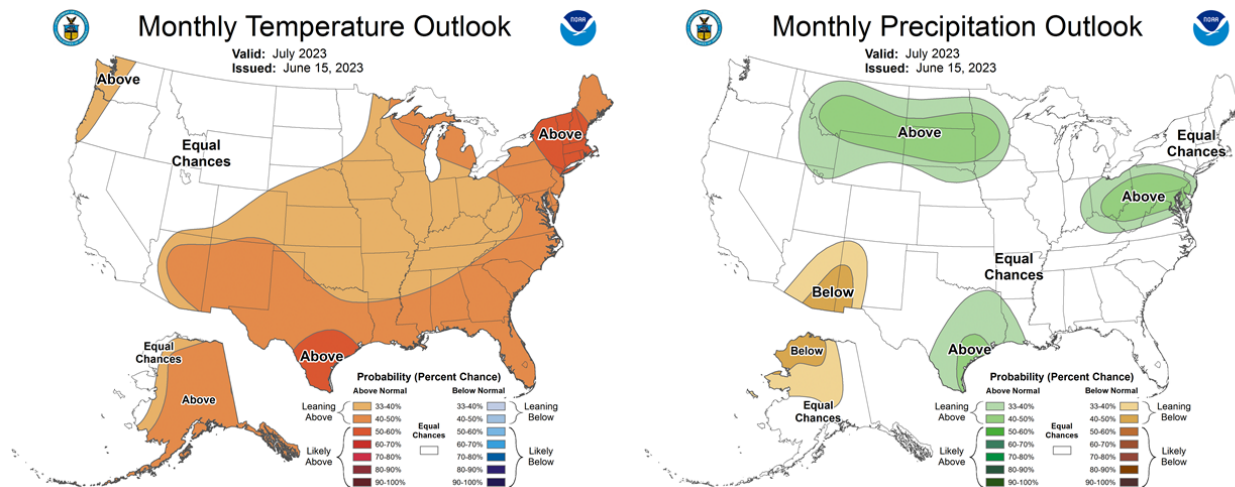compared to historical baseline

NOAA Climate.gov
Data: NOAA View

**National Weather Service Climate Prediction Center Outlooks**

1-month outlook
As of June 15, the **one-month outlook** for July 2023 shows above-normal temperatures for Arizona and New Mexico. There will be a 33-50% chance for below-normal precipitation for most of Arizona and New Mexico.

3-month outlook
As of June 15, the **three-month outlook** (Jul- Aug-Sep 2023) shows a 33-70% chance of above-normal temperatures for the Southwest. There will be a 33-50% chance of below-normal precipitation for Arizona, the Four Corners region, and western New Mexico. To view more short-term outlooks, please visit the **NOAA's National Weather Service Climate Prediction Center**.
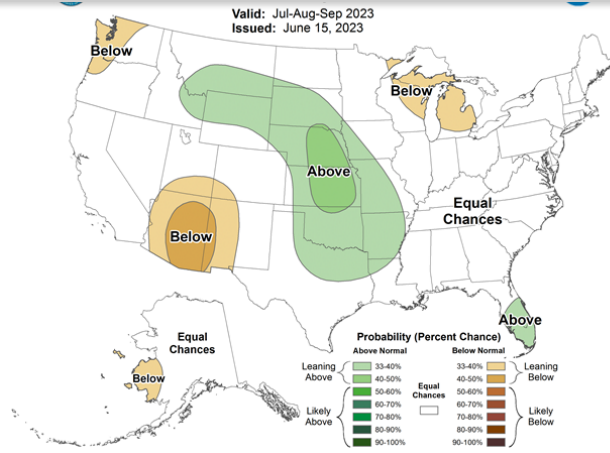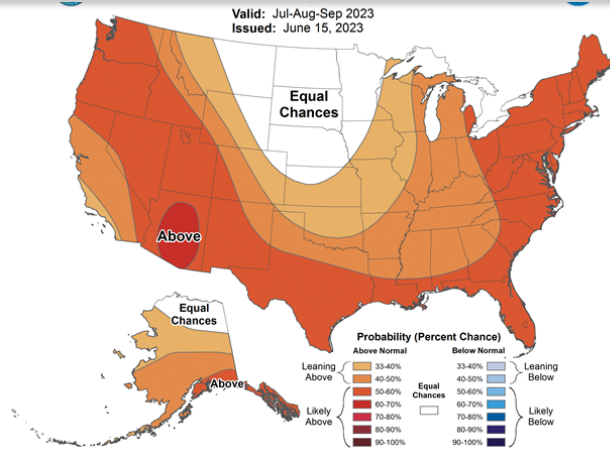
Drought

The **animation map** is a compilation of the past 12 weeks of the drought monitor maps. The **change map** illustrates the difference in drought class changes for the past 12 weeks. There are 1-3 class improvements for portions of the southwest. For a more detailed drought summary in your area of interest, visit the U.S. Drought Monitor **website**.

