

116TH CONGRESS  
2D SESSION

# S. 881

---

## AN ACT

To improve understanding and forecasting of space weather events, and for other purposes.

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

1 **SECTION 1. SHORT TITLE.**

2 This Act may be cited as the “Promoting Research  
3 and Observations of Space Weather to Improve the Fore-  
4 casting of Tomorrow Act” or the “PROSWIFT Act”.

5 **SEC. 2. SPACE WEATHER.**

6 (a) **POLICY.**—It shall be the policy of the United  
7 States to prepare and protect against the social and eco-  
8 nomic impacts of space weather phenomena by supporting  
9 actions to improve space weather forecasts and predictions  
10 including: sustaining and enhancing critical observations,  
11 identifying research needs and promoting opportunities for  
12 research-to-operations and operations-to-research collabo-  
13 rations both within and outside of the Federal Govern-  
14 ment, advancing space weather models, engaging with all  
15 sectors of the space weather community, including aca-  
16 demia, the commercial sector, and international partners,  
17 and understanding the needs of space weather end users.

18 (b) **AMENDMENT TO TITLE 51, UNITED STATES**  
19 **CODE.**—Subtitle VI of title 51, United States Code, is  
20 amended by adding after chapter 605 the following:

21 **“CHAPTER 606—SPACE WEATHER**

“Sec.

“60601. Space weather.

“60602. Integrated strategy.

“60603. Sustaining and advancing critical space weather observations.

“60604. Research activities.

“60605. Space weather data.

“60606. Space weather knowledge transfer and information exchange.

“60607. Pilot program for obtaining commercial sector space weather data.

“60608. Space weather benchmarks.

1 **“§ 60601. Space weather**

2 “(a) FINDINGS.—

3 “(1) SPACE WEATHER.—Congress makes the  
4 following findings with respect to space weather:

5 “(A) Space weather phenomena pose a sig-  
6 nificant threat to ground-based and space-based  
7 critical infrastructure, modern technological  
8 systems, and humans working in space.

9 “(B) The effects of severe space weather  
10 on the electric power grid, satellites and sat-  
11 ellite communications and information, aviation  
12 operations, astronauts living and working in  
13 space, and space-based position, navigation, and  
14 timing systems could have significant societal,  
15 economic, national security, and health impacts.

16 “(C) Space-based and ground-based obser-  
17 vations provide crucial data necessary to under-  
18 stand, forecast, and prepare for space weather  
19 phenomena.

20 “(D) Clear roles and accountability of Fed-  
21 eral departments and agencies are critical for  
22 efficient and effective response to threats posed  
23 by space weather.

24 “(E) Space weather observation and fore-  
25 casting are essential for the success of human  
26 and robotic space exploration.

1           “(F) In October 2015, the National  
2 Science and Technology Council published a  
3 National Space Weather Strategy and a Na-  
4 tional Space Weather Action Plan seeking to in-  
5 tegrate national space weather efforts and add  
6 new capabilities to meet increasing demand for  
7 space weather information.

8           “(G) In March 2019, the National Science  
9 and Technology Council published an updated  
10 National Space Weather Strategy and Action  
11 Plan to enhance the preparedness and resilience  
12 of the United States to space weather.

13           “(2) ROLE OF FEDERAL AGENCIES.—Congress  
14 makes the following findings with respect to the role  
15 of Federal agencies on space weather:

16           “(A) The National Oceanic and Atmos-  
17 pheric Administration provides operational  
18 space weather monitoring, forecasting, and  
19 long-term data archiving and access for civil ap-  
20 plications, maintains ground-based and space-  
21 based assets to provide observations needed for  
22 space weather forecasting, prediction, and  
23 warnings, provides research to support oper-  
24 ational responsibilities, and develops require-

1           ments for space weather forecasting tech-  
2           nologies and science.

3           “(B) The Department of Defense provides  
4           operational space weather research, monitoring,  
5           and forecasting for the Department’s unique  
6           missions and applications.

