



116TH CONGRESS  
2D SESSION

**S.** \_\_\_\_\_

To require installation of a network of soil moisture and snowpack monitoring in the Upper Missouri River Basin and to establish a pilot program for the acquisition and use of data generated by that network, and for other purposes.

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IN THE SENATE OF THE UNITED STATES

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Mr. THUNE (for himself and Mr. ROUNDS) introduced the following bill; which was read twice and referred to the Committee on \_\_\_\_\_

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**A BILL**

To require installation of a network of soil moisture and snowpack monitoring in the Upper Missouri River Basin and to establish a pilot program for the acquisition and use of data generated by that network, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*  
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Missouri River Basin  
5 Drought and Snowpack Monitoring Act”.

6 **SEC. 2. SOIL MOISTURE AND SNOWPACK MONITORING.**

7 (a) **INSTALLATION OF NETWORK.—**

1           (1) IN GENERAL.—In accordance with the ac-  
2           tivities required under section 4003(a) of the Water  
3           Resources Reform and Development Act of 2014  
4           (128 Stat. 1311; 130 Stat. 1677), and to support  
5           the goals of the Weather Research and Forecasting  
6           Innovation Act of 2017 (Public Law 115–25; 131  
7           Stat. 91) and the National Integrated Drought In-  
8           formation System Reauthorization Act of 2018  
9           (Public Law 115–423; 132 Stat. 5454), the Sec-  
10          retary of the Army (referred to in this section as the  
11          “Secretary”), in coordination with the Administrator  
12          of the National Oceanic and Atmospheric Adminis-  
13          tration (referred to in this section as the “Adminis-  
14          trator”), the Chief of the Natural Resources Con-  
15          servaion Service, the Director of the United States  
16          Geological Survey, and the Commissioner of Rec-  
17          lamation, shall continue installation of a network of  
18          soil moisture and plains snowpack monitoring sta-  
19          tions and modification of existing stations in the  
20          Upper Missouri River Basin.

21           (2) REQUIREMENTS.—In carrying out installa-  
22          tion and modification activities under paragraph (1),  
23          the Secretary—

24                   (A) may continue to enter into agreements,  
25                   including cooperative agreements, with State

1 mesonet programs for purposes of installing  
2 new stations or modifying existing stations;

3 (B) shall transfer ownership and all re-  
4 sponsibilities for operation and maintenance of  
5 new stations to the respective State mesonet  
6 program for the State in which the monitoring  
7 station is located on completion of installation  
8 of the station; and

9 (C) shall establish, in consultation with the  
10 Administrator, requirements and standards for  
11 the installation of new stations and modification  
12 of existing stations to ensure seamless data in-  
13 tegration into—

- 14 (i) the National Mesonet Program;  
15 (ii) the National Coordinated Soil  
16 Moisture Network; and  
17 (iii) other relevant networks.

18 (b) SOIL MOISTURE AND SNOWPACK MONITORING  
19 PILOT PROGRAM.—

20 (1) IN GENERAL.—Not later than 180 days  
21 after the date of the enactment of this Act, the Ad-  
22 ministrator shall establish a pilot program for the  
23 acquisition and use of data generated by the network  
24 described in subsection (a).

1           (2) REQUIREMENTS.—In establishing the pilot  
2 program under paragraph (1), the Administrator  
3 shall—

4           (A) enter into agreements with State  
5 mesonet programs in the Upper Missouri River  
6 Basin to acquire data generated by the network  
7 described in subsection (a) that—

8           (i) are similar to the agreements in ef-  
9 fect as of the date of the enactment of this  
10 Act with States under the National  
11 Mesonet Program; and

12           (ii) allow for sharing of data with  
13 other Federal agencies and with institu-  
14 tions engaged in federally supported re-  
15 search, including the United States  
16 Drought Monitor, as appropriate and fea-  
17 sible;

18           (B) in coordination with the Secretary, the  
19 Chief of the Natural Resources Conservation  
20 Service, the Director of the United States Geo-  
21 logical Survey, and the Commissioner of Rec-  
22 lamation, gather data from the operation of the  
23 network to inform ongoing efforts of the Na-  
24 tional Oceanic and Atmospheric Administration  
25 in support of—

- 1 (i) the National Integrated Drought  
2 Information System, including the Na-  
3 tional Coordinated Soil Moisture Moni-  
4 toring Network;
- 5 (ii) the United States Drought Mon-  
6 itor;
- 7 (iii) the National Water Model and  
8 other relevant national modeling efforts;
- 9 (iv) validation, verification, and cali-  
10 bration of satellite-based, in situ, and other  
11 remote sensing activities and output prod-  
12 ucts;
- 13 (v) flood risk and water resources  
14 monitoring initiatives by the Secretary and  
15 the Commissioner; and
- 16 (vi) any other programs or initiatives  
17 the Administrator considers appropriate;  
18 and
- 19 (C) at the request of State mesonet pro-  
20 grams, or as the Administrator considers appro-  
21 priate, provide technical assistance to such pro-  
22 grams under the pilot program under para-  
23 graph (1) to ensure proper data requirements;  
24 and

1           (D) ensure an appropriate mechanism for  
2           quality control and quality assurance is em-  
3           ployed for the data acquired under the pilot  
4           program, such as the Meteorological Assimila-  
5           tion Data Ingest System.

