ANNOUNCEMENT BY THE SPEAKER PRO TEMPORE

The SPEAKER pro tempore. Pursuant to clause 8 of rule XX, the Chair will postpone further proceedings today on the motion to suspend the rules on which a recorded vote or the yeas and nays are ordered, or on which the vote occurs objection under clause 6 of rule XX. Any record vote on the postponed petition will be taken later.

WEATHER RESEARCH AND FORECASTING INNOVATION ACT OF 2017

Mr. SMITH of Texas. Mr. Speaker, I move to suspend the rules and recommit the Senate amendment to the bill (H.R. 355) to improve the National Oceanic and Atmospheric Administration’s weather research through a focused program of investment on affordable and sustainable advances in observational, computing, and modeling capabilities to support substantial improvements in weather forecasting and prediction of high impact weather events, to expand commercial opportunities for the provision of weather data, and for other purposes. The Clerk reads the title of the bill. The text of the Senate amendment is as follows: Senate amendment:

TITLE I—UNITED STATES WEATHER RESEARCH AND FORECASTING INNOVATION ACT OF 2017

SEC. 1. SHORT TITLE; TABLE OF CONTENTS.

(b) TABLE OF CONTENTS.—The table of contents for the Senate amendment:

NOT VOTING—14

ANNOUNCEMENT BY THE SPEAKER PRO TEMPORE

The SPEAKER pro tempore (during the vote). There are 2 minutes remaining.

So the resolution was agreed to.

The result of the vote was announced as above recorded.

A motion to reconsider was laid on the table.

Stated against:

Ms. KELLY of Illinois. Mr. Speaker, I was unavoidably detained. Had I been present, I would have voted “nay” on rolloc No. 214.}

Personal Explanation

Mr. GALLAGHER. Mr. Speaker, I was unavoidably detained. Had I been present, I would have voted “yea” on rolloc No. 211, “yea” on rolloc No. 212, “yea” on rolloc No. 213, and “yea” on rolloc No. 214.

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CONGRESSIONAL RECORD—HOUSE

H2653

April 4, 2017
SEC. 102. WEATHER RESEARCH AND FORECASTING INNOVATION.

(a) PROGRAM.—The Assistant Administrator for the Office of Oceanic and Atmospheric Research, in cooperation with the National Oceanic and Atmospheric Administration, shall carry out an innovation program to develop improved understanding of and forecast capabilities for atmospheric events and their impacts, placing particular emphasis on developing more accurate, timely, and effective warnings and forecasts of high impact weather events that endanger life and property.

(b) PROGRAM ELEMENTS.—The program described in subsection (a) shall focus on the following activities:

(1) Improving the fundamental understanding of weather and climate, by carrying out experiments, including the boundary layer and other processes affecting high impact weather events.

(2) Improving the understanding of how the public interprets, communicates, and responds to warnings and forecasts of high impact weather events that endanger life and property.

(3) Research and development, and transfer of knowledge, technologies, and applications to the National Weather Service and other appropriate agencies and entities, including the United States weather industry and academic partners, related to—

(A) advanced radar, radar networking technologies, and other ground-based technologies, including those emphasizing rapid, fine-scale sensing, the interaction of the boundary layer and lower troposphere, and the use of innovative, dual-polarization, phased-array technologies;

(B) airborne and aviation observing systems;

(C) high performance computing and information technology and wireless communication networks;

(D) advanced numerical weather prediction systems and forecasting tools and techniques that improve the forecasting of timing, track, intensity, and severity of high impact weather, including through—

(i) the development of more effective mesoscale models;

(ii) more effective use of existing, and the development of new, regional and national cloud-resolving models;

(iii) enhanced global weather models; and

(iv) integrated assessment models;

(E) quantitative assessment tools for measuring the impact and value of data and observing systems, including Observing System Simulation Experiments (as described in section 103), Observing System Experiments, and Analyses of Alternatives;

(F) atmospheric chemistry and interactions effects associated with the assessment of atmospheric composition and predicting meteorological processes, including cloud microphysical, precipitation, and atmospheric electrification processes, to more effectively understand their role in severe weather; and

(G) additional sources of weather data and information, including commercial observing systems.

(4) A technology transfer initiative, carried out jointly and in coordination with the Director of the National Weather Service, and in cooperation with the United States weather industry and academic partners, to ensure continuous development and transition of the latest scientific and technological advances into operations of the National Weather Service and to establish a process to sunset outdated and expensive operational methods and tools to enable cost-effective transfer of new methods and tools into operations.

(c) EXTRAMURAL RESEARCH.—

(1) IN GENERAL.—In carrying out the program under this section, the Assistant Administrator for Oceanic and Atmospheric Research shall collaborate with and support the non-Federal weather research community, which includes institutions of higher education, private entities, and national governmental organizations, by making funds available through competitive grants, contracts, and cooperative agreements.

(2) SENSE OF CONGRESS.—It is the sense of Congress that not less than 30 percent of the funds for weather research and development at the Office of Oceanic and Atmospheric Research should be available for the purpose described in paragraph (1).

(d) ANNUAL REPORT.—Each year, concurrent with the annual budget request submitted by the Administrator, under section 101 of Title 31, United States Code, for the National Oceanic and Atmospheric Administration, the Under Secretary shall submit to Congress a description of current and planned activities under this section.

SEC. 103. TORNADO WARNING IMPROVEMENT AND EXTENSION PROGRAM.

(a) IN GENERAL.—The Administrator, in collaboration with the United States weather industry and academic partners, shall establish a tornado warning improvement and extension program.

(b) GOAL.—The goal of such program shall be to reduce the loss of life and economic losses from tornades through the development and extension of accurate, effective, and timely tornado forecasts, predictions, and warnings, including the prediction of tornades beyond 1 hour in advance.

(c) PROGRAM PLAN.—Not later than 180 days after the date of the enactment of this Act, the Assistant Administrator for Oceanic and Atmospheric Research, in coordination with the Director of the National Weather Service, shall develop a program plan that details the specific research, development, and technology transfer activities, as well as corresponding resources and timelines, necessary to achieve the program goal.

(d) ANNUAL BUDGET FOR PLAN SUBMITTAL.—Following completion of the plan, the Under Secretary, with the Assistant Administrator for Oceanic and Atmospheric Research and in coordination with the Director of the National Weather Service, shall not less frequently than once every 3 years, submit to Congress a proposed budget corresponding with the activities identified in the plan.

SEC. 104. HURRICANE FORECAST IMPROVEMENT PROGRAM.

(a) IN GENERAL.—The Under Secretary, in collaboration with the United States weather industry and such academic entities as the Administrator considers appropriate, shall develop and maintain a prioritized list of hurricane forecasting needs and their cost-effectiveness;

(b) PROJECT PLAN.—Not later than 1 year after the date of the enactment of this Act, the Under Secretary, in consultation with the Assistant Administrator for Oceanic and Atmospheric Research and in coordination with the Director of the National Weather Service, shall develop a program plan that details the specific research, development, and technology transfer activities, as well as corresponding resources and timelines, necessary to achieve the goal set forth in subsection (a).

(c) ANNUAL BUDGET FOR PLAN SUBMITTAL.—The Under Secretary shall—

(1) develop and maintain a prioritized list of observation data requirements necessary to ensure continuous, systematic evaluations of the observing system, data, and analysis system needed to meet the requirements of paragraph (1), including options to maximize observational capabilities and their cost-effectiveness; and

(2) identify current and potential future data gaps in observing capabilities related to the requirements listed under paragraph (1); and

(d) DETERMINATION OF GOALS.—Not later than 1 year after the date of the enactment of this Act, the Under Secretary, in consultation with the Administrator, the Director of the National Weather Service, and the Secretary of Commerce, shall develop an annual budget for the hurricane forecasting program.

SEC. 105. WEATHER RESEARCH AND DEVELOPMENT PLANNING.

(a) IN GENERAL.—In support of the requirements of section 106, the Assistant Administrator for Oceanic and Atmospheric Research shall undertake Observing System Simulation Experiments, Observing System Experiments, Analyses of Alternatives, and other appropriate assessment tools to ensure continuous systematic evaluations of the observing system, data, and analysis system needed to meet the requirements of paragraph (1), including options to maximize observational capabilities and their cost-effectiveness; and

(b) KNOWN CONSISTENCY GAPS.—The Under Secretary shall—

(1) include assessments of the impact of observing capabilities on—

(A) global weather prediction;

(B) hurricane track and intensity forecasting;

(C) tornado warning lead times and accuracy;

(D) prediction of mid-latitude severe local storm outbreaks; and

(E) effects of storms that have the potential to cause extreme precipitation and flooding lasting from 6 hours to 1 week; and

(2) shall be conducted in cooperation with other appropriate entities within the National Oceanic and Atmospheric Administration, other Federal agencies, the United States weather industry, and academic partners to ensure the timely and systematic evaluation of weather observation data and information to support research and improved understanding of extreme weather events across all parts of the Nation;
(2) evaluate and compare observing system design options; and
(3) assess the relative capabilities and costs of various observing systems and combinations of observing systems; and providing data necessary to protect life and property.

(c) IMPLEMENTATION.—Observing System Simulation Experiments—
(1) shall be conducted prior to the acquisition of major Government-owned or Government-leased operational observing systems, including polar-orbiting and geostationary satellite systems, with a lifecycle cost of more than $500,000,000; and
(2) shall be conducted prior to the purchase of any major new commercially provided data with a lifecycle cost of more than $500,000,000.

(d) PRIORITY OBSERVING SYSTEM SIMULATION EXPERIMENTS.—
(1) GLOBAL NAVIGATION SATELLITE SYSTEM RADIO OCCULTATION.—Not later than 30 days after the date of the enactment of this Act, the Assistant Administrator for Oceanic and Atmospheric Research shall complete an Observing System Simulation Experiment to assess the value of data from Global Navigation Satellite System Radio Occultation.

(2) GEOSTATIONARY HYPERSPECTRAL SOUNDER GLOBAL NAVIGATION SATELLITE SYSTEM.—Not later than 120 days after the date of the enactment of this Act, the Assistant Administrator for Oceanic and Atmospheric Research shall complete an Observing System Simulation Experiment to assess the value of data from a geostationary hyperspectral sounder global constellation.

(e) RESULTS.—Upon completion of all Observing System Simulation Experiments, the Assistant Administrator shall make available to the public the results of an assessment of related private and public sector weather data sourcing options, including their availability, affordability, and cost-effectiveness. Such assessments shall be developed in accordance with section 59093 of title 51, United States Code.

SEC. 109. ANNUAL REPORT ON COMPUTING RESOURCES PRIORITIZATION.

Not later than 1 year after the date of the enactment of this Act and not less frequently than once each year thereafter, the Under Secretary, acting through the Chief Information Officer of the National Oceanic and Atmospheric Administration and in coordination with the Assistant Administrator for Oceanic and Atmospheric Research and the Director of the National Weather Service, shall produce and make publicly available a report that explains how the Under Secretary intends—
(1) to continually support upgrades to the fastest, most powerful, and cost-effective high performance computing technologies in support of the prediction mission;
(2) to ensure a balance between the research to operations requirements to develop the next generation of regional and global models as well as high-latitude operational models;
(3) to take advantage of advanced development concepts to, as appropriate, make next generation weather prediction models available in better time to operational forecasters, the United States weather industry, and partners in academic and Government research; and
(4) to use existing computing resources to improve advanced research and operational weather prediction.

