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Southwest Climate Hub Bulletin

News and events for the Southwest Hub region

April 2023

We recently released a compilation about **climate hope**. A listener asked us about the antithesis of climate hope - climate despair. This led to an upcoming conversation with Dr. Sarah Ray about her book – **A Field Guide to Climate Anxiety: How to keep your cool on a warming planet**. Dr. Ray reminds us that negative news sells and that it can be debilitating if it diminishes our sense of self-efficacy – the knowledge that we can adapt to and mitigate climate change. With the release of the IPCC AR6 **synthesis report** on March 20, 2023, there has been another wave of accurate but disheartening media. We at the SWCH will use this scientific information to further our connections, collaborations, and organizational efficacy in adapting to and mitigating climate change. In the words of Dr. Ray, “thinking ourselves ineffectual in the face of climate change makes us so.” Instead, let’s focus on **solutions journalism** and “amplify stories that extend our sense of abundance to manifest climate justice”.

Sincerely,

Emile



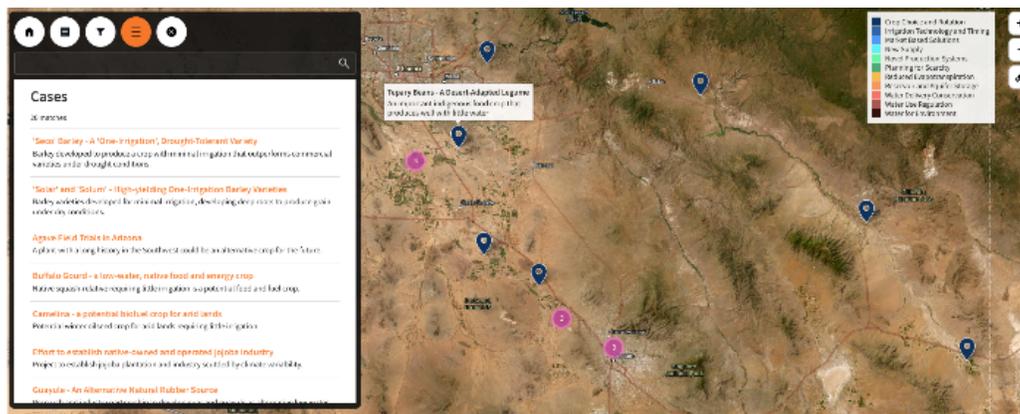
Announcing the Water Adaptation Techniques Atlas

Noah Silber-Coats

The Southwest Climate Hub is proud to announce the launch of our newest tool, the **Water Adaptation Techniques Atlas**, or WATA. As the already arid landscapes and over-allocated water resources of the Southwest face increasing stress from deep drought and a warming climate, WATA seeks to identify solutions to water scarcity in the region. The Atlas includes information about a broad range of actions that impact the water cycle, from low water-use crops and water-saving irrigation technologies to markets for reducing water use through fallowing, and infrastructure projects aimed at augmenting water supplies. While WATA documents solutions, it also highlights the impacts and limitations of these interventions.

Each entry in the interactive Atlas – designed by Jeb Williamson of NMSU's Jornada Experimental Range - is pinned to a location in the Southwest, with information on the intervention and its effects on the hydrologic cycle and broader social-environmental impact. Some cases include photos and embedded videos – more will be added soon – and bibliographic sources are linked from each entry. Users can filter cases to find results in roughly a dozen main categories and thirty sub-categories, as well as by water use category impacted (i.e. agriculture, urban, environment), and applicable crop or ecosystem, among several other options.

We welcome suggestions for what to include in WATA and how to improve the tool. View it [here](#)



New CCAST Case Study Covers the Pitchfork Ranch's Multi-benefit Approach to Climate Change Impacts

Maude Dinan

This case study details addressing a trifecta of interconnected crises on the multi-purpose Pitchfork Ranch: climate change impacts, species extinction, and soil depletion. These efforts highlight how habitat improvement can be possible without removing cattle from the land. Learn more from this **CCAST** case study developed by the **Drought Learning Network**: [Habitat Restoration and Ciénega Conservation on the Pitchfork Ranch](#).



