AMENDMENT IN THE NATURE OF A SUBSTITUTE TO S.141

OFFERED BY MR. PERLMUTTER

Strike all after the enacting clause and insert the following:

SECTION 1. SHORT TITLE.

This Act may be cited as the "Space Weather Coordination Act".

SEC. 2. SPACE WEATHER.

(a) IN GENERAL.—Subtitle VI of title 51, United States Code, is amended by adding after chapter 605 the following:

"CHAPTER 606—SPACE WEATHER

"§ 60601. Space weather findings; policy

"(a) FINDINGS.—Congress finds the following:

"(1) Space weather events pose a significant threat to humans working in the space environment, to modern technological systems, and critical terrestrial infrastructure.

"(2) The effects of severe space weather events on the electric power grid, satellites and satellite communications and information, airline operations, astronauts living and working in space, and space based position, navigation, and timing systems could have significant societal, economic, national security, and health impacts.

"(3) Earth and space observations provide crucial data necessary to predict and warn about space weather events.

"(4) Clear roles and accountability of Federal departments and agencies are critical for an efficient and effective response to threats posed by space weather.

"(5) Observations and measurements closer to the sun and advanced instrumentation would provide for more advanced warning of solar activity resulting in space weather activity.

"(6) Coordination and collaboration between Federal departments and agencies, international partners, the academic community, and the commercial sector is necessary to improve the Nation's ability to understand, prepare for, avoid, mitigate, and respond to severe space weather events.

"(7) The commercial sector should be solicited to support and enable Federal space weather activities and encouraged to provide and separately invest in innovative space weather data and services.

"(b) STATEMENT OF NATIONAL POLICY.—It is the policy of the United States that—

"(1) the United States should establish and maintain baseline capabilities for space weather observation and forecasting to protect civil aviation, space transportation, national security, human life, critical infrastructure, commercial enterprise, and economic vitality in the United States;

"(2) the establishment and maintenance of such baseline capabilities for space weather should, to the extent practicable, leverage the space weather observation capabilities, data, and services of the academic community and commercial sector;

"(3) space weather observation and forecasting are not exclusive functions of the Federal Government; and

"(4) the Federal Government should, as practicable, obtain space weather data and services through contracts with the commercial sector, when the data and services are available, cost-effective, and add value.

"§ 60602. Space weather coordination

"(a) SENSE OF CONGRESS.—

"(1) NATIONAL SPACE COUNCIL.—It is the sense of Congress that—

"(A) members of the National Space Council are key stakeholders of the Federal Government with respect to space weather;

"(B) the Users' Advisory Group of the National Space Council should effectively and efficiently represent and advocate on behalf of nongovernmental organizations and the academic community within the Nation's space weather enterprise; and

"(C) the National Space Council is the appropriate Federal entity to review, establish, and coordinate the Nation's space weather priorities.

"(2) OFFICE OF SCIENCE AND TECHNOLOGY POLICY.—It is the sense of Congress that the Office of Science and Technology Policy—

"(A) efficiently and effectively identifies opportunities and avenues to advance the leadership of the United States in science and technology; and

"(B) is well positioned to identify opportunities for advancement in coordination of space

weather research-to-operations and operations-to-research.

"(b) COORDINATING AUTHORITY.—The National Space Council shall oversee efforts and activities of the Federal Government—

"(1) to implement the Nation's space weather priorities; and

"(2) to prepare for, avoid, mitigate, and respond to space weather events.

"(c) NATIONAL COMMITTEE FOR SPACE WEATHER OBSERVATION AND FORECASTING.—

"(1) ESTABLISHMENT.—In order to address the Nation's space weather priorities and further coordinate efforts to monitor, prepare for, avoid, mitigate, and respond to space weather events, the President shall, in consultation with the Chair of the National Space Council—

"(A) establish a committee with respect to space weather observation and forecasting to be known as the 'National Committee for Space Weather Observation and Forecasting' (in this chapter referred to as the 'National Committee'); and

"(B) establish one advisory committee for the purpose specified in paragraph (3)(B), the

composition of which shall be determined by the Co-Chairs of the National Committee and shall include equal representation from the academic community, commercial sector, and space weather end users.

"(2) NATIONAL COMMITTEE COMPOSITION.—The National Committee shall—

"(A) be co-chaired by the Administrator of the National Aeronautics and Space Administration, the Secretary of Defense, and the Secretary of Commerce, or their designated representatives, provided that such designated representatives are of the Under Secretary or Assistant Secretary level or higher;

"(B) include as permanent voting members all Federal departments or agencies determined to be key space weather stakeholders or otherwise necessary for inclusion as such permanent voting members by the President, with the agreement of the Chair of the National Space Council; and

"(C) be empowered, with the approval of the Chair of the National Space Council, to allow a relevant, non-member Federal department or agency to participate in meetings of

the National Committee as either a non-permanent observer or semi-permanent liaison to the National Committee.

"(3) DUTIES.—

"(A) NATIONAL COMMITTEE.—The duties of the National Committee are the following:

"(i) To effectively and efficiently promote coordination between Federal agencies, the academic community, and the commercial sector to advance the Nation's space enterprise.