7           “(C) The National Aeronautics and Space  
8           Administration provides increased under-  
9           standing of the fundamental physics of the  
10          Sun-Earth system through basic research,  
11          space-based observations and modeling, devel-  
12          oping new space-based technologies and mis-  
13          sions, and monitoring of space weather for the  
14          National Aeronautics and Space Administra-  
15          tion’s space missions.

16          “(D) The National Science Foundation  
17          provides increased understanding of the Sun-  
18          Earth system through ground-based measure-  
19          ments, technologies, and modeling.

20          “(E) The Department of the Interior col-  
21          lects, distributes, and archives operational  
22          ground-based magnetometer data in the United  
23          States and its territories, works with the inter-  
24          national community to improve global geo-  
25          physical monitoring, and develops crustal con-

1 ductivity models to assess and mitigate risks  
2 from space weather-induced electric ground cur-  
3 rents.

4 “(F) The Federal Aviation Administration  
5 provides operational requirements for space  
6 weather services in support of aviation and for  
7 coordination of these requirements with the  
8 International Civil Aviation Organization, and  
9 integrates space weather data and products into  
10 the Next Generation Air Transportation Sys-  
11 tem.

12 “(b) COORDINATION BY OFFICE OF SCIENCE AND  
13 TECHNOLOGY POLICY.—The Director of the Office of  
14 Science and Technology Policy shall—

15 “(1) coordinate the development and implemen-  
16 tation of Federal Government activities conducted  
17 with respect to space weather to improve the ability  
18 of the United States to prepare for, avoid, mitigate,  
19 respond to, and recover from potentially devastating  
20 impacts of space weather; and

21 “(2) coordinate the activities of the interagency  
22 working group on space weather established under  
23 subsection (c).

24 “(c) SPACE WEATHER INTERAGENCY WORKING  
25 GROUP.—Not later than 90 days after the date of enact-

1 ment of the PROSWIFT Act, the National Science and  
2 Technology Council shall establish an interagency working  
3 group on space weather (in this chapter referred to as the  
4 ‘interagency working group’) to coordinate executive  
5 branch actions that improve the understanding and pre-  
6 diction of and preparation for space weather phenomena,  
7 and coordinate Federal space weather activities.

8 “(1) MEMBERSHIP.—The following entities  
9 shall be members of the interagency working group:

10 “(A) The National Oceanic and Atmos-  
11 pheric Administration.

12 “(B) The National Aeronautics and Space  
13 Administration.

14 “(C) The National Science Foundation.

15 “(D) The Department of Defense.

16 “(E) The Department of the Interior.

17 “(F) Such other Federal agencies as the  
18 Director of the Office of Science and Tech-  
19 nology Policy deems appropriate.

20 “(2) INTERAGENCY AGREEMENTS.—

21 “(A) The members of the interagency  
22 working group may enter into one or more  
23 interagency agreements providing for coopera-  
24 tion and collaboration in the development of  
25 space weather spacecraft, instruments, tech-

1           nologies, and research to operations and oper-  
2           ations to research in accordance with this chap-  
3           ter.

4           “(B) The Administrator of the National  
5           Aeronautics and Space Administration and the  
6           Administrator of the National Oceanic and At-  
7           mospheric Administration shall enter into one  
8           or more interagency agreements providing for  
9           cooperation and collaboration in the develop-  
10          ment of space weather spacecraft, instruments,  
11          and technologies in accordance with this chap-  
12          ter.

13          “(3) INTERNATIONAL, ACADEMIC COMMUNITY,  
14          AND COMMERCIAL SECTOR COLLABORATION.—Each  
15          Federal agency participating in the space weather  
16          interagency working group established under this  
17          subsection shall, to the extent practicable, increase  
18          engagement and cooperation with the international  
19          community, academic community, and commercial  
20          space weather sector on the observational infrastruc-  
21          ture, data, and scientific research necessary to ad-  
22          vance the monitoring, forecasting, and prediction of,  
23          preparation for, and protection from, space weather  
24          phenomena.