SEC. 110. UNITED STATES WEATHER RESEARCH PROGRAM.

(1) in subsection (a)—
(A) in paragraph (3), by striking “;” and “and” and inserting a semicolon;
(B) in paragraph (4), by striking the period at the end and inserting a semicolon; and
(C) by inserting after paragraph (4) the following:

“(5) 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, not less frequently than once each year, a report, including—
(A) a list of ongoing research projects;
(B) project goals and a point of contact for each project;
(C) the five projects related to weather observations, short-term weather, or seasonal forecasts within Office of Oceanic and Atmospheric Research that are closest to operationalization;
(D) for each project referred to in subparagraph (C)—
(i) the potential benefit;
(ii) any barrier to operationalization; and
(iii) the plan for operationalization, including which line office will financially support the project and how much the line office intends to spend;
(6) establish teams with staff from the Office of Oceanic and Atmospheric Research and the National Weather Service to oversee the operationalization of research products developed by the Office of Oceanic and Atmospheric Research;
(7) develop mechanisms for research priorities of the Office of Oceanic and Atmospheric Research to be informed by the relevant line offices within the National Oceanic and Atmospheric Administration, the relevant user community, and the weather enterprise;
(8) develop an internal mechanism to track the progress within each project within the Office of Oceanic and Atmospheric Research and mechanisms to terminate a project that is not adequately progressing;
(9) develop and implement a system to track whether extramural research grant goals were accomplished;
(10) provide facilities for products developed by the Office of Oceanic and Atmospheric Research to be tested in operational simulations, such as test beds; and
(11) encourage academic collaboration with the Office of Oceanic and Atmospheric Research and the National Weather Service by facilitating visiting scholars.”;
(2) in subsection (b), in the matter preceding paragraph (1), by striking “Not later than 90 days after the date of enactment of this Act, the” and inserting “The”; and
(3) by adding at the end the following new subsection:

“(c) SUBSEASONAL DEFINED.—In this section, the term ‘subseasonal’ means the time range between 2 weeks and 3 months.”

SEC. 110A. AUTHORIZATION OF APPROPRIATIONS.

(a) FISCAL YEARS 2017 AND 2018.—For each of fiscal years 2017 and 2018, there are authorized to be appropriated to Office of Oceanic and Atmospheric Research—
(1) $1,111,316,000 to carry out this title, of which—
(A) $85,758,000 is authorized for weather laboratories and cooperative institutes; and
(B) $25,758,000 is authorized for weather and air chemistry research programs; and
(2) an additional amount of $20,000,000 for the joint technology transfer initiative described in section 102(b)(4).

(b) LIMITATION.—No additional funds are authorized to carry out this title and the amendments made by this title.

TITLE II—SUBSEASONAL AND SEASONAL FORECASTING INNOVATION

SEC. 201. IMPROVING SUBSEASONAL AND SEASONAL FORECASTS.

Section 1762 of the Food Security Act of 1985 (Public Law 99–198; 15 U.S.C. 313 note) is amended—
(1) in subsection (a), by striking “(a)” and inserting “(a)”; and
(2) by adding at the end the following:

“(c) FUNCTIONS.—The Under Secretary, acting through the Director of the National Weather Service and the heads of such other programs of the National Oceanic and Atmospheric Administration as the Under Secretary considers appropriate, shall—
(1) collect and utilize information in order to make usable, reliable, and timely foundational forecasts of subseasonal and seasonal temperature and precipitation;
(2) leverage existing research and models from the weather enterprise to improve the forecasts under paragraph (1); and
(3) determine and provide information on how the forecast conditions under paragraph (1) may impact—
(A) the number and severity of droughts, fires, tornadoes, hurricanes, floods, heat waves, floods, and winter storms, high impact weather, or other relevant natural disasters;
(B) snomax; and
(C) sea ice conditions; and
(4) develop an Internet clearinghouse to provide the forecasts under paragraph (1) and the information under paragraphs (1) and (3) on both national and regional levels.

(f) COMMUNICATION.—The Director of the National Weather Service shall provide the forecasts under paragraph (1) of subsection (c) and the information on their impacts under paragraphs (1) and (3) to the Federal Government, the States, the District of Columbia, local governments, public and private entities engaged in planning and preparedness, such as National Weather Service Core partners at the Federal, regional, State, tribal, and local levels of government.

(1) COOPERATION.—The Under Secretary shall build upon existing forecasting and assessment programs and partnerships, including—
(A) by designating research and monitoring activities related to subseasonal and seasonal forecasts as a priority as in or more solicitation of the Cooperative Institutes of the Office of Oceanic and Atmospheric Research;
(B) by contributing to the interagency Earth System Prediction Capability; and
(C) by consulting with the Secretary of Defense and the Secretary of Homeland Security to determine the highest priority subseasonal and seasonal forecast needs to enhance national security.

(g) FORECAST COMMUNICATION COORDINATION.—

(1) IN GENERAL.—The Under Secretary shall foster effective communication, understanding, and use of the forecasts by the intended users of the information described in subsection (d). This may include assistance with forecast communication coordinators to enable local interpretation and planning based on the information.

(2) REQUIREMENTS.—For each State that requests assistance under this subsection, the Under Secretary may—
(A) provide funds to support an individual in that State;
(B) to serve as a liaison among the National Oceanic and Atmospheric Administration, other Federal departments and agencies, the weather enterprise, the States, and relevant interests within that State; and
(iii) to receive the forecasts and information under subsection (c) and disseminate the forecasts and information throughout the State, including to county and tribal governments; and
(B) require matching funds of at least 50 percent from the State, a university, a nongovernmental organization, a trade association, or the private sector.

(2) LIMITATION.—No additional funds are authorized to carry out this title and the amendments made by this title.

(h) REPORTS.—
(1) Definitions.—In this section:

(1) Foundational Forecast.—The term ‘foundational forecast’ means basic weather observation, monitoring, forecasting, and research 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.

(8) Authorized Out of Funds Appropriated to the National Oceanic and Atmospheric Administration.—

(a) 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 study, the Under Secretary shall submit to Congress a report on the status of the efforts of the Under Secretary to carry out such subparagraph.

(b) Contribution 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 consultation with the Assistant Administrator for Oceanic and Atmospheric Research and the Assistant Administrator of the National Oceanic Science, shall—

(i) 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; and

(ii) support the development of real-time data sharing products and forecast products in collaboration with the regional associations of such observation, monitoring, and research data, from the private sector, academia, and research institutions to ensure timely and accurate use of ocean and coastal data in regional forecasts.

(c) Existing Research, Monitoring, and Observation Capability.—The Under Secretary shall identify degradation of existing monitoring and observation capabilities that could lead to a reduction in forecast accuracy.

(d) 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 the date of enactment of this Act, where the Director of the National Weather Service determines that the resulting data could improve forecasts, the Director, in consultation with the Assistant Administrator for Oceanic and Atmospheric Research and the Assistant Administrator of the National Oceanic Science, shall—

(i) develop recommendations on a portfolio of commercial experimental or innovative techniques that could improve the quality of operational and research weather models in effect on the day before the date of enactment of this Act;

(ii) identify research observations that could contribute to existing and future weather models; and

(iii) 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.

(e) Deadline and Report.—In carrying out the study under subparagraph (A), the National Academy of Sciences shall complete and transmit to the Under Secretary, in accordance with the findings of the National Academy of Sciences with respect to the study not later than 2 years after the date on which the Administration submits its requested report on the study 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.

(f) Integration.—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, the Under Secretary shall seek to enter into 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.

(g) Authorization of Appropriations.—There are authorized to be appropriated, out of funds appropriated to National Environmental Satellite, Data, and Information Service, to carry out this subsection $1,000,000 for the period encompassing fiscal years 2018 through 2019.

SEC. 302. 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 hosted government or private payloads.

(b) Strategy.—

(1) In General.—Not later than 180 days after the date of the enactment of this Act, the Secretary of Commerce, in consultation with the Under Secretary, shall submit to the Committee on Commerce, Science, and Transportation of the House of Representatives a report, including—

(i) an analysis of financial or other benefits to be derived from the implementation of the strategy described in paragraph (A) of this section with the National Oceanic and Atmospheric Administration; and

(ii) a strategy that assess the range of commercial opportunities, including public-private partnerships, for obtaining surface-based, aviation-based, and space-based weather observations.

(2) Authorization of Appropriations.—Notwithstanding any other provision of law, the Secretary of Commerce shall be treated as a reference to the National Academy of Sciences on terms acceptable to the Under Secretary, the Under Secretary shall submit to the Committee on Commerce, Science, and Transportation 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.

(3) Authorization of Appropriations.—There are authorized to be appropriated, out of funds appropriated to the National Oceanic and Atmospheric Administration, to carry out this subsection $1,000,000 for the period encompassing fiscal years 2018 through 2019.

(4) Authorization of Appropriations.—Notwithstanding any other provision of law, the Secretary of Commerce may enter into agreement for—

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

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

(c) Elements.—In conducting the study under subparagraph (A), the National Academy of Sciences shall conduct a study on matters concerning future satellite data needs.

(d) Authorization of Appropriations.—There are authorized to be appropriated, out of funds appropriated to the National Oceanic and Atmospheric Administration, to carry out this section $10,000,000 for the period encompassing fiscal years 2018 through 2019.

TITLe III—Weather Satellite and Data Innovation

SEC. 301. NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION SATELLITE AND DATA MANAGEMENT.

(a) Short-Term Management of Environmental Observations.—

(1) Microsatellite Constellations.—

(A) General.—The Under Secretary shall complete and operationalize the Constellation Observing System for Meteorology, Ionosphere, and Climate—1 and Climate—2 (COSPIC) in effect on the day before the date of the enactment of this Act—

(i) by deploying constellations of microsatellites in both the equatorial and polar orbits; (ii) resulting data into all national operational and research weather forecast models; and

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

(2) 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 study, the Under Secretary shall submit to Congress a report on the status of the efforts of the Under Secretary to carry out such subparagraph.

(b) Existing Research, Monitoring, and Observation Capability.—The Under Secretary 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 design, relying more heavily on the purchasing of data, or acquiring data from other sources or methods;

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

(iv) identify weather observations that improve the quality of operational and research weather models in effect on the day before the date of enactment of this Act; and

(v) identify research 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, in accordance with the findings of the National Academy of Sciences with respect to the study not later than 2 years after the date on which the Administration submits its requested report on the study 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.

(d) Authorization of Appropriations.—There are authorized to be appropriated, out of funds appropriated to National Environmental Satellite, Data, and Information Service, to carry out this subsection $1,000,000 for the period encompassing fiscal years 2018 through 2019.
States weather industry and the public continue to have access to information critical to their work; and

(4) In accordance with section 5092 of title 51, United States Code, methods to address potential termination liability or cancellation costs associated with weather data or service contracts;

(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 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 the date of the enactment of this Act, 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, geo-stationary hyperspectral sounder data.

