

DRAFT

COOPERATIVE AGREEMENT

ARTICLE 1 INTRODUCTION, PURPOSE AND OBJECTIVE

1.1 Introduction.

This Cooperative Agreement is awarded pursuant to 51 U.S.C. 20113 (e), the National Aeronautics and Space Act. NASA Goddard Space Flight Center (GSFC) and the Center for Research and Exploration in Heliophysics (CREH) and the “Recipient” agrees that the principal purpose of this Agreement is for the public purpose of transferring of results of federally funded research to the public by the recipient to accomplish a public purpose of support by carrying out basic and applied research in the field of heliophysics in relation to NASA Strategic Goals as described in [SCIENCE 2020-2024: A Vision for Scientific Excellence](#).

1.2 Purpose.

The Goddard “Center for Research and Exploration in Heliophysics (CREH)” and external scientists will cooperatively will carry to the public observational, experimental, and theoretical research in support of NASA’s strategic Heliophysics science objectives relating to:

- a. Heliophysics: the Sun; the interplanetary medium; the magnetosphere; the ionosphere, thermosphere, and mesosphere; other planetary atmospheres and space plasma environments; local interstellar medium and the interactions and couplings among these physical regimes;
- b. The informational and computational science and engineering related to the unique needs of data systems and models required to interpret data from Heliophysics science missions; and
- c. The development of instrument technology and theoretical techniques required to meet these scientific challenges.

This Cooperative Agreement will allow for substantial programmatic involvement in the form of collaboration between GSFC and the “Recipient” as well as joint development of research objectives for the furtherance of the public good. The primary goal is to establish a focused GSFC/research partnership that:

- a. Brings together scientists from the Center for Research and Exploration in Heliophysics and GSFC scientists to implement the NASA strategic goals in Heliophysics science;
- b. Enhances the capabilities and strengths of participating organizations in Heliophysics science;
- c. Provides organization and staffing flexibility to adapt to evolving research program needs;
- d. Attracts superior scientists necessary to carry out programs which would be outside the capabilities of either partner working alone;
- e. Promotes the involvement of minority and women scientists in space science research, for example, via focused programs recruiting undergraduate and graduate students;

- f. Facilitates access to student talent and provides opportunities for their participation in NASA programs; and,
- g. Facilitates interdisciplinary research with other Divisions, such as Astrophysics, Solar System Science, and Earth Science, using Heliophysics research results and models that have applicability to these other disciplines (Strategy 1.3 of the Science 2020-2024: A Vision for Scientific Excellence, “Advance discovery in emerging fields by identifying and exploiting opportunities between traditional scientific disciplines.” Recipient will be responsible for transferring to the public access to the results of federally funded research permitting the education of the public.)

1.3 Objectives

A broad and vigorous space research program in NASA is vital for the advancement of knowledge. Scientists at NASA in collaboration with outside scientists play a key role in conceiving new space missions, providing mission requirements, and achieving research objectives aimed at understanding the Sun-Earth connection, exploring the Solar System origins, and understanding structure and evolution of systems in the universe.

The Center for Research and Exploration in Heliophysics will focus primarily on scientific research. It is expected to strengthen cooperative relationships between educational, not for profit, and government scientists in the Goddard Heliophysics Science Division (Code 670), and will provide a vehicle to increase the involvement of these communities in the pursuit of NASA goals and the public good through increased scientific knowledge to the public.

The science center will conduct research collaboratively with organizational elements within the GSFC Heliophysics Science Division (Code 670). Research may involve analysis of data from operating and past missions, and modeling and design of missions planned or under development. Thus, the Government’s “substantial involvement” in the science center will be the contribution of scientific expertise and data as necessary to efficiently and effectively conduct the research described herein. Thus, the recipients “substantial involvement” in the Center for Research and Exploration in Heliophysics will permit increased scientific knowledge to be shared with the public.

Future research activities will evolve as a function of priorities, budgets, funding opportunities, and success of proposal submissions.

ARTICLE 2 – SCOPE OF AGREEMENT

2.1R HSD Laboratories and Research Objectives

The participating components of Code 670 that will be collaborating with the CREH and areas of research are described in detail in the [GSFC Annual Reports and Plans](#) and outlined below:

Heliophysics Science Division (Code 670)

The Heliophysics Science Division provides scientific leadership to achieve NASA's strategic science goals in solar, heliospheric, magnetospheric, and ionosphere/mesosphere/thermosphere (ITM) physics as well as space weather research. It leads the definition and development of missions in support of these goals and performs research including: solar structure and magnetic activity and evolution thereof, energy buildup and release in solar eruptions, generation of the solar wind, heliospheric structure and dynamics produced by solar disturbances, magnetospheric dynamics, magnetosphere-ionosphere coupling in response to the solar wind, upper atmospheric effects, internal dynamics of the geospace system (including lower atmosphere forcing), and possible effects of the Sun on the Earth's climate. The Division's scientists develop coupled models of the different aspects of the Sun, heliosphere, and interactions of the Sun with Earth and other planets. They also design, propose, and fly state-of-the-art instrumentation in the areas of photon and neutral atom imaging, electric and magnetic fields, and neutral, plasma, and energetic particles. They interact with scientists in other divisions on cross-disciplinary subjects including such topics as exoplanets; planetary exospheres, magnetosphere and atmospheres, and interplanetary meteoroid environments. HSD also develops unique data systems that manage a wide range of heliophysics data to enable rapid access and sophisticated analysis across mission and discipline boundaries for the international space science community. The scientists in the Division interpret and evaluate data gathered from currently operating instruments and archival data, draw comparisons with computer simulations and theoretical models, and publish the results. The Division's education and outreach activities communicate the excitement and societal relevance of NASA's array of operating and future Earth-Sun Exploration missions. The HSD elements participating in the science center are:

Solar Physics Laboratory (671)