25          “(d) SPACE WEATHER ADVISORY GROUP.—

1 “(1) IN GENERAL.—

2 “(A) ESTABLISHMENT.—Not later than  
3 180 days after the date of the enactment of the  
4 PROSWIFT Act, the Administrator of the Na-  
5 tional Oceanic and Atmospheric Administration,  
6 in consultation with other relevant Federal  
7 agencies, shall establish a space weather advi-  
8 sory group (in this chapter referred to as the  
9 ‘advisory group’) for the purposes of receiving  
10 advice from the academic community, the com-  
11 mercial space weather sector, and space weath-  
12 er end users that informs the interests and  
13 work of the interagency working group.

14 “(B) COMPOSITION.—The advisory group  
15 shall be composed of not more than 15 mem-  
16 bers appointed by the interagency working  
17 group, of whom—

18 “(i) 5 members shall be representa-  
19 tives of the academic community;

20 “(ii) 5 members shall be representa-  
21 tives of the commercial space weather sec-  
22 tor; and

23 “(iii) 5 members shall be nongovern-  
24 mental representatives of the space weath-  
25 er end user community.

1           “(C) CHAIR.—Not later than 30 days after  
2 the date on which the last member of the advi-  
3 sory group is appointed under subparagraph  
4 (B), the Administrator of the National Oceanic  
5 and Atmospheric Administration shall appoint 1  
6 member as the Chair of the advisory group.

7           “(D) TERMS.—The length of the term of  
8 each member of the advisory group shall be 3  
9 years beginning on the date on which the mem-  
10 ber is appointed.

11           “(E) TERM LIMITS.—

12           “(i) IN GENERAL.—A member of the  
13 advisory group may not serve on the advi-  
14 sory group for more than 2 consecutive  
15 terms.

16           “(ii) CHAIR.—A member of the advi-  
17 sory group may not serve as the Chair of  
18 the advisory group for more than 2 terms,  
19 regardless of whether the terms are con-  
20 secutive.

21           “(2) DUTIES.—The advisory group shall advise  
22 the interagency working group on the following:

23           “(A) Facilitating advances in the space  
24 weather enterprise of the United States.

1           “(B) Improving the ability of the United  
2 States to prepare for, mitigate, respond to, and  
3 recover from space weather phenomena.

4           “(C) Enabling the coordination and facili-  
5 tation of research to operations and operations  
6 to research, as described in section 60604(d).

7           “(D) Developing and implementing the in-  
8 tegrated strategy under section 60602 including  
9 subsequent updates and reevaluations.

10       “(3) USER SURVEY.—

11           “(A) IN GENERAL.—Not later than 180  
12 days after the establishment of the advisory  
13 group, the advisory group shall conduct a com-  
14 prehensive survey of the needs of users of space  
15 weather products to identify the space weather  
16 research, observations, forecasting, prediction,  
17 and modeling advances required to improve  
18 space weather products.

19           “(B) SURVEY CONSIDERATIONS.—The sur-  
20 vey conducted under subparagraph (A) shall—

21           “(i) assess the adequacy of current  
22 Federal Government goals for lead time,  
23 accuracy, coverage, timeliness, data rate,  
24 and data quality for space weather obser-  
25 vations and forecasting;

1           “(ii) identify options and methods to,  
2           in consultation with the academic commu-  
3           nity and the commercial space weather sec-  
4           tor, improve upon the advancement of the  
5           goals described in clause (i);

6           “(iii) identify opportunities for collec-  
7           tion of new data to address the needs of  
8           the space weather user community;

9           “(iv) identify methods to increase co-  
10          ordination of space weather research to op-  
11          erations and operations to research;

12          “(v) identify opportunities for new  
13          technologies, research, and instrumentation  
14          to aid in research, understanding, moni-  
15          toring, modeling, prediction, forecasting,  
16          and warning of space weather; and

17          “(vi) identify methods and tech-  
18          nologies to improve preparedness for po-  
19          tential space weather phenomena.

