

“(1) IN GENERAL.—Each fiscal year, not later than the date of submission of the President’s annual budget request for that fiscal year under section 1105 of title 31, United States Code, the Administrator [of the National Aeronautics and Space Administration] shall publish a report, in accordance with applicable Federal privacy laws, on the activities of the Administration [National Aeronautics and Space Administration] under section 20149 of title 51, United States Code.

“(2) CONTENTS.—Each report under paragraph (1) shall include a detailed cost accounting of the Administration’s activities under section 20149 of title 51, United States Code, and a 5-year budget estimate.

“(3) SUBMISSION TO CONGRESS.—The Administrator shall submit to the appropriate committees of Congress [Committee on Science, Space, and Technology of the House of Representatives and Committee on Commerce, Science, and Transportation of the Senate] each report under paragraph (1) not later than the date of submission of the President’s annual budget request for that fiscal year under section 1105 of title 31, United States Code.”

INSPECTOR GENERAL AUDIT

Pub. L. 115–10, title IV, §443(f), Mar. 21, 2017, 131 Stat. 47, provided that: “The Inspector General of NASA [National Aeronautics and Space Administration] shall periodically audit or review, as the Inspector General considers necessary to prevent waste, fraud, and abuse, the activities of the Administration [National Aeronautics and Space Administration] under section 20149 of title 51, United States Code.”

SUBCHAPTER IV—UPPER ATMOSPHERE RESEARCH

§ 20161. Congressional declaration of purpose and policy

(a) PURPOSE.—The purpose of this subchapter is to authorize and direct the Administration to develop and carry out a comprehensive program of research, technology, and monitoring of the phenomena of the upper atmosphere so as to provide for an understanding of and to maintain the chemical and physical integrity of the Earth’s upper atmosphere.

(b) POLICY.—Congress declares that it is the policy of the United States to undertake an immediate and appropriate research, technology, and monitoring program that will provide for understanding the physics and chemistry of the Earth’s upper atmosphere.

(Pub. L. 111–314, §3, Dec. 18, 2010, 124 Stat. 3354.)

HISTORICAL AND REVISION NOTES

Revised Section	Source (U.S. Code)	Source (Statutes at Large)
20161 .....	42 U.S.C. 2481.	Pub. L. 85–568, title IV, §401, as added Pub. L. 94–39, §8, June 19, 1975, 89 Stat. 222.

§ 20162. Definition of upper atmosphere

In this subchapter, the term “upper atmosphere” means that portion of the Earth’s sensible atmosphere above the troposphere.

(Pub. L. 111–314, §3, Dec. 18, 2010, 124 Stat. 3354.)

HISTORICAL AND REVISION NOTES

Revised Section	Source (U.S. Code)	Source (Statutes at Large)
20162 .....	42 U.S.C. 2482.	Pub. L. 85–568, title IV, §402, as added Pub. L. 94–39, §8, June 19, 1975, 89 Stat. 222.

§ 20163. Program authorized

(a) IN GENERAL.—In order to carry out the purposes of this subchapter, the Administration, in cooperation with other Federal agencies, shall initiate and carry out a program of research, technology, monitoring, and other appropriate activities directed to understand the physics and chemistry of the upper atmosphere.

(b) ACTIVITIES.—In carrying out the provisions of this subchapter, the Administration shall—

(1) arrange for participation by the scientific and engineering community, of both the Nation’s industrial organizations and institutions of higher education, in planning and carrying out appropriate research, in developing necessary technology, and in making necessary observations and measurements;

(2) provide, by way of grant, contract, scholarships, or other arrangements, to the maximum extent practicable and consistent with other laws, for the widest practicable and appropriate participation of the scientific and engineering community in the program authorized by this subchapter; and

(3) make all results of the program authorized by this subchapter available to the appropriate regulatory agencies and provide for the widest practicable dissemination of such results.

(Pub. L. 111–314, §3, Dec. 18, 2010, 124 Stat. 3354.)

HISTORICAL AND REVISION NOTES

Revised Section	Source (U.S. Code)	Source (Statutes at Large)
20163 .....	42 U.S.C. 2483.	Pub. L. 85–568, title IV, §403, as added Pub. L. 94–39, §8, June 19, 1975, 89 Stat. 222.

§ 20164. International cooperation

In carrying out the provisions of this subchapter, the Administration, subject to the direction of the President and after consultation with the Secretary of State, shall make every effort to enlist the support and cooperation of appropriate scientists and engineers of other countries and international organizations.

(Pub. L. 111–314, §3, Dec. 18, 2010, 124 Stat. 3355.)

