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119-83

IMPROVING FLOOD AND AGRICULTURAL
FORECASTS ACT OF 2025

R E P O R T

OF THE

COMMITTEE ON COMMERCE, SCIENCE, AND
TRANSPORTATION

ON

S. 613



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SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

ONE HUNDRED NINETEENTH CONGRESS

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IMPROVING FLOOD AND AGRICULTURAL FORECASTS ACT OF 2025

OCTOBER 21, 2025.—Ordered to be printed

Mr. CRUZ, from the Committee on Commerce, Science, and
Transportation, submitted the following

R E P O R T

[To accompany S. 613]

[Including cost estimate of the Congressional Budget Office]

The Committee on Commerce, Science, and Transportation, to which was referred the bill (S. 613) to require the Under Secretary of Commerce for Oceans and Atmosphere to maintain the National Mesonet Program, and for other purposes, having considered the same, reports favorably thereon without amendment and recommends that the bill do pass.

PURPOSE OF THE BILL

The purpose of S. 613, Improving Flood and Agricultural Forecasts Act of 2025, is to require the National Oceanic and Atmospheric Administration (NOAA) to maintain the National Mesonet Program (NMP) and for other purposes.

BACKGROUND AND NEEDS

A mesonet is a network of weather stations that monitor weather events that are 50 to several hundred miles in size, also known as mesoscale.¹ Established in 2009 by NOAA's National Weather Service (NWS), the NMP is a collaborative initiative designed to enhance weather prediction and warnings across the United States by integrating data from various non-Federal weather observation networks. The program's inception was influenced by a National Academy of Sciences' 2008 report, which recommended creating an integrated, flexible, and adaptive mesoscale meteorological observa-

¹“Forecast Glossary: Mesonet,” NOAA, National Weather Service, <https://forecast.weather.gov/glossary.php?word=mesonet>.

tion network to help fill gaps in the NWS data and improve mesoscale weather predictions.² The NMP is a centralized network that collects and disseminates data from partner mesonets that record surface, boundary layer, and atmospheric environmental conditions.³

The NMP currently comprises over 50 partner mesonets⁴ with over 35,000 weather observation stations or platforms combined.⁵ By partnering with private enterprises, academic institutions, and State and local mesonets, NMP reduces the incremental cost of monitoring while expanding NOAA’s local weather data. Partner networks use a variety of observation systems including surface in situ, mobile, and aircraft-mounted devices that enable NOAA to better support agriculture, water management, energy efficiency, and emergency response throughout the country. For example, the NMP leverages networks in:

- *Alaska*.—The Alaska Mesonet, managed by the University of Alaska Fairbanks, has been part of the NMP since 2020 and operates 68 weather and seismographic stations.⁶
- *Delaware*.—The Delaware Mesonet has been providing real-time environmental conditions across the State for over 15 years. The Delaware Environmental Observing System operates 80 environmental monitoring platforms and brings in data from over 200 additional platforms to support forecasting, emergency planning, and agriculture.⁷
- *Georgia*.—The Georgia Automated Environmental Monitoring Network, managed by the University of Georgia, operates 86 stations collecting data 24 hours a day, 7 days a week. This network proved vital during Hurricane Michael in 2018, supporting NWS tracking efforts.⁸
- *Hawaii*.—The Hawai’i Mesonet is currently under construction, with a planned full network of 115 stations.⁹ The network, managed by University of Hawai’i, is critical because of the spatial diversity of temperature, rainfall, and other variables across their complex landscape.¹⁰
- *Missouri*.—The Missouri Mesonet supports pesticide scheduling and farming with stations monitoring temperature inversions and soil data.¹¹

²National Research Council of the National Academies, Division on Earth and Life Studies, Board on Atmospheric Sciences and Climate, and Committee on Developing Mesoscale Meteorological Observational Capabilities to Meet Multiple National Needs, *Observing Weather and Climate from the Ground Up: A Nationwide Network of Networks*, The National Academies Press, 2009, <https://nap.nationalacademies.org/read/12540/chapter/1>.

³“Program History,” National Mesonet Program, <https://nationalmesonet.us/program-history/>.

⁴“National Mesonet Program,” National Mesonet, https://nationalmesonet.us/wp-content/uploads/2022/06/Mesonet-Regions_06_2022-Update.pdf.

⁵“NMP Network of Networks,” National Mesonet, <https://nationalmesonet.us/protecting-lives-and-property/>.

⁶“Alaska Mesonet,” University of Alaska Fairbanks (2020), <https://akclimate.org/projects/the-national-mesonet/>.

⁷“About Us,” Delaware Environmental Observing System, <https://www.deos.udel.edu/about/>.

⁸“Georgia Automated Environmental Monitoring Network,” University of Georgia, <http://www.georgiaweather.net/>.

⁹“Hawai’i Mesonet,” National Mesonet, <https://nationalmesonet.us/hawaii%CA%BBi-mesonet/>.

¹⁰“Hawai’i Mesonet Live Data Access,” Hawai’i Climate Data Portal, <https://www.hawaii.edu/climate-data-portal/hawaii-mesonet/>.