20          “(C) COORDINATION WITH AGENCIES.—In  
21          carrying out the requirements of this sub-  
22          section, the advisory group shall communicate  
23          and coordinate with the interagency working  
24          group to ensure the needs of the governmental  
25          space weather user community are adequately

1 and appropriately identified by the survey under  
2 subparagraph (A).

3 “(D) BRIEFING TO CONGRESS.—Not later  
4 than 30 days after the completion of the survey  
5 under subparagraph (A), the advisory group  
6 shall provide to the Committee on Science,  
7 Space, and Technology of the House of Rep-  
8 resentatives and the Committee on Commerce,  
9 Science, and Transportation of the Senate a  
10 briefing on the results of the survey under sub-  
11 paragraph (A).

12 “(E) PUBLICATION.—Within 30 days of  
13 the briefing to Congress, the advisory group  
14 shall make the results of the survey under sub-  
15 paragraph (A) publicly available.

16 “(F) REEVALUATION.—The advisory group  
17 shall review and assess the survey under sub-  
18 paragraph (A) not less than every 3 years and  
19 update, resubmit, and republish the survey in  
20 accordance with the requirements of subpara-  
21 graphs (D) and (E).

22 “(4) FEDERAL ADVISORY COMMITTEE ACT.—  
23 Section 14 of the Federal Advisory Committee Act  
24 (5 U.S.C. App.) shall not apply to the advisory  
25 group.

1 **“§ 60602. Integrated strategy**

2 “(a) IN GENERAL.—The Director of the Office of  
3 Science and Technology Policy, in collaboration with the  
4 interagency working group and upon the advice of the ad-  
5 visory group, shall develop a strategy for coordinated ob-  
6 servation of space weather among members of the inter-  
7 agency working group (in this chapter, referred to as the  
8 ‘integrated strategy’). The integrated strategy shall iden-  
9 tify—

10 “(1) observations and measurements that must  
11 be sustained beyond the lifetime of current ground-  
12 based and space-based assets, as described under  
13 section 60603, that are essential for space weather  
14 research, models, forecasting, and prediction;

15 “(2) new observations and measurements that  
16 may significantly improve space weather forecasting  
17 and prediction; and

18 “(3) plans for follow-on space-based observa-  
19 tions under section 60603.

20 “(b) CONSIDERATIONS.—In developing the integrated  
21 strategy in subsection (a), the Director of the Office of  
22 Science and Technology Policy shall consider, as appro-  
23 priate, the following:

24 “(1) Potential contributions of commercial solu-  
25 tions, prize authority, academic and international  
26 partnerships, microsattelites, small satellite options,

1 ground-based instruments, and hosted payloads for  
2 observations identified in section 60602(a)(2).

3 “(2) Work conducted before the date of enact-  
4 ment of the PROSWIFT Act by the National  
5 Science and Technology Council with respect to  
6 space weather.

7 “(3) The survey under section 60601(d).

8 “(4) Any relevant recommendations from the  
9 most recent National Academies of Sciences, Engi-  
10 neering, and Medicine Decadal Survey for Solar and  
11 Space Physics (Heliophysics).

12 “(c) REVIEW OF INTEGRATED STRATEGY.—

13 “(1) REVIEW.—The Administrator of the Na-  
14 tional Aeronautics and Space Administration and  
15 the Administrator of the National Oceanic and At-  
16 mospheric Administration, in consultation with Fed-  
17 eral agencies participating in the interagency work-  
18 ing group, shall enter into an agreement with the  
19 National Academies of Sciences, Engineering, and  
20 Medicine to review the integrated strategy developed  
21 in this section.

22 “(2) CONSIDERATIONS.—The review from para-  
23 graph (1) shall also consider the current state, capa-  
24 bility, and feasibility of the commercial space weath-  
25 er sector to provide new and supplemental observa-

1 tions and measurements that may significantly im-  
2 prove space weather forecasting and prediction.