The Solar Physics Lab (SPL) leads in the exploration and understanding of the Sun as a star and as the primary driver of activity throughout the solar system. Studies of the Sun are carried out in the gamma-ray, X-ray, EUV (extreme ultraviolet)/UV (ultraviolet) and visible, and radio portions of the spectrum from space observatories (SOHO, Wind, STEREO, SDO, CODEX), sounding rockets (Extreme Ultraviolet Normal Incidence Spectrometer (EUNIS)), balloons Gamma-Ray Imager/Polarimeter for Solar flares (GRIPS) and Balloon-borne Investigation of Temperature and Speed of Electrons (BITSE), and the ground (e.g., National Solar Observatory (NSO), Mauna Loa Solar Observatory (MLSO)). Solar physics research includes studies of solar active regions, coronal holes, the solar corona, solar eruptions and the science of space weather, helioseismology, solar irradiance, and solar magnetic fields (photospheric, chromospheric, and coronal). The Solar Physics Lab conceives and executes investigations that advance knowledge of the Sun-Earth system and enable robotic and human exploration. To facilitate this, the SPL develops innovative instruments and mission concepts, theoretical models, and techniques to access and analyze data. The Laboratory is involved with mission planning and supervision, advanced instrumentation development, experiment participation, data analysis, and theoretical modeling for increased understanding of the basic processes involved. Missions under development include the PUNCH), and CODEX. Missions under study include L5 and L4 observatories, out of the ecliptic/over the pole explorers, and far-side observatories. SPL runs the Solar Data Analysis Center and the CDAW Data Center that make data products from various space missions to enable science return from NASA missions. SPL also hosts the secretariat of

the International Space Weather Initiative (ISWI) that promotes science, capacity building, and outreach activities in space weather.

For more information, please visit <https://science.gsfc.nasa.gov/heliophysics/solar/>

Heliospheric Physics Laboratory (672)

The Heliospheric Physics Lab supports NASA missions designed to provide a better understanding of the composition, structure, and dynamics of the ionized and magnetized media in the heliosphere including the Sun's corona, the solar wind, the local interstellar medium, and their interaction with planetary plasma environments, including comets and other unmagnetized bodies. The Laboratory also focuses on the initiation and evolution of solar wind transients, e.g., interplanetary coronal mass ejections (ICMEs), shocks, co-rotating interaction regions (CIRs), and the acceleration and propagation of energetic particles. Missions in which Laboratory members participate include ACE, DSCOVR, IBEX, Voyagers, Wind, STEREO, Parker Solar Probe, and Solar Orbiter. The Laboratory is involved with mission planning and supervision, advanced instrumentation development, experiment participation, data analysis, and theoretical modeling for increased understanding of the basic processes involved. For more information, please visit <https://science.gsfc.nasa.gov/heliophysics/heliospheric/>.

Geospace Physics Laboratory (673)

The Geospace Physics Laboratory focuses on processes occurring in the magnetospheres of magnetized planets and on the interaction of the solar wind with planetary magnetospheres as well as phenomena, such as magnetofluid turbulence, that permeate the heliosphere from the solar atmosphere to the edge of the solar system. The Geospace Laboratory boasts a diversity of areas of expertise including theory, modeling and simulations; mission support; and instrument development fostering the conception and development of missions to observe plasma phenomena throughout geospace, other planetary magnetospheres, and the heliosphere, including smallsat and CubeSat missions. The Laboratory develops improved instrumentation and theoretical models to investigate plasma processes. It establishes partnerships throughout the international science community, providing data access, analysis tools, and user support. Scientists in the Geospace Laboratory play key roles in a vast array of Science Mission Directorate (SMD) missions, including Wind, Voyager, THEMIS, Messenger, MMS, TWINS, IBEX, ACE, DSCOVR, Solar Orbiter, and many other NASA missions.

For more information, please visit <https://science.gsfc.nasa.gov/heliophysics/geospace/>.

Space Weather Laboratory (674)

The Space Weather Laboratory (SWL) undertakes data analysis, theoretical, and modeling studies of the causal chain of events that lead to space weather effects of interest to NASA, other US government agencies, and the general public. For this purpose, SWL maintains a world-class space environment research program, including leadership roles in the development of space environment theories and models and soft X-ray imaging instrumentation for geospace applications. Many SWL activities are pursued through partnerships with the heliophysics and space-weather communities' worldwide, Federal agencies, industry, academia, and international

organizations. SWL staff play active roles in the development of space environment missions, analysis and visualization tools, and state-of-the-art computational models. SWL communicates NASA research results to the scientific community, to various space-weather end users, and to the general public. The SWL also supports strategic planning activities at NASA, other government agencies, and international organizations (e.g., COSPAR).

For more information, please visit <https://science.gsfc.nasa.gov/heliophysics/spaceweather/>.

Ionosphere, Thermosphere, Mesosphere (ITM) Physics Lab (675)

The **Ionosphere, Thermosphere, Mesosphere Physics Laboratory** works to understand the complex dynamics and chemistry of the middle and upper atmosphere (above 50 km altitude), including its internal dynamics, electrodynamics, and chemistry, and also its tight coupling to the magnetosphere and lower atmosphere, as well as its response to variations in direct solar forcing and the influence of extraterrestrial sources such as meteoroid influx. ITM Lab research expands knowledge of our home planet, including a region that is the “home” of space weather effects. Lab research uses this accessible natural laboratory to study fundamental phenomena of rarefied gases, plasma-gas interactions, neutral dynamics and plasma electrodynamics that are universal and apply to bodies in our Solar System as well as exoplanets. The ITM Lab conceives, develops, and supports ground-based, suborbital and space-borne missions to observe gas and plasma dynamics throughout this region. The Laboratory develops improved instrumentation, theoretical models, and data analysis techniques to investigate neutral and electrodynamic processes. Lab personnel establish and support partnerships throughout the international science community, communicating research results, and providing data access and analysis techniques and tools.

For more information, please visit <https://science.gsfc.nasa.gov/heliophysics/itmphysics/>.