Animation Map (April 11 - June 27, 2023)

U.S. Drought Monitor
(Released Thursday, Apr. 13, 2023)
Valid 8 a.m. EDT
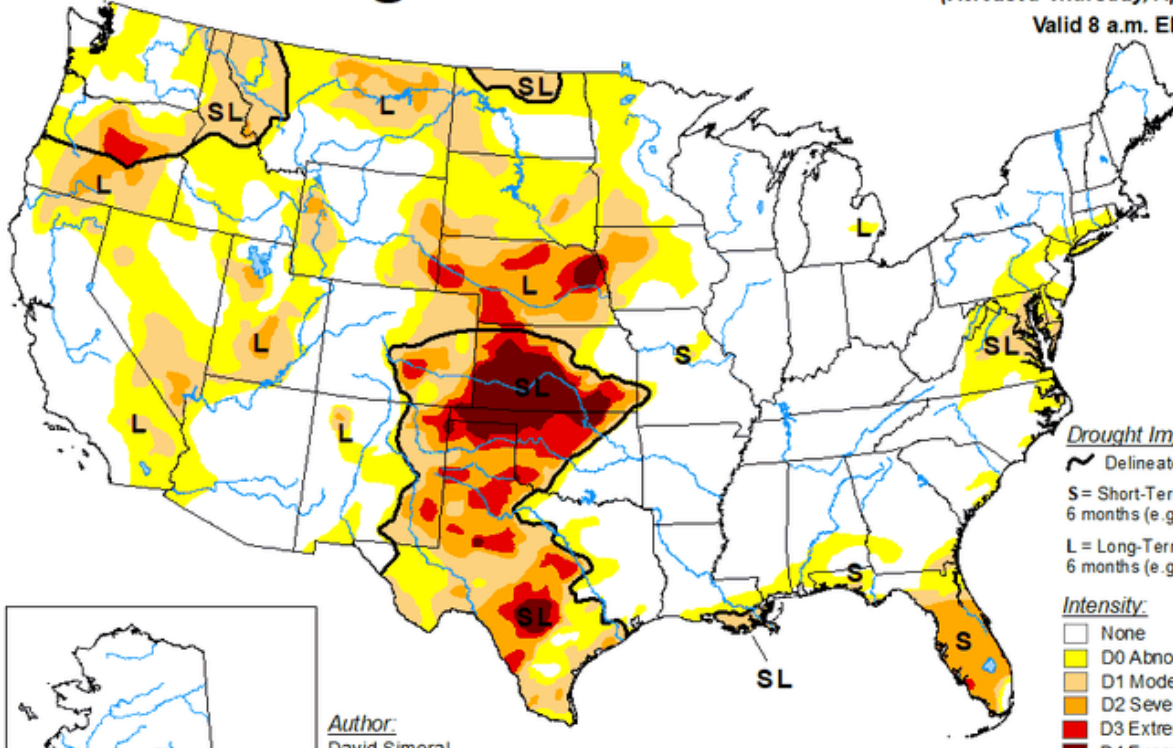
Drought Impact Types:
∿ Delineates dominant impacts

S = Short-Term, typically less than
6 months (e.g. agriculture, grasslands)

L = Long-Term, typically greater than
6 months (e.g. hydrology, ecology)

Intensity:
☐ None
☐ D0 Abnormally Dry
☐ D1 Moderate Drought
☐ D2 Severe Drought
☐ D3 Extreme Drought
☐ D4 Exceptional Drought
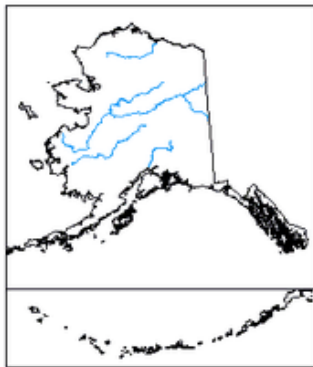
Author:
David Simeral
Western Regional Climate Center

The Drought Monitor focuses on broad-scale conditions.
Local conditions may vary. For more information on the
Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx

droughtmonitor.unl.edu

Change Map (April 4 - June 27, 2023)