Snowpack & Soil Moisture Monitoring Handbook

The 2023 Water Year started strong with plentiful high-mountain precipitation. While many of you likely know about the Community Collaborative Rain Hail and Snow ([CoCoRaHS](#)) network, you may not be aware of resources to help you build your own snow measurement station based on low-cost snow photography (snowtography). Dr. Joel Biederman, ARS Research Hydrologist in Tucson, Arizona, worked with The Nature Conservancy and Western Water Assessment to produce a snowtography handbook that guides readers through the process of establishing their own snowtography and soil moisture monitoring stations. Early adopters include forest and water managers eager to learn how wildfire or management actions interact with changing climate to affect snow water resources. Learn [more here](#).

Precision Ranching Technologies

Skye Aney

The use of smart sensors for automated monitoring and management of livestock, sometimes called “Precision Livestock Farming”, is fairly common in intensive animal agriculture. Their use in extensive ranching operations, however, is still in the early stages. The [Sustainable Southwest Beef Project](#) is experimenting with an integrated rancher dashboard that links to sensors which provide real-time data about water trough levels, rainfall received, and gps cattle locations. Also being used are virtual fence collars, which allow a manager to define and alter virtual boundaries from their smartphone. To learn more about each of these devices, check out the newest [fact sheets](#).

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Come Rain or Shine Podcast

Reanna Burnett

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:

Biochar: Uses and Potential Benefits

We have been hearing a lot about biochar recently. Biochar is the charred material leftover after partially burning organic material, which is then used to improve soil health, remediate polluted soils, sequester carbon, and even improve soil water holding capacity and soil moisture. This month we spoke with Dr. Debbie Page-Dumerose and Dr. Nate Anderson, both with the USFS Rocky Mountain Research Station, to learn more about biochar and its many uses.

Managing Cultural Resources in a Changing Climate

The impacts of climate change are threatening the resources in our national parks, including many of the cultural resources within them. This month we interviewed Lauren Meyer, Program Manager for the National Park Service Intermountain Historic Preservation Services Office, and Dr. Gregg Garfin, former director of the Southwest Climate Adaptation Science Center consortium and climatologist at the University of Arizona, to learn more about a project they worked on to develop an online, interactive tool for assessing the vulnerability of cultural resources to natural hazards that climate change may intensify in the Intermountain region of the US.

Climate Hope, the Compilation

We always like to ask our guests on this show what gives them hope as they think about the future and our changing climate, particularly with regard to the systems they work in. For our first episode of 2023, we made a collage of some highlights from our guests' responses to this question. As this new year begins, we hope you're finding things to fuel your fire, and perhaps you might find some additional inspiration in the words of others!

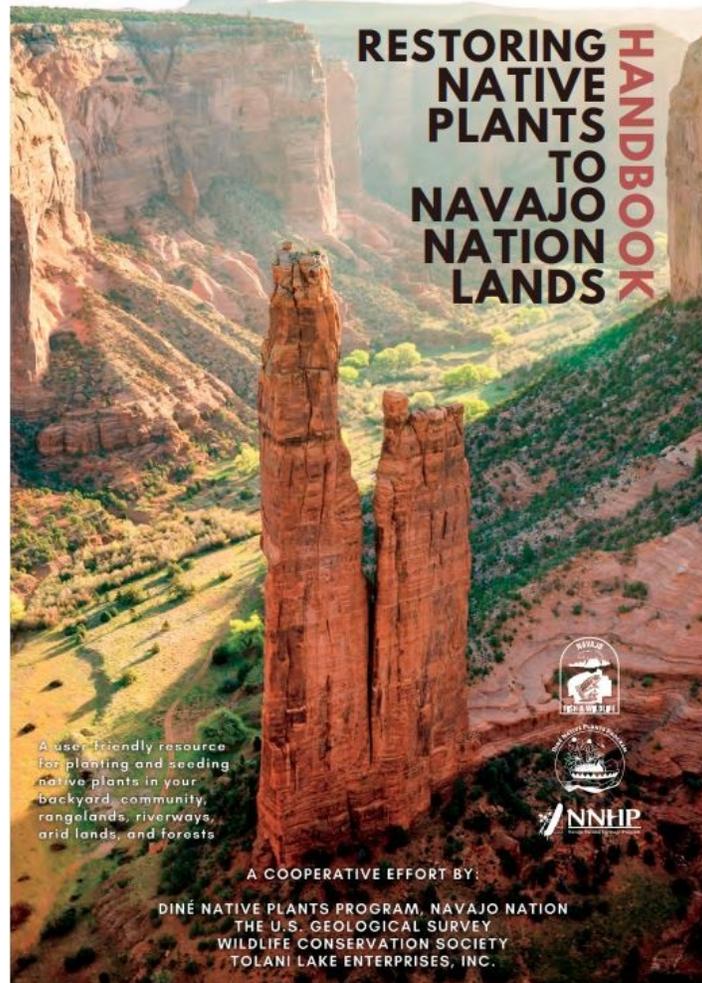
Find us on Buzzsprout at: <https://rainorshine.buzzsprout.com/>