Heliophysics Data and Modeling Centers and Final Archives

The Solar Data Analysis Center (SDAC, <https://umbra.nascom.nasa.gov>) and the Space Physics Data Facility (SPDF, <https://spdf.gsfc.nasa.gov>) are the NASA archives for heliophysics data, as well as centers for excellence in providing multi-project, cross-disciplinary access to data and tools to support the broad range of science possible with present and past missions. They also produce and maintain other critical Heliophysics Data Environment (HPDE) components such as the Common Data Format (CDF) software for making and using files in a self-documenting format and the SolarSoft set of routines for solar data analysis, and the Virtual Solar Observatory (VSO) for solar data access. The SPDF and SDAC are responsible for ensuring the capture, accessibility, and preservation of legacy data from NASA Heliophysics missions.

The Community Coordinated Modeling Center (CCMC) was established as a strategic investment into the National Space Weather Program with two main goals: 1) to facilitate research and model development to advance understanding; 2) to support the transition of research models to space weather operations. The needs of CCMC science customers are primarily met through the CCMC-developed Runs-on-Request system, which allows the execution of space plasma simulations via the Internet upon customer request. The CCMC’s web

site provides users with access to an expanding collection of often competing models and model combinations covering the entire domain from the solar corona to Earth's upper atmosphere. For every request, the CCMC configures the model, execute the simulation, and provide the user with science-quality visualizations of the run results, as well as archived output for future analyses.

The CCMC evaluates the impact on performance and robustness when new features are incorporated into existing operational models and demonstrates their usefulness and readiness for operational model use. The CCMC's real-time systems, displays for space weather situational awareness/prediction and for taking proper actions, databases and knowledge base populated in real-time (such as the integrated Space Weather Analysis system (iSWA), Database of Notifications, Knowledge Information (DONKI), validation scoreboards) serve as a showroom for demonstrating the operational potential of models, tools, applications, procedures, and forecasting techniques to operational agencies. For more information see <https://ccmc.gsfc.nasa.gov/>.

2.2 Research Activities during the Cooperative Agreement

The specific research activities of the Goddard Heliophysics Science Division will depend on the success rate of the Goddard civil servants, in concert with the scientists of the CREH, in submitting winning proposals to NASA Headquarters. As the description of HSD activities above demonstrates, the HSD brings a wide range of potential resources to a collaborative science center and the CREH will pursue proposal opportunities in these areas.

2.3 External Proposals by Heliophysics Science Center scientists

CREH scientists will be encouraged to seek funding from other NASA programs and other non-NASA sources, following Heliophysics Science Division policy and procedures.

These include:

- Proposals submitted by CREH under the cooperative agreement must be relevant to NASA, GSFC, and HSD strategic goals;
- Any requirements for on-site space, facilities, or other resources must be approved by the HSD in advance;
- Funding for GSFC institutional costs must be included in the proposal, and arrangements must be made to transfer the funds to GSFC;
- Any proposal requiring a substantial commitment from GSFC (e.g., instrument, balloon or sounding rocket payload development) must be coordinated with the GSFC New Business process through the HSD.

3.0 ARTICLE 3

3.1 PROGRAM MANAGEMENT

The recipient shall have an efficient management structure that allows for planning research activities with GSFC scientists; identifying, recruiting, and retaining quality research staff; and for allocating and managing research work among team members. The recipient shall also be responsible for on-boarding scientists by completing and disseminating forms and entering scientists into the NASA system for badging.

3.2 GENERAL DEFINITION

Recipient -- An organization or other entity receiving a grant or cooperative agreement. For purposes of this agreement, the "Recipient" is the organization signing the cover page of this document.

Party -- For purposes of this Agreement, the parties to this agreement are GSFC and the Recipient.

Cooperative Agreement Technical Officer (CATO)-- The Government's technical representative from GSFC charged with the oversight of the cooperative agreement.

Agreement Administrator -- The Government's principal point of contact for all administrative, financial or other non-technical issues arising under the Agreement. Unless stated otherwise, the Agreement Administrator is the Grants Officer.

Research Milestones -- Performance goals are collaboratively developed by the Government and the Recipient as a part of the annual research program planning process. Accomplishment of research milestones shall be reflected in quarterly technical status reports and shall be used by the CATO as a metric to monitor the Recipient's use of best efforts towards attaining the research objectives.

Amendment -- any document used to effect modifications to this agreement.

Contract or Contractor - Any reference to the words "contract" or "Contractor" shall be mean "award" or "recipient," respectively.

Federal Agency, agency, or funding Federal agency - The term "Federal Agency," "agency," or "funding Federal agency" shall be replaced by the term "NASA."

3.3 PROGRAM MANAGEMENT PLANNING PROCESS.

The Recipient and GSFC researchers will jointly prepare an Annual Research Program Plan (ARPP). The ARPP will provide a detailed plan of research activities (including key personnel, staff rotation, facilities, allocation of resources and research milestones) that requires the Recipient to use its best efforts to meet specific research objectives. During the course of performance, if it appears that research goals or research milestones will not be met, the Recipient will provide a proposed adjustment in accordance with Article 3.4 Agreement Administration. In addition, the Grants Officer may from time to time request that additional research areas be added to the ARPP within the scope of this Agreement.

GSFC will conduct an annual program review that shall be held to evaluate performance against the current ARPP and review the proposed ARPP for the next year. The Grants Officer, in conjunction with the CATO, will approve the next year's ARPP and revised budget for each year. The ARPP negotiated between GSFC and the Recipient will be included in this agreement only through formal amendments to this agreement. The annual budget shall be submitted in 30 days after contract award as specified in Attachment 1.

3.4. AGREEMENT ADMINISTRATION

3.4.1 AMENDMENTS TO THIS AGREEMENT.

Any Party who wishes to modify this Agreement shall, upon reasonable notice of the proposed amendment to the other Party shall confer in good faith with the other party to determine the desirability of the proposed amendments. Amendments shall not be effective until both parties sign the amendment. The Grants Officer may unilaterally execute administrative amendments.