HISTORICAL AND REVISION NOTES

Revised Section	Source (U.S. Code)	Source (Statutes at Large)
20164 .....	42 U.S.C. 2484.	Pub. L. 85–568, title IV, §404, as added Pub. L. 94–39, §8, June 19, 1975, 89 Stat. 223.

CHAPTER 203—RESPONSIBILITIES AND VISION

- Sec. 20301. General responsibilities.
- 20302. Vision for space exploration.
- 20303. Contribution to innovation.
- 20304. Basic research enhancement.
- 20305. National Academies decadal surveys.

§ 20301. General responsibilities

(a) PROGRAMS.—The Administrator shall ensure that the Administration carries out a balanced set of programs that shall include, at a minimum, programs in—

(1) human space flight, in accordance with section 20302 of this title;

(2) aeronautics research and development; and

(3) scientific research, which shall include, at a minimum—

(A) robotic missions to study the Moon and other planets and their moons, and to deepen understanding of astronomy, astrophysics, and other areas of science that can be productively studied from space;

(B) Earth science research and research on the Sun-Earth connection through the development and operation of research satellites and other means;

(C) support of university research in space science, Earth science, and microgravity science; and

(D) research on microgravity, including research that is not directly related to human exploration.

(b) CONSULTATION AND COORDINATION.—In carrying out the programs of the Administration, the Administrator shall—

(1) consult and coordinate to the extent appropriate with other relevant Federal agencies, including through the National Science and Technology Council;

(2) work closely with the private sector, including by—

(A) encouraging the work of entrepreneurs who are seeking to develop new means to launch satellites, crew, or cargo;

(B) contracting with the private sector for crew and cargo services, including to the International Space Station, to the extent practicable;

(C) using commercially available products (including software) and services to the extent practicable to support all Administration activities; and

(D) encouraging commercial use and development of space to the greatest extent practicable; and

(3) involve other nations to the extent appropriate.

(Pub. L. 111–314, §3, Dec. 18, 2010, 124 Stat. 3355.)

HISTORICAL AND REVISION NOTES

<i>Revised Section</i>	<i>Source (U.S. Code)</i>	<i>Source (Statutes at Large)</i>
20301 .....	42 U.S.C. 16611(a).	Pub. L. 109–155, title I, §101(a), Dec. 30, 2005, 119 Stat. 2897.

SPACE LAUNCH SYSTEM, ORION, AND EXPLORATION GROUND SYSTEMS

Pub. L. 115–10, title IV, §421, Mar. 21, 2017, 131 Stat. 35, provided that:

“(a) FINDINGS.—Congress makes the following findings:

“(1) NASA has made steady progress in developing and testing the Space Launch System and Orion exploration systems with the successful Exploration Flight Test of Orion in December of 2014, the final qualification test firing of the 5-segment Space Launch System boosters in June 2016, and a full thrust, full duration test firing of the RS–25 Space Launch System core stage engine in August 2016.

“(2) Through the 21st Century Launch Complex program and Exploration Ground Systems programs,

NASA has made significant progress in transforming exploration ground systems infrastructure to meet NASA’s mission requirements for the Space Launch System and Orion and to modernize NASA’s launch complexes to the benefit of the civil, defense, and commercial space sectors.

“(b) SPACE LAUNCH SYSTEM.—

“(1) SENSE OF CONGRESS.—It is the sense of Congress that use of the Space Launch System and Orion, with contributions from partnerships with the private sector, academia, and the international community, is the most practical approach to reaching the Moon, Mars, and beyond.

“(2) REAFFIRMATION.—Congress reaffirms the policy and minimum capability requirements for the Space Launch System under section 302 of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18322).

“(c) SENSE OF CONGRESS ON SPACE LAUNCH SYSTEM, ORION, AND EXPLORATION GROUND SYSTEMS.—It is the sense of Congress that—

“(1) as the United States works to send humans on a series of missions to Mars in the 2030s, the United States national space program should continue to make progress on its commitment by fully developing the Space Launch System, Orion, and related Exploration Ground Systems;

“(2) using the Space Launch System and Orion for a wide range of contemplated missions will facilitate the national defense, science, and exploration objectives of the United States;

“(3) the United States should have continuity of purpose for the Space Launch System and Orion in deep space exploration missions, using them beginning with the uncrewed mission, EM–1, planned for 2018, followed by the crewed mission, EM–2, in cis-lunar space planned for 2021, and for subsequent missions beginning with EM–3 extending into cis-lunar space and eventually to Mars;

“(4) the President’s annual budget requests for the Space Launch System and Orion development, test, and operational phases should strive to accurately reflect the resource requirements of each of those phases;

“(5) the fully integrated Space Launch System, including an upper stage needed to go beyond low-Earth orbit, will safely enable human space exploration of the Moon, Mars, and beyond; and

“(6) the Administrator should budget for and undertake a robust ground test and uncrewed and crewed flight test and demonstration program for the Space Launch System and Orion in order to promote safety and reduce programmatic risk.

