Climate Chronicles

Photo courtesy of Terry Evans

"Earth's vital signs are failing… We need leadership – cooperation – and political will for action. And we need it now."

— Antonio Guterres, Secretary General, United Nations

Region 5: Chicago Floods with People Attending Summits

2024 Urban Flood Summit

On April 2-3, 2024, FEMA Region 5 hosted the inaugural Urban Flooding Summit in Chicago, IL, to discuss solutions for managing flooding in cities across the region. Experts, policymakers, and government officials learned from each other and tackled the complex issues of urban flooding. The Summit included in-person opportunities to:

- Identify Federal funding and resources
- Get support with project implementation
- Develop relationships with other offices in respective jurisdictions and with state, regional, or federal counterparts
- Experience an expo featuring booths from multiple FEMA programs and other government agencies

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Region 5 Initiatives (continued from page 1)

Attendees heard from speakers from government agencies, nonprofit organizations, universities, and research centers. The 16 speaker presentations were divided into three sessions, with each subject matter expert delivering a 20-minute, rapid-fire presentation followed by a moderated panel Q&A.

The summit concluded with a facilitated open discussion among local and state officials designed to share ideas and best practices among participants to overcome the challenges of urban flooding.

EXTREME HEAT SUMMIT I

Extreme heat is an increasingly frequent and severe natural hazard across the nation, and it often disproportionately impacts the nation's underserved communities. Extreme heat can occur by itself or can cascade with other climate disasters, such as wildfire and severe storms. Historically, FEMA has not responded directly to extreme heat, but due to increasing risk, we can expect more frequent involvement. In the Calendar Year 2023 Annual Planning Guidance, Administrator Deanne Criswell directed a review of "all current FEMA authorities, capabilities and gaps to develop a unified agency approach to build resilience to threats driven by climate change, such as extreme heat." To this end, our region partnered with the National Exercise Division to launch the Extreme Heat Summit. The first summit was in Chicago on May 9-10, 2023, and focused on how FEMA and the federal family must prepare for, mitigate, and posture to respond to and recover from extreme heat.

Regional Administrator Tom Sevak stands center among the speakers who participated in the 2024 Extreme Heat Summit, which took place on May 21-24, 2024, in Chicago. (Above right) FEMA Region 5 provided information booths for attendees and participants.

EXTREME HEAT SUMMIT 2

The second Extreme Heat Summit was held in Chicago on May 21-22, 2024. To ensure it was accessible to a wide audience there was a virtual option. Building from the first summit, the second focused on actions that state, local, tribal, and territorial governments can take to prepare for, mitigate, and respond to extreme heat. The summit featured a variety of presenters including state and local leaders and from academia and nonprofits. Day 1 featured presentations on extreme heat impacts, planning and data analysis, communications and messaging, and nature-based solutions. Day 2 began with listening sessions for participants and transitioned in the afternoon to breakout sessions focused on the categories above. The feedback from the listening and breakout sessions is being incorporated into documents that will outline strategies for communities to build resilience to extreme heat.

Image courtesy of COP28 / Kiara Worth

International

COP28 – Policing Climate Globally

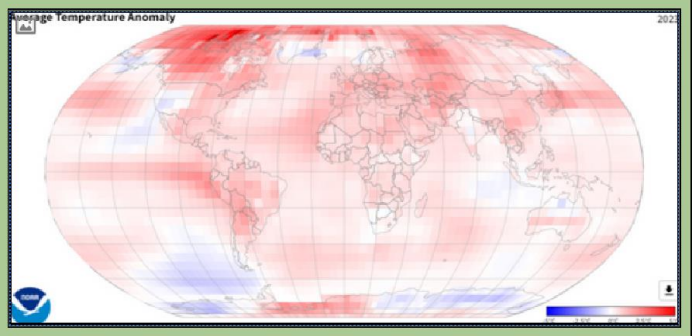
The Conference of the Parties (COP) is a term for the decision-making body of a United Nations Convention on Climate Change (UNCCC). COP28, the 2023 convention, took place Nov. 30 - Dec. 12 in Dubai, United Arab Emirates. Some 85,000 people, including more than 150 heads of state and government attended to address climate and other challenges by 2030. Below shows five key takeaways from the COP28:

Image courtesy of COP28 / Christopher

1. While progress has been slow across all areas of climate action, a decision was made to accelerate by 2030. This includes a transition away from fossil fuels to renewables.
2. A fund of over $600 million was established to address loss and damage in developing countries vulnerable to climate change.
3. To strengthen resilience on a global scale, the framework and targets of the Global Goal on Adaptation were established.
4. The first formal pledge was made to emphasize nature conservation and thereby address the triple planetary crisis.
5. Space was created to allow governments, businesses, and civil society to brainstorm climate solutions.

Left: Representation of the AMOC

Right: Annual average temperature anomalies. Notice the amount of red in the AMOC area.



Images courtesy of the National Oceanic and Atmospheric Administration

Education – Climate Science

Climate Running AMOC

The pulse of one of the ocean's key circulatory systems may be weakening because of climate change.

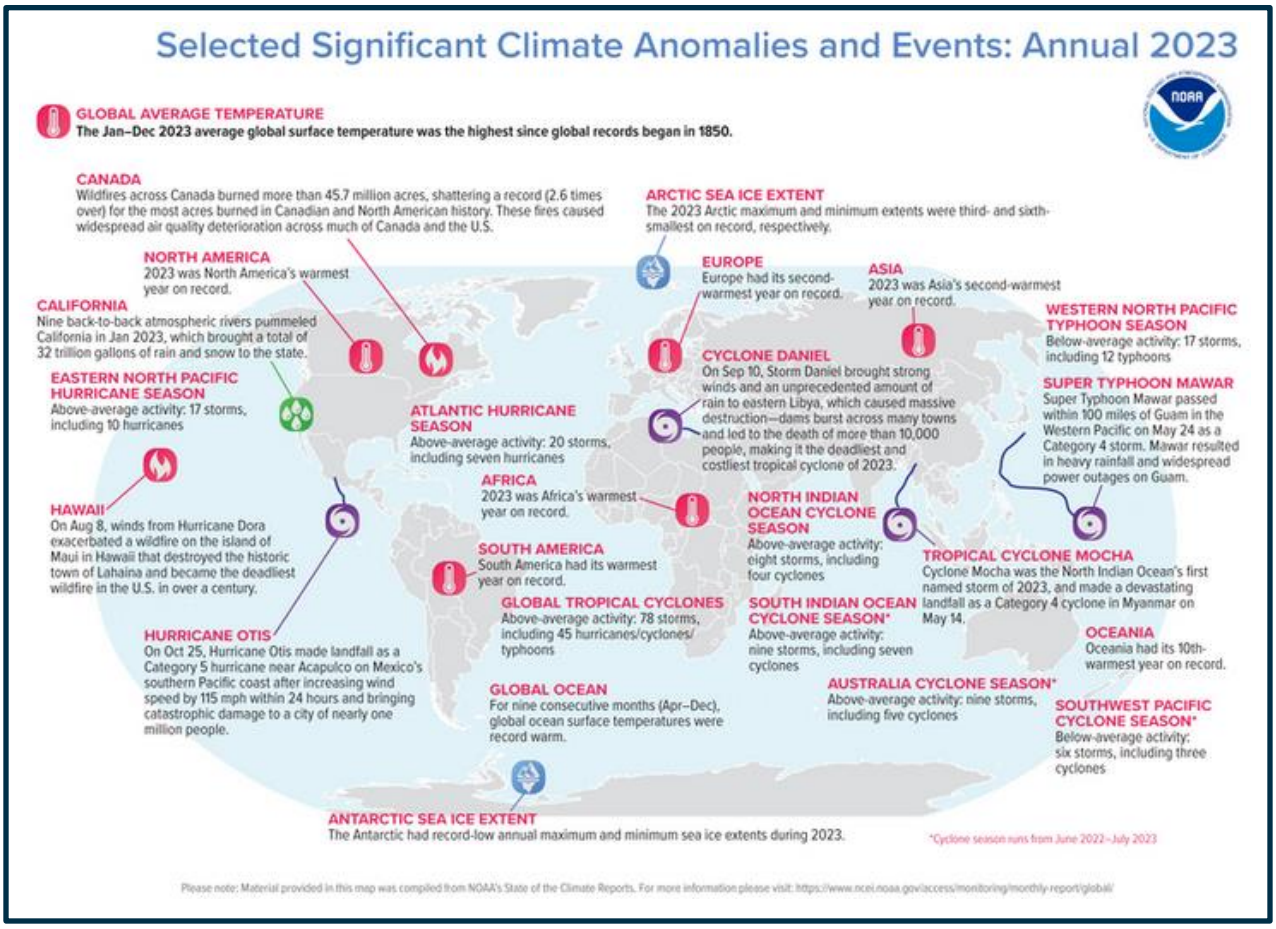
The Atlantic Meridional Overturning Circulation (AMOC) is a series of ocean currents that serves vital functions. Like our circulatory system, it transports - heat, carbon, and nutrients from the tropics to the arctic[1]. It also keeps the northern hemisphere warm and stores heat in the ocean, tempering climate change[2].

