COMMITTEE ON
SCIENCE, SPACE AND TECHNOLOGY
CHAIRMAN FRANK LUCAS

SUBCOMITTEE ON ENVIRONMENT
HEARING CHARTER

"Reauthorizing the Weather Act: Users of Weather Data and Areas for Improvement by Sector"

Tuesday, June 6, 2023
10:00 a.m.
2318 Rayburn House Office Building

Purpose
The purpose of this hearing is to examine the quality and availability of weather data and how the public understands and utilizes this information. This hearing will be an opportunity for Members to discuss potential areas of improvement related to the collection, distribution, and use of weather data and to better understand the varying needs of each of these communities to enhance the future of federal weather policy.

Witnesses
- **Mr. Gary McManus**, State Climatologist at the Oklahoma Climatological Survey**.**
- **Ms. Jeanine Jones**, Interstate Resources Manager at the California Department of Water Resources. Representing Western States Water Council
- **Mr. Eric Snodgrass**, Senior Fellow Scientist and Principal Atmospheric Scientist at Nutrien.
- **Dr. Kathie Dello,** State Climatologist of North Carolina and Co-Director of NOAA's Carolinas Climate Adaptation Partnership (CAP/RISA).

Overarching Questions
- How well does the weather data currently being collected translate into information that is useful to the communities that rely on it?
- How does public perception impact the usefulness of current weather data to the average household?
- How can weather data be better communicated to the public? For example, what do individuals understand when they hear the term "storm warning" versus "storm watch"?
- How can data be better specialized to cater to industry specific needs, for example the agricultural industry, emergency managers and the meteorological community?

Background

This hearing will include testimony from individuals in the meteorological, water and emergency management, and agricultural communities in order to enhance the sustainability and accuracy of federally-provided weather information as the Committee looks toward reauthorizing the Weather Research and Forecasting Innovation Act of 2017. This conversation will include insight on what data is currently accessible; how people like farmers, emergency managers and the general public understand and use the data; and what gaps need to be filled in the short and long term.

Weather Predictors, Networks and Technologies

Meteorologists analyze current data from a variety of sources to prepare and issue forecasts of approaching weather patterns in the short-term.[1]Climatologists focus on long-term climate trends affecting a certain population's food production, energy usage, species conservation, and public health. [2] State Climatologists currently exist in 47 states and Puerto Rico and aim to provide up to date information, data, and expertise directly from the federal government (NOAA) to state agencies, legislators, and citizens. They are typically either employees of state agencies or staff members of state-supported universities.

One tool that the public uses for weather information is Weather Data Receivers. These are low-cost satellite receiving systems that get data and information directly from federal weather satellites like the NOAA Geostationary Operational Environment Satellite (GOES) and the European Space Agency's Meteosat. Weather Data Receivers are frequently used by independent meteorologists, agribusiness firms, small airports or flying clubs, marine vessels, and small TV stations.[3] Farmers and ranchers also use these receivers to make planting and crop management decisions based on rainfall totals, storm predictions, wind speed, freeze predictions, and other risk factors that have the potential to affect crop yield outcomes.[4]

Another public tool is the National Mesonet Program (NMP), which serves as a "network of networks" to deliver critical information to improve weather predictions and warnings to ensure a weather-ready nation. The NMP is the central repository for real-time collection and dissemination of non-federal surface, boundary layer and tropospheric atmospheric weather observations in the U.S. It is made up of diverse public-private partnerships and acts as a resource to state and local agencies, businesses, researchers, and policy makers. The NMP's 35,000 stations/platforms significantly improve weather prediction, severe weather warnings, and emergency response for all regions of the country.[5]

---

[1] National Weather Service, *Careers in Meteorology*, *https://www.weather.gov/careers/meteorology#:~:text=What%20is%20a%20Meteorologist%3F,studies%2C%20or%20forecasts%20the%20weather*.