“(d) IN GENERAL.—The Administrator shall continue the development of the fully integrated Space Launch System, including an upper stage needed to go beyond low-Earth orbit, in order to safely enable human space exploration of the Moon, Mars, and beyond over the course of the next century as required in section 302(c) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18322(c)).

“(e) REPORT.—

“(1) IN GENERAL.—Not later than 60 days after the date of enactment of this Act [Mar. 21, 2017], the Administrator shall submit to the appropriate committees of Congress a report addressing the ability of Orion to meet the needs and the minimum capability requirements described in section 303(b)(3) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18323(b)(3)).

“(2) CONTENTS.—The report shall detail—

“(A) those components and systems of Orion that ensure it is in compliance with section 303(b)(3) of that Act (42 U.S.C. 18323(b)(3));

“(B) the expected date that Orion, integrated with a vehicle other than the Space Launch System, could be available to transport crew and cargo to the ISS;

“(C) any impacts to the deep space exploration missions under subsection (f) of this section due to

enabling Orion to meet the minimum capability requirements described in section 303(b)(3) of that Act (42 U.S.C. 18323(b)(3)) and conducting the mission described in subparagraph (B) of this paragraph; and

“(D) the overall cost and schedule impacts associated with enabling Orion to meet the minimum capability requirements described in section 303(b)(3) of that Act (42 U.S.C. 18323(b)(3)) and conducting the mission described in subparagraph (B) of this paragraph.

“(f) EXPLORATION MISSIONS.—The Administrator shall continue development of—

“(1) an uncrewed exploration mission to demonstrate the capability of both the Space Launch System and Orion as an integrated system by 2018;

“(2) subject to applicable human rating processes and requirements, a crewed exploration mission to demonstrate the Space Launch System, including the Core Stage and Exploration Upper Stages, by 2021;

“(3) subsequent missions beginning with EM-3 at operational flight rate sufficient to maintain safety and operational readiness using the Space Launch System and Orion to extend into cis-lunar space and eventually to Mars; and

“(4) a deep space habitat as a key element in a deep space exploration architecture along with the Space Launch System and Orion.

“(g) OTHER USES.—The Administrator shall assess the utility of the Space Launch System for use by the science community and for other Federal Government launch needs, including consideration of overall cost and schedule savings from reduced transit times and increased science returns enabled by the unique capabilities of the Space Launch System.

“(h) UTILIZATION REPORT.—

“(1) IN GENERAL.—The Administrator, in consultation with the Secretary of Defense and the Director of National Intelligence, shall prepare a report that addresses the effort and budget required to enable and utilize a cargo variant of the 130-ton Space Launch System configuration described in section 302(c) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18322(c)).

“(2) CONTENTS.—In preparing the report, the Administrator shall—

“(A) consider the technical requirements of the scientific and national security communities related to a cargo variant of the Space Launch System; and

“(B) directly assess the utility and estimated cost savings obtained by using a cargo variant of the Space Launch System for national security and space science missions.

“(3) SUBMISSION TO CONGRESS.—Not later than 180 days after the date of enactment of this Act [Mar. 21, 2017], the Administrator shall submit the report to the appropriate committees of Congress.”

[For definitions of terms used in section 421 of Pub. L. 115–10, set out above, see section 2 of Pub. L. 115–10, set out as a note under section 10101 of this title.]

#### MAINTAINING A BALANCED SPACE SCIENCE PORTFOLIO

Pub. L. 115–10, title V, §501, Mar. 21, 2017, 131 Stat. 48, provided that:

“(a) SENSE OF CONGRESS ON SCIENCE PORTFOLIO.—Congress reaffirms the sense of Congress that—

“(1) a balanced and adequately funded set of activities, consisting of research and analysis grant programs, technology development, suborbital research activities, and small, medium, and large space missions, contributes to a robust and productive science program and serves as a catalyst for innovation and discovery; and

“(2) the Administrator [of the National Aeronautics and Space Administration] should set science priorities by following the guidance provided by the scientific community through the National Academies of Sciences, Engineering, and Medicine’s decadal surveys.