3.4.2 REQUIREMENTS FOR APPROVAL FOR CHANGES TO THE ANNUAL RESEARCH PROGRAM PLAN.

During the course of performance, the Grants Officer, in coordination with the Cooperative Agreement Technical Officer (CATO), will have approval authority for certain specific changes to the Annual Research Program Plan proposed by the recipient, including but not limited to:

- a. changes to the Plan if such changes alter the relationship of the parties as originally agreed upon;
- b. solicitation or acceptance of funding by the recipient from sources other than GSFC; [notice required, not approval]
- c. changes of recipient members;
- d. changes to the research goals or milestones.

3.4.3 REQUIREMENTS FOR PRIOR APPROVALS.

Recipient shall request prior approval from the Grants Officer, in coordination with the CATO, for changes to the implementation approach of this Agreement, for one or more of the following program or budget related reasons:

- a. A change in the scope or the objective of the project or program (even if there is no associated budget revision requiring prior written approval);
- b. The absence for more than 3 months, or a 25 percent reduction in time devoted to the project, by the approved program manager or principal investigator;
- c. The transfer of amounts budgeted for indirect costs to absorb increases in direct costs, or vice versa.

- d. The inclusion, unless waived by the Federal awarding agency, of costs that require prior approval in accordance with Subpart E—Cost Principles of this part or 45 CFR part 75 Appendix IX, “Principles for Determining Costs Applicable to Research and Development under Awards and Contracts with Hospitals,” or 48 CFR part 31, “Contract Cost Principles and Procedures,” as applicable”
- e. The transfer of funds allotted for training allowances (direct payment to trainees) to other categories of expense.
- f. The subaward, transfer or contracting out of substantive program performance under this agreement; however, this does not apply to the purchase of supplies, material, equipment or general support services unless approval is otherwise required by regulation or circular.
- g. A “no-cost” extension of the project period that does not require additional Federal funds and does not change the approved objectives or scope of the project.

3.5 ADMINISTRATION AND AUDIT RESPONSIBILITY

The Agreements Office

NASA, Goddard Space Flight Center
Attn: Grants Officer/Code **TBD**
Building **TBD**, Room **TBD**
Greenbelt, MD 20711

NASA, Goddard Space Flight Center
Attn: **TBD**, CATO/Code 670
Building **TBD**, Room **TBD** Greenbelt, MD 20711

The Agreements Administration Office

NASA, Goddard Space Flight Center
Attn: **TBD**/Code **TBD**
Building **TBD**, Rm. **TBD**
Greenbelt, MD 20711

The Recipient Address and Point of Contact

TBD
Attn: **TBD**
Address: **TBD**
Phone: **TBD**

The Government Audit Agency

TBD

The Payment Office

**NASA/Shared Service Center (NSSC)
Accounts Payable, Bldg. 111
Jerry Hlass Road
Stennis Space Center, MS 39539-0001**

3.6 SPECIAL PROGRAMS

3.6.1 VISITING SCIENTISTS

When research objectives require unique science discipline expertise or partnership with other organizations, the CREH may be expected to support the identification, recruitment, and selection of potential collaborative partners, including:

1. Recruiting scientists in specialty disciplines for specific research projects;
2. Providing positions for scientists from other organizations to team with GSFC scientists on proposals for new initiatives.

The CREH will as appropriate and as needed establish Visiting Scientist positions, including:

- arrangement of salaries with home institutions;
- arrangement of travel;
- arranging for and coordinating visas;
- assisting with green card applications;
- arranging access to the Center through GSFC Security; and
- providing other logistical support as needed.

The positions must be approved in advance by HSD, with the needs and attributes jointly developed by the recipient with HSD.

3.6.2 POST-DOCTORAL RESEARCHES AND GRADUATE STUDENTS

The Heliophysics Science Center will support the recruitment (which may include advertising in journals, setting up booths at conferences, and visiting minority institutions) and selection of post-doctoral researchers and graduate students where appropriate for specific research tasks. Objectives of positions could include:

- Providing research opportunities for high potential recent doctoral graduates to develop candidates for future research positions in NASA and university programs;

- Maintaining a graduate student program to attract high potential students to participate in science center research activities;
- Providing research opportunities for and actively recruiting high potential post-doctoral researchers and students from under-represented groups to broaden the diversity of the hiring pool for future space science research positions;
- Providing science research, engineering, computer science, technician, or other technical expertise (especially in the area of heliophysics) needed to directly support research activities;
- Proposal development/writing support for post-doctoral and other researchers at the CREH including budget preparation and interface with proposal submission websites such as NSPIRES or Grants.gov.
- Providing travel support, mentoring, and career advancement training.

The positions must be approved in advance by HSD, with the needs and attributes jointly developed by the recipient with HSD.

3.6.3 SHORT-TERM VISITORS, WORKSHOPS, CONFERENCES, SEMINARS, AND SUMMER SCHOOLS

The CREH will support short-term visitors (up to a year) for collaboration, presentation of seminars, and program coordination. The CREH will arrange travel, center access, and other support as needed for selected researchers to participate in on-site and field activities with science center colleagues.

The CREH will also conduct workshops, conferences, and other special events. This may include summer programs for undergraduate and graduate students organized by the science center.

ARTICLE 4 FACILITIES

The facilities to be used for this Agreement are: GSFC Office and laboratory space determined for work performed under the CREH based on approved research funding. Recipient should propose an approach for location of CREH researchers if not on-site at GSFC, and for use of any laboratory capabilities that could complement and extend the research capability at Goddard.

For science center personnel proposed to work on-site at GSFC, GSFC may provide office space, telephone connections, and office supplies. Additionally, GSFC will provide existing on-site computer capabilities if available.

The CREH will provide on-site personnel with computing capabilities necessary to conduct research if such facilities are not available at GSFC. In accordance with the NASA Grant and Cooperative Agreement Manual, costs for the purchase of equipment will be permitted under the cooperative agreement only if it is determined that the equipment is technical in nature and relevant to the research being conducted.

Government property will not be provided to the CREH for use off-site unless required to perform approved research activities of limited duration and approved by GSFC/HSD in advance. The science center management will ensure that all Government property is managed following NASA/GSFC property management policy and procedures.