Want to know when a new episode is released? Sign-up for email alerts [here](#).



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Diné Native Plants Program and partners have created a handbook, "[Restoring Native Plants to Navajo Nation Lands](#)", to help guide users in selecting native plants in their restoration efforts. Whether you are a rancher, a land manager, or a homeowner wanting to improve vegetation cover with native plants. You can find information about ecoregions on Navajo Nation, where to acquire native plant seeds and tips for planting success. You can find more information about the Diné Native Plants Program [here](#).



Southwest Watershed Research Center StoryMaps

Noah Silber-Coats

A team led by USDA-ARS scientist Mary Nichols at the Southwest Watershed Research Center in Tucson have recently produced two ArcGIS StoryMaps that visualize landscape change over time. "[Rangeland Restoration Research](#)" shows the impacts of rock check dams in the Santa Rita experimental range over a decade. "[Repeat Photography in the Malpai Borderlands](#)," displays photos from a survey of the U.S.-Mexico border in the 1890s alongside repeat photography from the 1990s using the historic border monuments to precisely align locations. The photo comparisons, visualized with an image slider, show both dramatic and subtle changes in vegetation patterns and land use at these sites.

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Picture: Malpai before and after 600p/ An image slider in the Malpai Borderlands StoryMap shows contrasting views of the same location near the Arizona-New Mexico-Sonora border in 1893 and 1996/ Left photo by D.R. Payne (1983), Right photo by R.M. Turner (1996)

Climate Reporting for the Southwest

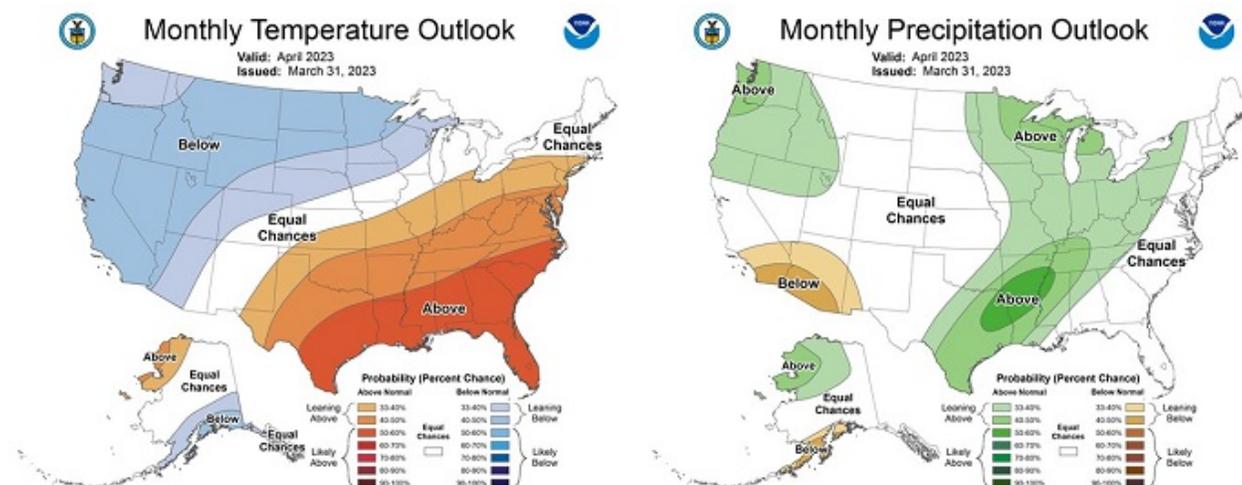
El Niño/Southern Oscillation (ENSO)

As of March 9, 2023, the ENSO alert system status is **Final La Niña Advisory**. Forecasters announce La Niña has ended and predict conditions of ENSO-neutral for spring and early summer 2023. You can read more perspectives and analyses about ENSO available at the NOAA [ENSO Blog](#).