¹¹“Missouri Mesonet,” University of Missouri Extension, <http://agebb.missouri.edu/weather/realTime/maps/index.php>.

- *Montana*.—The Montana Mesonet, focusing on agriculture and wildfire risk, is expanding to address weather data gaps in this vast, rural State.¹²
- *Nebraska*.—The Nebraska Mesonet, managed by the University of Nebraska Lincoln since 1981, operates 74 stations across 49 counties, providing data on soil moisture, temperature, and more for agriculture and drought monitoring.¹³
- *Oklahoma*.—The Oklahoma Mesonet, a joint effort by the University of Oklahoma and Oklahoma State University since 1994, is a pioneering model with over 120 stations. It provides detailed data on weather and soil conditions, aiding agriculture and disaster preparedness in a State prone to tornadoes.¹⁴
- *Texas*.—Texas hosts one of the most robust mesonet systems in the Nation, the West Texas Mesonet, operated by Texas Tech University since 1999. Covering 71 counties across West Texas, New Mexico, and Colorado, it includes 138 stations providing real-time data on meteorological and agricultural parameters every 5 minutes. This system supports operational meteorology, agriculture, wind energy, and severe weather monitoring.¹⁵
- *Washington*.—The Washington Mesonet, managed by Washington State University, operates 159 surface sites collecting atmospheric, soil, and solar data.¹⁶ This data feeds into AgWeatherNet, a state-of-the-art automated weather data collection and decision support system for the State of Washington to improve agriculture, weather data, and climatology.¹⁷

Collectively, the State programs demonstrate the NMP's cost-effective approach, lowering per-station costs compared to Federal-only systems while addressing regional needs like agriculture, energy, and disaster response.¹⁸

SUMMARY OF PROVISIONS

S. 613 would do the following:

- Require NOAA to maintain and expand the existing NMP to improve weather forecasting.
- Support the National Integrated Drought Information System and National Coordinated Soil Moisture Network through increased soil moisture and related data collection.
- Direct a minimum of 15 percent of the NMP's annual funds for financial assistance to State, Tribal, private, and academic entities developing or improving mesonet systems that will provide data to the NMP for at least 5 years.

¹²"Montana Mesonet," Montana Climate Office, University of Montana, <https://climate.umt.edu/mesonet/>.

¹³"Nebraska Mesonet," University of Nebraska-Lincoln, <https://mesonet.unl.edu/>.

¹⁴"Oklahoma Mesonet," University of Oklahoma and Oklahoma State University, <https://www.mesonet.org/>.

¹⁵"West Texas Mesonet," Texas Tech University, <https://www.mesonet.ttu.edu>.

¹⁶"Washington Mesonet," Washington State University, <https://nationalmesonet.us/washington-state-university/>.

¹⁷"AgWeatherNet," Washington State University, brochure, 2022, <https://weather.wsu.edu/?p=121451>.

¹⁸"NMP: Saving Federal Funds," National Mesonet, <https://nationalmesonet.us/national-mesonet-saving-federal-funds>.

- Authorize NOAA to provide technical and financial assistance for maintenance of monitoring stations in underrepresented or remote areas.
- Establish an advisory committee of subject matter experts to make recommendations on NMP expansions and improvements.
- Authorize funding to support observation infrastructure, starting at \$50 million in fiscal 2025 and growing to \$70 million by fiscal year 2029.

LEGISLATIVE HISTORY

S. 613 was introduced on February 18, 2025, by Senator Schatz (for himself and Senator Marshall) and was referred to the Committee on Commerce, Science, and Transportation of the Senate. On March 12, 2025, the Committee met in open Executive Session and, by voice vote, ordered S. 613 reported favorably without amendment.

S. 590, an identical Senate bill, was introduced on February 13, 2025, by Senator Schatz and was referred to the Committee on Commerce, Science, and Transportation of the Senate.

118th Congress

S. 4901, the Improving Flood and Agricultural Forecasts Act of 2024, was introduced on July 31, 2024, by Senator Schatz (for himself and Senator Marshall) and was referred to the Committee on Commerce, Science, and Transportation of the Senate. Senator Baldwin was an additional cosponsor. S. 4901 was included as section 503 of S. 5601, the Weather Act Reauthorization Act of 2024, which was introduced on December 18, 2024, by Senator Cantwell (for herself and Senator Cruz) and was referred to the Committee on Commerce, Science, and Transportation of the Senate.