"(ii) To coordinate the implementation of the national space weather plan developed under section 60603(b) across the Federal Government, in partnership with the academic community, international partners, and the commercial sector.

"(iii) To collaborate with the Director of the Office of Science and Technology Policy to identify opportunities for the academic community and commercial sectors to advance the understanding of space weather.

"(B) ADVISORY COMMITTEES.—The duty of the advisory committee established pursuant

to paragraph (1)(B) shall be to advise the National Committee with respect to—

"(i) the development and implementation of the national space weather plan established under section 60603(b); and

"(ii) the capabilities of the academic community and the commercial sector to meet the national space weather priorities identified under section 60603(a).

"(d) USER SURVEY.—

"(1) IN GENERAL.—The Chair of the National Space Council, in consultation with the heads of other relevant Federal agencies, the academic community, and the commercial sector, shall direct the Users' Advisory Group of the Council to conduct a comprehensive survey to identify the space weather observation, research, modeling, forecasting, and prediction needs of the space weather user community.

"(2) SURVEY CONSIDERATIONS.—The survey conducted under paragraph (1) shall—

"(A) assess the adequacy of current Federal Government goals for lead time, accuracy, coverage, timeliness, data rate, and data quality for space weather observations and forecasting;

"(B) identify options and methods to, in consultation with the academic community and the commercial sector, improve the goals specified in subparagraph (A);

"(C) identify opportunities for the generation of new data to address the needs of the space weather user community;

"(D) identify methods to increase coordination of, with respect to space weather, research-to-operations and operations-to-research;

"(E) identify the most efficient and effective formal mechanism or mechanisms for the sharing of space weather data, operational forecasting needs, research needs, findings, models, and capabilities between the Federal Government, the academic community, the commercial sector, and the space weather user community;

"(F) identify opportunities for new technologies, research, and instrumentation to aid in research, understanding, monitoring, modeling, prediction, and forecasting of space weather; and

"(G) identify methods and technologies to improve preparedness for potential space weather events.

"(e) SPECIAL AUTHORITY.—In order to better understand space weather, the National Space Council may leverage expertise from any Federal agency or partner, as deemed appropriate by the Chair of the National Space Council, including through the use of—

"(1) interagency agreements;

"(2) memoranda of understanding; and

"(3) shared personnel.

"§ 60603. Space weather priorities, plan, and research roadmap

"(a) NATIONAL SPACE WEATHER PRIORITIES.—The National Space Council, in consultation with the Users' Advisory Group of the National Space Council, the academic community, and the commercial sector, shall establish national priorities for space weather, with respect to—

"(1) the protection of life and property;

"(2) the support of the leadership, economic development, and national security of the United States; and

"(3) the space weather prediction and forecasting needs of end-users.

"(b) NATIONAL SPACE WEATHER PLAN.—The National Committee shall develop a national space weather plan to implement the priorities established under sub-

section (a). Such plan shall, with respect to activities carried out to meet such priorities—

"(1) delineate appropriate roles among Federal agencies;

"(2) consider small satellite options, hosted payloads, public-private partnerships, and commercial options such as data-buys, and other acquisition approaches, that maximize Federal investment and minimize overall costs to the Federal Government;

"(3) identify specific research and development activities and performance metrics needed to improve operational space weather forecasting;

"(4) describe collaborative opportunities with stakeholders, including the academic community, nongovernmental organizations, the commercial sector, and foreign governments;

"(5) leverage the work conducted through the National Space Weather Strategy and National Space Weather Action Plan of the National Science and Technology Council before the date of the enactment of this section;

"(6) include a formal mechanism to share operational needs of space weather forecasters to the academic community and commercial sector; and

"(7) appropriately prioritize the critical land-based, sea-based, air-based, or space-based observation capabilities.

"(c) NATIONAL SPACE WEATHER RESEARCH ROADMAP.—The Director of the Office of Science and Technology Policy shall issue a national space weather research roadmap that—

"(1) considers the national space weather priorities established under subsection (a);

"(2) considers the national space weather plan issued under subsection (b);

"(3) considers the National Academy of Sciences' decadal survey recommendations;

"(4) includes a formal mechanism that provides for the sharing of the research needs, findings, models, and capabilities with space weather operational forecasting centers; and

"(5) enhances coordination between research modeling centers, forecasting centers, and the commercial sector.

"§ 60604. Space weather reports

"(a) SURVEY AND PRIORITIES.—Not later than 180 days after the date of enactment of the Space Weather Coordination Act, the Chair of the National Space Council shall submit to the Committee on Science, Space, and

Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate, a report on—

"(1) the findings of the user survey under section 60602(d); and

"(2) the recommended space weather priorities under section 60603(a).

"(b) NATIONAL SPACE WEATHER PLAN.—Not later than 270 days after the date of enactment of the Space Weather Coordination Act, the Chair of the National Space Council shall submit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate, the national space weather plan developed under section 60603(b).