National Weather Service Climate Prediction Center Outlooks

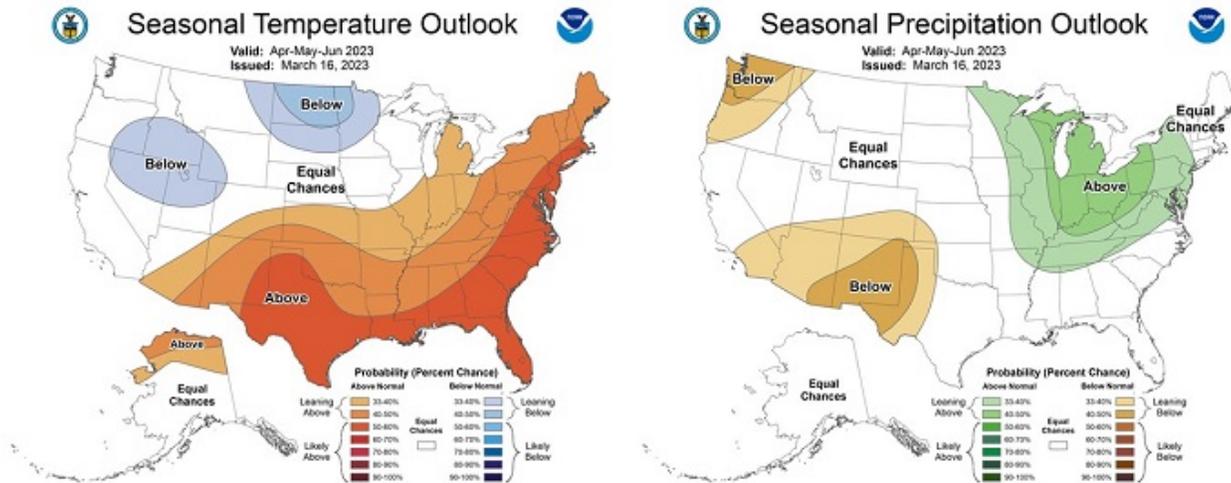
1-month outlook

As of March 31, the **one-month outlook** for April 2023 shows an equal chance of above-normal or below-normal temperatures for most of New Mexico and southeastern Arizona and there will be a 33-50% chance for below-normal temperatures for most of Arizona, Utah, and Nevada. There will be a 33-50% chance for below-normal precipitation for most of Arizona. And an equal chance of above-normal or below-normal precipitation for Utah and Nevada.



3-month outlook

As of March 16, the [three-month outlook](#) (Apr-May-Jun 2023) shows a 33-60% chance of above-normal temperatures for parts of Arizona and New Mexico. An equal chance of above-normal or below-normal temperatures for portions of Arizona, Utah, and Nevada. There will be a 33-40% chance of below-normal temperatures for the Great Basin region. There will be a 33-50% chance of below-normal precipitation for New Mexico and Arizona and an equal chance for precipitation for Utah and Nevada. To view more short-term outlooks, please visit the [NOAA's National Weather Service Climate Prediction Center](#).