ARTICLE 5 AWARD TERMS AND CONDITIONS

The requirements in 2 CFR 170, 175, and 182 listed below are hereby incorporated by reference.

- a. 2 CFR Part 170, Reporting Subaward and Executive Compensation Information;
- b. 2 CFR Part 175, Award Term for Trafficking in Persons; and
- c. 2 CFR 182, Government-wide requirements for Drug-Free Workplace.

This award is subject to the requirements set forth in 2 CFR part 200, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal awards as adopted by NASA in Part 1800 of Title 2 of the Code of Federal Regulations. Specific terms and conditions set forth in this award document are provided to supplement and clarify, not replace, the OMB Uniform Guidance, except in circumstances where a waiver from OMB Uniform Guidance requirements has been obtained by NASA.

The following Terms and Conditions in Appendix D of the GCAM are hereby incorporated by reference and made part of this agreement:

- D1. Compliance with OMB Guidance on Uniform Administrative Requirements, Cost Principles and Audit Requirements for Federal Awards (Oct. 13, 2015)**
- D.2 Technical Publications and Reports**
- D.3 Extensions**
- D.4 Termination and Enforcement**
- D.5 Change in Principal Investigator or scope**
- D.6 Financial Management**
- D.7 Equipment and other Property**
- D.8 Patent Rights**

- D.9 Rights in Data**
- D.10 National Security**
- D.11 Non-Discrimination**
- D.12 Clean Air and Water**
- D.13 Investigative Requirements**
- D.14 Travel and Transportation**
- D.15 Safety**
- D.16 Buy American Encouragement**
- D.17 Investigation and Research Misconduct**
- D.18 Allocation of Risk/Liability**

D19. COOPERATIVE AGREEMENT

(a) This award is a cooperative agreement and it is anticipated there will be substantial NASA involvement during performance of the effort. NASA and the recipient mutually agree to the following statement of anticipated cooperative interactions which may occur during the performance of this effort -

(Reference the approved proposal that contains a detailed description of the work and insert a concise statement of the exact nature of the cooperative interactions NASA and the recipient will provide.)

(b) The terms “award” and “recipient” mean “cooperative agreement” and “recipient of cooperative agreement,” respectively, wherever the language appears in terms and conditions included in this agreement.

(c) NASA's ability to participate and perform its collaborative effort under this cooperative agreement is subject to the availability of appropriated funds and nothing in this cooperative agreement commits the United States Congress to appropriate funds therefore.

(End of Term and Condition)

D20. MULTIPLE YEAR AWARD

Multiple Year Award

This is a multiple-year award contingent on the availability of funds, scientific progress of the project, and continued relevance to NASA programs. NASA anticipates continuing support at approximately the following levels –

First year \$TBD, Anticipated funding date.

Second year \$TBD , Anticipated funding date .

Third year \$TBD , Anticipated funding date .

Fourth year \$TBD, Anticipated funding date
Fifth year \$TBD , Anticipated funding Date

(End of Term and Condition)

D21. INCREMENTAL FUNDING

(a) Only \$TBD of the amount indicated on the face of this award is available for payment and allotted to this award. NASA contemplates making additional allotments of funds during performance of this effort. It is anticipated that these funds will be obligated as appropriated funds become available without any action required by the recipient. The recipient will be given written notification by the NASA Grant Officer.

(b) The recipient agrees to perform work up to the point at which the total amount paid or payable by the Government approximates but does not exceed the total amount actually allotted to this award. NASA is not obligated to reimburse the recipient for the expenditure of amounts in excess of the total funds allotted by NASA to this grant or cooperative agreement. The recipient is not authorized to continue performance beyond the amount allotted to this award.

Special Note - Balance is contingent on availability of funds. The remaining balance to fully fund this year is \$TBD.

(End of Term and Condition)

D22. COST SHARING

Cost sharing is not required; however, NASA can accept cost sharing if it is voluntarily offered, in accordance with the guidelines set forth in the Grant cooperative Agreement Manual at Section C.2- Appendix A.

(End of Term and Condition)

D23. NEW TECHNOLOGY

(a) Definitions.

Administrator, as used in this term and condition means the Administrator of the National Aeronautics and Space Administration (NASA) or duly authorized representative.

The term “award,” as used in this term and condition, means any actual or proposed grant, cooperative agreement, understanding, or other arrangement, and includes any assignment, substitution of parties, subaward, or subcontract executed or entered into thereunder.

Made, as used in this term and condition, means conception or first actual reduction to practice; provided, that in the case of a variety of plant, the date of determination (as defined in section 41(d) of the Plant Variety Protection Act, 7 U.S.C. 2401(d)) must also occur during the period of performance.

Nonprofit organization, as used in this term and condition, means a domestic university or other institution of higher education or an organization of the type described in section 501(c) (3) of the Internal Revenue Code of 1954 (26 U.S.C. 501(c)) and exempt from taxation under section 501(a) of the Internal Revenue Code (26 U.S.C. 501(a)), or any domestic nonprofit scientific or educational organization qualified under a State nonprofit organization statute.

Practical application, as used in this term and condition, means to manufacture, in the case of a composition or product; to practice, in the case of a process or method; or to operate, in case of a machine or system; and, in each case, under such conditions as to establish that the invention is being utilized and that its benefits are, to the extent permitted by law or Government regulations, available to the public on reasonable terms.

Reportable item, as used in this term and condition, means any invention, discovery, improvement, or innovation of the awardee, whether or not patentable or otherwise protectable under Title 35 of the United States Code, made in the performance of any work under any NASA award or in the performance of any work that is reimbursable under any term and condition in any NASA award providing for reimbursement of costs incurred before the effective date of the award. Reportable items include, but are not limited to, new processes, machines, manufactures, and compositions of matter, and improvements to, or new applications of, existing processes, machines, manufactures, and compositions of matter. Reportable items also include new computer programs, and improvements to, or new applications of, existing computer programs, whether or not copyrightable or otherwise protectable under Title 17 of the United States Code.