(2) PILOT CONTRACTS.—

(A) CONTRACTS.—Not later than 90 days after the date of the enactment of this Act, the Under Secretary shall, through an open competition, enter into at least one pilot contract with one or more private sector entities capable of providing data that can be readily integrated into their space-based commercial weather data set by the Under Secretary for providing commercial weather data in a manner that allows the Under Secretary to calibrate and evaluate the data for its use in National Oceanic and Atmospheric Administration meteorological models.

(B) ASSESSMENT OF DATA VIABILITY.—Not later than the date that is 3 years after the date on which the Under Secretary enters into a contract under subparagraph (A), the Under Secretary shall assess and 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 of a determination of the extent to which data provided under the contract entered into under subparagraph (A) meet the criteria published under paragraph (1) and the extent to which the pilot program has demonstrated:

(i) the viability of assimilating the commercially provided data into National Oceanic and Atmospheric Administration meteorological models;

(ii) whether, and by how much, the data add value to weather forecasts; and

(iii) the accuracy, quality, timeliness, validity, reliability, and cost-effectiveness of obtaining commercial weather data from private sector providers.

(2) AUTHORIZATION OF APPROPRIATIONS.—For each of fiscal years 2017 through 2020, there are authorized to be appropriated for procurement, acquisition, and construction at National Environmental Satellite, Data, and Information Service, $6,000,000 to carry out this subsection.

(d) OBTAINING FUTURE DATA.—If an assessment under paragraph (c)(1)(A) determines that the ability of commercial weather data to meet data and metadata standards and specifications published under subsection (c)(1), the Under Secretary shall:

(1) where appropriate, cost-effective, and feasible, obtain commercial weather data from private sector providers;

(2) as early as possible in the acquisition process for any future National Oceanic and Atmospheric Administration meteorological space systems, ensure there is a suitable, cost-effective, commercial capability available or that will be available to meet any or all of the observational requirements by the planned operational capabilities of the system;

(3) if a suitable, cost-effective, commercial capability is or will be available as described in paragraph (2), determine whether it is in the national interest to develop a governmental meteorological space system; and

(4) 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 detailing any determination made under paragraphs (2) and (3).

(e) DATA SHARING PRACTICES.—The Under Secretary shall continue to meet the international meteorological agreements into which the Under Secretary has entered, including practices set forth through World Meteorological Organization Resolution 40.

SEC. 303. UNNECESSARY DUPLICATION.

In meeting the requirements under this title, the Under Secretary shall avoid unnecessary duplication between public and private sources of data and the corresponding expenditure of funds and employment of personnel.

TITLE IV—FEDERAL WEATHER COORDINATION

SEC. 401. ENVIRONMENTAL INFORMATION SERVICES WORKING GROUP.

(a) ESTABLISHMENT.—The National Oceanic and Atmospheric Administration Science Advisory Board shall continue to maintain a standing working group, the Environmental Information Services Working Group (in this section referred to as the “Working Group”)

(1) to provide advice for prioritizing weather research initiatives between the National Oceanic and Atmospheric Administration to produce real improvement in weather forecasting;

(2) to provide advice on existing or emerging technologies or techniques that can be found in private industry or the research community that could be incorporated into forecasting at the National Weather Service to improve forecasting skill;

(3) to identify opportunities to improve—

(A) communications between weather forecasters, Federal, State, local, tribal, and other emergency management personnel, and the public; and

(B) communications and partnerships among the National Oceanic and Atmospheric Administration and the private and academic sectors; and

(4) to address such other matters as the Science Advisory Board requests of the Working Group.

(b) COMPOSITION.—

(1) IN GENERAL.—The Working Group shall be composed of leading experts and innovators from all relevant fields of science and engineering, including atmospheric chemistry, atmospheric physics, meteorology, social science, risk communications, electrical engineering, and computer sciences. In carrying out this section, the Working Group may organize into subpanels.

(2) NUMBER.—The Working Group shall be composed of no fewer than 15 members. Nominees for the Working Group may be forwarded to the Committee on Commerce, Science, and Transportation of the Senate or the Committee on Science, Space, and Technology of the House of Representatives by the National Science Foundation, the National Aeronautics and Space Administration, the National Oceanic and Atmospheric Administration, the National Weather Service, the National Science Foundation, and such other agencies involved in weather forecasting research as the President determines are appropriate, or by any combination of these entities.

(c) FURTHER COORDINATION.—The Under Secretary shall transmit this report to the Under Secretary for Oceanic and Atmospheric Research for inclusion in the budget request and shall transmit this report 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 copy of such report.

SEC. 402. INTERAGENCY WEATHER RESEARCH AND FORECAST INNOVATION COORDINATION.

(a) ESTABLISHMENT.—The Director of the Office of Science and Technology Policy shall establish an Interagency Committee for Advancing Weather Services to improve coordination of relevant weather research and forecast innovation activities across the Federal Government. The Interagency Committee shall—

(1) include participation of the National Aeronautics and Space Administration, the Federal Aviation Administration, the National Oceanic and Atmospheric Administration and its constituent agencies, the National Science Foundation, and such other agencies involved in weather forecasting research as the President determines are appropriate;

(2) identify and prioritize top forecast needs and coordinate those needs against budget requests and program initiatives across participating offices and agencies; and

(3) share information regarding operational needs and forecasting improvements across relevant agencies.

(b) CONGRESSIONAL REPORT.—The Federal Coordinator for Meteorology shall serve as a co-chair of this panel.

(c) FURTHER COORDINATION.—The Director of the Office of Science and Technology Policy shall take such other steps as are necessary to coordinate the activities of the Federal Government to ensure that those of the private sector weather industry, State governments, emergency managers, and academic researchers.

SEC. 403. OFFICE OF OCEANIC AND ATMOSPHERIC RESEARCH WEATHER SERVICES EXCHANGE PROGRAM.

(a) IN GENERAL.—The Assistant Administrator for Oceanic and Atmospheric Research of the National Oceanic and Atmospheric Administration may establish a program to detail Office of Oceanic and Atmospheric Research personnel to the National Oceanic and Atmospheric Administration's world-class scientific and research organizations, and the National Weather Service's operational staff.

(b) CONGRESSIONAL REPORT.—Not less frequently than once each year, the Under Secretary shall transmit 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 participation in such program and shall highlight any innovations that come from this interaction.

SEC. 404. VISTING FELLOWS AT NATIONAL WEATHER SERVICE.

(a) IN GENERAL.—The Director of the National Weather Service may establish a program to host postdoctoral fellows and academic researchers at any of the National Centers for Environmental Prediction.

(b) GOAL.—The goal of this program is to enhance forecasting innovation through regular, direct interaction between the Office of Oceanic and Atmospheric Research's world-class scientists and the National Weather Service's operational staff.

(c) ELEMENTS.—The program shall allow up to 10 Office of Oceanic and Atmospheric Research postdoctoral fellows and academic researchers to spend up to 1 year on detail. Candidates shall be jointly selected by the Assistant Administrator for Oceanic and Atmospheric Research and the Director of the National Weather Service.

(d) ANNUAL REPORT.—Not less frequently than once each year, the Working Group shall transmit to the National Advisory Committee for Oceanic and Atmospheric Research a report on progress made by National Oceanic and Atmospheric Administration in adopting the Working Group’s recommendations. The Science Advisory Board shall transmit such report to the Under Secretary. Within 30 days of receipt of such report, the Under Secretary shall transmit 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 copy of such report.
IN GENERAL.—The Director of the National Weather Service shall designate at least one warning coordination meteorologist at each weather forecast office of the National Weather Service.

(2) No additional employees authorized.—Nothing in this section shall be construed to authorize or require a change in the authorized number of full time equivalent employees in the National Weather Service or otherwise result in the employment of any additional employees.

(3) Other employees.—Performance of the responsibilities outlined in this section is not limited to the warning coordination meteorologist position.

(b) Primary role of warning coordination meteorologists.—The primary role of the warning coordination meteorologist shall be to carry out the responsibilities required by this section.

(c) Responsibilities.—

(1) in general.—Subject to paragraph (2), consistent with the analysis described in section 409, and in order to increase impact-based decision support services, each warning coordination meteorologist designated under subsection (a) shall—

(A) be responsible for providing service to the geographic area of responsibility covered by the weather forecast office at which the warning coordination meteorologist is employed to help ensure that users of products of the National Weather Service can respond effectively to improve outcomes from weather events;

(B) develop products and services of the National Weather Service, such as the public, media outlets, users in the aviation, marine, and agricultural communities, and forestry, and management interests, to evaluate the adequacy and usefulness of the products and services of the National Weather Service;

(C) collaborate with such weather forecast offices and State, local, and tribal government agencies as the Director considers appropriate in developing, proposing, and implementing plans to develop, modify, or tailor products and services of the National Weather Service to improve the usefulness of such products and services;

(D) ensure the maintenance and accuracy of severe weather call lists, appropriate office severe weather policy or procedures, and other severe weather or dissemination methodologies or strategies; and

(E) work closely with State, local, and tribal emergency management agencies and other agencies in emergency management interests, to ensure a planned, coordinated, and effective preparedness and response effort.

(2) Other Staff.—The Director may assign a responsibility set forth in paragraph (1) to such other staff as the Director considers appropriate to carry out such responsibility.

(d) Additional Responsibilities.—

(1) in general.—Subject to paragraph (2), a warning coordination meteorologist designated under subsection (a) may—

(A) work with a State agency to develop plans for promoting more effective use of products and services of the National Weather Service throughout the State;

(B) identify priority community preparedness objectives;

(C) develop plans to meet the objectives identified under paragraph (2); and

(D) conduct severe weather event preparedness planning and citizen education efforts with and through various State, local, and tribal government agencies and other emergency management-related organizations.

(2) Other Staff.—The Director may assign a responsibility set forth in paragraph (1) to such other staff as the Director considers appropriate to carry out such responsibility.

(e) Placement with state and local emergency agencies.—

(1) in general.—In carrying out this section, the Director of the National Weather Service may place a warning coordination meteorologist designated under subsection (a) with a State or local emergency manager if the Director considers doing so is necessary or convenient to carry out those responsibilities.

(2) Treatment.—If the Director determines that the placement of a warning coordination meteorologist placed with a State or local emergency manager under paragraph (1) is near a weather forecast office of the National Weather Service, such placement shall be treated as designation of the warning coordination meteorologist at such weather forecast office for purposes of subsection (a).

SEC. 406. IMPROVING NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION WEATHER COMMUNICATION AND DISSEMINATION SERVICES.

(a) Purpose of system.—For purposes of the assessment required by subsection (b)(1)(A), the purpose of National Oceanic and Atmospheric Administration system for issuing watches and warnings regarding hazardous weather and water events shall be risk communication to the general public that informs action to prevent loss of life and property.

(b) Assessment of system.—

(1) in general.—Not later than 2 years after the date of the enactment of this Act, the Under Secretary shall—

(A) assess the National Oceanic and Atmospheric Administration system for issuing watches and warnings regarding hazardous weather and water events; and

(B) submit to Congress a report on the findings of the Under Secretary with respect to the assessment conducted under subparagraph (A).

(2) Elements.—The assessment required by paragraph (1)(A) shall include the following:

(A) An evaluation of whether the National Oceanic and Atmospheric Administration system for issuing watches and warnings regarding hazardous weather and water events meets the purpose described in subsection (a).