Drought

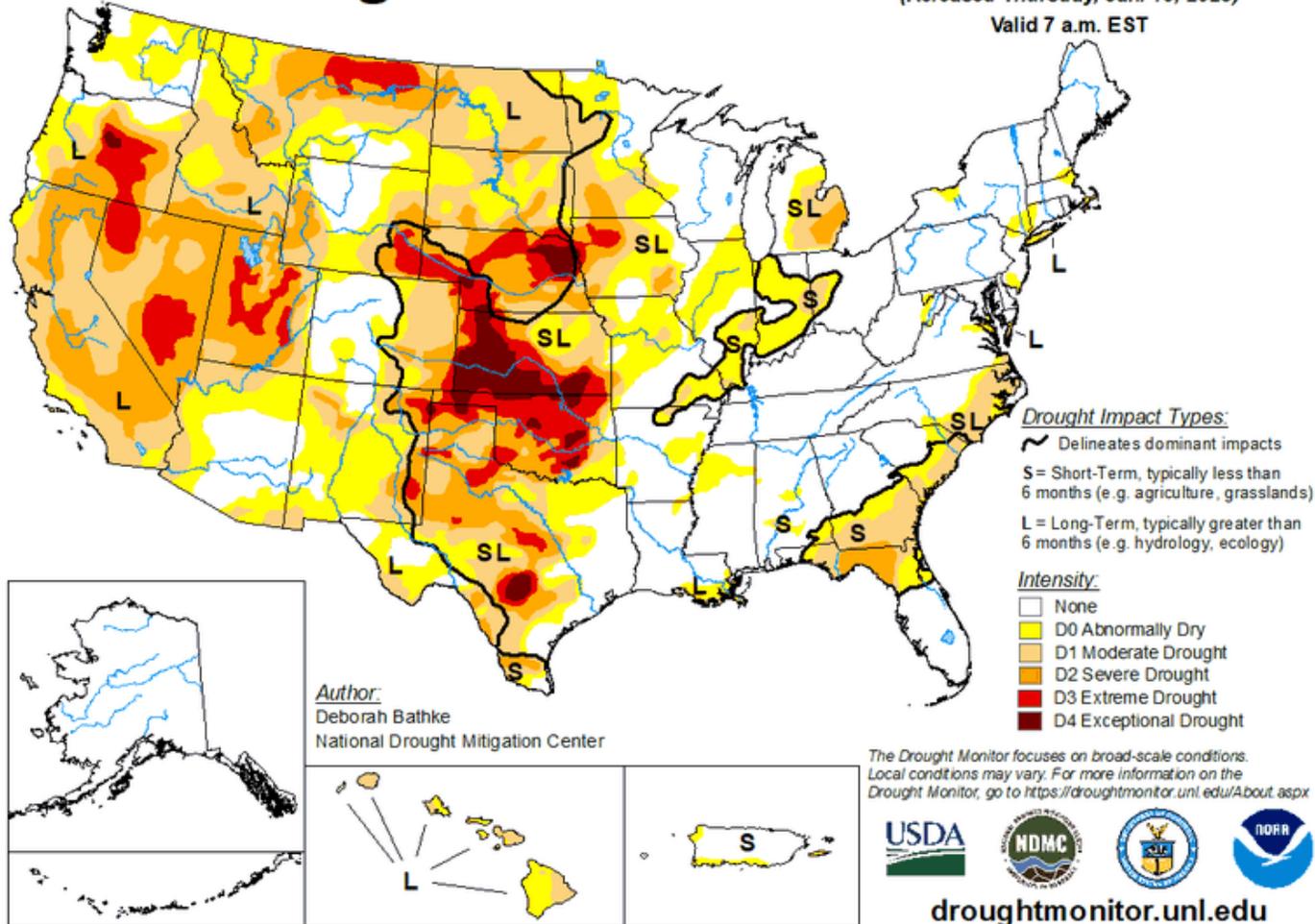
The [animation map](#) is a compilation of the past 12 weeks of the drought monitor maps. The [change map](#) illustrates the difference in drought class changes for the past 12 weeks. There are 1-3 class improvements for portions of the southwest. For a more detailed drought summary in your area of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

Animation Map (January 17 - April 4, 2023)