"(c) NATIONAL SPACE WEATHER RESEARCH ROADMAP.—Not later than one year after the date of enactment of the Space Weather Coordination Act, the Director of the Office of Science and Technology Policy shall submit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate, the national space weather research roadmap issued under section 60603(c).

"§ 60605. Pilot program for obtaining commercial sector space weather data

"(a) PILOT PROGRAM.—

"(1) ESTABLISHMENT.—Not later than one year after the date of the enactment of the Space Weather Coordination Act, the Secretary of Commerce, acting through the Under Secretary of Commerce for Oceans and Atmosphere (in this section referred to as the 'Secretary'), shall establish a pilot program under which the Secretary will offer to enter into contracts with one or more entities in the commercial sector for the provision to the Secretary of space weather data generated by such an entity that meets the standards and specifications published under paragraph (2).

"(2) DATA STANDARDS AND SPECIFICATIONS.—Not later than one year after the date of the enactment of the Space Weather Coordination Act, the Secretary shall publish standards and specifications for ground-based, ocean-based, air-based, and space-based commercial space weather data and metadata.

"(3) CONTRACTS.—

"(A) IN GENERAL.—Not later than 18 months after the date of enactment of the Space Weather Coordination Act, the Secretary shall offer to enter, through an open competi-

tion, into at least one contract with one or more commercial sector entities capable of providing space weather data that—

"(i) meets the standards and specifications established by the Secretary for providing such data; and

"(ii) is provided in a manner that allows the Secretary to calibrate and evaluate the data for use in space weather research and forecasting models of the National Oceanic and Atmospheric Administration.

"(B) ASSESSMENT.—Not later than the date that is 3 years after the date on which the Secretary enters into a contract under subparagraph (A), the Secretary shall assess, and submit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report on, the extent to which data provided under such contract meet the standards and specifications established 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 space weather research and forecasting models;

"(ii) whether, and by how much, the data so provided add value to space weather forecasts of the National Oceanic and Atmospheric Administration; and

"(iii) the accuracy, quality, timeliness, validity, reliability, usability, information technology security, and cost-effectiveness of obtaining commercial space weather data from commercial sector providers.

"(4) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to carry out this subsection $6,000,000 for each of fiscal years 2019 through 2022, to remain available until expended.

"(b) DATA AND HOSTED SATELLITE PAYLOADS.—Notwithstanding any other provision of law, the Secretary may enter into agreements for—

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

"(2) the placement of space weather satellite instruments on payloads co-hosted by the Federal Government and the commercial sector.

"(c) OBTAINING FUTURE DATA.—If an assessment under subsection (a)(3)(B) demonstrates the ability of commercial space weather data to meet data and metadata standards and specifications published under subsection (a)(2), the Secretary shall—

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

"(2) as early as possible in the acquisition process for any future National Oceanic and Atmospheric Administration space weather observational capability, consider whether a suitable, cost-effective, commercial capability is or will be available to meet the observational requirements by the planned operational date 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 observational capability; and

"(4) submit to the Committee on Science, Space, and Technology of the House of Representa-

tives and the Committee on Commerce, Science, and Transportation of the Senate a report detailing any determination made under paragraph (2) or (3).

"(d) DATA SHARING PRACTICES.—

"(1) IN GENERAL.—The Secretary shall, to the extent practicable, leverage United States leadership in space weather observation and forecasting to incentivize international partners to increase their space weather observational and forecasting capabilities and contribute additional space weather observations, data, models, predictions, and forecasts. The Under Secretary shall continue to meet international data sharing agreements entered into prior to the date of enactment of this Act.

"(2) NASA AND NSF DATA.—The Administrator of the National Aeronautics and Space Administration and the Director of the National Science Foundation shall each make space weather related data obtained for scientific research purposes available to space weather forecasters, operations centers, and the commercial sector and support model development and model applications for space weather forecasting.

"(3) NOAA DATA.—The Secretary shall make space weather related data obtained from operational forecasting available for scientific research.

"(e) RESEARCH FOR IMPROVED SPACE WEATHER FORECASTING.—The Secretary, the Director of the National Science Foundation, and the Administrator of the National Aeronautics and Space Administration shall support research on observation, technologies, and instrumentation which could improve space weather forecasting lead time and accuracy.

"§ 60606. Definitions

"In this chapter:

"(1) NATIONAL SPACE COUNCIL.—The term 'National Space Council' means the National Space Council established under Executive Order 13803, (82 Fed. Reg. 31429, relating to establishment of National Space Council) or any successor entities as determined by the President.".

(b) TECHNICAL AND CONFORMING AMENDMENTS.—

(1) CONFORMING REPEAL.—Section 809 of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18388) and the item relating to that section in the table of contents under section 1(b) of that Act (124 Stat. 2806) are repealed.

(2) TABLE OF CHAPTERS.—The table of chapters of title 51, United States Code, is amended by adding after the item relating to chapter 605 the following:

"606. Space weather ..... 60601".

Amend the title so as to read: "An Act to improve understanding and forecasting of space weather and promote coordination between stakeholders, and for other purposes.".