AMOC works because of the changes in temperature and salinity that happen as the water moves. As warm water from the tropics moves north, it cools and forms sea ice. As ice forms, salt is left in the water and because saltier and colder water is denser, it sinks and moves back towards the tropics[3].

However, because of warmer waters during summer and fall and the melting of glaciers and sea ice in winter[4], an abundance of research suggests it is weakening and could reach a tipping point. This could have abrupt climactic impacts as evidenced by climactic changes associated with the AMOC in the paleoclimate records[5].

Yet there's uncertainty in the research. Whether it will reach a tipping point and the timing of it (from as soon as 2025 into the next century[6,1]) are being questioned. Some research suggests AMOC can recover in a warmer climate[7]. But wouldn't it be better, because we know it has a weak pulse, to be concerned citizens and before a possible flatline, revive it through widespread climate mitigation and adaptation?

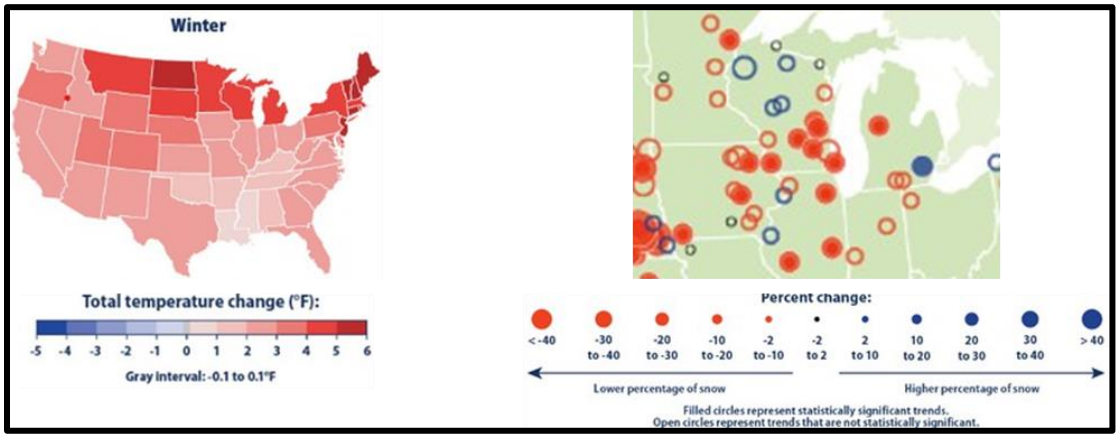
1. Atlantic Ocean circulation nearing 'devastating' tipping point, study finds | Oceans | The Guardian
2. The AMOC: its role in climate and its mechanisms of variability | US CLIVAR
3. What is the Atlantic Meridional Overturning Circulation (AMOC)? (noaa.gov)
4. AMOC decline and recovery in a warmer climate | Scientific Reports (nature.com)
5. A Review of the Role of the Atlantic Meridional Overturning Circulation in Atlantic Multidecadal Variability and Associated Climate Impacts (wiley.com)
6. Warning of a forthcoming collapse of the Atlantic meridional overturning circulation | Nature Communications
7. Asymmetry of AMOC Hysteresis in a State-Of-The-Art Global Climate Model - Western - 2023 - Geophysical Research Letters - Wiley Online Library



The Lost Winter: A Sign of the Future?

