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WestFAST News

682 East Vine Street / Suite 7 / Murray, UT 84107 / (801) 685-2555/ www.westernstateswater.org/westfast

Chair – Patrick Lambert; Federal Liaison Officer – Heather Hofman

The new U.S. Climate Normals are here. What do they tell us about climate change?

NOAA 5/4/21.



A collage of weather systems including thunderstorms, rain, heat waves, and fair weather. (iStock)

Every 10 years, NOAA releases an analysis of U.S. weather of the past three decades that calculates average values for temperature, rainfall and other conditions.

That time has come again.

Known as the **U.S. Climate Normals**, these 30-year averages — now spanning 1991-2020 — represent the new “normals” of our changing climate. They are calculated using [climate observations collected at local weather stations across the country](#) and are corrected for bad or missing values and any changes to the weather station over time before becoming part of the climate record.

Simply stated: The Normals are the basis for judging how daily, monthly and annual climate conditions compare to what’s normal for a specific location in today’s climate.



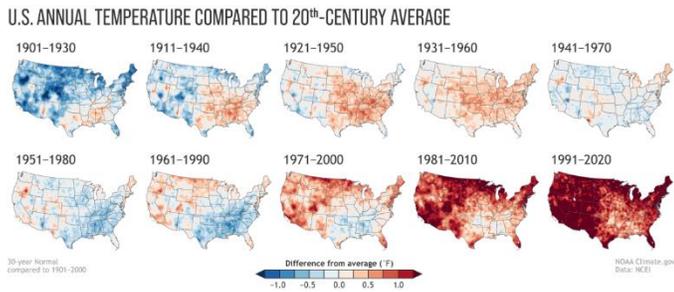
A NOAA employee in Asheville, North Carolina resets the index on a pair of minimum/maximum thermometers in a NOAA weather station. The index in the fluid marks the high and low of the day. (NOAA/Bryant Korzeniewski)

For the past decade, the Normals have been based on weather observations from 1981 to 2010. [In early May, climate experts at NOAA’s National Centers for Environmental Information \(NCEI\) issued an updated collection](#) based on the weather occurring from 1991 to 2020. The data set reflects a “new normal” that takes the most recent 30 years of climate change-influenced weather and climate conditions into account. (More: [See our Climate Normals Explainer.](#))

A warmer normal

The [U.S. Climate Normals collection](#) has 10 versions: 1901-1930, 1911-1940 and so on through 1991-2020. In the image below, we’ve compared the U.S. annual average temperature during each Normals period to the 20th-century average (1901-

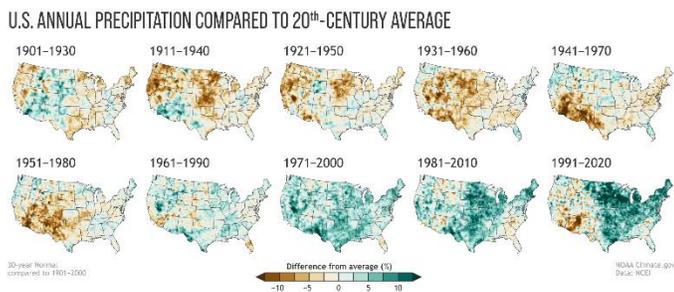
2000). The influence of long-term global warming is obvious: The earliest map in the series has the most widespread and darkest blues, and the most recent map has the most widespread and darkest reds.



Annual U.S. temperature compared to the 20th-century average for each U.S. Climate Normals period from 1901-1930 (upper left) to 1991-2020 (lower right). (NOAA NCEI)

A wetter normal?

In the collection of precipitation maps, few places exhibit a precipitation trend that is either steadily wetter or steadily drier than the 20th-century average. Instead, drier areas and wetter areas shift back and forth without an obvious pattern.



Normal annual U.S. precipitation as a percent of the 20th-century average for each U.S. Climate Normals period from 1901-1930 (upper left) to 1991-2020 (lower right). Places where the normal annual precipitation was 12.5 percent or more below the 20th-century average are darkest brown; places where normal annual precipitation was 12.5 percent or more wetter than the 20th-century average are darkest green. Maps by NOAA Climate.gov, based on analysis by Jared Rennie, North Carolina Institute for Climate Studies/NCEI. (NOAA Climate.gov)

And yet, it's probably not a coincidence that the last four maps in the series — the 1961-1990, 1971-2000, 1981-2010 and 1991-2020 Normals — are nationally the four wettest-looking maps in the collection. At least some of that wetness relative to the 20th-century average is linked to the overall climate warming and “wetting” of the atmosphere that's occurred as rising temperatures cause more water to evaporate from the ocean and land surface.