ESTIMATED COSTS

In accordance with paragraph 11(a) of rule XXVI of the Standing Rules of the Senate and section 403 of the Congressional Budget Act of 1974, the Committee provides the following cost estimate, prepared by the Congressional Budget Office:

S. 613, Improving Flood and Agricultural Forecasts Act of 2025			
As ordered reported by the Senate Committee on Commerce, Science, and Transportation on March 12, 2025			
By Fiscal Year, Millions of Dollars	2025	2025-2030	2025-2035
Direct Spending (Outlays)	0	0	0
Revenues	0	0	0
Increase or Decrease (-) in the Deficit	0	0	0
Spending Subject to Appropriation (Outlays)	15	288	301
Increases <i>net direct spending</i> in any of the four consecutive 10-year periods beginning in 2036?	No	Statutory pay-as-you-go procedures apply?	No
		Mandate Effects	
Increases <i>on-budget deficits</i> in any of the four consecutive 10-year periods beginning in 2036?	No	Contains intergovernmental mandate?	No
		Contains private-sector mandate?	No

S. 613 would authorize appropriations totaling \$304 million over the 2025–2029 period for the National Oceanic and Atmospheric Administration (NOAA) to maintain and expand the National Mesonet Program. That program is a network of automated weather stations in locations prone to severe weather that collect data about temperature, humidity, and atmospheric pressure. The agency would be responsible for integrating into the network the moisture content of soil and vegetation, satellite data, and data from existing environmental monitoring stations to improve the warning system for severe weather. In 2024, NOAA allocated \$30 million for the program.

The bill also would require NOAA to allocate 15 percent of the authorized amounts to assist local governments and private and academic entities to expand local monitoring stations and integrate the data they capture into the network. Finally, NOAA would be required to maintain an advisory committee to identify opportunities for collaborating with local experts and identifying appropriate data to improve the forecasting capability of the program.

CBO estimates that the bill will be enacted in 2025 and that the authorized amounts will be provided in each year. On that basis and using historical spending patterns, CBO estimates that implementing the bill would cost \$288 million over the 2025–2030 period and \$13 million after 2030.

The costs of the legislation, detailed in Table 1, fall within budget function 300 (natural resources and environment).

TABLE 1.—ESTIMATED INCREASES IN SPENDING SUBJECT TO APPROPRIATION UNDER S. 613

	By fiscal year, millions of dollars—						
	2025	2026	2027	2028	2029	2030	2025–2030
Authorization	50	55	61	68	70	0	304
Estimated Outlays	15	48	64	67	67	27	288

The CBO staff contact for this estimate is Aurora Swanson. The estimate was reviewed by H. Samuel Papenfuss, Deputy Director of Budget Analysis.

PHILLIP L. SWAGEL,
Director, Congressional Budget Office.

REGULATORY IMPACT STATEMENT

Because S. 613 does not create any new programs, the legislation will have no additional regulatory impact, and will result in no additional reporting requirements. The legislation will have no further effect on the number or types of individuals and businesses regulated, the economic impact of such regulation, the personal privacy of affected individuals, or the paperwork required from such individuals and businesses.

CONGRESSIONALLY DIRECTED SPENDING

In compliance with paragraph 4(b) of rule XLIV of the Standing Rules of the Senate, the Committee provides that no provisions contained in the bill, as reported, meet the definition of congressionally directed spending items under the rule.

SECTION-BY-SECTION ANALYSIS

Section 1. Short title.

This section would provide that the bill may be cited as the “Improving Flood and Agricultural Forecasts Act of 2025”.

Section 2. National Mesonet Program.

This section would require NOAA to maintain the existing NMP to enhance weather forecasting. It would require that the NMP obtain environmental observations to improve forecast abilities, including leveraging commercial, academic, and other non-Federal data. This section would direct the NMP to develop methods to incorporate new data, create memoranda of understanding with external weather data networks, and coordinate efforts with NOAA satellite and data services.

This section would require the NMP to increase the density and types of environmental data when carrying out the program. The NMP would also be required to identify gaps in data and support 30-minute severe weather warnings.

This section would also require NOAA to monitor local weather conditions by acquiring soil and moisture data, supporting the National Coordinated Soil Moisture Monitoring Network and the National Integrated Drought Information System, and enhancing environmental observations near roadways.

This section would require the NMP to be administered in a cost-effective manner by leveraging existing networks and data. It would require the NMP to coordinate efforts with other NOAA entities that develop data for weather forecasting including the National Environmental Satellite, Data, and Information Service; the Integrated Ocean Observing System; the National Data Buoy Center; and the National Ocean Service. The NMP would be required to communicate its research and development needs to the Office of Oceanic and Atmospheric Research.

This section would require at least 15 percent of the NMP's annual funding to be allocated to financial assistance for State, Tribal, private, and academic entities building or improving mesonet systems. It would specify that financial assistance may only be provided to a State, Tribal, private, or academic entity if the Under Secretary determines such entity will provide sufficient financial support from non-Federal sources to maintain their mesonet system for at least 5 years. The Under Secretary would be required to prioritize remote areas or an area that has a lack of environmental monitoring stations.

This section would require an advisory committee to provide guidance on program expansions and improvements but would allow for an existing committee to fulfill this role. It would require annual briefings to Congress through 2035 on NMP activities.

This section would also define the terms "seasonal", "State", "subseasonal", "Under Secretary", "weather enterprise", and "weather data".

Lastly, this section would authorize appropriations for the NMP: \$50 million for fiscal year 2025, \$55 million for fiscal year 2026, \$61 million for fiscal year 2027, \$68 million for fiscal year 2028, and \$70 million for fiscal year 2029.

CHANGES IN EXISTING LAW

In compliance with paragraph 12 of rule XXVI of the Standing Rules of the Senate, the Committee states that the bill as reported would make no change to existing law.