(B) Development of recommendations for—

(i) legislative and administrative action to improve the system described in paragraph (1)(A); and

(ii) such research as the Under Secretary considers necessary to address the focus areas described in paragraph (3).

(C) Focus areas.—The assessment required by paragraph (1)(A) shall focus on the following:

(A) Ways to communicate the risks posed by hazardous weather or water events to the public as broadly and rapidly as practicable.

(B) Ways to communicate the risks posed by hazardous weather or water events to the public by the Administration, intended for consumption by the general public to the potential for or presence of the event and to inform action to prevent loss of life and property.

(D) Exceptions.—In this section, the terms ”watch” and ”warning” do not include technical or specialized meteorological and hydrological forecasts, outlooks, or model guidance products.

SEC. 407. NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION WEATHER READY ALL HAZARDS AWARD PROGRAM.

(a) Program.—The Program of the National Weather Service is authorized to establish the National Oceanic and Atmospheric Administration Weather Ready All Hazards Award Program. This award program shall provide annual awards to honor individuals or organizations that use or provide National Oceanic and Atmospheric Administration Weather Radio All Hazards receivers or transmitters to save lives and protect property. Individuals or organizations that utilize other early warning tools or applications also qualify for this award.

(b) Goal.—This award program draws attention to the life-saving work of the National Oceanic and Atmospheric Administration Weather Radio All Hazards Program, as well as emerg-
Field Offices to the Director of the National Weather Service. Broadcast meteorologists, weather radio manufacturers and weather warning tool and application developers, emergency responders, and local public safety officials may nominate individuals or organizations to their local Weather Field Offices, but the final list of award nominees must come from the Weather Field Offices.

(2) SELECTION OF AwarDEES.—Annually, the Director of the National Weather Service shall choose winners of this award whose timely actions, coordinated with National Oceanic and Atmospheric Administration Weather Radio All Hazards receivers or transmitters or other early warning tools and applications, saved lives or prevented or mitigated public safety issues in support of weather or all hazard warnings.

(3) AWARD CEREMONY.—The Director of the National Weather Service shall establish a means of making these awards to provide maximum public awareness of the importance of National Oceanic and Atmospheric Administration Weather Radio, and such other warning tools and applications as are represented in the awards.

SEC. 408. DEPARTMENT OF DEFENSE WEATHER FORECASTING ACTIVITIES.

Not later than 90 days after the date of the enactment of this Act, 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 analyzing the impacts of the proposed Air Force divestiture in the United States Weather Research and Forecasting Model, including:

(1) the impact on—

(A) the United States weather forecasting capability;

(B) the accuracy of civilian regional forecasts;

(C) the civilian readiness for traditional weather and extreme weather events in the United States;

(D) the research necessary to develop the United States Weather Research and Forecasting Model; and

(2) such other analysis relating to the divestiture as the Under Secretary considers appropriate.

SEC. 409. NATIONAL WEATHER SERVICE; OPERATIONS AND WORKFORCE ANALYSIS.

The Under Secretary shall contract or continue to partner with an external organization to conduct a baseline analysis of National Weather Service operations and workforce.

SEC. 410. REPORT ON CONTRACT POSITIONS AT NATIONAL WEATHER SERVICE.

(a) REPORT REQUIRED.—Not later than 180 days after the date of the enactment of this Act, the Under Secretary shall submit to Congress a report on the use of contractors at the National Weather Service for the most recently completed fiscal year.

(b) CONTENTS.—The report required by subsection (a) shall include, with respect to the most recently completed fiscal year, the following:

(1) The total number of full-time equivalent employees at the National Weather Service, disaggregated by each equivalent level of the General Schedule.

(2) The total number of full-time equivalent contractors at the National Weather Service, disaggregated by each equivalent level of the General Schedule that most closely approximates their duties. The report shall also include the average full-time equivalent salary for Federal employees at the National Weather Service for each equivalent level of the General Schedule.

(3) The total number of vacant positions at the National Weather Service on the date of enactment of this Act, disaggregated by each equivalent level of the General Schedule.

(4) The five most common positions filled by full-time equivalent contractors at the National Weather Service that most closely approximate the duties of such positions.

(5) Of the positions identified under paragraph (4), the percentage of full-time equivalent contractors in those positions that have held a prior position at the National Weather Service or another entity in National Oceanic and Atmospheric Administration.

(6) The average full-time equivalent salary for Federal employees at the National Weather Service for each equivalent level of the General Schedule.

(7) The average salary for full-time equivalent contractors performing at each equivalent level of the General Schedule at the National Weather Service.

(b) ANNUAL PUBLICATION.—For each fiscal year after the fiscal year covered by the report required by subsection (a), the Under Secretary shall, not later than 180 days after the completion of the fiscal year, submit to the Committee on Commerce, Science, and Transportation of the House of Representatives a report analyzing the impacts of the proposed Air Force divestiture in the United States Weather Research and Forecasting Model, including:

(1) the total number of full-time equivalent employees at the National Weather Service for the most recently completed fiscal year, disaggregated by each equivalent level of the General Schedule.

(2) such other analysis relating to the divestiture as the Under Secretary considers appropriate.

SEC. 411. WEATHER SERVICE TO COMMUNITIES AND INFRASTRUCTURE.

(a) REVIEW.—

(1) IN GENERAL.—The Director of the National Weather Service shall conduct research, products, and services that meet the specific needs of the urban environment, given its unique physical characteristics and forecasting challenges.

(2) ELEMENTS.—The review required by paragraph (1) shall include research, products, and services with the potential to improve modeling and forecasting products and account for factors including varying building heights, impermeable surfaces, lack of tree canopy, traffic, pollution, and inter-building wind effects.

(3) REPORT AND ASSESSMENT.—Upon completion of the review required by subsection (a), the Under Secretary shall submit to Congress a report on the research, products, and services of the National Weather Service, including an assessment of such research, products, and services that is based on the review, public comment, and recent publications by the National Academy of Sciences.

(b) ANNUAL PUBLICATION.—For each fiscal year after the fiscal year covered by the report required under paragraph (1), the Secretary shall make available to Congress a report analyzing the impacts of the proposed Air Force divestiture in the United States Weather Research and Forecasting Model, including:

(1) the total number of full-time equivalent employees at the National Weather Service for the most recently completed fiscal year, disaggregated by each equivalent level of the General Schedule.

(2) such other analysis relating to the divestiture as the Under Secretary considers appropriate.

SEC. 414. STUDY ON GAPS IN NEXRAD COVERAGE AND RECOMMENDATIONS TO ADDRESS SUCH GAPS.

(a) STUDY ON GAPS IN NEXRAD COVERAGE.—

(1) IN GENERAL.—Not later than 180 days after the date of the enactment of this Act, the Secretary of Commerce shall conduct a study on gaps in the coverage of the Next Generation Weather Radar of the National Weather Service ("NEXRAD").

(2) ELEMENTS.—In conducting the study required under paragraph (1), the Secretary shall—

(A) identify areas in the United States where limited or no NEXRAD coverage has resulted in—

(i) instances in which no or insufficient warnings were given for hazardous weather events, including tornadoes; or

(ii) degraded forecasts for hazardous weather events that resulted in fatalities, significant injuries, or substantial property damage;

(B) for the areas identified under subparagraph (A)—

(i) identify the key weather effects for which prediction would improve with improved radar detection;

(ii) identify additional sources of observations for high impact weather that were available and operational for such areas on the day before the date of the enactment of this Act, including dense networks of 2–band radars, Terminal Doppler Weather Radar ("TDWR"), air surveillance radars of the Federal Aviation Administration, and cooperative network observers;

(iii) assess the feasibility and advisability of efforts to integrate and upgrade Federal radar capabilities that are not owned or controlled by the National Oceanic and Atmospheric Administration, including radar capabilities of the Federal Aviation Administration and the Department of Defense;

(iv) assess the feasibility and advisability of integrating State-operated and other non-Federal radars into the operations of the National Weather Service;

(v) identify options to improve hazardous weather detection and forecasting coverage; and

(vi) provide the estimated cost of, and timeline for, each of the options identified under clause (v) of this paragraph.

(b) RECOMMENDATIONS TO IMPROVE RADAR COVERAGE.—Not later than 90 days after the completion of the study under subsection (a), the Secretary shall promptly submit to the congressional committees referred to in subsection (a)(3) recommendations for improving...
hazardous weather detection and forecasting coverage in the areas identified under subsection (a)(2)(A) by integrating additional observation solutions to the extent practicable and meteorologically justified and necessary to protect public safety.

(c) Third-Party Consultation Regarding Recommendations to Improve Party Coverage.—The Secretary of Commerce may seek reviews by, or consult with, appropriate third parties regarding the scientific methodology relating to, and the feasibility and advisability of implementing any recommendations submitted under subsection (b), including the extent to which warning and forecast services of the National Weather Service would be improved by additional observations.

Title V—Tsunami Warning, Education, and Research Act of 2017

Title V contains a short title and a reference to the Tsunami Warning and Education Act.

Sec. 501. Short Title.

This title may be cited as the “Tsunami Warning, Education, and Research Act of 2017.”

Sec. 502. References to the Tsunami Warning and Education Act.

Except as otherwise expressly provided, whenever in this title an amendment or repeal is expressed in terms of an amendment to, or repeal of, a section or other provision, the reference shall be considered to be made to a section or other provision of the Tsunami Warning and Education Act enacted as title VIII of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006 (Public Law 109-469, 33 U.S.C. 1301 et seq.).

Sec. 503. Expansion of Purposes of Tsunami Warning and Education Act.

Section 803 (33 U.S.C. 3203) is amended—

(1) in paragraph (1), by inserting “research,” after “warning,”;

(2) by amending paragraph (2) to read as follows:

“(2) To enhance and modernize the existing United States Tsunami Warning System to increase the accuracy of forecasts and warnings, to ensure full coverage of tsunami threats to the United States with a network of detection assets, and to reduce false alarms;”;

(3) by amending paragraph (3) to read as follows:

“(3) To improve and develop standards and guidelines for mapping, modeling, and assessment efforts to improve tsunami detection, forecasting, warnings, notification, mitigation, resilience, response, outreach, and recovery;”;

(4) by redesigning paragraphs (4), (5), and (6) as paragraphs (5), (6), and (8), respectively;

(5) by inserting after paragraph (3) the following:

“(4) To improve research efforts related to improving tsunami detection, forecasting, warnings, notification, mitigation, resilience, response, outreach, and recovery;”;

(6) in paragraph (5), as redesignated—

(A) by striking “and increase” and inserting “increase, and develop uniform standards and guidelines for;” and

(B) by inserting “, including the warning signs of locally generated tsunami” after “approach”;

(7) in paragraph (6), as redesignated, by striking “, including the Indian Ocean; and” and inserting a semicolon; and

(8) by redesigning paragraph (6), as redesignated, the following:

“(7) To foster resilient communities in the face of tsunami and other similar coastal hazards; and”;

Sec. 504. Modification of Tsunami Forecasting and Warning Program.