What used to be normal

The 1991-2020 Normals tell us what is normal in today's climate. NOAA scientists conduct other analyses that tell us about what used to be normal. For example, In NOAA's monthly and annual [climate monitoring](#) reports, temperature averages and precipitation totals [are ranked](#) in the climate record dating to 1895; U.S. and global climate conditions are compared to the 20th-century average.

Visualizing climate is easier now than ever

NCEI has a [collection of maps](#) showing both recent and long-term trends in temperature and precipitation. You can also [create a custom graph](#) showing monthly, seasonal or yearly climate conditions for any region, state and many cities that shows the long-term trend.

The Normals might be shifting, but NOAA scientists and forecasters aren't losing track of climate change.

[Reclamation provides \\$2.5 million to improve snow water supply forecasting](#)

BOR 5/6/21.



Snow in the Colorado Rockies along the Arkansas River.

WASHINGTON - The Bureau of Reclamation is providing \$2.5 million for 12 projects to advance snow measurement technology development, demonstration and application to improve water supply forecasting. Four projects will include partner contributions of \$720,000.

"With the changing climate and droughts occurring in the West, it is becoming increasingly apparent that the processes and methods used to forecast snow water runoff needs improvement," said Chief Engineer David Raff. "The research and demonstrations being undertaken is another way that Reclamation is working to improve our forecasting."

This program supports President Biden's [Executive Order on Tackling the Climate Crisis at Home and Abroad](#) as it increases resilience to the impacts of climate change.

Project examples:

- Partner with USDA Natural Resources Conservation Service to collaboratively pursue existing snow monitoring network design, enhancement and sensor evaluation in the West.
- Enhance the snow monitoring program in the San Joaquin River watershed. The funding would augment planned Airborne Snow Observatory flights. This information is critical to the operations at Millerton Reservoir and the San Joaquin River Settlement when water is needed early in the runoff season to support salmon restoration.
- Assess utility of new satellites to advance the state-of-the-art capabilities in quantifying snow water content in high-elevation mountain watersheds. The project will attempt to demonstrate and test integrated satellite-based data techniques to enhance snow and water supply forecasting in river basins.
- Develop an integrated remote sensing and physical modeling approach to producing high resolution modeled snow water equivalent in near real-time for small to medium basins where snowmelt is the primary driver of spring and summer reservoir inputs.

H.R. 133 - the Consolidated Appropriations Act, 2021 (Public Law 116-260) authorized these activities.

To learn more about these selected projects, please visit www.usbr.gov/research.

Media Contact: Peter Soeth 303-445-3615 psoeth@usbr.gov

[EPA Takes Action to Bolster State and Tribal Authority to Protect Water Resources](#)

EPA 5/27/2021



EPA Administrator Michael Regan speaks during a press briefing at the White House, Wednesday, May 12, 2021, in Washington. (AP Photo/Evan Vucci) (ASSOCIATED PRESS)

WASHINGTON – Today, the U.S. Environmental Protection Agency (EPA) announced its intent to revise the 2020 Clean Water Act (CWA) Section 401 Certification Rule after determining that it erodes state and Tribal authority. Through this process, EPA intends to strengthen the authority of states and Tribes to protect their vital water resources.

“We have serious water challenges to address as a nation and as EPA Administrator, I will not hesitate to correct decisions that weakened the authority of states and Tribes to protect their waters,” **said EPA Administrator Michael S. Regan**. “We need all state, Tribal, local, and federal partners working in collaboration to protect clean water, which underpins sustainable economic development and vibrant communities. Today, we take an important step to realize this commitment and reaffirm the authority of states and Tribes.”

“States and Tribes have relied on the Clean Water Act for almost 50 years to protect our waters and people, and EPA’s action is essential to restoring that historic authority,” **said Oregon Governor Kate Brown**. “The prior administration’s rule was not only harmful to the environment, it was corrosive to state, federal, and Tribal partnerships.