“(b) POLICY.—It is the policy of the United States to ensure, to the extent practicable, a steady cadence of large, medium, and small science missions.”

#### PLANETARY SCIENCE

Pub. L. 115–10, title V, §502, Mar. 21, 2017, 131 Stat. 48, provided that:

“(a) FINDINGS.—Congress finds that—

“(1) Administration [National Aeronautics and Space Administration] support for planetary science is critical to enabling greater understanding of the solar system and the origin of the Earth;

“(2) the United States leads the world in planetary science and can augment its success in that area with appropriate international, academic, and industry partnerships;

“(3) a mix of small, medium, and large planetary science missions is required to sustain a steady cadence of planetary exploration; and

“(4) robotic planetary exploration is a key component of preparing for future human exploration.

“(b) MISSION PRIORITIES.—

“(1) IN GENERAL.—In accordance with the priorities established in the most recent Planetary Science Decadal Survey, the Administrator [of the National Aeronautics and Space Administration] shall ensure, to the greatest extent practicable, the completion of a balanced set of Discovery, New Frontiers, and Flagship missions at the cadence recommended by the most recent Planetary Science Decadal Survey.

“(2) MISSION PRIORITY ADJUSTMENTS.—Consistent with the set of missions described in paragraph (1), and while maintaining the continuity of scientific data and steady development of capabilities and technologies, the Administrator may seek, if necessary, adjustments to mission priorities, schedule, and scope in light of changing budget projections.”

#### EXTRASOLAR PLANET EXPLORATION STRATEGY

Pub. L. 115–10, title V, §508, Mar. 21, 2017, 131 Stat. 50, provided that:

“(a) STRATEGY.—

“(1) IN GENERAL.—The Administrator [of the National Aeronautics and Space Administration] shall enter into an arrangement with the National Academies to develop a science strategy for the study and exploration of extrasolar planets, including the use of the Transiting Exoplanet Survey Satellite, the James Webb Space Telescope, a potential Wide-Field Infrared Survey Telescope mission, or any other telescope, spacecraft, or instrument, as appropriate.

“(2) REQUIREMENTS.—The strategy shall—

“(A) outline key scientific questions;

“(B) identify the most promising research in the field;

“(C) indicate the extent to which the mission priorities in existing decadal surveys address the key extrasolar planet research and exploration goals;

“(D) identify opportunities for coordination with international partners, commercial partners, and not-for-profit partners; and

“(E) make recommendations regarding the activities under subparagraphs (A) through (D), as appropriate.

“(b) USE OF STRATEGY.—The Administrator shall use the strategy—

“(1) to inform roadmaps, strategic plans, and other activities of the Administration [National Aeronautics and Space Administration] as they relate to extrasolar planet research and exploration; and

“(2) to provide a foundation for future activities and initiatives related to extrasolar planet research and exploration.

“(c) REPORT TO CONGRESS.—Not later than 18 months after the date of enactment of this Act [Mar. 21, 2017], the National Academies shall submit to the Administrator and to the appropriate committees of Congress [Committee on Science, Space, and Technology of the House of Representatives and Committee on Com-

merce, Science, and Transportation of the Senate] a report containing the strategy developed under subsection (a).”

#### ASTROBIOLOGY STRATEGY

Pub. L. 115–10, title V, § 509, Mar. 21, 2017, 131 Stat. 50, provided that:

“(a) STRATEGY.—  
“(1) IN GENERAL.—The Administrator [of the National Aeronautics and Space Administration] shall enter into an arrangement with the National Academies to develop a science strategy for astrobiology that would outline key scientific questions, identify the most promising research in the field, and indicate the extent to which the mission priorities in existing decadal surveys address the search for life’s origin, evolution, distribution, and future in the Universe.

“(2) RECOMMENDATIONS.—The strategy shall include recommendations for coordination with international partners.

“(b) USE OF STRATEGY.—The Administrator shall use the strategy developed under subsection (a) in planning and funding research and other activities and initiatives in the field of astrobiology.

“(c) REPORT TO CONGRESS.—Not later than 18 months after the date of enactment of this Act [Mar. 21, 2017], the National Academies shall submit to the Administrator and to the appropriate committees of Congress [Committee on Science, Space, and Technology of the House of Representatives and Committee on Commerce, Science, and Transportation of the Senate] a report containing the strategy developed under subsection (a).”