[2] Mizzell, Hope, *Climatologist*, South Carolina Department of Natural Resources, https://www.dnr.sc.gov/education/pdf/Climatologist.pdf

[3] NASA Spinoff, *Weather Data Receiver (1982)*, https://spinoff.nasa.gov/node/9204

[4] Hannan, Joe, *Personal Weather Station for Specialty Crop Management*, Iowa State University Extension and Outreach (2020), https://www.extension.iastate.edu/smallfarms/personal-weather-station-specialty-crop-management

[5] National Mesonet, *The National Mesonet Program*, https://nationalmesonet.us/

Of particular interest to state agencies and local communities are subseasonal to seasonal forecasts. Subseasonal forecasts cover two weeks to three months and seasonal forecasts cover three months to two years. NOAA's Subseasonal to Seasonal (S2S) Prediction Task Force was organized to improve prediction skill and products to close the gap between traditional weather and seasonal lead times. The taskforce invited scientists from universities, research laboratories, and NOAA centers to share datasets, methodologies, and results in reports, journals, and community engagement.

Subseasonal to Seasonal Research continues to be a priority area for NOAA due to its ability to fill emerging forecast needs in various economic sectors. As directed by the Weather Research Act of 2017, the S2S program works to improve the skill of S2S forecasts and enhance the value of S2S products for stakeholders. Accurately predicting weather from 2 weeks to 2 months, commonly referred to as the S2S Timescale, will significantly aid decision support across industries and keep the public informed and prepared for weather phenomena.

Legislative History

The Weather Research and Forecasting Innovation Act of 2017 (Public Law 115-25), known simply as the Weather Act, was signed into law in April 2017, capping a bipartisan, bicameral legislative effort that began in 2013 in the House Science Committee.[6] It was widely viewed as the first comprehensive weather authorization since the National Oceanic and Atmospheric Administration Authorization Act of 1992.[7]

The main goals of the Weather Act were to improve NOAA's weather research through investments in observational, computing, and modeling capabilities; to support improvement in weather forecasting and prediction of high impact weather events; and to expand commercial opportunities for the provision of weather data. Many sections of the bill were inspired by recommendations from reports authored by experts in the U.S. weather enterprise, including a National Academy of Sciences report published in 2012 entitled *Weather Services for the Nation: Becoming Second to None*[8] and a National Academy of Public Administration report published in 2013 entitled *Forecast for the Future: Assuring the Capacity of the National Weather Service*.[9]

Recognizing the immediate and impactful advances in the accuracy and timeliness of weather forecasting that the Weather Act prompted, the National Integrated Drought Information System (NIDIS) Reauthorization Act of 2018 (Public Law 115-423) was signed into law just two years later in January 2019.[10] The bipartisan NIDIS Reauthorization Act extended authorizations and improved several key programs from the Weather Act. Some of the programs, such as the agriculture weather provisions and NOAA's Office of Oceanic and Atmospheric Research, were extended with gradual increases in authorization of appropriations until FY 2023. Other

---

[6] P.L. 115-25

[7] P.L. 102-567

[8] National Research Council, *Weather Services for the Nation: Becoming Second to None*, THE NATIONAL ACADEMIES PRESS (2012), https://doi.org/10.17226/13429.

[9] National Academy of Public Administration, *Forecast for the Future: Assuring the Capacity of the National Weather Service*, NAPA (2013), https://www.weather.gov/media/ooe/ForecastfortheFuture-AssuringtheCapacityoftheNationalWeatherService.pdf.

[10] P.L. 115-423

provisions, like NOAA Computing Resources, were simply updated with revised focus based on stakeholder and community feedback since the signing of the Weather Act.

Reauthorizing the Weather Act is an opportunity to modernize U.S. weather policy and better serve American communities. At a hearing on March 23, 2023, entitled “Reauthorizing the Weather Act: Data and Innovation for Predictions” the Committee heard from private companies in the U.S. weather industry that are capable of providing observations and data to NOAA and other federal agencies. This hearing aims to hear the perspective of people and groups who use that data.