(a) In General.—Subsection (a) of section 804 (33 U.S.C. 3203(e)) is amended by striking “Atlantic Ocean, Caribbean Sea, and Gulf of Mexico region” and inserting “Atlantic Ocean region, including the Caribbean Sea and the Gulf of Mexico”;

(b) Components.—Subsection (b) of section 804 (33 U.S.C. 3203(b)) is amended—

(1) in paragraph (1), by striking “established” and inserting “supported or maintained”;

(2) by redesignating paragraphs (7) through (9) as paragraphs (8) through (10), respectively;

(3) redesigning paragraphs (2) through (6) as paragraphs (3) through (7), respectively;

(4) by inserting after paragraph (1) the following:

“(2) To the degree practicable, maintain not less than 80 percent of the Deep-ocean Assessment and Reporting of Tsunamis buoy array at operational capacity to optimize data reliability;”;

(5) by amending paragraph (5), as redesignated by paragraph (3), to read as follows:

“(5) To provide forecasting capability based on models and measurements, including tsunami inundation models and maps for use in increasing the preparedness of communities and safeguarding ports and harbor operations, that incorporate inputs, including—

(A) the United States and global ocean and coastal observing system;

(B) the global Earth observing system;”;

(6) by amending paragraph (7), as redesignated by paragraph (3), to read as follows:

“(7) To implement mass communication tools in the United States Geological Survey, and the National Science Foundation shall—

(A) the United States and global ocean and coastal observing system;

(B) the global Earth observing system;”;

(7) in paragraph (8), as redesignated by paragraph (2)—

(A) by inserting “, including graphical warning products,” after “warning;”;

(B) by inserting “, territories,” after “States,” and inserting “to the maximum extent practicable.”;

(C) by inserting “and Wireless Emergency Alerts” after “Hazards Program;” and

(8) in paragraph (9), as redesignated by paragraph (2)—

(A) by inserting “and before” and inserting “allow;” and

(B) by inserting “and commercial and Federal communications cables” after “observing technologies;”;

(c) Tsunami Warning System.—Subsection (c) of section 804 (33 U.S.C. 3203(c)) is amended to read as follows:

“(c) Tsunami Warning System.—The program under this section shall operate a tsunami warning system—

(1) is capable of forecasting tsunami, including forecasting tsunami arrival time and inundation estimates, anywhere in the Pacific and Arctic Ocean regions and providing adequate warnings;

(2) is capable of forecasting and providing adequate warnings, including tsunami arrival time and inundation estimates, anywhere in the Pacific not covered by the National Center; and

(3) supports other international tsunami forecasting and warning efforts.”;

(d) Tsunami Warning Centers.—Subsection (d) of section 804 (33 U.S.C. 3203(d)) is amended to read as follows:

“(d) Tsunami Warning Centers.—

(1) In General.—The Administrator shall support or maintain centers to support the tsunami warning system required by subsection (c). The Centers shall include—

(A) the National Tsunami Warning Center, located in Alaska, which is primarily responsible for Alaska and the continental United States;

(B) the Pacific Tsunami Warning Center, located in Hawaii, which is primarily responsible for Hawai‘i, the Caribbean, and other areas of the Pacific not covered by the National Center; and

(C) any additional forecast and warning centers determined by the National Weather Service to be necessary.

(2) Responsibilities.—The responsibilities of the centers supported or maintained under paragraph (1) shall include the following:

(A) Continuously monitoring data from seismological, deep ocean, coastal sea level, and tidal monitoring stations and other data sources as may be developed and deployed;

(B) Evaluating earthquakes, landslides, and volcanic eruptions that have the potential to generate tsunamis;

(C) Evaluating deep ocean buoy data and tidal monitoring stations for indications of tsunami resulting from earthquakes and other seismic events;

(D) To the extent practicable, utilizing a range of models, including ensemble models, to predict tsunamis, including arrival times, flood inundation estimates, coastal and harbor currents, and duration.

(E) Using data from the Integrated Ocean Observation System of the Administration in coordination with regional associations to calculate new inundation estimates and periodically update existing inundation estimates;

(F) Disseminating tsunami warning bulletins to Federal, State, tribal, and local government officials and the public.


(H) In coordination with the Commandant of the Coast Guard and the Administrator of the Federal Emergency Management Agency, evaluating and recommending procedures for ports and harbors at risk of tsunami inundation, including review of readiness, response, and communication strategies, and data sharing policies to the maximum extent practicable.

(I) Making data gathering and posting analyses conducted by the National Oceanic and Atmospheric Administration.

(J) Maintaining the tsunami science to improve performance without compromising service.

(K) Failing-Safe Warning Capability.—The tsunami warning centers supported or maintained under paragraph (1) shall maintain a fail-safe warning capability and perform back-up duties for each other.

(L) Coordination with National Weather Service.—The Administrator shall coordinate with the forecast offices of the National Weather Service, the centers supported or maintained under paragraph (1), and such program offices of the Administration as the Administrator or the coordinating committee, as established in section 805(d), consider appropriate to ensure the national and local coordination.

(M) Have the technical knowledge and capability to disseminate tsunami warnings for the communities they serve;

(N) Leverage connections with local emergency management officials for optimally disseminating tsunami warnings and forecasts; and

(E) Implement mass communication tools in effect on the day before the date of the enactment of the Tsunami Warning, Education, and...
Research Act of 2017 used by the National Weather Service on such date and newer mass communication technologies as they are developed as a part of the Weather-Ready Nation program, the National Ocean Service, or otherwise, for the purpose of timely and effective delivery of tsunami warnings.

(5) UNIFORM OPERATING PROCEDURES.—The Administrator shall—

(A) develop uniform operational procedures for the centers supported or maintained under paragraph (1), including the use of software applications, checklists, decision support tools, and tsunami warning products that have been standardized across the program supported under this section;

(B) ensure that processes and products of the warning system operated under subsection (c)—

(i) reflect industry best practices when practicable;

(ii) conform to the maximum extent practicable with internationally recognized standards for information technology; and

(iii) conform to the maximum extent practicable with other warning products and practices of the National Weather Service;

(C) ensure that future adjustments to operational protocols, processes, and warning products—

(i) are made consistently across the warning system operated under subsection (c); and

(ii) are applied in a uniform manner across such warning system;

(D) establish a systematic method for information technology product development to improve long-term technology planning efforts; and

(E) disseminate guidelines and metrics for evaluating and improving tsunami forecast models;

(6) AVAILABLE RESOURCES.—The Administrator, through the National Weather Service, shall ensure that resources are available to fulfill the obligations of this Act. This includes ensuring supercomputing resources are available to run, as rapidly as possible, such computer models as are needed for purposes of the tsunami warning system operated under subsection (c).''

(e) TRANSFER OF TECHNOLOGY; MAINTENANCE AND UPGRADES.—Subsection (e) of section 804 (33 U.S.C. 3204(e)) is amended to read as follows:

(1) TRANSFER OF TECHNOLOGY; MAINTENANCE AND UPGRADES.—In addition to carrying out this section, the Administrator shall—

(A) develop requirements for the equipment used to forecast tsunami, including—

(i) provisions for multipurpose detection platforms;

(ii) reliability and performance metrics; and

(iii) to the maximum extent practicable, requirements for the integration of equipment with other United States and global ocean and coastal observation systems, the global Earth observing system of systems, the global seismic networks, and the Advanced National Seismic System;

(B) develop and execute a plan for the transfer of technology from ongoing research conducted at the end of the program supported or maintained under section 6 into the program under this section;

(C) ensure that the Administration's operational tsunami detection equipment is properly maintained.

(f) FEDERAL COOPERATION.—Subsection (f) of section 804 (33 U.S.C. 3204(f)) is amended to read as follows:

(1) FEDERAL COOPERATION.—When deploying and maintaining tsunami detection technologies under this Act, the Administrator shall—

(A) identify which assets of other Federal agencies are necessary to support such program;

(B) work with each agency identified under paragraph (1)—

(A) to acquire the agency's assistance; and

(B) to prioritize the necessary assets in support of the tsunami forecast and warning program.

(2) UNNECESSARY PROVISIONS.—Section 804 (33 U.S.C. 3203) is further amended—

(A) by striking subsection (g);

(B) by striking subsection (b) through (k); and

(C) by redesignating subsection (l) as subsection (g).

(g) CONGRESSIONAL NOTIFICATIONS.—Subsection (g) of section 802 (33 U.S.C. 3202(g)) is amended to read as follows:

(1) IN GENERAL.—The Administrator shall—

(A) by adding at the end the following:

"(C) ensure that future adjustments to operational protocols, processes, and warning products—

(i) are made consistently across the warning system operated under subsection (c); and

(ii) are applied in a uniform manner across such warning system;"

(B) in subparagraph (B), as redesignated by paragraph (2), by striking paragraph (A), and

(C) by redesignating paragraph (2), by striking "The Administrator" and inserting the following:

"(2) IN GENERAL.—The Administrator shall—

(A) by adding at the end the following:

"(C) the occurrence of a significant tsunami warning;"

and

(B) by adding at the end the following:

"(2) CONTENTS.—In a case in which notice is submitted under paragraph (1) within 30 days of a significant tsunami warning described in subparagraph (A) or (B) of such paragraph, such notice shall include, as appropriate, brief information and analysis of—

(A) the accuracy of the tsunami model used;

(B) the specific deep ocean or other monitoring equipment that detected the incident, as well as the deep ocean or other monitoring equipment that did not detect the incident due to malfunction or other reasons;

(C) the effectiveness of the warning communication, including the dissemination of warnings with State, territory, local, and tribal partners in the affected area under the jurisdiction of the National Weather Service; and

(D) such other findings as the Administrator considers appropriate.

(h) MODIFICATION OF NATIONAL TSUNAMI HAZARD MITIGATION PROGRAM.—Section 305 (33 U.S.C. 3205) is amended by striking subsection (a) and inserting the following:

(a) IN GENERAL.—Section 305(a) (33 U.S.C. 3205(a)) is amended to read as follows:

"(1) Multidisciplinary vulnerability assessment.

(B)Recommended guidance for at-risk ports and harbors.

(3) Dissemination of guidelines and standard community plans, programs, and training products, programs, and tools, including—

(A) standards for—

(i) mapping products;

(ii) inundation models; and

(iii) effective emergency exercises; and

(B) recommended guidance for at-risk port and harbor tsunami warning, evacuation, and response procedures in coordination with the Coast Guard and the Federal Emergency Management Agency.

(4) AUTHORIZED ACTIVITIES.—In addition to activities conducted under subsection (c), the program conducted under subsection (a) may include the following:

(A) Multidisciplinary vulnerability assessment research, education, and training to help integrate risk management and resilience objectives with community development planning and policies.

(B) Risk management training for local officials and community organizations to enhance understanding and preparedness.

(2) IN COORDINATION WITH THE FEDERAL EMERGENCY MANAGEMENT AND INTERAGENCY SYSTEM.—The National Ocean Service shall—

(A) in coordination with the Federal Emergency Management Agency, interagency, Federal, State, tribal, and territorial intergovernmental tsunami response exercise planning and implementation in high risk areas.

(3) Activities to support the development of regional tsunami hazard and risk assessments. Such regional risk assessments may include the following:

(A) The sources, sizes, and other relevant historical data of tsunami in the region, including tsunami hazard data.

(B) Foundation models and maps of critical infrastructure and socioeconomic vulnerability in areas subject to tsunami inundation.

(4) Development of evacuation plans and evacuation routes, including, when appropriate, traffic studies that evaluate the viability of evacuation routes.

