sonal forecasts and related products described in subsection (c); and

(C) an identification of research, monitoring, observing, and forecasting requirements to meet the goals described in subparagraph (B).

(2) Consultation

In developing the report under paragraph (1), the Under Secretary shall consult with relevant Federal, regional, State, tribal, and local government agencies, research institutions, and the private sector.

(i) Definitions

In this section:

(1) Foundational forecast

The term ''foundational forecast'' means basic weather observation and forecast data, largely in raw form, before further processing is applied.

(2) National Weather Service core partners

The term ''National Weather Service core partners'' means government and nongovernment entities which are directly involved in the preparation or dissemination of, or discussions involving, hazardous weather or other emergency information put out by the National Weather Service.

(3) Seasonal

The term ''seasonal'' means the time range between 3 months and 2 years.

(4) State

The term ''State'' means a State, a territory, or possession of the United States, including a Commonwealth, or the District of Columbia.

(5) Subseasonal

The term ''subseasonal'' means the time range between 2 weeks and 3 months.

(6) Under Secretary

The term ''Under Secretary'' means the Under Secretary of Commerce for Oceans and Atmosphere.

(7) Weather industry and weather enterprise

The terms ''weather industry'' and ''weather enterprise'' are interchangeable in this section and include individuals and organizations from public, private, and academic sectors that contribute to the research, development, and production of weather forecast products, and primary consumers of these weather forecast products.

(j) Authorization of appropriations

There are authorized to be appropriated to carry out the activities under this section—

(1) $26,500,000 for fiscal year 2019;
(2) $27,000,000 for fiscal year 2020;
(3) $27,500,000 for fiscal year 2021;
(4) $28,000,000 for fiscal year 2022; and
(5) $28,500,000 for fiscal year 2023.

(k) Derivation of funds

Amounts made available to carry out this section shall be derived from amounts appropriated or otherwise made available to the National Weather Service.

(Pub. L. 99–198, title XVII, §1762, Dec. 23, 1985, 99 Stat. 1651; Pub. L. 115–25, title II, §201, Apr. 18, 2017, 131 Stat. 98; Pub. L. 115–423, §3(a), Jan. 7, 2019, 132 Stat. 5455; Pub. L. 117–316, §11, Dec. 27, 2022, 136 Stat. 4413.)

Editorial Notes

CODIFICATION

Section was formerly set out as a note under section 313 of this title.

Section was enacted as part of the Food Security Act of 1985, and not as part of the Weather Research and Forecasting Innovation Act of 2017 which comprises this chapter.

AMENDMENTS

2022—Subsec. (f)(1). Pub. L. 117–316 substituted ''shall include'' for ''may include''.

2019—Subsec. (j). Pub. L. 115–423, §3(a)(1), amended subsec. (j) generally. Prior to amendment, text read as follows: ''For each of fiscal years 2017 and 2018, there are authorized out of funds appropriated to the National Weather Service, $26,500,000 to carry out the activities of this section.''

Subsec. (k). Pub. L. 115–423, §3(a)(2), added subsec. (k).

2017—Subsecs. (a), (b). Pub. L. 115–25, §201(1), (2), inserted headings.

Subsecs. (c) to (j). Pub. L. 115–25, §201(3), added subsecs. (c) to (j).

SUBCHAPTER II—WEATHER SATELLITE AND DATA INNOVATION

§ 8531. National Oceanic and Atmospheric Administration satellite and data management

(a) Short-term management of environmental observations

(1) Microsatellite constellations

(A) In general

The Under Secretary shall complete and operationalize the Constellation Observing System for Meteorology, Ionosphere, and Climate–1 and Climate–2 (COSMIC) in effect on the day before April 18, 2017—

(i) by deploying constellations of microsatellites in both the equatorial and polar orbits;

(ii) by integrating the resulting data and research into all national operational and research weather forecast models; and

(iii) by ensuring that the resulting data of National Oceanic and Atmospheric Administration's COSMIC–1 and COSMIC–2 programs are free and open to all communities.