U.S. Drought Monitor

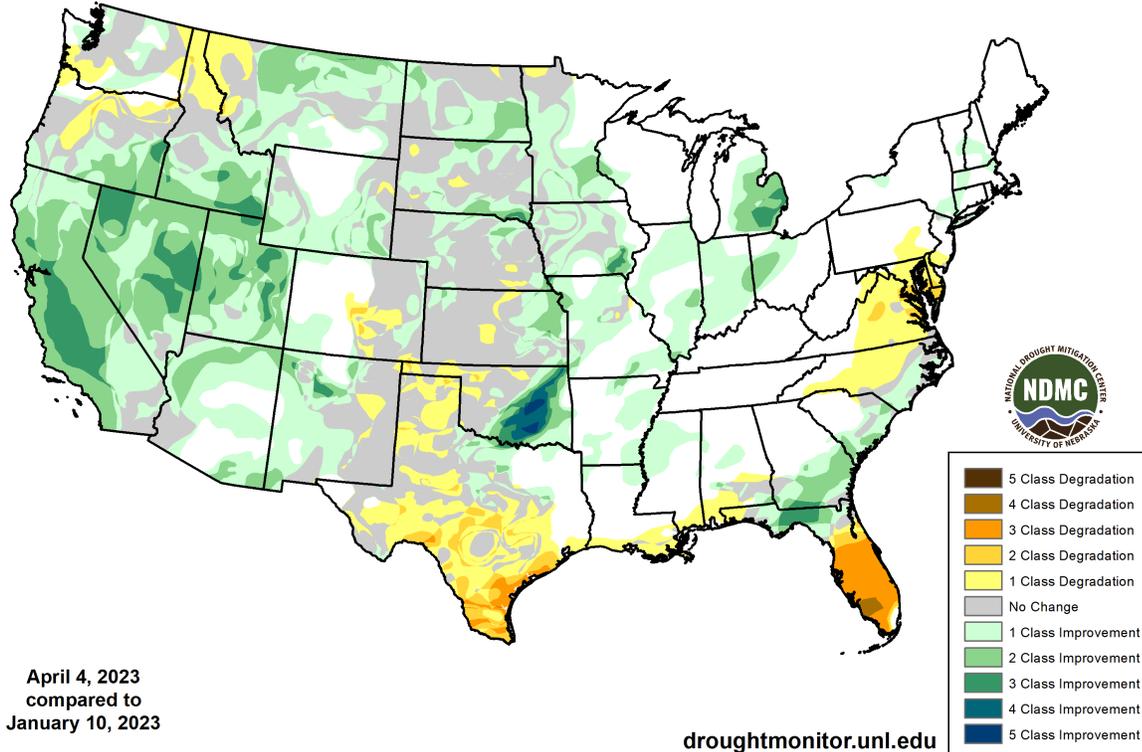
(Released Thursday, Jan. 19, 2023)

Valid 7 a.m. EST



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U.S. Drought Monitor Class Change - CONUS 12 Week



Announcements

13th Biennial United States Drought Monitor Forum

April 11-13, 2023

The goal of each USDM Forum is to provide an in-depth discussion on the current state of the USDM production as well as providing stakeholders with an opportunity to provide feedback and suggestion as well as being able to ask questions about anything related to the USDM process. Participants will also learn about regional drought issues and the state of the science related to drought monitoring across the United States.

If you would like to be put on the virtual registration list, please respond to (bfuchs2@unl.edu).

On-Ranch Demonstration

May 4, 2023

The [Sustainable Southwest Beef Project](#) invites you to an On-Ranch Demonstration at the Corta Madera Ranch in Pine Valley, CA. Corta Madera is a working ranch where heritage Raramuri Criollo cattle are being used for beef production. This field day is an opportunity to see the cattle and ask questions about them, see technologies for ranch management such as on-tank water-level sensors, remotely monitored rain gauges, and real-time GPS cattle location collars, and hear presentations by project researchers and others. Register [here](#).

An agenda can be found on the registration page or [here](#).

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Tribal Climate and Health Infrastructure Vulnerability Workshop

Join the South Central Climate Adaptation Science Center, BIA Tribal Climate Resilience, and Southern Plains Tribal Health Board for a no-cost, two-day workshop. The in-person workshop topics will include an introduction to vulnerability assessments and flood impacts to roads and health facilities, along with group guiding users going through the steps of the assessment process. Register [here](#).

Event Dates: May 18-19, 2023 from 8 am - 4 pm Central Time.

Location: Sac and Fox Nation Community Building 920883, S. Hwy 99, Stroud, Ok 74079

Contact April.Taylor@chickasaw.net with any questions.