(5) Evaluations of the size of populations that will require evacuation, including populations with special evacuation needs.

(6) Evaluations and technical assistance for vertical evacuation structure planning for communities where models indicate limited or no ability for timely evacuation, especially in areas at risk of near shore generated tsunamis.

(7) Evaluation of community-based outreach and education programs to ensure community readiness and resilience, including the following:

(A) The development, implementation, and assessment of technical training and public education programs, including education programs that address unique characteristics of distant and near-field tsunamis.

(B) The development of decision support tools.

(C) The incorporation of social science research into community readiness and resilience efforts.

(D) The development of evidence-based education guidelines.

(E) Dissemination of guidelines and standard community plans, programs, and training products, programs, and tools, including—

(A) standards for—

(i) mapping products;

(ii) inundation models; and

(iii) effective emergency exercises; and

(B) recommended guidance for at-risk port and harbor tsunami warning, evacuation, and response procedures in coordination with the Coast Guard and the Federal Emergency Management Agency.
integration of tsunami sensors into Federal and commercial submarine telecommunications cables if practicable.

“(5) Risk management, risk assessment, and resilience data and information services, including—

(A) access to data and products derived from observing systems; and

(B) development and maintenance of new integrated data products to support risk management, risk assessment, and resilience programs.

“(6) Notification systems that coordinate with and build upon existing systems and actively engage decisionmakers, State, local, tribal, and territorial governments and agencies, business communities, nongovernmental organizations, and the media.

“(e) NO PREEMPTION WITH RESPECT TO DESIGNATION OF AT-RISK AREAS.—The establishment of national standards for inundation models under this section shall not prevent States, territories, tribes, and local governments from designating additional areas as being at risk based on knowledge of local conditions.

“(f) NO NEW REGULATORY AUTHORITY.—Nothing in this Act may be construed as establishing new regulatory authority for any Federal agency.

”}(c) REPORT ON ACCREDITATION OF TSUNAMI READY PROGRAM.—Not later than 180 days after the date of enactment of this Act, the Administrator of the National Oceanic and Atmospheric Administration shall submit to the Committee on Commerce, Science, and Transportation of the Senate, the Committee on Science, Space, and Technology of the House of Representatives a report on which authorities and activities would be needed to have the Tsunami Ready Program of the National Weather Service accredited by the Emergency Management Accreditation Program.

SEC. 506. MODIFICATION OF TSUNAMI RESEARCH PROGRAM.

Section 806 (33 U.S.C. 3206) is amended—

(1) in the matter before paragraph (1), by striking “The Administrator shall, in consultation with such other Federal agencies, State, tribal, and territorial governments, and academic institutions as the Administrator considers appropriate, the coordinating committees under section 806(d), and the panel under section 806(a), support or maintain”; and

(2) in subsection (a), as designated by paragraph (1), by striking “and assessment for tsunami tracking and numerical forecast modeling. Such research program shall—” and inserting the following: “assessment for tsunami tracking and numerical forecast modeling, and standards development

(b) RESPONSIBILITIES.—The research program supported or maintained under subsection (a) shall—

(1) conduct—

(A) by amending paragraph (1) to read as follows:—

“(1) consider other appropriate and cost effective solutions to mitigate the impact of tsunami, including the improvement of near-field and distant tsunami detection and forecasting capabilities, which may include use of a new generation of the Deep-Ocean Assessment and Reporting of Tsunamis and detection and forecasting of tsunami sensors into commercial and Federal telecommunications cables, and other real-time tsunami monitoring systems and supercomputer capacity of the Ad Hoc Ocean Observing System for tsunami forecast for all United States coastlines;”;

(B) in paragraph (3)—

(i) by striking “including” and inserting “conduct”

(ii) by striking “and” at the end;

(C) by redesignating paragraph (4) as paragraph (6); and

(D) by inserting after paragraph (3) the following:

“(4) develop the technical basis for validation of tsunami maps, numerical tsunami models, digital elevation models, and forecasts; and”;

and

(E) in paragraph (5), as redesignated by subparagraph (C), by striking “to the scientific community” and inserting “to the public and the scientific community.”

”}(a) SUPPORT FOR DEVELOPMENT OF AN INTERNATIONAL TSUNAMI WARNING SYSTEM.—The Administrator shall, in coordination with the Secretary of State and in consultation with such other agencies as the Administrator considers relevant, provide technical assistance, operational support, and training to the Inter-governmental Oceanographic Commission of the United Nations Educational, Scientific, and Cultural Organization, the World Meteorological Organization of the United Nations, and such other international entities as the Administrator considers appropriate, as part of the international efforts to develop a fully functional global tsunami forecast and warning system comprised of regional tsunami warning networks.”;

(2) in subsection (b), by striking “shall” each place it appears and inserting “may”;

and

(1) in paragraph (1), by striking “establishing” and inserting “supporting”;

and

(2) in paragraph (2)—

(i) by striking “establish” and inserting “support”;

and

(ii) by striking “establishing” and inserting “supporting.”

”}(a) IN GENERAL.—The Administrator shall, not later than 180 days after the date of enactment of this Act, submit to the Administrator of the National Oceanic and Atmospheric Administration a report on the implementation of the Tsunami Warning and Education Act enacted as title VI of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006 (Public Law 109–479; 33 U.S.C. 3201 et seq.), as amended by this Act.

(b) ELEMENTS.—The report required by paragraph (1) shall include the following:

(A) A description of the progress made implementing sections 804(b)(3), 805(b), and 806(b)(4) of the Tsunami Warning and Education Act the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006 (Public Law 109–479; 33 U.S.C. 3201 et seq.); and

(B) A description of the ways that tsunami warnings and warning products issued by the Tsunami Forecasting and Warning Program established under section 804 of the Tsunami Warning and Education Act (33 U.S.C. 3203), as amended by this Act, may be standardized and streamlined with warnings and warning products for hurricanes, coastal storms, and other coastal flooding events.

”}(a) REPORT ON NATIONAL EFFORTS THAT SUPPORT RAPID RESPONSE FOLLOWING NEAR-SHORE TSUNAMI EVENTS.—

(1) IN GENERAL.—Not later than 1 year after the date of the enactment of this Act, the Administrator of the National Oceanic and Atmospheric Administration shall jointly, in coordination with the Director of the United States Geological Survey, Administrator of the Federal Emergency Management Agency, the Chief of the National Guard Bureau, and the heads of such other Federal agencies as the Administrator considers appropriate, submit to the appropriate committees of Congress a report on the national efforts in effect on the day before the date of the enactment of this Act that support and facilitate rapid emergency response to near-shore tsunami events to better understand domestic effects of earthquake derived tsunami on people, infrastructure, and communities in the United States.

(b) ELEMENTS.—The report required by paragraph (1) shall include the following:

(A) The Committee on Commerce, Science, and Transportation of the Senate, the Committee on Transportation and Infrastructure of the House of Representatives, and other Federal committees and other Federal entities and the National Commission on Terrorist Attacks Upon the United States.

(B) A description of scientific or other measurements collected on the day before the date of the enactment of this Act that support and facilitate rapid emergency response to near-shore tsunami events to better understand domestic effects of earthquake derived tsunami on people, infrastructure, and communities in the United States.
within near-shore and distant tsunami inundation areas on the day before the date of the enactment of this Act.

(D) An evaluation of near-shore tsunami response as described in subparagraph (C) in effect on the day before the date of the enactment of this Act, and how those response plans would be affected by the loss of search and rescue capability and infrastructure described in such subparagraph.

(E) A description of redevelopment plans and reports in effect on the day before the date of the enactment of this Act, and which are not have redevelopment plans.

(F) To enhance near-shore tsunami preparedness and response plans, including recommended responder exercises, predistress planning, and mitigation needs.

(G) Such other data and analysis information as the Administrator and the Secretary of Homeland Security consider appropriate.

(3) APPROPRIATE COMMITTEE OF CONGRESS.—

In this subsection, the term ‘appropriate committee of Congress’ means—

(A) the Committee on Commerce, Science, and Transportation of the Committee on Homeland Security and Governmental Affairs of the Senate; and

(B) the Committee on Science, Space, and Technology of the Committee on Homeland Security, and the Committee on Transportation and Infrastructure of the House of Representatives.

SEC. 510. AUTHORIZATION OF APPROPRIATIONS.

Section 809 of the Act, as redesignated by section 901(a)(1) of this Act, is amended—

(1) in paragraph (4)(B), by striking ‘‘and’’ at the end;

(2) in paragraph (5)(B), by striking the period at the end and inserting ‘‘, and’’; and

(3) by adding at the end the following:

‘‘(6) $25,800,000 for each of fiscal years 2016 through 2021, of which—

(A) not less than 27 percent of the amount appropriated for each fiscal year shall be for activities conducted at the State level under the tsunami hazard mitigation program under section 805;

(B) not less than 8 percent of the amount appropriated shall be for the tsunami research program under section 806.’’

SEC. 511. OUTREACH RESPONSIBILITIES.

The Administrator of the National Oceanic and Atmospheric Administration, in coordination with State and local emergency managers, shall—

(1) develop and implement formal outreach activities to improve tsunami education and awareness and foster the development of resilient communities.

(2) develop and implement outreach plans to ensure the close integration of tsunami warning centers supported or maintained under section 804(d) of the Tsunami Warning and Education Act (33 U.S.C. 3201(d)), as amended by this Act, with local Weather Forecast Offices of the National Weather Service and emergency managers;

(3) ensure that such offices cooperate to improve tsunami alerts, warnings, and outreach activities conducted at the State level under the tsunami hazard mitigation program under section 805; and

(4) report to the Committees on Commerce, Science, and Transportation of the Senate, and the Committees on Transportation and Infrastructure of the House of Representatives.

SEC. 512. REPEAL OF DUPLICATE PROVISIONS OF LAW.

(a) REPEAL.—The Tsunami Warning and Education Act enacted by Public Law 109–479; 33 U.S.C. 3201 et seq., is repealed.

(b) CONSTRUCTION.—Nothing in this section may be construed to repeal, or affect in any way, the Take Apart and First Responders Act enacted as title VIII of the Magnuson–Stevens Fishery Conservation and Management Reauthorization Act of 2006 (Public Law 109–479; 33 U.S.C. 3201 et seq.).

(c) The SPEAKER pro tempore. Pursuant to the rule, the gentleman from Texas (Mr. SMITH) and the gentlewoman from Oregon (Ms. BONAMICI) each will control 20 minutes.

(d) The Chair recognizes the gentleman from Texas.

Mr. SMITH. Mr. Speaker, I ask unanimous consent that all Members have 5 legislative days within which to submit their remarks and include any extraneous materials on the bill under consideration.

Mr. Speaker, I rise in support of H.R. 353, the Weather Research and Forecasting Innovation Act of 2017, which will help ensure we use the best and most appropriate technologies to protect our country from severe weather.

Mr. Speaker, H.R. 353, the Weather Research and Forecasting Innovation Act of 2017, will help NOAA to improve weather data, modeling, and forecasting, and will transform our Nation’s weather industry.

I thank the vice chairman of the Science Committee, Mr. LUCAS, for sponsoring this legislation.