(B) Annual reports

Not less frequently than once each year until the Under Secretary has completed and operationalized the program described in subparagraph (A) pursuant to such subparagraph, the Under Secretary shall submit to Congress a report on the status of the efforts of the Under Secretary to carry out such subparagraph.

(2) Integration of ocean and coastal data from the Integrated Ocean Observing System

In National Weather Service Regions where the Director of the National Weather Service determines that ocean and coastal data would improve forecasts, the Director, in consulta-

tion with the Assistant Administrator for Oceanic and Atmospheric Research and the Assistant Administrator of the National Ocean Service, shall—

(A) integrate additional coastal and ocean observations, and other data and research, from the Integrated Ocean Observing System (IOOS) into regional weather forecasts to improve weather forecasts and forecasting decision support systems;

(B) support the development of real-time data sharing products and forecast products in collaboration with the regional associations of such system, including contributions from the private sector, academia, and research institutions to ensure timely and accurate use of ocean and coastal data in regional forecasts; and

(C) support increasing use of autonomous, mobile surface, sub-surface, and submarine vehicle ocean and fresh water sensor systems and the infrastructure necessary to share and analyze these data in real-time and feed them into predictive early warning systems.

(3) Existing monitoring and observation-capability

The Under Secretary shall identify degradation of existing monitoring and observation capabilities that could lead to a reduction in forecast quality.

(4) Specifications for new satellite systems or data determined by operational needs

In developing specifications for any satellite systems or data to follow the Joint Polar Satellite System, Geostationary Operational Environmental Satellites, and any other satellites, in effect on the day before April 18, 2017, the Under Secretary shall ensure the specifications are determined to the extent practicable by the recommendations of the reports under subsection (b) of this section.

(b) Independent Study on Future of National Oceanic and Atmospheric Administration satellite systems and data

(1) Agreement

(A) In general

The Under Secretary shall seek to enter into an agreement with the National Academy of Sciences to perform the services covered by this subsection.

(B) Timing

The Under Secretary shall seek to enter into the agreement described in subparagraph (A) before September 30, 2018.

(2) Study

(A) In general

Under an agreement between the Under Secretary and the National Academy of Sciences under this subsection, the National Academy of Sciences shall conduct a study on matters concerning future satellite data needs.

(B) Elements

In conducting the study under subparagraph (A), the National Academy of Sciences shall—

(i) develop recommendations on how to make the data portfolio of the Administration more robust and cost-effective;

(ii) assess the costs and benefits of moving toward a constellation of many small satellites, standardizing satellite bus design, relying more on the purchasing of data, or acquiring data from other sources or methods;

(iii) identify the environmental observations that are essential to the performance of weather models, based on an assessment of Federal, academic, and private sector weather research, and the cost of obtaining the environmental data;

(iv) identify environmental observations that improve the quality of operational and research weather models in effect on the day before April 18, 2017;

(v) identify and prioritize new environmental observations that could contribute to existing and future weather models; and

(vi) develop recommendations on a portfolio of environmental observations that balances essential, quality-improving, and new data, private and nonprivate sources, and space-based and Earth-based sources.

(C) Deadline and report

In carrying out the study under subparagraph (A), the National Academy of Sciences shall complete and transmit to the Under Secretary a report containing the findings of the National Academy of Sciences with respect to the study not later than 2 years after the date on which the Administrator enters into an agreement with the National Academy of Sciences under paragraph (1)(A).

(3) Alternate organization

(A) In general

If the Under Secretary is unable within the period prescribed in subparagraph (B) of paragraph (1) to enter into an agreement described in subparagraph (A) of such paragraph with the National Academy of Sciences on terms acceptable to the Under Secretary, the Under Secretary shall seek to enter into such an agreement with another appropriate organization that—

(i) is not part of the Federal Government;

(ii) operates as a not-for-profit entity; and

(iii) has expertise and objectivity comparable to that of the National Academy of Sciences.

(B) Treatment

If the Under Secretary enters into an agreement with another organization as described in subparagraph (A), any reference in this subsection to the National Academy of Sciences shall be treated as a reference to the other organization.