Small business firm, as used in this term and condition, means a domestic small business concern as defined at 15 U.S.C. 632 and implementing regulations (see 13 CFR 121.401*et seq.*) of the Administrator of the Small Business Administration.

Subject invention, as used in this term and condition, means any reportable item which is or may be patentable or otherwise protectable under Title 35 of the United States Code, or any novel variety of plant that is or may be protectable under the Plant Variety Protection Act (7 U.S.C. 2321*et seq.*).

(b) Allocation of principal rights.

(1) Presumption of title. (i) Any reportable item that the Administrator considers to be a subject invention shall be presumed to have been made in the manner specified in paragraph (A) or (B) of section 20135(b)(1) of the National Aeronautics and Space Act of 1958 (51 U.S.C. 20135) (hereinafter called “the Act”), and that presumption shall be conclusive unless at the time of reporting the reportable item the recipient submits to the Grant Officer a written statement, containing supporting details, demonstrating that the reportable item was not made in the manner specified in paragraph (A) or (B) of section 20135(b)(1) of the Act.

(ii) Regardless of whether title to a given subject invention would otherwise be subject to an advance waiver or is the subject of a petition for waiver, the recipient may nevertheless file the statement described in paragraph (b)(1)(i) of this term and condition. The Administrator will

review the information furnished by the recipient in any such statement and any other available information relating to the circumstances surrounding the making of the subject invention and will notify the recipient whether the Administrator has determined that the subject invention was made in the manner specified in paragraph (A) or (B) of section 20135(b) (1) of the Act.

(2) Property rights in subject inventions. Each subject invention for which the presumption of paragraph (b)(1)(i) of this term and condition is conclusive or for which there has been a determination that it was made in the manner specified in paragraph (A) or (B) of section 20135(b)(1) of the Act shall be the exclusive property of the United States as represented by NASA unless the Administrator waives all or any part of the rights of the United States, as provided in paragraph (b)(3) of this term and condition.

(3) Waiver of rights.

(i) Section 20135(g) of the Act provides for the promulgation of regulations by which the Administrator may waive the rights of the United States with respect to any invention or class of inventions made or that may be made under conditions specified in paragraph (A) or (B) of section 20135(b)(1) of the Act.

(ii) As provided in 14 CFR part 1245, subpart 1, recipients may petition, either prior to execution of the award or within 30 days after execution of the award, for advance waiver of rights to any or all of the inventions that may be made under an award. If such a petition is not submitted, or if after submission it is denied, the recipient (or an employee inventor of the recipient) may petition for waiver of rights to an identified subject invention within eight months of first disclosure of the invention in accordance with paragraph (e) (2) of this term and condition, or within such longer period as may be authorized in accordance with 14 CFR 1245.105.

(c) Minimum rights reserved by the Government.

(1) With respect to each subject invention for which a waiver of rights is applicable in accordance with 14 CFR part 1245, subpart 1, the Government reserves –

(i) An irrevocable, nonexclusive, nontransferable, royalty-free license for the practice of such invention throughout the world by or on behalf of the United States or any foreign government in accordance with any treaty or agreement with the United States; and

(ii) Such other rights as stated in 14 CFR 1245.107.

(2) Nothing contained in this paragraph (c) shall be considered to grant to the Government any rights with respect to any invention other than a subject invention.

(d) Minimum rights to the Recipient.

(1) The recipient is hereby granted a revocable, nonexclusive, royalty-free license in each patent application filed in any country on a subject invention and any resulting patent in which the Government acquires title, unless the recipient fails to disclose the subject invention within the times specified in paragraph (e)(2) of this term and condition. The recipient's license extends to its domestic subsidiaries and affiliates, if any, within the corporate structure of which the

recipient is a party and includes the right to grant sublicenses of the same scope to the extent the recipient was legally obligated to do so at the time the award was issued. The license is transferable only with the approval of the Administrator except when transferred to the successor of that part of the recipient's business to which the invention pertains.

(2) The recipient's domestic license may be revoked or modified by the Administrator to the extent necessary to achieve expeditious practical application of the subject invention pursuant to an application for an exclusive license submitted in accordance with 37 CFR part 404, Licensing of Government Owned Inventions. This license will not be revoked in that field of use or the geographical areas in which the recipient has achieved practical application and continues to make the benefits of the invention reasonably accessible to the public. The license in any foreign country may be revoked or modified at the discretion of the Administrator to the extent the recipient, its licensees, or its domestic subsidiaries or affiliates have failed to achieve practical application in that foreign country.

(3) Before revocation or modification of the license, the recipient will be provided a written notice of the Administrator's intention to revoke or modify the license, and the recipient will be allowed 30 days (or such other time as may be authorized by the Administrator for good cause shown by the recipient) after the notice to show cause why the license should not be revoked or modified. The recipient has the right to appeal to the Administrator any decision concerning the revocation or modification of its license.

(e) Invention identification, disclosures, and reports.

(1) The recipient shall establish and maintain active and effective procedures to assure that reportable items are promptly identified and disclosed to recipient personnel responsible for the administration of this New Technology term and condition within six months of conception and/or first actual reduction to practice, whichever occurs first in the performance of work under this award. These procedures shall include the maintenance of laboratory notebooks or equivalent records and other records as are reasonably necessary to document the conception and/or the first actual reduction to practice of the reportable items, and records that show that the procedures for identifying and disclosing reportable items are followed. Upon request, the recipient shall furnish the Grant Officer a description of such procedures for evaluation and for determination as to their effectiveness.

(2) The recipient will disclose each reportable item to the New Technology Representative, with notice to the Grant Officer, within two months after the inventor discloses it in writing to recipient personnel responsible for the administration of this New Technology term and condition or, if earlier, within six months after the recipient becomes aware that a reportable item has been made, but in any event for subject inventions before any on sale, public use, or publication of such invention known to the recipient. The disclosure to the agency shall be in the form of a written report and shall identify the award under which the reportable item was made and the inventor(s) or innovator(s). It shall be sufficiently complete in technical detail to convey a clear understanding, to the extent known at the time of the disclosure, of the nature, purpose, operation, and physical, chemical, biological, or electrical characteristics of the reportable item. The disclosure shall also identify any publication, on sale, or public use of any subject invention and whether a manuscript describing such invention has been submitted for publication and, if so, whether it has been accepted for publication at the time of disclosure. In addition, after

disclosure to the agency, the recipient will promptly notify the agency of the acceptance of any manuscript describing a subject invention for publication or of any on sale or public use planned by the recipient for such invention.