Mr. Speaker, H.R. 353 directs the National Oceanic and Atmospheric Administration, NOAA, to prioritize its research to improve weather data, modeling, computing, forecasting, and warnings. This enables NOAA to support its core mission of protecting lives and property.

The bill strengthens NOAA’s ability to study the underlying atmospheric science while simultaneously advancing innovative technologies and re-forming operations to provide better weather data models and forecasts.

Also, the legislation creates a tornado research program to develop more accurate, effective, and timely tornado forecasts. This program will increase our understanding of these deadly phenomena and improve forecasts.

The bill strengthens NOAA’s ability to study the underlying atmospheric science while simultaneously advancing innovative technologies and re-forming operations to provide better weather data models and forecasts.

The bill improves weather observational systems through the use of observing system simulation experiments and next generation computing and modeling capabilities. These requirements will help ensure we use the best and most appropriate technologies to protect our country from severe weather.

Mr. Speaker, I rise in support of H.R. 353, the Weather Research and Forecasting Innovation Act, which also includes the Tsunami Warning, Education, and Research Act of 2017. The Weather Research and Forecasting Innovation Act is a product of hard work and negotiation over the past two Congresses.

I urge my colleagues to support this bill.

Mr. Speaker, I reserve the balance of my time.
Congressman FRANK LUCAS, Chairman LAMAR SMITH, and former Environment Subcommittee Chairs Jim BRIDENSTINE and Chris STEWART, who were great for important work at the cutting edge of science and public service. Weather forecasting is one of the most critical tasks for our country. At a time when budget uncertainty jeopardizes some of the most fundamental services NOAA provides to our Nation, it is imperative that we support legislation like H.R. 353 to give the agency the resources and flexibility needed to fulfill its mission.

The Northwest Oregon communities I represent and communities across the country rely on timely and accurate weather forecasts to decide when to harvest their crops, when to go to sea to fish, how to navigate the roads safely when there is freezing rain or snow and to prepare for possible flood conditions.

The National Weather Service provides excellent forecasting products to support our economy, but with the increasing frequency and severity of severe weather events, there can be and should be improvements in our forecasting capabilities and delivery. Improvements in forecasts can provide more lead time to allow communities to prepare, especially in severe weather events. More effective communication of forecast information to the public and those in harm’s way can reduce the loss of life and property.

This bill connects the research side of NOAA—the Office of Oceanic and Atmospheric Research—more effectively to the forecasting needs of the National Weather Service, cultivating a research-to-operations pipeline that is essential for the continued improvement of our weather forecasting enterprise. The bill contains several provisions that will improve interactions and information sharing between NOAA’s researchers and the National Weather Service. It improves communication between NOAA and the broader research and private weather communities. The bill also formally establishes the pilot program currently operating at NOAA to engage in contracts with the commercial sector for weather forecasting data.

Even when all the resources are adequate, the system will not adequately serve the public’s needs unless there are effective communication systems in place. H.R. 353 directs NOAA to do more research, listen to experts, and improve its risk communication techniques.

The bill also establishes interagency coordination through the Office of Science and Technology Policy across multiple agencies outside NOAA that share responsibilities for weather research and forecast communications. This is essential, and it highlights the important role the Office of Science and Technology Policy and NOAA share to help speed the adoption of best tools and practices across the various agencies of the Federal Government.

The legislation before us today also includes the Tsunami Warning, Education, and Research Act, legislation I have introduced over the past three Congresses. I am pleased that the 115th Congress has moved forward in making substantial improvements to the Nation’s tsunami warning system. The bill strengthens the Tsunami Warning, Education, and Research Act, seeks to improve our country’s understanding of the threat posed by tsunami events by improving forecasting and notification systems, developing supportive technologies, and supporting local community tsunami preparedness and response plans. This bill helps to address the risk faced by communities on both coasts and in the Gulf of Mexico by improving our mitigation and research program and enhancing community outreach and planning.

Many, if not most, of my colleagues represent districts that have experienced some kind of natural disaster. The threat of a catastrophic earthquake and tsunami is real because of the coastal communities in the Northwest. West Coast Members take this threat very seriously.

I have heard from coastal communities, people who fish, the tourism and maritime industries, marine and public safety officials, sheriffs, emergency managers, small-business owners, older Americans, and students who are concerned that their communities are not prepared for a tsunami.

Student Tim Poster, a Seaside High School student in a coastal community in my district, engaged in a year-long project to educate Oregonians about the threat a tsunami has on lives and property. Three of the four public schools in Seaside are still located inside the tsunami inundation zone. The high school students have practiced their evacuation route, and they know that, in the projected time between a major earthquake and the devastating wave of a tsunami, they couldn’t make it to higher ground. That is unacceptable.

The University of Oregon and Oregon State University are working on seismic warning systems and tsunami preparedness to help make sure that our communities are prepared and have the best research available to give the most warning time possible, and this bill compliments their work.

I am proud to have worked on this legislation which is so important to the people of northwest Oregon and all coastal communities but I do remain very concerned that the funding level is below current spending. This cut would have serious consequences. The operation and maintenance funding for the buoy network we rely on to detect tsunami could decrease, adding hours of delay in appropriately warning coastal communities.

Tsunami warning centers in Alaska and Hawaii are likely to see a reduction in staff, resulting in gaps in coverage and creating greater risks because of delays in sending out accurate warnings and, in some instances, not being able to provide adequate warning at all.

Tsunami are among the most deadly natural disasters. In the past two decades, tsunami have caused the deaths of roughly a quarter million people around the world. These disasters also have profound economic consequences. The 2001 tsunami in Japan caused more than a billion dollars in damage.

We are fortunate in the United States, to have been spared these catastrophes so far.

But our coastlines, from the Gulf of Mexico to Alaska, are very susceptible to the same kind of disasters we have seen in Indonesia and in Japan. It is not a matter of if, it is a matter of when.

Tsunami program activities protect coastal Oregonians just as hurricane forecasting protects coastal Floridians, Carolinians, and others up and down the East Coast of the United States. It is important that we reauthorize these lifesaving activities, and just as important to provide the necessary funding to support them.

I will work tirelessly with my colleagues to make sure this program receives the full funding it needs to save our communities and save lives and property.

Although there are always areas where we can do more, this underlying bill, the Weather Research and Forecasting Innovation Act, with the tsunami bill, is a good bipartisan agreement and one that I am proud to support while continuing to ask for current levels of funding.

I ask my colleagues to join me in voting “yes” on H.R. 353.

Mr. Speaker, I reserve the balance of my time.

Mr. SMITH of Texas. Mr. Speaker, I yield 5 minutes to the gentleman from Oklahoma (Mr. LUCAS), who is the vice Chairman of the Science, Space, and Technology Committee, and also the sponsor of this legislation.

Mr. LUCAS. Mr. Speaker, I want to thank the gentleman from Texas, Chairman SMITH, for his continued leadership on the Science, Space, and Technology Committee, and for bringing forward this important legislation. H.R. 333, the Weather Research and Forecasting Innovation Act of 2017, prioritizes improving weather forecasting for the protection of lives and property at the National Oceanic and Atmospheric Administration. This is a core program of the agency that has been in need of improved direction and investment for years.

The bill directs NOAA to develop plans to restore our country’s leadership in weather forecasting. It is no secret that many people in our weather community are distraught that our forecasting capacities have deteriorated in recent years. Some even say that America no longer has the best weather forecasting system in the world. In fact, we routinely rely on forecasts of other countries to predict what will happen in this country. This

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is unacceptable, but I am glad we are here today to pass legislation that will dramatically improve our weather forecasting system.

The bill before us today enhances our ability to predict severe weather by focusing on research and computing resources on improved weather forecasting, quantitative observing data planning, next generation modeling, and an emphasis on research-to-operations technology transfer.

Mr. Speaker, I urge my colleagues to vote for this bill.

Ms. BONAMICI. Mr. Speaker, I yield such time as she may consume to the gentlewoman from Texas (Ms. EDDIE BERNICE JOHNSON), the ranking member of the Science, Space, and Technology Committee.

Ms. EDDIE BERNICE JOHNSON of Texas. Mr. Speaker, I rise in support of H.R. 353, the Weather Research and Forecasting Innovative Act of 2017.

Climate and weather are not fundamentally partisan concerns; they affect all of our constituents, regardless of their party affiliation. The bill we are considering today, which is the culmination of years of bipartisan compromise and negotiation, demonstrates what can be accomplished when we work together to address the concerns of our constituents.

Mr. Speaker, weather affects all of us each and every day. It is a constant presence in our lives. Extreme weather events, which are becoming more severe and more frequent, are damaging lives and property in my home State of Texas, across the continental U.S., and all the way to the islands of Hawaii. Sadly, the devastation caused by tornadoes, hurricanes, and other severe weather incidents have become a far more familiar occurrence and, really, too much of it for far more Americans.

It should go without saying that we need to be prepared to anticipate and cope with these potentially devastating events by utilizing the very best weather forecasting and warning capabilities.

In that regard, the National Weather Service and the Office of Oceanic and Atmospheric Research, or NOAA, play a central role in protecting the lives and property of every American. H.R. 353 will help accelerate innovation that NOAA can make use of, turning cutting-edge weather research into essential weather forecasting tools and products; tools the forecasters can then use to protect American lives.

The legislation improves collaboration and cooperation within NOAA and the private sector. For its part, the growing private sector has signaled interest in this legislation.

Ms. BONAMICI. Mr. Speaker, I continue to support legislation that will do just that. H.R. 353, the Weather Research and Forecasting Innovative Act, will put our country’s weather forecasting back on track to provide citizens with life-saving predictions and warnings.

I specifically point to this bill’s innovative language on weather technology planning. H.R. 353 calls on NOAA to evaluate the combination of observing systems it needs to meet weather forecasting requirements. It also requires the agency to conduct experiments on different observing systems to evaluate their costs and benefits.

Such reforms will grant NOAA more flexibility to develop new technologies while scrapping older approaches that do not bring enough value to our forecasts. We need to help NOAA avoid and cope with these potentially devastating events by utilizing the very best weather forecasting and warning capabilities.

Mr. Speaker, weather affects all of us each and every day. It is a constant reminder that we can do better. As a Representative from Oklahoma, I understand the need for accurate and timely weather predictions firsthand. Every year, the loss of life from deadly tornadoes in my home State are a stark reminder that we can do better to predict severe weather events and provide longer lead times to protect Americans in harm’s way.

I am proud that this legislation has a dedicated tornado warning improvement program. The goal of this program is to reduce the loss of life from tornadoes by encouraging an understanding of fundamental meteorological science. This will allow detection and notifications of severe weather that are more accurate, effective, and timely.

Constituents in my home State will likely benefit from longer tornado warning lead times, which will save lives and better protect property.

Being better prepared for severe weather events is of the utmost important. The bill will improve our forecasting system by encouraging innovations and new technologies through a joint technology transfer fund at NOAA’s Office of Oceanic and Atmospheric Research. This transfer is essential to get new forecasting, models, and technologies out of the research side of NOAA and into the operational forecasters to better protect our country.

Furthermore, the legislation will enhance our forecasting by directing NOAA to engage new commercial data and solutions. This legislation includes a pilot project, which will provide NOAA a clear demonstration of the valuable data from commercial technologies. The private sector has the potential to aid our forecasting skill while reducing government cost with innovative solutions. In order to increase our weather skills, we must not limit ourselves by solely relying on government data.