(4) Authorization of appropriations

There are authorized to be appropriated, out of funds appropriated to National[1] Environmental Satellite, Data, and Information Serv-

[1] So in original. Probably should be preceded by ''the''.

ice, to carry out this subsection $1,000,000 for the period encompassing fiscal years 2018 through 2019.

(c) Next generation satellite architecture

(1) In general

The Under Secretary shall analyze, test, and plan the procurement of future data sources and satellite architectures, including respective ground system elements, identified in the National Oceanic and Atmospheric Administration's Satellite Observing System Architecture Study that—

(A) lower the cost of observations used to meet the National Oceanic and Atmospheric Administration's mission requirements;

(B) disaggregate current satellite systems, where appropriate;

(C) include new, value-adding technological advancements; and

(D) improve—

(i) weather and climate forecasting and predictions; and

(ii) the understanding, management, and exploration of the ocean.

(2) Quantitative assessments and partnership authority

In meeting the requirements described in paragraph (1), the Under Secretary—

(A) may partner with the commercial and academic sectors, non-governmental and not-for-profit organizations, and other Federal agencies; and

(B) shall, consistent with section 8517 of this title, undertake quantitative assessments for objective analyses, as the Under Secretary considers appropriate, to evaluate relative value and benefits of future data sources and satellite architectures described in paragraph (1).

(d) Additional forms of transaction authorized

(1) In general

Subject to paragraph (2), in order to enhance the effectiveness of data, satellite, and other observing systems used by the National Oceanic and Atmospheric Administration to meet its missions, the Under Secretary may enter into and perform such transaction agreements on such terms as the Under Secretary considers appropriate to carry out—

(A) basic, applied, and advanced research projects and ocean exploration missions to meet the objectives described in subparagraphs (A) through (D) of subsection (c)(1); or

(B) any other type of project to meet other mission objectives, as determined by the Under Secretary.

(2) Method and scope

(A) In general

A transaction agreement under paragraph (1) shall be limited to research and development activities.

(B) Permissible uses

A transaction agreement under paragraph (1) may be used—

(i) for the construction, use, operation, or procurement of new, improved, innovative, or value-adding systems, including satellites, instrumentation, ground stations, data, and data processing;

(ii) to make determinations on how to best use existing or planned data, systems, and assets of the National Oceanic and Atmospheric Administration; and

(iii) only when the objectives of the National Oceanic and Atmospheric Administration cannot be met using a cooperative research and development agreement, grants procurement contract, or cooperative agreement.

(3) Termination of effectiveness

The authority provided in this subsection terminates effective September 30, 2030.

(e) Transparency

Not later than 60 days after the date that a transaction agreement is made under subsection (d), the Under Secretary shall make publicly available, in a searchable format, on the website of the National Oceanic and Atmospheric Administration all uses of the authority under subsection (d), including an estimate of committed National Oceanic and Atmospheric Administration resources and the expected benefits to National Oceanic and Atmospheric Administration objectives for the transaction agreement, with appropriate redactions for proprietary, sensitive, or classified information.

(f) Reports

(1) In general

Not later than 90 days after September 30 of each fiscal year through September 30, 2023, the Under Secretary shall submit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives a report on the use of additional transaction authority by the National Oceanic and Atmospheric Administration during the previous fiscal year.

(2) Contents

Each report shall include—

(A) for each transaction agreement in effect during the fiscal year covered by the report—

(i) an indication of whether the transaction agreement is a reimbursable, nonreimbursable, or funded agreement;

(ii) a description of—

(I) the subject and terms;

(II) the parties;

(III) the responsible National Oceanic and Atmospheric Administration line office;

(IV) the value;

(V) the extent of the cost sharing among Federal Government and non-Federal sources;

(VI) the duration or schedule; and

(VII) all milestones;

(iii) an indication of whether the transaction agreement was renewed during the previous fiscal year;

(iv) the technology areas in which research projects were conducted under that agreement;

(v) the extent to which the use of that agreement—

(I) has contributed to a broadening of the technology and industrial base available for meeting National Oceanic and Atmospheric Administration needs; and

(II) has fostered within the technology and industrial base new relationships and practices that support the United States; and

(vi) the total value received by the Federal Government under that agreement for that fiscal year; and

(B) a list of all anticipated reimbursable, non-reimbursable, and funded transaction agreements for the upcoming fiscal year.