(3) The recipient shall furnish the New Technology Representative, with notice to the Grants Officer, the following:

(i) Interim new technology summary reports every 12 months from the date of the award, listing reportable items during that period, and certifying that all reportable items have been disclosed (or that there are no such inventions) and that the procedures required by paragraph (e)(1) of this term and condition have been followed.

(ii) A final new technology summary report within 90 days after the end of the period of performance, listing all reportable items or certifying that there were no such reportable items, and listing all research subawardees/subcontractors at any tier containing a patent rights clause or certifying that there were no such subcontractors.

(4) The recipient agrees, upon written request of the Patent Representative, to furnish additional technical and other information available to the recipient as is necessary for the preparation of a patent application on a subject invention and for the prosecution of the patent application, and to execute all papers necessary to file patent applications on subject inventions and to establish the Government's rights in the subject inventions.

(5) The recipient agrees, subject to 5(a) below, the Government may duplicate and disclose subject invention disclosures and all other reports and papers furnished or required to be furnished pursuant to this term and condition.

(a) Publishing information concerning an invention before a patent application is filed on a subject invention may create a bar to a valid patent. To avoid this bar, agencies may withhold information from the public that discloses any invention in which the Government owns or may own a right, title, or interest (including a nonexclusive license) (see 35 U.S.C. 205 and 3737 CFR part 401). Agencies may only withhold information concerning inventions for a reasonable time in order for a patent application to be filed. Once filed in any patent office, agencies are not required to release copies of any document that is a part of a patent application for those subject inventions.

(f) Examination of records relating to inventions.

(1) The Grant Officer or any authorized representative shall, until 3 years after final payment under this award, have the right to examine any books (including laboratory notebooks), records, and documents of the recipient relating to the conception or first actual reduction to practice of inventions in the same field of technology as the work under this award to determine whether –

(i) Any such inventions are subject inventions;

(ii) The recipient has established and maintained the procedures required by paragraph (e)(1) of this term and condition; and

(iii) The recipient and its inventors have complied with the procedures.

(2) If the New Technology Representative or Patent Representative learns of an unreported recipient invention, the recipient may be required to disclose the invention to the agency for a determination of ownership rights.

(3) Any examination of records under this paragraph will be subject to appropriate conditions to protect the confidentiality of the information involved.

(h) Subawards/Subcontracts.

(1) Unless otherwise authorized or directed by the Grant Officer, the recipient shall –

(i) Include the clause at NASA FAR Supplement (NFS) 1852.227-70, New Technology, (suitably modified to identify the parties) in any subaward/subcontract hereunder (regardless of tier) with other than a small business firm or nonprofit organization for the performance of experimental, developmental, or research work; and

(ii) Include the FAR clause 52.227-11, as modified by the NASA FAR Supplement (NFS) 1852.227-11, “Patent Right-Retention by the Recipient (Short Form)” (suitably modified to identify the parties) in any subaward/subcontract hereunder (regardless of tier) with a small business firm or nonprofit organization for the performance of experimental, developmental, or research work.

(2) In the event of a refusal by a prospective subrecipient to accept such a clause the recipient -

(i) Shall promptly submit a written notice to the Grant Officer setting forth the subrecipient's reasons for such refusal and other pertinent information that may expedite disposition of the matter; and

(ii) Shall not proceed with such subaward/subcontract without the written authorization of the Grant Officer.

(3) The recipient shall promptly notify the Grant Officer in writing upon the award of any subaward/subcontract at any tier containing a patent rights clause by identifying the subrecipient, the applicable patent rights term and condition/clause, the work to be performed under the subrecipient and the dates of award and estimated completion. Upon request of the Grant Officer, the recipient shall furnish a copy of such subaward/subcontract, and, no more frequently than annually, a listing of the subawards/subcontracts that have been awarded.

(4) The subrecipient will retain all rights provided for the recipient in paragraph (h)(1)(i) or (ii) of this term and condition, whichever is included in the subaward/subcontracts, and the recipient will not, as part of the consideration for awarding the subaward/subcontract, obtain rights in the subrecipients's subject inventions.

(i) Preference for United States industry. Unless provided otherwise, no recipient that receives title to any subject invention and no assignee of any such recipient shall grant to any person the exclusive right to use or sell any subject invention in the United States unless such person agrees that any products embodying the subject invention will be manufactured substantially in the United States. However, in individual cases, the

requirement may be waived by the Administrator upon a showing by the recipient or assignee that reasonable but unsuccessful efforts have been made to grant licenses on similar terms to potential licensees that would be likely to manufacture substantially in the United States or that under the circumstances domestic manufacture is not commercially feasible.

(End of Term and Condition)

D24. DESIGNATION OF NEW TECHNOLOGY REPRESENTATIVE AND PATENT REPRESENTATIVE

Prescription - The Grant Officer shall include this term and condition all awards containing the term and condition “Patent Rights” in Appendix D8 or the term and condition “New Technology” in Appendix D23.

Designation of New Technology Representative and Patent Representative

(a) For purposes of administration of the term and condition entitled “New Technology,” or “Patent Rights” whichever is included, the following named representatives are hereby designated by the Grant Officer to administer such term and condition -

- New Technology Representative
- Patent Representative

(b) Reports of reportable items, and disclosure of subject inventions, interim reports, final reports, utilization reports, and other reports required by the term and condition, as well as any correspondence with respect to such matters, should be directed to the New Technology Representative, with notification to the Grant Officer, unless transmitted in response to correspondence or request from the Patent Representative. Inquires or requests regarding disposition of rights, election of rights, or related matters should be directed to the Patent Representative. This term and condition shall be included in any subaward/subcontract hereunder requiring a “New Technology” term and condition or “Patent Rights - Retention by the Contractor (Short Form)” term and condition unless otherwise authorized or directed by the Grant Officer. The respective responsibilities and authorities of the above named representatives are set forth in the Grants and Cooperative Agreement Manual.