12 Week

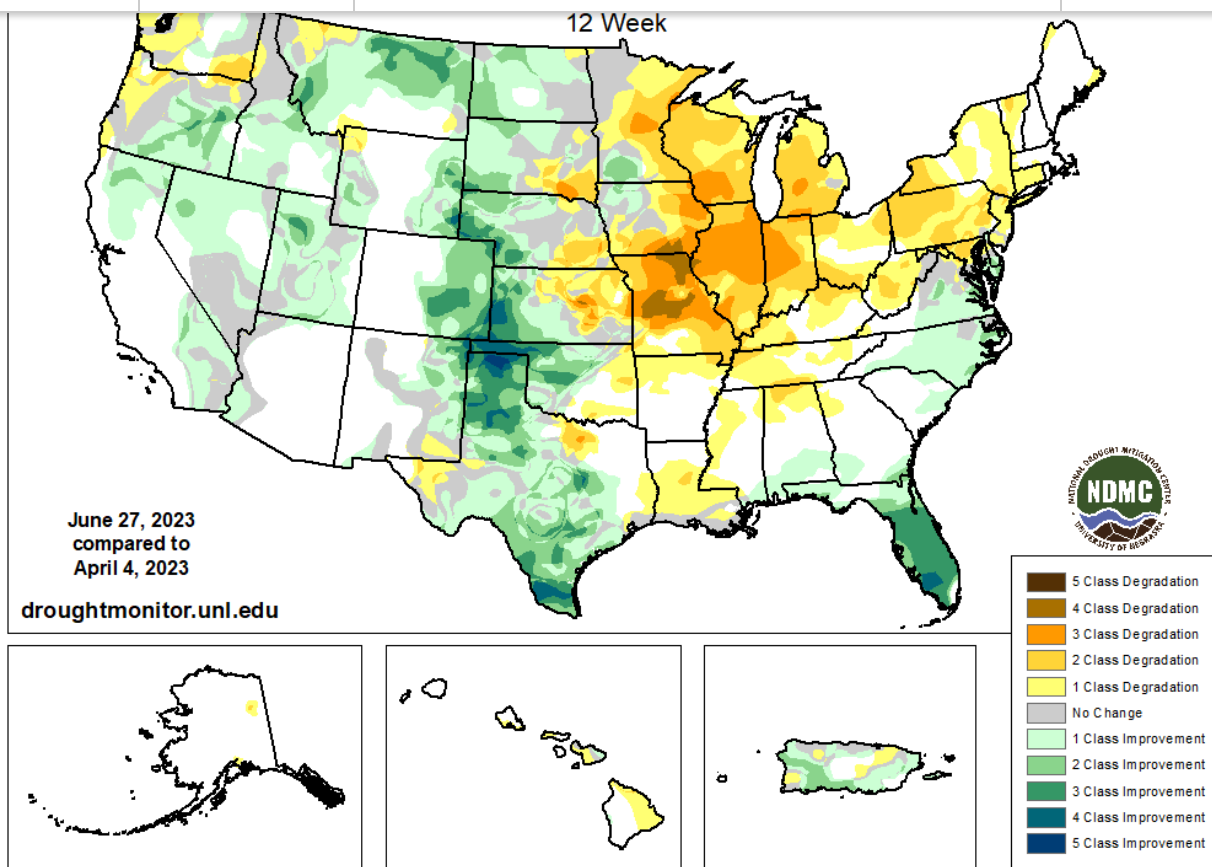June 27, 2023
compared to
April 4, 2023

droughtmonitor.unl.edu

5 Class Degradation
4 Class Degradation
3 Class Degradation
2 Class Degradation
1 Class Degradation
No Change
1 Class Improvement
2 Class Improvement
3 Class Improvement
4 Class Improvement
5 Class Improvement

Announcements

Teacher Workshops

Teachers and educators are invited to join the Asombro Institute for teacher workshops this summer. Asombro workshops provide hands-on science lessons you can take to your classroom and receive classroom materials! Stipends are available for some workshops. Join us in Oklahoma, Utah, or online. More information and registration **here**.

Curious About Cows?

3rd-5th grade teachers can join the Asombro Institute to learn about ranching research currently taking place across the west investigating if technology and heritage breed cattle make ranching more economically and environmentally sustainable in our region. Practice hands-on, standards-aligned science lessons that you can use in your classroom based on the scientific research happening right now! Lesson plans and resources can be found **here**.

Climate Change in the SW: Connecting Global to Local

In this hands-on workshop, you'll learn about Asombro's free lessons all about how climate change impacts the people and ecosystems of the southwest from a water, wildfire, and agriculture perspective. Practice activities you can use in your classroom and leave with materials and classroom supplies. Lesson plans and resources can be found **here**.