3 “(3) TRANSMITTAL.—The Director of the Of-  
4 fice of Science and Technology Policy, the Adminis-  
5 trator of the National Aeronautics and Space Ad-  
6 ministration, and the Administrator of the National  
7 Oceanic and Atmospheric Administration shall  
8 transmit the integrated strategy and the results of  
9 the review required under paragraph (1) to the Com-  
10 mittee on Science, Space, and Technology of the  
11 House of Representatives and the Committee on  
12 Commerce, Science, and Transportation of the Sen-  
13 ate not later than 1 year after the date of the com-  
14 pletion of the survey under section 60601(d)(3). The  
15 integrated strategy and its review shall be made  
16 publicly available within 30 days of submittal to  
17 Congress.

18 “(d) IMPLEMENTATION PLAN.—Not later than 180  
19 days after delivery of the review of the integrated strategy  
20 in subsection (c)(3), the interagency working group shall  
21 develop a plan to implement the integrated strategy, in-  
22 cluding an estimate of the cost and schedule required for  
23 implementation. Upon completion, the interagency work-  
24 ing group shall submit the implementation plan to the  
25 Committees on Science, Space, and Technology and

1 Armed Services of the House of Representatives and the  
2 Committees on Commerce, Science, and Transportation  
3 and Armed Services of the Senate. The implementation  
4 plan shall be made publicly available within 30 days of  
5 submittal to Congress.

6 “(e) REEVALUATION.—The Director, in collaboration  
7 with the interagency working group, shall update the inte-  
8 grated strategy not later than 1 year after the reevaluation  
9 of the user survey from section 60601(d)(3)(F) in accord-  
10 ance with the requirements of subsections (a) through (d).

11 **“§ 60603. Sustaining and advancing critical space**  
12 **weather observations**

13 “(a) POLICY.—It is the policy of the United States  
14 to—

15 “(1) establish and sustain a baseline capability  
16 for space weather observations and to make such ob-  
17 servations and data publicly available; and

18 “(2) obtain enhanced space weather observa-  
19 tions, as practicable, to advance forecasting and pre-  
20 diction capability, as informed by the integrated  
21 strategy in section 60602.

22 “(b) SUSTAINING BASELINE SPACE-BASED OBSER-  
23 VATIONAL CAPABILITIES.—

24 “(1) The Administrator of the National Aero-  
25 nautics and Space Administration shall, in coopera-

1       tion with the European Space Agency and other  
2       international and interagency partners, maintain op-  
3       erations of the Solar and Heliospheric Observatory/  
4       Large Angle and Spectrometric Coronagraph (re-  
5       ferred to in this section as ‘SOHO/LASCO’) for as  
6       long as the satellite continues to deliver quality ob-  
7       servations.

8               “(2) The Administrator of the National Aero-  
9       nautics and Space Administration shall prioritize the  
10      reception of SOHO/LASCO data.

11              “(3) The Administrator of the National Oceanic  
12      and Atmospheric Administration shall maintain, for  
13      as long as is practicable, operations of current  
14      space-based observational assets, including but not  
15      limited to the Geostationary Operational Environ-  
16      mental Satellites system, and the Deep Space Cli-  
17      mate Observatory.

18              “(c) BACKUP SPACE-BASED OBSERVATIONAL CAPA-  
19      BILITY.—The Administrator of the National Oceanic and  
20      Atmospheric Administration, in coordination with the Sec-  
21      retary of Defense and the Administrator of the National  
22      Aeronautics and Space Administration, shall work with  
23      Federal and international partners in order to secure reli-  
24      able backup baseline capability for near real-time coronal  
25      mass ejection imagery, solar wind, solar imaging, coronal

1 imagery, and other relevant observations required to pro-  
2 vide space weather forecasts.

3       “(d) SOHO/LASCO OPERATIONAL CONTINGENCY  
4 PLAN.—The Administrator of the National Oceanic and  
5 Atmospheric Administration shall develop an operational  
6 contingency plan to provide continuous space weather  
7 forecasting in the event of an unexpected SOHO/LASCO  
8 failure, and prior to the implementation of the backup  
9 space-based baseline observational capability in section  
10 60603(c).