Save The Date
Earth to Sky Workshop

South Central Region

Join us for three days of training with native informal educators from across the South Central Region who recognize the importance of teaching climate change. This workshop will be packed with exciting topics and fun activities for you to bring back to your community, including;

- Climate Advocates Voces Unidas (CAVU)
- USDA Southwest Climate Hub Education Units
- Share-A-Thon of Youth Activities
- Field Trip to Bandelier National Monument

Participants are encouraged to register with teams of relevant collaboration. (Ex. Tribal Environment and Education Staff) You will work with these teams to develop plans to implement these trainings in your tribe!

When & Where
July 18-20, 2023
Los Alamos Nature Center
2600 Canyon Road,
Los Alamos, NM 87544

Earth to Sky (ETS) is a partnership between NASA, NPS, and USFWS that enables and encourages informal educators to access and use relevant NASA science, data, and educational & outreach products in their work. The partnership's focus is on climate change science and communication.

Job Opportunities

Assistant Extension Specialist

The Department of Natural Resources and Environmental Management (NREM) at the University of Hawai'i at Manoa (UHM) invites applications for an 11-month, non-tenure-track faculty position in climate change management, with 75% extension

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monona (abundant and flourishing social-ecological systems), and revitalizing and reconnecting ecosystems and communities locally and globally. In addition, this position is designed to provide critical, state-wide support to agricultural producers and land stewards in the context of climate change management to meet the College of Tropical Agriculture and Human Resources (CTAHR) strategic priorities in vibrant tropical and Pacific Island agriculture and food security, ecosystem health, and resilient and thriving community health. [More information here.](#)

Research Assistant

The successful candidate will work independently and with a team at the USDA Southwest Climate Hub to develop a geospatial tool for collecting and interpreting solutions to water scarcity in the region. Specific duties will include:

- Reviewing peer-reviewed and gray literature to identify examples of water scarcity solutions.
- Synthesizing and condensing research into case study entries for the atlas tool
- Identifying images for inclusion in case studies and seeking permission to reproduced copyrighted material as needed.

Contact noahsc@nmsu.edu with any questions. [More information here.](#)

Social Science Technician

The USDA Agricultural Research Service is hiring a Social Science Technician to help understand the social networks that conserve and recycle nutrients across agricultural systems. The Technician will coordinate, collect, and summarize data to support circular nutrient management with a "[manureshed](#)" approach, helping to increase the sustainability of food systems while reducing water pollution and methane emissions. The position is located in sunny Las Cruces, New Mexico. The application is open from 04/05/2023 to 04/18/2023 at <https://www.usajobs.gov/job/717542200>. Contact sheri.spiegel@usda.gov with any questions.

Funding Opportunities

New Mexico Conservation Technical Assistance for Outreach and Education

Deadline: April 22, 2023

Award Ceiling: \$20,000

Beginning Farmer and Rancher Development Program

Deadline: April 27, 2023

Award Ceiling: \$750,000

Forest Service Cohesive Wildland Fire Management Strategy RFA 2023

Deadline: April 30, 2023

Award Ceiling: \$300,000

Program Funding for NRCS' Conservation Innovation Grants (CIG) for Federal fiscal year (FY) 2023 – New Mexico

Deadline: May 01, 2023

Award Ceiling: \$50,000

Value-Added Producer Grant

Deadline: May 11, 2023

Award Ceiling: \$250,000

Socially Disadvantaged Groups Grant

Deadline: May 16, 2023

Award Ceiling: \$175,000

Agriculture and Food Research Initiative Sustainable Agricultural Systems

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Partners for Fish and Wildlife FY23

Deadline: September 30, 2023

Award Ceiling: \$750,000

Agriculture and Food Research Initiative Competitive Grants Program Foundational and Applied Science Program

Deadline: December 29, 2023

Award Ceiling: \$15,000,000

Events

- April 11-13, 2023 - [United States Drought Monitor Forum](#)
 - April 26, 2023 - [Southwest Tribal Drought Conversation](#)
 - May 4, 2023 - [On-Ranch Demonstration](#)
 - May 9-11, 2023 - [Climate Prediction Applications Science Workshop](#)
 - May 18-19, 2023 - [Tribal Climate and Health Infrastructure Vulnerability Workshop](#)
 - June 13-15, 2023 - [UCOWR/NIWR Annual Water Resources Conference](#)
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