ARSET - Assessing the Impacts of Fires on Watershed Health Training

July 6, 2023 - July 13, 2023

Analysis. Specifically, this training will highlight uses of NASA Earth observations (EO) for pre-fire land cover mapping, watershed delineation and stream mapping, post-fire burn severity mapping, and pre- and post-fire riverine and freshwater water quality. This three-part training will highlight case studies that use remote sensing data for assessing the impacts of fires on watersheds. This training will also provide participants with hands-on exercises for using NASA EO for these assessments within the Soil Water Assessment Tool (SWAT) and Google Earth Engine. More information **here**.

Building Partnerships for Agricultural Sustainability Summit

Western Sustainable Agriculture Research and Education (SARE) is proud to host the Building Partnerships for Agricultural Sustainability Summit (BPASS). This interactive and informational opportunity will bring together individuals and groups actively working in the sustainable agriculture field in the West. This conference will be held **December 12-13, 2023** in Phoenix, AZ.

Call for Abstracts
BPASS is eager to learn from *you* about successes and challenges experienced through sustainable agricultural projects. This is an opportunity to share with others, learn from discussion, and build a network to make a difference. These will be in-person presentations only. **Abstracts are due September 1, 2023.** Learn more and apply **here**.

Farmer/Rancher Grant

Deadline: October 25, 2023
The Western SARE Farmer/Rancher Research & Education Grant Program focuses on advancing on-farm sustainability solutions by funding innovative producer-driven research and outreach. This grant program involves agricultural producers (main applicants) and technical advisor(s) implementing projects to address identified needs in sustainable agriculture. Learn more about Farmer/Rancher grant **here** and find more Western SARE grants **here**.

SW CASC Welcomes 2023-2024 NRWD Fellowship Cohort!

The Southwest Climate Adaptation Science Center is excited to announce the selection of the 2023-2024 Natural Resource Workforce Development Fellowship cohort. The SW CASC NRWD Fellowship continues to provide opportunities for graduate students to receive training and practical experience in the development of use-inspired and actionable science to inform natural resource management decisions in the Southwest region. Read more **here**.

Job Opportunities

Research Associate II - Climate Adaptation Specialist

Colorado State University will be hiring a Research Associate II - Climate Adaptation Specialist. This position will focus on several research and outreach projects based out of the **Department of Forest and Rangeland Stewardship**, with responsibilities encompassing applied research and program support of the **Adaptive Silviculture for Climate Change (ASCC) Network**, climate science communication, adaptation planning and practices, experimental design, implementation, evaluation, data collection protocols and data management, preparation of publications and presentations, and professional training workshop design and delivery. There is a strong emphasis on communication of climate change adaptation and natural resource management principles to a broad professional community. The position may include some supervisory responsibilities.

This position serves as the Coordinator for the Adaptive Silviculture for Climate Change Network, which has expanded to include international partners and research sites. This creates strategic paths forward as a Network; develops, facilitates, and

management partners on climate change and forest management related outreach projects and trainings.

Keep an eye out for the position coming from CSU soon! For more information contact Courtney Peterson at **courtney.peterson@colostate.edu**

Research Associate

Our colleagues at the USDA California Climate Hub have an open advertisement via **USA Jobs** for up to two (2) USDA Climate Hub Fellows. Applications for this position can be sent to **steven.ostoja@usda.gov**. The required documents to apply for this opening are outlined on the USA jobs announcement.

Funding Opportunities

Indigenous Animals Harvesting and Meat Processing Grant Program
Deadline: July 19, 2023
Award Ceiling: $50,000,000

Local Meat Capacity Grant
Deadline: July 19, 2023
Award Ceiling: $5,000,000

Outreach and Assistance for Socially Disadvantaged Farmers and Ranchers and Veteran Farmers and Ranchers
Deadline: July 25, 2023
Award Ceiling: $750,000

National Fire Plan-Wildland Urban Interface Community Fire Assistance
Deadline: September 1, 2023
Award Ceiling: $10,000,000

Partners for Fish and Wildlife FY23
Deadline: September 30, 2023
Award Ceiling: $750,000

Water Conservation Field Services Program: Financial Assistance for Fiscal Years 2023 and 2024
Deadline: October 13, 2023
Award Ceiling: $100,000

Agriculture and Food Research Initiative Competitive Grants Program Foundational and Applied Science Program
Deadline: December 29, 2023
Award Ceiling: $15,000,000

Events

- July 11, 2023, at 12:00 pm MT - **Financing Readiness 2: Alternative Solutions for Financing your Business - CDFIs, Patient Capital & Beyond webinar**
- July 11-12, 2023 - **Arizona WRRC 2023 Annual Conference**
- July 18-20, 2023 - **Earth and Sky Workshop**
- July 19, 2023, at 12:00 pm MT - **Grants & Grassroots Funding**

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