(g) Rule of construction

Nothing in this section may be construed as limiting the authority of the National Oceanic and Atmospheric Administration to use cooperative research and development agreements, grants, procurement contracts, or cooperative agreements.

(Pub. L. 115–25, title III, § 301, Apr. 18, 2017, 131 Stat. 101; Pub. L. 115–423, §§ 6, 7(a), Jan. 7, 2019, 132 Stat. 5459, 5461; Pub. L. 116–259, title V, § 503, Dec. 23, 2020, 134 Stat. 1179.)

Editorial Notes

AMENDMENTS

2020—Subsec. (c)(1)(D). Pub. L. 116–259, § 503(1), added subpar. (D) and struck out former subpar. (D) which read as follows: ''improve weather forecasting and predictions.''

Subsec. (d)(1). Pub. L. 116–259, § 503(2)(A), substituted ''data, satellite, and other observing systems'' for ''data and satellite systems'' and ''to carry out—'' and subpars. (A) and (B) for ''to carry out basic, applied, and advanced research projects to meet the objectives described in subparagraphs (A) through (D) subsection (c)(1).''

Subsec. (d)(2)(B)(i). Pub. L. 116–259, § 503(2)(B), substituted ''systems, including satellites, instrumentation, ground stations, data, and data processing;'' for ''satellites, instrumentation, ground stations, and data;''.

Subsec. (d)(3). Pub. L. 116–259, § 503(2)(C), substituted ''2030'' for ''2023''.

2019—Subsec. (a)(2)(C). Pub. L. 115–423, § 7(a), added subpar. (C).

Subsecs. (c) to (g). Pub. L. 115–423, § 6, added subsecs. (c) to (g).

§ 8532. Commercial weather data

(a) Data and hosted satellite payloads

Notwithstanding any other provision of law, the Secretary of Commerce may enter into agreements for—

(1) the purchase of weather data through contracts with commercial providers; and

(2) the placement of weather satellite instruments on cohosted government or private payloads.

(b) Strategy

(1) In general

Not later than 180 days after April 18, 2017, the Secretary of Commerce, in consultation with the Under Secretary, shall submit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives a strategy to enable the procurement of quality commercial weather data. The strategy shall assess the range of commercial opportunities, including public-private partnerships, for obtaining surface-based, aviation-based, and space-based weather observations. The strategy shall include the expected cost-effectiveness of these opportunities as well as provide a plan for procuring data, including an expected implementation timeline, from these nongovernmental sources, as appropriate.

(2) Requirements

The strategy shall include—

(A) an analysis of financial or other benefits to, and risks associated with, acquiring commercial weather data or services, including through multiyear acquisition approaches;

(B) an identification of methods to address planning, programming, budgeting, and execution challenges to such approaches, including—

(i) how standards will be set to ensure that data is reliable and effective;

(ii) how data may be acquired through commercial experimental or innovative techniques and then evaluated for integration into operational use;

(iii) how to guarantee public access to all forecast-critical data to ensure that the United States weather industry and the public continue to have access to information critical to their work; and

(iv) in accordance with section 50503 of title 51, methods to address potential termination liability or cancellation costs associated with weather data or service contracts; and

(C) an identification of any changes needed in the requirements development and approval processes of the Department of Commerce to facilitate effective and efficient implementation of such strategy.

(3) Authority for agreements

The Assistant Administrator for National[1] Environmental Satellite, Data, and Information Service may enter into multiyear agreements necessary to carry out the strategy developed under this subsection.

(c) Pilot program

(1) Criteria

Not later than 30 days after April 18, 2017, the Under Secretary shall publish data and metadata standards and specifications for space-based commercial weather data, including radio occultation data, and, as soon as possible, geostationary hyperspectral sounder data.

(2) Pilot contracts

(A) Contracts

Not later than 90 days after April 18, 2017, the Under Secretary shall, through an open

[1] So in original. Probably should be preceded by ''the''.