State climatology offices in Minnesota and Wisconsin are calling last winter "The Lost Winter," and it may be a sign that winter wonderland could become a rarity.

One reason is because, in region 5, winters have been warming faster than the other seasons, particularly in the three northern states. In many cases, precipitation is falling as rain rather than snow.



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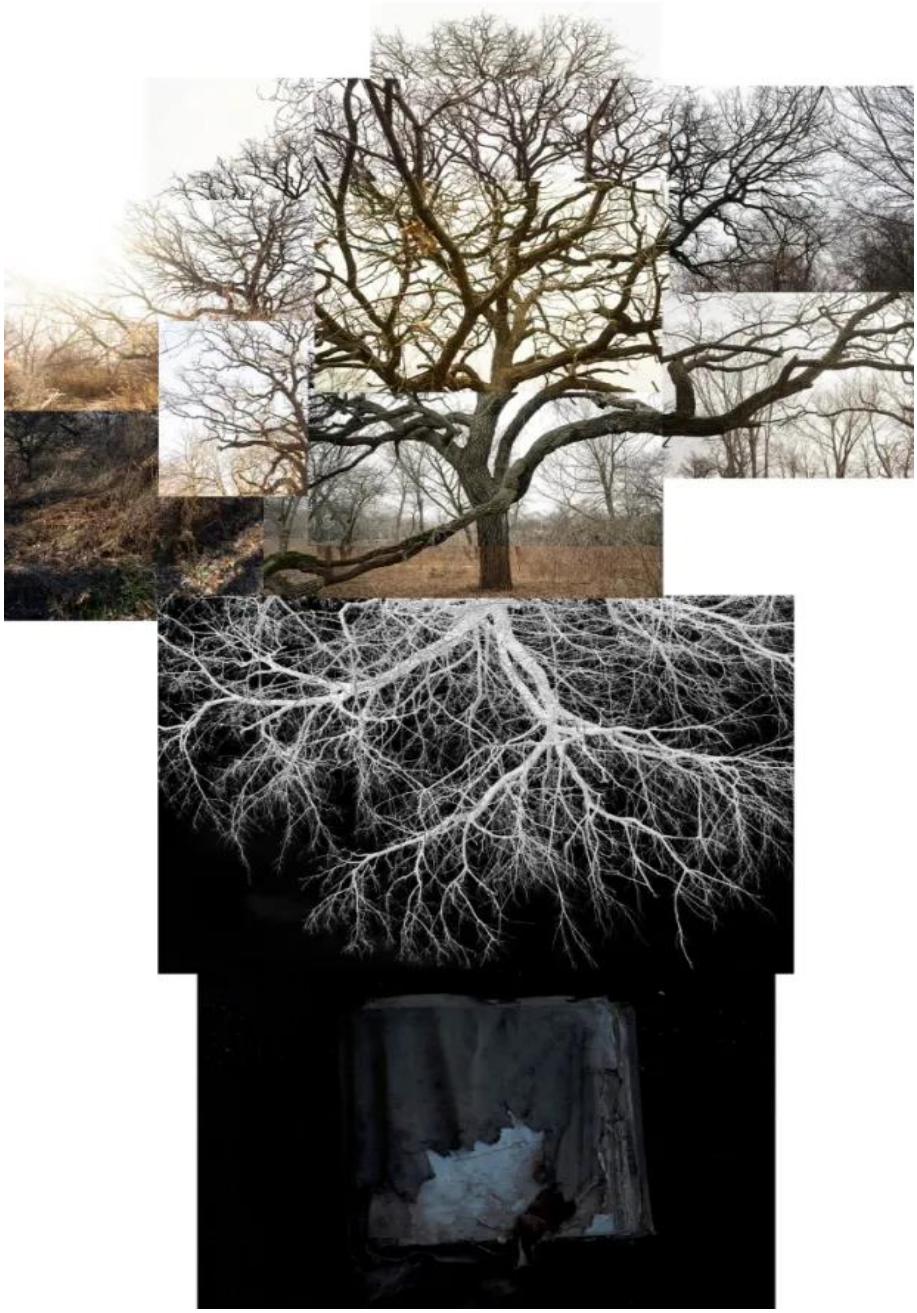
The warmer and wetter winters drag the economies of businesses that rely on winter activities. Michigan, Minnesota, and Wisconsin have been impacted and have federal funding available for relief.