11       “(e) BRIEFING.—Not later than 120 days after the  
12 date of enactment of the PROSWIFT Act, the Adminis-  
13 trator of the National Oceanic and Atmospheric Adminis-  
14 tration shall provide a briefing to the Committee on  
15 Science, Space, and Technology of the House of Rep-  
16 resentatives and the Committee on Commerce, Science,  
17 and Transportation of the Senate on the plan to secure  
18 reliable backup baseline capability described in subsection  
19 (c) and the SOHO/LASCO operational contingency plan  
20 developed under subsection (d).

21       “(f) SUSTAINING GROUND-BASED OBSERVATIONAL  
22 CAPABILITY.—The Director of the National Science  
23 Foundation, the Director of the United States Geological  
24 Survey, the Secretary of the Air Force, and, as practicable

1 in support of the Air Force, the Secretary of the Navy,  
2 shall each—

3           “(1) maintain and improve ground-based obser-  
4 vations of the Sun, as necessary and advisable, to  
5 help meet the needs identified in the survey under  
6 section 60601(d)(3); and

7           “(2) continue to provide space weather data  
8 through ground-based facilities, including radars,  
9 lidars, magnetometers, neutron monitors, radio re-  
10 ceivers, aurora and airglow imagers, spectrometers,  
11 interferometers, and solar observatories.

12       “(g) CONSIDERATIONS.—In implementing sub-  
13 sections (b), (c), and (d), the Administrators of the Na-  
14 tional Aeronautics and Space Administration and the Na-  
15 tional Oceanic and Atmospheric Administration, the Di-  
16 rectors of the National Science Foundation and United  
17 States Geological Survey, and the Secretaries of the Air  
18 Force and the Navy shall prioritize cost-effective and reli-  
19 able solutions.

20       “(h) GROUND-BASED OBSERVATIONAL DATA.—The  
21 Director of the National Science Foundation shall—

22           “(1) make available to the public key data  
23 streams from the platforms and facilities described  
24 in subsection (d) for research and to support space  
25 weather model development;

1           “(2) develop experimental models for scientific  
2           purposes; and

3           “(3) support the transition of the experimental  
4           models to operations where appropriate.

5           “(i) ENHANCED SPACE-BASED OBSERVATIONS.—The  
6 Administrator of the National Oceanic and Atmospheric  
7 Administration, in coordination with the Secretary of De-  
8 fense, should develop options to build and deploy space-  
9 based observational capabilities, beyond the baseline capa-  
10 bilities referenced in subsection (b), that may improve  
11 space weather measurements and observations. These sup-  
12 plemental observational capabilities could include commer-  
13 cial solutions, prize authority, academic partnerships,  
14 microsattellites, ground-based instruments, and opportuni-  
15 ties to deploy the instrument or instruments as a sec-  
16 ondary payload on an upcoming planned launch.

17 **“§ 60604. Research activities**

18           “(a) BASIC RESEARCH.—The Director of the Na-  
19 tional Science Foundation, the Administrator of the Na-  
20 tional Aeronautics and Space Administration, and the Sec-  
21 retary of Defense, shall—

22           “(1) continue to carry out basic research on  
23           heliophysics, geospace science, and space weather;  
24           and

1           “(2) support competitive, peer-reviewed pro-  
2           posals for conducting research, advancing modeling,  
3           and monitoring of space weather and its impacts, in-  
4           cluding the science goals outlined in decadal surveys  
5           in solar and space physics conducted by the National  
6           Academies of Sciences, Engineering, and Medicine.

7           “(b) MULTIDISCIPLINARY RESEARCH.—

8           “(1) FINDINGS.—Congress finds that the multi-  
9           disciplinary nature of solar and space physics creates  
10          funding challenges that require coordination across  
11          scientific disciplines and Federal agencies.