Communities rely on clean water, businesses rely on clean water, and our environment is dependent on clean water. We welcome this important step by the Biden-Harris Administration to restore a strong, collaborative approach to protecting one of America's most precious resources."

EPA intends to reconsider and revise the 2020 CWA Section 401 Certification Rule to restore the balance of state, Tribal, and federal authorities while retaining elements that support efficient and effective implementation of Section 401. Congress provided authority to states and Tribes under CWA Section 401 to protect the quality of their waters from adverse impacts resulting from federally licensed or permitted projects. Under Section 401, a federal agency may not issue a license or permit to conduct any activity that may result in any discharge into navigable waters unless the affected state or Tribe certifies that the discharge is in compliance with the Clean Water Act and state law, or waives certification.

The agency's process of reconsidering and revising the 2020 CWA Section 401 Certification Rule will provide opportunity for public and stakeholder input to inform the development of a proposed regulation, and will include sustained dialogue with state and Tribal co-regulator partners and local governments around these issues. EPA will begin a stakeholder engagement process in June to hear perspectives on this topic and how to move forward. More information will be available at: www.epa.gov/cwa-401.

While EPA engages with stakeholders and develops a revised rule, the 2020 rule will remain in place. The agency will continue listening to states and Tribes about their concerns with implementation of the 2020 rule to evaluate potential administrative approaches to help address these near-term challenges.

Background

Executive Order 13990 on Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis directed EPA to review and, as appropriate and consistent with applicable law, take action to revise or replace the 2020 Section 401 Certification Rule. Prior to the 2020 rule, EPA promulgated implementing regulations for water quality certification before the 1972

amendments to the Federal Water Pollution Control Act (commonly known as the Clean Water Act), which created section 401.

Contact Information:

EPA Press Office (press@epa.gov)

Upcoming Meetings

WSWC Summer 2021 (196th) Meeting

<https://westernstateswater.org/events/wswc-summer-2021-meetings/>

2021 Symposium on the Settlement of Indian Reserved Water Rights Claims

<https://westernstateswater.org/events/2021-symposium-on-the-settlement-of-indian-reserved-water-rights-claims/>

Other Federal News

NASA 5/6/21. [New SWOT Satellite to Survey World's Water](#)

USDA/DOI 5/13/21. [Interior and Agriculture Departments Outline Wildland Fire Preparedness, Climate Resiliency Plans](#)

NOAA 5/13/21. [April 2021 and year to date were among Earth's top-10 warmest](#)

FWS 5/18/21. [More than \\$27 Million Announced to Fund the Protection of Migratory Birds Throughout the Americas](#)

NRCS 5/18/21. [USDA to Invest \\$15 Million in the Future of Conservation Through Innovation Grants Program](#)

EPA 5/27/21. [EPA Announces \\$10 Million Available for States, Tribes and Territories to Address Environmental Challenges](#)

NOAA 5/28/21. [NOAA FY 2022 budget advances America's response to the climate crisis](#)

FWS 5/28/21. [President Biden's Fiscal Year 2022 Budget Makes Significant Investments in Conservation and Addressing Climate Change](#)

NPS 5/28/21. [President Biden's Fiscal Year 2022 Budget Makes Significant Investments in the National Park Service](#)

EPA 5/28/21. [Statement by Administrator Regan on the President's FY 2022 Budget](#)

BOR 5/28/21. [President Biden's Fiscal Year 2022 Budget Makes Significant Investments in Bureau of Reclamation](#)

DOI 5/28/21. [President Biden's Fiscal Year 2022 Budget Makes Significant Investments in Interior Department](#)

USDA 5/28/21. [Statement by Agriculture Secretary Vilsack on the President's Fiscal Year 2022 Budget](#)

People

NRCS 5/25/21. [U.S. Department of Agriculture Announces Key Leadership in Natural Resources and Conservation Areas](#)

The WESTERN STATES FEDERAL AGENCY SUPPORT TEAM (WestFAST) is a collaboration between 12 Federal agencies with water management responsibilities in the West, including: BLM, DOD, EPA, FWS, NASA, NOAA, NPS, NRCS, Reclamation, USACE, USFS, and USGS. WestFAST was established to support the Western States Water Council and the Western Governors' Association in coordinating Federal efforts regarding water issues.