This legislation packs in multiple efforts to protect lives and property from severe weather. From encouraging new technologies both inside and outside of NOAA to the careful planning and prioritization of weather research, this legislation will put our country back on track to be a world leader in weather prediction.

The time has come for Americans to have the most accurate and timely weather predictions. They deserve nothing less.

Mr. Speaker, I urge my colleagues to vote for this bill.

Ms. BONAMICI. Mr. Speaker, I yield such time as she may consume to the 7-year-old Jamal Stevens was in his bed when a tornado tore through the house, tossing him onto the embankment along Interstate 485, hundreds of feet from his room.

In 2012, 7-year-old Jamal Stevens was in his bed when a tornado tore through the house, tossing him onto the embankment along Interstate 485, hundreds of feet from his room.

The warning from the National Weather Service came 10 minutes later,
after the tornado had already touched down. This is because my hometown of Charlotte relies on radar nearly 100 miles away, meaning that the National Weather Service is using weak or inaccurate safety warnings for Charlotteans. In 2015, the current system provided a tornado warning, but for citizens in an entirely wrong neighborhood. More recently, a tornado in December of 2015 struck neighboring Union County with no warning from the National Weather Service.

Fortunately, our region has not suffered any fatalities due to the inadequate coverage, but we shouldn’t wait for tragedy to act.

The Weather Research and Forecasting Innovation Act requires the Commerce Department to identify weak coverage areas and identify solutions to the problem by improving existing government radars or incorporating non-Federal radars into the National Weather Service’s operations. Americans across the country rely on the National Weather Service to detect and provide warning for severe weather such as thunderstorms and tornadoes. But Charlotte is currently the largest metropolitan area without an adequate radar coverage. Addressing this shortcoming is an important step for public safety.

With that in mind, I do urge my colleagues to support H.R. 353. I thank the chairman so much for his support on this critical legislation.

Ms. BONAMICI. Mr. Speaker, I continue to reserve the balance of my time.

Mr. SMITH of Texas. Mr. Speaker, I yield 2 minutes to the gentleman from Louisiana (Mr. HIGGINS), who is a very active member of the Science, Space, and Technology Committee.

Mr. HIGGINS of Louisiana. Mr. Speaker, I thank the gentleman from Texas, Chairman SMITH, for yielding me time to highlight my support for H.R. 353, the Weather Research and Forecasting Innovation Act of 2017.

This past weekend, deadly storms ravaged Louisiana’s Third District, my district, tragically taking the lives of Francine Gotch and her 3-year-old daughter, Nevaeh Alexander, when their singlewide trailer flipped during high winds produced by a tornado.

The United States was once at the forefront of weather forecasting; however, that ability has diminished over the years with the capabilities of some other countries now paralleling or even exceeding our own.

I do not know if a better weather forecasting service would have made a difference this past weekend. However, as elected officials, we must make it a priority to protect American lives and property to the fullest extent.

We must never waver in this most significant responsibility. This legislation will put America back on track to lead the world in accurately predicting severe weather events with a renewed focus on increasing weather research and placing new technologies into operation.

More specifically, this bill also creates a tornado forecasting improvement program to develop more accurate, effective tornado forecasts that will allow for increased tornado warning lead times, which is crucial to saving lives and would perhaps have saved the lives of that mother and her young daughter this past weekend.

Mr. Speaker, with the number of hurricanes, floods, and tornadoes that have hit Louisiana in the last few decades, my constituency knows all too well the danger that mother nature can pose, as well as the need for reliable information to adequately prepare for such occurrences.

Constituents in my district need good, commonsense legislation like this to protect their families and their property. I applaud the efforts of the Science, Space, and Technology Committee Chairman SMITH and Representative LUCAS for leading this effort to protect Americans from severe weather.

Ms. BONAMICI. Mr. Speaker, I reserve the balance of my time.

Mr. SMITH of Texas. Mr. Speaker, I yield 2 minutes to the gentleman from Indiana (Mr. BANKS) who is the vice chairman of the Environment Subcommittee.

Mr. BANKS of Indiana. Mr. Speaker, I thank the chairman for his leadership on important issues like these.

Unfortunately, my home State of Indiana is no stranger to severe weather. As we enter peak tornado season, my constituents are vulnerable to tornado outbreaks which could lead to loss of life and destruction. Protecting lives and property from severe weather needs to be a top priority at NOAA. I am glad we are addressing this issue for that reason today.

This legislation will greatly improve our ability to predict severe weather, like the tornadoes that affect my district, through a focused program to enhance forecasting. When mere seconds make the difference between life and death, my constituents deserve the most accurate and timely forecasts available, and I am confident that this legislation will help give them that information.

I am also pleased that this bill gives NOAA the ability to incorporate data and forecasting skill from private sector companies like Harris Corporation in northeast Indiana, which employs about 450 engineers and technicians in my district. These talented professionals build the world’s most advanced weather satellite instruments.

Many government-operated systems are slow and costly, and the private sector can fill critical weather data needs. Directing NOAA to integrate next-generation commercial solutions improves our ability to protect lives and property.

The time to think outside of the government-only-weather-data box is now. That is why I applaud the chairman of the Science, Space, and Technology Committee, Mr. SMITH, as well as my colleague from Oklahoma (Mr. LUCAS) for bringing this important legislation to the forefront. I look forward to its passage into law.

Ms. BONAMICI. Mr. Speaker, I yield myself such time as I may consume.

Mr. Speaker, in asking all my colleagues on both sides of the aisle who have worked so hard on this legislation, I want to take a moment, also, to thank all of the staff in our offices and committee on both sides of the aisle who worked so hard on this legislation.

I encourage all my colleagues to support the Weather Research and Forecasting Innovation Act, which includes the Tsunami Warning, Education, and Research Act. This legislation will improve weather forecasting and tsunami preparedness.

Mr. Speaker, I encourage everyone to support this bipartisan legislation, and I yield back the balance of my time.

Mr. SMITH of Texas. Mr. Speaker, I yield myself such time as I may consume.

Mr. Speaker, this bill is the culmination of hard work and negotiations that have spanned 5 years. Today, we finalize this House-initiated weather policy reform legislation that will benefit residents throughout the United States. H.R. 353 greatly improves our ability to predict short-term severe weather events. It better protects lives and property, a core mission of NOAA that has needed greater attention in recent years.

Again, I want to thank Mr. LUCAS and Mr. BRIDENSTINE for their initiative on this issue. I thank the former Environment Subcommittee chairman, Representative CHRISS STEWART, for his years of commitment to this subject as well.

I especially appreciate Ms. BONAMICI and her 5 years of effort to make this a bipartisan bill. I would like to thank the Science, Space, and Technology Subcommittee on Environment staff for their years of effort on this bill, especially Taylor Jordan, who worked diligently to ensure that this bill became a reality. I also recognize the minority staff who were central to the process as well.

Mr. Speaker, this legislation will transform our weather forecasting ability. It ensures that we, once again, have a world-class forecasting system that will protect lives and property from the dangers of severe weather.

Mr. Speaker, I urge my colleagues to support this bill and I yield back the balance of my time.

The SPEAKER pro tempore. The question is on the motion offered by the gentleman from Texas (Mr. SMITH) that the House suspend the rules and agree to the Senate amendment to the bill, H. R. 353.

The question was taken; and (two-thirds being in the affirmative)
The SPEAKER pro tempore. Is there objection to the request of the gentleman from Texas?

There was no objection.

Mr. HENSARLING. Mr. Speaker, I yield myself such time as I may consume.

Mr. Speaker. I rise in support of H.R. 1343, the Encouraging Employee Ownership Act. I also want to commend the Republican and Democrat sponsors of this important bill: Mr. HULTGREN of Illinois, Mr. DELANEY of Maryland, Mr. HIGGINS of New York, Mr. MACARTHUR of New Jersey, Ms. SINEMA of Arizona, and Mr. STIVERS of Ohio.

Their bipartisan efforts resulted in a bipartisan bill that will help small businesses, including startups, to successfully reward their hardworking employees; and, while doing so, this bill will allow small businesses to effectively deploy their capital to grow and to create jobs on Main Streets all across our country.

We all know, Mr. Speaker, that small businesses are the heart and soul of the American economy. In fact, they helped create more than 60 percent of the nation’s new jobs over the past two decades. So if our Nation is to have a healthier and more vibrant economy, we must offer more opportunity to more Americans, then we must encourage small-business growth and small-business startups, and this starts with ensuring they have access to the capital and credit they need to grow.

Yet as we have heard from countless witnesses who have appeared before the House Financial Services Committee, community banks and credit unions in particular—the primary source of our small-business loans—are simply drowning. Mr. Speaker, in a sea of complicated and costly regulations. The same occurs with the maze of burdensome securities regulations that are written with the largest public companies in mind but end up hurting smaller companies.

Although small companies are at the forefront of innovation and job creation, they often face significant obstacles in obtaining funding in our capital markets. These obstacles often result from the proportionately larger burden that securities regulations place on small companies when they seek to access capital both in the public and private markets.

These small companies also face difficult challenges on how best they can deploy their limited resources and capital—to grow and thrive or to be able to sufficiently compensate their workforce, which is a critical component of their success.

Currently, the SEC allows private companies to offer their own securities to employees as part of written compensation agreements without having to comply with burdensome Federal securities—regulatory—requirements. The so-called SEC rule 701. Now, unfortunately, one of the rule’s thresholds has not been adjusted in two decades. What the bipartisan supporters of this bill are proposing is simply to modernize this SEC rule with a modest increase in that threshold.

Increasing the rule 701 threshold gives private companies more flexibility to reward and retain employees and permits private companies to keep valuable, skilled employees without having to use other methods such as borrowing money or selling securities. Updating this rule can encourage more companies to offer more incentives to more employees to keep their companies and permit more small, emerging growth companies that are at a competitive disadvantage with bigger businesses to attract and retain employees.

Allowing employees to become owners in the company that they work for with both cash and stock options. That mass of paper is now worth millions today. Another example is from an ad-tech company, MoPub. Thirty-six of its 100 employees became millionaires when the company was acquired by Twitter. MoPub’s CEO set his employees up for success by offering them performance-based stock-option grants.

So, Mr. Speaker, shouldn’t we want more American workers to have the opportunity to be like Google and MoPub? Don’t we want more Americans to have an opportunity to obtain an ownership stake in the places that they work? That way the workers can earn the large financial upside that comes when the company performs well, and the company benefits by being able to attract talented workers.

Unfortunately, again, Mr. Speaker, too many companies right now shy away from offering employees greater ownership opportunities because an expensive, bureaucratic, burdensome, top-down regulation in Washington hasn’t been updated in nearly 20 years. Mr. Speaker, we can fix that today. We can fix it by passing this common-sense, bipartisan bill, the Encouraging Employee Ownership Act.

We can provide American workers with more opportunities to share in the successes and profits of companies they work for. We can help to foster capital formation so more Americans can go back to work, have good careers, pay their mortgages, plan for a secure retirement, and ultimately give their families a better life.

Mr. Speaker, I urge all my colleagues to join me in supporting this commonsense bipartisan legislation, and I reserve the balance of my time.