12          “(2) SENSE OF CONGRESS.—It is the sense of  
13          Congress that science centers could coordinate mul-  
14          tidisciplinary solar and space physics research. The  
15          Administrator of the National Aeronautics and  
16          Space Administration and Director of the National  
17          Science Foundation should support competitively  
18          awarded grants for multidisciplinary science centers  
19          that advance solar and space physics research, in-  
20          cluding research-to-operations and operations-to-re-  
21          search processes.

22          “(3) MULTIDISCIPLINARY RESEARCH.—The Di-  
23          rector of the National Science Foundation, the Ad-  
24          ministrator of the National Oceanic and Atmos-  
25          pheric Administration, and the Administrator of the

1 National Aeronautics and Space Administration,  
2 shall each pursue multidisciplinary research in sub-  
3 jects that further the understanding of solar physics,  
4 space physics, and space weather.

5 “(c) SCIENCE MISSIONS.—The Administrator of the  
6 National Aeronautics and Space Administration should  
7 implement missions that meet the science objectives identi-  
8 fied in solar and space physics decadal surveys conducted  
9 by the National Academies of Sciences, Engineering, and  
10 Medicine.

11 “(d) RESEARCH TO OPERATIONS; OPERATIONS TO  
12 RESEARCH.—The interagency working group shall, upon  
13 consideration of the advice of the advisory group, develop  
14 formal mechanisms to—

15 “(1) transition the space weather research find-  
16 ings, models, and capabilities of the National Aero-  
17 nautics and Space Administration, the National  
18 Science Foundation, the United States Geological  
19 Survey, and other relevant Federal agencies, as ap-  
20 propriate, to the National Oceanic and Atmospheric  
21 Administration and the Department of Defense;

22 “(2) enhance coordination between research  
23 modeling centers and forecasting centers; and

24 “(3) communicate the operational needs of  
25 space weather forecasters of the National Oceanic

1 and Atmospheric Administration and Department of  
2 Defense, as appropriate, to the National Aeronautics  
3 and Space Administration, the National Science  
4 Foundation, and the United States Geological Sur-  
5 vey.

6 **“§ 60605. Space weather data**

7 “(a) IN GENERAL.—The Administrator of the Na-  
8 tional Aeronautics and Space Administration and the Di-  
9 rector of the National Science Foundation shall continue  
10 to—

11 “(1) make space weather-related data obtained  
12 for scientific research purposes available to space  
13 weather forecasters and operations centers; and

14 “(2) support model development and model ap-  
15 plications to space weather forecasting.

16 “(b) RESEARCH.—The Administrator of the National  
17 Oceanic and Atmospheric Administration shall make space  
18 weather-related data obtained from operational fore-  
19 casting available for research.

20 **“§ 60606. Space weather knowledge transfer and in-  
21 formation exchange**

22 “Not later than 180 days after the date of enactment  
23 of the PROSWIFT Act, the Administrator of the National  
24 Oceanic and Atmospheric Administration, in collaboration  
25 with the Administrator of the National Aeronautics and

1 Space Administration and the Director of the National  
2 Science Foundation, shall enter into an arrangement with  
3 the National Academies of Sciences, Engineering, and  
4 Medicine to establish a Space Weather Government-Aca-  
5 demic-Commercial Roundtable to facilitate communication  
6 and knowledge transfer among Government participants  
7 in the space weather interagency working group estab-  
8 lished under section 60601(c), the academic community,  
9 and the commercial space weather sector to—

10           “(1) facilitate advances in space weather pre-  
11           diction and forecasting;

12           “(2) increase coordination of space weather re-  
13           search to operations and operations to research; and

14           “(3) improve preparedness for potential space  
15           weather phenomena.

16 **“§ 60607. Pilot program for obtaining commercial sec-**  
17 **tor space weather data**

18           “(a) ESTABLISHMENT.—Not later than 12 months  
19 after the date of enactment of the PROSWIFT Act, the  
20 Administrator of the National Oceanic and Atmospheric  
21 Administration may establish a pilot program under which  
22 the Administrator will offer to enter into contracts with  
23 one or more entities in the commercial space weather sec-  
24 tor for the provision to the Administrator of space weather

1 data generated by such an entity that meets the standards  
2 and specifications published under subsection (b).