#### SPACE TECHNOLOGY RESEARCH AND DEVELOPMENT

Pub. L. 115–10, title VII, §§ 701, 702, Mar. 21, 2017, 131 Stat. 56, 57 provided that:

#### “SEC. 701. SPACE TECHNOLOGY INFUSION.

“(a) SENSE OF CONGRESS ON SPACE TECHNOLOGY.—It is the sense of Congress that space technology is critical—

“(1) to developing technologies and capabilities that will make the Administration [National Aeronautics and Space Administration]’s core missions more affordable and more reliable;

“(2) to enabling a new class of Administration missions beyond low-Earth orbit; and

“(3) to improving technological capabilities and promote innovation for the Administration and the Nation.

“(b) SENSE OF CONGRESS ON PROPULSION TECHNOLOGY.—It is the sense of Congress that advancing propulsion technology would improve the efficiency of trips to Mars and could shorten travel time to Mars, reduce astronaut health risks, and reduce radiation exposure, consumables, and mass of materials required for the journey.

“(c) POLICY.—It is the policy of the United States that the Administrator [of the National Aeronautics and Space Administration] shall develop technologies to support the Administration’s core missions, as described in section 2(3) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18301(3)), and support sustained investments in early stage innovation, fundamental research, and technologies to expand the boundaries of the national aerospace enterprise.

“(d) PROPULSION TECHNOLOGIES.—A goal of propulsion technologies developed under subsection (c) shall be to significantly reduce human travel time to Mars.

#### “SEC. 702. SPACE TECHNOLOGY PROGRAM.

“(a) SPACE TECHNOLOGY PROGRAM AUTHORIZED.—The Administrator [of the National Aeronautics and Space Administration] shall conduct a space technology program (referred to in this section as the ‘Program’) to research and develop advanced space technologies that could deliver innovative solutions across the Administration [National Aeronautics and Space Administration]’s space exploration and science missions.

“(b) CONSIDERATIONS.—In conducting the Program, the Administrator shall consider—

“(1) the recommendations of the National Academies’ review of the Administration’s Space Technology roadmaps and priorities; and

“(2) the applicable enabling aspects of the stepping stone approach to exploration under section 70504 of title 51, United States Code.

“(c) REQUIREMENTS.—In conducting the Program, the Administrator shall—

“(1) to the extent practicable, use a competitive process to select research and development projects;

“(2) to the extent practicable and appropriate, use small satellites and the Administration’s suborbital and ground-based platforms to demonstrate space technology concepts and developments; and

“(3) as appropriate, partner with other Federal agencies, universities, private industry, and foreign countries.

“(d) SMALL BUSINESS PROGRAMS.—The Administrator shall organize and manage the Administration’s Small Business Innovation Research Program and Small Business Technology Transfer Program within the Program.

“(e) NONDUPLICATION CERTIFICATION.—The Administrator shall submit a budget for each fiscal year, as transmitted to Congress under section 1105(a) of title 31, United States Code, that avoids duplication of projects, programs, or missions conducted by [the] Program with other projects, programs, or missions conducted by another office or directorate of the Administration.

“(f) COLLABORATION, COORDINATION, AND ALIGNMENT.—

“(1) IN GENERAL.—The Administrator shall—

“(A) ensure that the Administration’s projects, programs, and activities in support of technology research and development of advanced space technologies are fully coordinated and aligned;

“(B) ensure that the results [of] the projects, programs, and activities under subparagraph (A) are shared and leveraged within the Administration; and

“(C) ensure that the organizational responsibility for research and development activities in support of human space exploration not initiated as of the date of enactment of this Act [Mar. 21, 2017] is established on the basis of a sound rationale.

“(2) SENSE OF CONGRESS.—It is the sense of Congress that projects, programs, and missions being conducted by the Human Exploration and Operations Mission Directorate in support of research and development of advanced space technologies and systems focusing on human space exploration should continue in that Directorate.

“(g) REPORT.—Not later than 180 days after the date of enactment of this Act, the Administrator shall provide to the appropriate committees of Congress a report—

“(1) comparing the Administration’s space technology investments with the high-priority technology areas identified by the National Academies in the National Research Council’s report on the Administration’s Space Technology Roadmaps; and

“(2) including—

“(A) identification of how the Administration will address any gaps between the agency’s investments and the recommended technology areas, including a projection of funding requirements; and

“(B) identification of the rationale described in subsection (f)(1)(C).

“(h) ANNUAL REPORT.—The Administrator shall include in the Administration’s annual budget request for each fiscal year the rationale for assigning organizational responsibility for, in the year prior to the budget fiscal year, each initiated project, program, and mission focused on research and development of advanced technologies for human space exploration.”

#### § 20302. Vision for space exploration

(a) IN GENERAL.—The Administrator shall establish a program to develop a sustained human