6           (3) STUDY REQUIRED.—

7           (A) IN GENERAL.—Not later than 1 year  
8           after the date of the enactment of this Act, the  
9           Administrator shall initiate a study of the pilot  
10          program required by paragraph (1) to evaluate  
11          the data generated by the network described in  
12          subsection (a) and the applications of that data  
13          to programs and initiatives described in para-  
14          graph (2)(B).

15          (B) ELEMENTS.—The study required by  
16          subparagraph (A) shall include an assessment  
17          of—

18                 (i) the contribution of the soil mois-  
19                 ture, snowpack, and other relevant data  
20                 generated by the network described in sub-  
21                 section (a) to weather, subseasonal and  
22                 seasonal, and climate forecasting products  
23                 on the local, regional, and national levels;

24                 (ii) the enhancements made to the  
25                 National Integrated Drought Information

1 System, the National Water Model, and  
2 the United States Drought Monitor, and  
3 other relevant national modeling efforts,  
4 using data and derived data products gen-  
5 erated by the network;

6 (iii) the contribution of data gen-  
7 erated by the network to remote sensing  
8 products and approaches;

9 (iv) the viability of the ownership and  
10 operational structure of the network; and

11 (v) any other matters the Adminis-  
12 trator considers appropriate, in coordina-  
13 tion with the Secretary, the Chief of the  
14 Natural Resources Conservation Service,  
15 the Director of the United States Geologi-  
16 cal Survey, and the Commissioner of Rec-  
17 lamation.

18 (4) REPORT REQUIRED.—Not later than 4  
19 years after the date of the enactment of this Act, the  
20 Administrator shall submit to Congress a report—

21 (A) setting forth the findings of the study  
22 required by paragraph (3); and

23 (B) making recommendations based on  
24 those findings to improve weather, subseasonal,  
25 seasonal, and climate monitoring nationally.

1           (5) GOVERNMENT ACCOUNTABILITY OFFICE  
2           AUDIT.—

3                   (A) IN GENERAL.—Not later than 60 days  
4           after the report required by paragraph (4) is  
5           submitted, the Comptroller General of the  
6           United States shall conduct an audit to evalu-  
7           ate that report and determine whether—

8                           (i) the Administrator, in conducting  
9                           the pilot program under paragraph (1),  
10                          has utilized the relevant data generated by  
11                          the network described in subsection (a) in  
12                          the manner most beneficial to the pro-  
13                          grams and initiatives described in para-  
14                          graph (2)(B);

15                          (ii) the acquisition agreements entered  
16                          into under paragraph (2)(A) with State  
17                          mesonet programs fully comply with the  
18                          requirements of that paragraph; and

19                          (iii) the heads of other agencies, in-  
20                          cluding the Secretary, the Chief of the  
21                          Natural Resources Conservation Service,  
22                          the Director of the United States Geologi-  
23                          cal Survey, and the Commissioner of Rec-  
24                          lamation, are utilizing the data generated

1           by the network to better inform and im-  
2           prove the missions of those agencies.

3           (B) REPORT REQUIRED.—Not later than  
4           270 days after initiating the audit required by  
5           subparagraph (A), the Comptroller General  
6           shall submit to Congress a report setting forth  
7           the findings of the audit.

8           (c) AUTHORIZATION OF APPROPRIATIONS.—

9           (1) IN GENERAL.—There are authorized to be  
10          appropriated—

11           (A) to supplement funds already author-  
12           ized for installation of a network of new moni-  
13           toring stations and modification of existing  
14           monitoring stations in the Upper Missouri  
15           River Basin under subsection (a), \$7,000,000  
16           for each of fiscal years 2021 through 2025; and

17           (B) to the Administrator to acquire under  
18           subsection (b) data collected by the network de-  
19           scribed in subsection (a)—

- 20                   (i) \$500,000 for fiscal year 2021;  
21                   (ii) \$2,300,000 for fiscal year 2022;  
22                   (iii) \$4,100,000 for fiscal year 2023;  
23                   (iv) \$5,900,000 for fiscal year 2024;  
24                   and  
25                   (v) \$7,900,000 for fiscal year 2025.

1           (2) LIMITATION ON ADMINISTRATIVE EX-  
2 PENSES.—Not more than 2 percent of the amounts  
3 authorized to be appropriated under paragraph  
4 (1)(B) may be used by the Administrator for admin-  
5 istrative expenses.