3 “(b) DATA STANDARD AND SPECIFICATIONS.—Not  
4 later than 18 months after the date of enactment of the  
5 PROSWIFT Act, the Administrator of the National Oce-  
6 anic and Atmospheric Administration, in consultation with  
7 the Secretary of Defense, may publish standards and spec-  
8 ifications for ground-based, ocean-based, air-based, and  
9 space-based commercial space weather data and metadata.

10 “(c) CONTRACTS.—

11 “(1) IN GENERAL.—Within 12 months after the  
12 date of transmission of the review of the integrated  
13 strategy to Congress under section 60602(c)(3) and  
14 taking into account the results of the review, the Ad-  
15 ministrator of the National Oceanic and Atmos-  
16 pheric Administration may offer to enter, through  
17 an open competition, into at least one contract with  
18 one or more commercial space weather sector enti-  
19 ties capable of providing space weather data that—

20 “(A) meets the standards and specifica-  
21 tions established for providing such data under  
22 subsection (b); and

23 “(B) is provided in a manner that allows  
24 the Administrator of the National Oceanic and  
25 Atmospheric Administration to calibrate and

1 evaluate the data for use in space weather re-  
2 search and forecasting models of the National  
3 Oceanic and Atmospheric Administration, the  
4 Department of Defense, or both.

5 “(2) ASSESSMENT.—If one or more contract is  
6 entered into under paragraph (1), not later than 4  
7 years after the date of enactment of the  
8 PROSWIFT Act, the Administrator of the National  
9 Oceanic and Atmospheric Administration shall as-  
10 sess, and submit to the Committees on Science,  
11 Space, and Technology and Armed Services of the  
12 House of Representatives and the Committees on  
13 Commerce, Science, and Transportation and Armed  
14 Services of the Senate, a report on the extent to  
15 which the pilot program has demonstrated data pro-  
16 vided under contracts described in paragraph (1)  
17 meet the standards and specifications established  
18 under subsection (b) and the extent to which the  
19 pilot program has demonstrated—

20 “(A) the viability of assimilating the com-  
21 mercially provided data into National Oceanic  
22 and Atmospheric Administration space weather  
23 research and forecasting models;

24 “(B) whether, and by how much, the data  
25 so provided add value to space weather fore-

1           casts of the National Oceanic and Atmospheric  
2           Administration and the Department of Defense;  
3           and

4                   “(C) the accuracy, quality, timeliness, va-  
5           lidity, reliability, usability, information tech-  
6           nology security, and cost-effectiveness of obtain-  
7           ing commercial space weather data from com-  
8           mercial sector providers.

9   **“§ 60608. Space weather benchmarks**

10           “The interagency working group established under  
11   section 60601(e) shall periodically review and update the  
12   benchmarks described in the report of the National  
13   Science and Technology Council entitled ‘Space Weather  
14   Phase 1 Benchmarks’ and dated June 2018, as necessary,  
15   based on—

16                   “(1) any significant new data or advances in  
17   scientific understanding that become available; or

18                   “(2) the evolving needs of entities impacted by  
19   space weather phenomena.”.

20   (c) TECHNICAL AND CONFORMING AMENDMENTS.—

21           (1) The table of chapters of title 51, United  
22   States Code, is amended by adding after the item re-  
23   lating to chapter 605 the following:

“606. Space Weather ..... 60601”.

24           (2) Section 809 of the National Aeronautics  
25   and Space Administration Authorization Act of 2010

1 (42 U.S.C. 18388) and the item relating to that sec-  
2 tion in the table of contents under section 1(b) of  
3 that Act (Public Law 111–267; 124 Stat. 2806) are  
4 repealed.

Passed the Senate July 27, 2020.

Attest:

*Secretary.*

116<sup>TH</sup> CONGRESS  
2<sup>D</sup> SESSION

**S. 881**

---

**AN ACT**

To improve understanding and forecasting of space weather events, and for other purposes.