If you would like more information about how climate change is affecting winter, Climate Central has a summary. In the future, more people may be "dreaming of a white Christmas (holiday)" and less may get one. It depends on us, on how we mitigate and adapt to climate change.

Artists with a Mission Share how Climate Change Affects What they do.

The collage at right is a creation by Terry Evans of a Bur Oak in her hometown of Chicago. She said in Yale's "Climate Connections" newsletter, "...I want to give pictures of hope, without pretending that the rest of it (industrial destruction) doesn't exist."



See pages 8-10

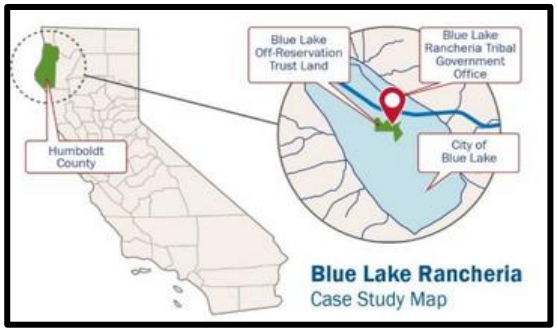
Climate Catalysts – Staff and Community Case Studies

A Tribal Climate Champion

BLUE LAKE RANCHERIA & FEMA'S LOW CARBON AND NET ZERO INITIATIVE

"That's our assessment [of effectiveness], to not only grow our own knowledge and our own capabilities, but to actually grow the people around you."

Anita Huff –
Director, Office of Emergency Services



The Biden administration demonstrated their commitment to building a clean energy economy and tackling climate change when they signed the Inflation Reduction Act (IRA) in 2022. IRA authorizes FEMA to fund low carbon materials and net zero projects in our grant programs. An example of implementing these projects is Blue Lake Rancheria (BLR).

BLR is a small (50 enrolled members) but mighty tribal government. Geographically isolated, they live on 100 acres of the aboriginal territory of the Wiyot people. With FEMA funds, BLR has created two microgrids, one at a community scale serving critical infrastructure and one at a facility scale serving a convenience store AND an electric vehicle charging station. These are just a few examples of their impressive actions to mitigate climate change. These are just a few examples of their impressive actions to mitigate climate change.

Did you know that a cultural food of the Wiyot people is an acorn and that it is a food source for over 100 other species? Like a small acorn supporting the larger community, BLR has supported California as a leader in sustainability and resilience.

Lake Erie Becomes More CHEER-y

Image courtesy of CHEERS

The Cleveland Harbor Eastern Embayment Resilience Strategy (CHEERS) is a project that builds community resilience. CHEERS incorporates three aspects of resilience: environment, economy, and health and well-being of the community. CHEERS aims to use dredge materials to build habitat, expand parks, mitigate the impacts of the highway on existing parkland, protect infrastructure, heal damage by unjust developmental practices and industrial use, and create a sheltered embayment where visitors can safely access Cleveland's east side lakefront.

The project is a cheery example of resilience because, among other good qualities, it:

- Addresses the community's climate and social vulnerabilities identified in previous research,
- Is driven by consistent and extensive community engagement, and
- Improves the equity and accessibility of the lakefront.

