

On June 6, the House Science Space and Technology Subcommittee on Environment held a hearing titled Reauthorizing the Weather Act: Users of Weather Data and Areas for Improvement by Sector. Witnesses included: Gary McManus, Oklahoma Climatological Survey; Jeanine Jones, California Department of Water Resources representing WSWC; Eric Snodgrass, Nutrien; and Kathie Dello, State Climatologist of North Carolina.

McManus talked about the Oklahoma Mesonet, with one or more stations in each of their 77 counties providing real-time observations of weather, soil moisture, and other data to assist agriculture, firefighters, water managers, and other decision-makers across the State. The Mesonet relies heavily on information from National Oceanic and Atmospheric Administration (NOAA) and the National Weather Service.

Jones testified that water managers and water users in the West need more accurate forecasting at longer lead times to make water allocation and other decisions at the subseasonal to seasonal (S2S) scale. "Water agencies' preparation for the extremes of droughts and floods can entail actions such as repositioning resources, negotiating contracts for water transfers or temporary agricultural land following programs, completing environmental regulatory compliance and permitting, or implementing public outreach campaigns. Such actions do not happen quickly, and they need to be put in place before impacts occur in order to mitigate potential hazards. State water agencies may be able to offer financial or technical assistance to mitigate impacts, but they too need advance warning to secure the resources needed, including state budget resources."

Jones pointed out the significant disparity between current NOAA forecast skill and water agencies' needs, providing particular examples of inaccurate forecasting in extreme Water Years 2016 (dry) and 2023 (wet). "NOAA's precipitation outlooks rely heavily on ENSO conditions as an indicator of precipitation, but research performed by the Western Regional Climate Center and by others shows that ENSO conditions alone are a poor predictor in many western watersheds, including in California and in the Upper Colorado River Basin."

Jones noted that Congress directed NOAA to improve its S2S forecasts in the 2017 Weather Research and Forecasting Innovation Act. NOAA did provide a report to Congress in 2020 that recommended two pilot projects for improving precipitation forecasting, "one for winter precipitation in the western U.S. to support water management and the other for spring/summer precipitation in the central U.S. for agriculture. NOAA has not sought funding for these pilot projects via the President's budget request. In concept, the pilot projects would be modeled after NOAA's successful Hurricane Forecasting Improvement Program (HFIP), in which specific metrics of performance improvement would be identified for its operational forecasts. Each of the pilot projects would require a level of investment and time commitment similar to that for HFIP.... The [WSWC] respectfully recommends that the Weather Act be reauthorized with explicit direction to NOAA to improve S2S precipitation forecasting, including the specific direction to NOAA to implement the two precipitation forecasting pilot projects it recommended in its 2020 report to Congress."

Snodgrass said: "NOAA's data and services are mission critical to farmers, our food supply, and businesses like Nutrien that support US agriculture." He recommended strategic investments in: (1) a national mesonet to provide real-time data on evaporation, wind, humidity, temperature, and weather conditions; (2) the U.S. Global Forecasting System and suite of other models that could benefit from computing infrastructure upgrades; (3) expansion of the NEXRAD radar network that monitors precipitation to cover more of the Midwest; (4) more routine meteorological soundings with weather balloons; and (5) improved S2S forecasting. He said: The agriculture industry would benefit immensely from improved forecast skill in the [S2S] time scale of 2 weeks to 2 months. More accurate weather forecasts at this time scale would improve market stability, improve prediction of high-impact events like drought, flood, heat waves, and cold air outbreaks, and improve crop planning decisions. The 'S2S Prediction Gap'... represents one of the greatest challenges to atmospheric science and NOAA is well-equipped to conquer this gap and provide the needed skill for all weather sensitive aspects of the US economy – especially agriculture."

Dello testified about the need for robust weather and climate data, the importance of adequately funding programs, the need to scale up successful local programs, and critical gaps in NOAA's weather and climate data research. She talked about the value of NOAA's Climate Adaptation Partnerships (CAP) and the Regional Integrated Sciences and Assessments (RISA) program in North Carolina.