Climate Creativity – Art for Inspiration

Making Sense of Climate Change Through Art

What do raw sewage soap, infected tree pencils, and a collage of prairie photos have in common?

REIMAGINING OUR RELATIONSHIPS WITH NATURE – 7,000 MARKS

In 2016, Sara Black and Amber Ginsburg visited a California forest plagued with sudden oak death, a water mold that has become more effective at parasitizing oaks and other trees because of climate change. With scientists and lawyers, they felled an infected tree. They quarantined, milled, and dried the lumber then shipped it to Chicago where they made it into 7,000 pencils. These pencils, used in their workshop, prompt designers to help participants understand their personal and their communities' relationships to nature through creativity, empathy, and collaboration.

By isolating an infected tree and transforming it into pencils used to connect communities to nature, the project leaves positive marks on nature and society.

A diseased oak tree from California is felled by scientists, disinfected, and turned into 7,000 pencils in Chicago to show how science and imagination can work together.

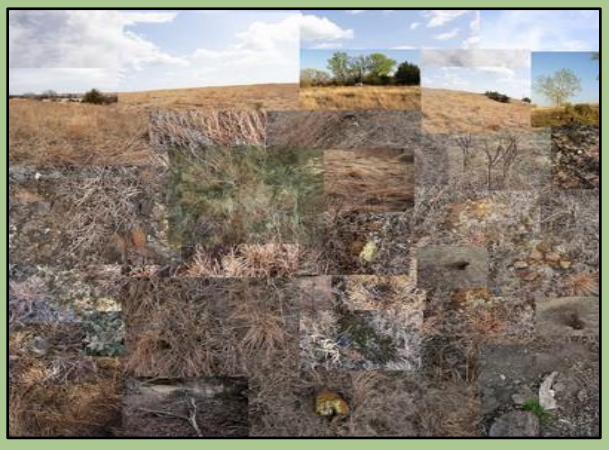
Images courtesy of Sara Black

DELVING INTO OUR ROOTS - PICTURES OF HOPE

Imagine an expanse of grassland and sky where roaming bison dot the hillsides on the horizon like ants on an anthill. Before settlers arrived, this was the norm – our country's heartland was mostly prairie. Its majesty is obvious above ground – but like icebergs, there's much more under the surface.

Prairies mitigate climate change in the soil. They store carbon in their roots, which are most of their biomass. Because much is underground, they may be more resilient to drought and wildfire and may be more reliable carbon storage than forests. But because of land use change to agriculture, almost all of them are gone and therefore deserve our attention.

Artist and photographer Terry Evans celebrates our present connection to prairies in her photography of this endangered land in Kansas and Chicago. Appropriately, most of the area of her cleverly interwoven prairie landscape collages (below) looks like roots. Through her art Evans wishes "to give pictures of hope[…] to be truthful. But the only way we can have hope is if we feel a real personal connection and relationship to land and landscape, to the home, to the ecosystems where we live."



"The South Pasture" (Above left) features photos of Evans' Kansas land in the spring. In her project statement, she wrote, "These prairies would not exist without human care, and 'Ancient Prairies' serves as a tribute to the kinship between humans and nature." (Photo courtesy of Terry Evans)

DEGREASING OUR SEWERS - SOAPS FOR FLOOD MITIGATION

To say we are familiar with flooding at FEMA is an understatement. A highlight for the year was the urban flood summit in April. We talked about flood mitigation activities – increasing sewer capacity, acquisitions, and rain gardens – the typical and strong solutions. Yet there's always room for lesser-known creative ones. What about removing grease from our sewers?

Catherine Sarah Young explored this innovative solution in her project, The Sewer Soaperie. She sterilized and transformed into soap the large lumps of coagulated grease that clog infrastructure and contributes to flooding. She hopes her work will help people understand and talk about experiences with climate change.

Theperceptionalist.com

All these artists are turning the adversities of climate change into artistic projects and creative solutions that can help us prepare for the future.

This article was inspired by another from Yale Climate Connections, an independent and nonpartisan news service.