(End of Term and Condition)

D25. EQUIPMENT AND OTHER PROPERTY UNDER AWARDS WITH COMMERCIAL FIRMS

(a) This award permits acquisition of special purpose equipment required for the conduct of research. Acquisition of special purpose equipment costing in excess of \$5,000 and not included in the approved proposal budget requires the prior approval of the Grant Officer unless the item is merely a different model of an item shown in the approved proposal budget.

- (b) Recipients may not purchase, as a direct cost to the award, items of general-purpose equipment, examples of which include but are not limited to office equipment and furnishings, air conditioning equipment, reproduction and printing equipment, motor vehicles, and automatic data processing equipment. If the recipient requests an exception, the recipient shall submit a written request for Grant Officer approval, prior to purchase by the recipient, stating why the recipient cannot charge the general-purpose equipment to indirect costs.
- (c) Under no circumstances shall award funds be used to acquire land or any interest therein, to acquire or construct facilities (as defined in 48 CFR (FAR) 45.301), or to procure passenger carrying vehicles.
- (d) The Government shall have title to equipment and other personal property acquired with Government funds. Such property shall be disposed of pursuant to 48 CFR (FAR) 45.603.
- (e) Title to Government furnished equipment (including equipment, title to which has been transferred to the Government prior to completion of the work) will remain with the Government.
- (f) The recipient shall establish and maintain property management standards for Government property and otherwise manage such property as set forth in 48 CFR (FAR) 45.5 and 48 CFR (NFS) 1845.5.
- (g) Recipients shall submit annually a NASA Form 1018, NASA Property in the Custody of Contractors, in accordance with the instructions on the form, the provisions of 48 CFR (NFS) 1845.71 and any supplemental instructions that may be issued by NASA for the current reporting period.

The original NF 1018 shall be submitted to the Center Deputy Chief Financial Officer (Finance) with three copies sent concurrently to the Center Industrial Property Officer. The annual reporting period shall be from October 1 of each year through September 30 of the following year. The report shall be submitted in time to be received by October 15. Negative reports (*i.e.* no reportable property) are required. The information contained in the reports is entered into the NASA accounting system to reflect current asset values for agency financial statement purposes. Therefore, it is essential that required reports be received no later than October 15. A final report is required within 30 days after the end of the period of performance.

- (h) The requirements set forth in this term and condition supersedes award term and condition in Appendix D7, Equipment and Other Property.

(End of Term and Condition)

D26. LISTING OF REPORTABLE EQUIPMENT AND OTHER PROPERTY

- (a) Title to Federally-owned property provided to the recipient remains vested in the Federal Government, and shall be managed in accordance with § 200.312. The following items of Federally-owned property are being provided to the recipient for use in performance of the work under this award -

Not applicable.

(b) The following specific items of equipment acquired by the recipient have been identified by NASA for transfer of title to the Government when no longer required for performance under this award. This equipment will be managed in accordance with 200.313, and shall be transferred to NASA or NASA's designee in accordance with the procedures set forth at 200.313(e) -

Not applicable.

(End of Term and Condition)

D28. ELECTRONIC FUNDS TRANSFER PAYMENT METHODS

(a) Payments under this award will be made by the Government by electronic funds transfer through the Treasury Fedline Payment System (FEDLINE) or the Automated Clearing House (ACH), at the option of the Government. After award, but no later than 14 days before an invoice is submitted, the recipient shall designate a financial institution for receipt of electronic funds transfer payments and shall submit this designation to the Grant Officer or other Government official, as directed.

(b) For payment through FEDLINE, the recipient shall provide the following information:

- (1) Name, address, and telegraphic abbreviation of the financial institution receiving payment.
- (2) The American Bankers Association 9-digit identifying number for wire transfers of the financing institution receiving payment if the institution has access to the Federal Reserve Communication System.
- (3) Payee's account number at the financial institution where funds are to be transferred.
- (4) If the financial institution does not have access to the Federal Reserve Communications System, name, address, and telegraphic abbreviation of the correspondent financial institution through which the financial institution receiving payment obtains wire transfer activity. Provide the telegraphic abbreviation and American Bankers Association identifying number for the correspondent institution.

(c) For payment through ACH, the recipient shall provide the following information:

- (1) Routing transit number of the financial institution receiving payment (same as American Bankers Association identifying number used for FEDLINE).
- (2) Number of account to which funds are to be deposited.
- (3) Type of depositor account ("C" for checking, "S" for savings).
- (4) If the recipient is a new enrollee to the ACH system, a "Payment Information Form," SF 3881, must be completed before payment can be processed.

(d) In the event the recipient, during the performance of this award, elects to designate a different financial institution for the receipt of any payment made using electronic funds transfer

procedures, notification of such change and the required information specified above must be received by the appropriate Government official 30 days prior to the date such change is to become effective.

(e) The documents furnishing the information required in this term and condition must be dated and contain the signature, title, and telephone number of the recipient official authorized to provide it, as well as the recipient's name and award number.

(f) Failure to properly designate a financial institution or to provide appropriate payee bank account information may delay payments of amounts otherwise properly due.

(g) The requirements set forth in this term and condition shall govern to the extent these requirements are inconsistent with the requirements in term and condition "Financial Management".

(End of Term and Condition)

D29. INDIRECT COSTS

Unless otherwise directed in 2 CFR part 200, if during the course of this award, the approved indirect cost rate is revised, changed or removed, that rate must be applied, as allowed, to the covered direct costs that are expended during the time frame of that rate agreement. Any corrections, either up or down, to the approved budget submitted with the awarded application must be reflected in the awardees' records of costs and should be audited as such.

(End of Term and Condition)

D30. ACCESS TO RESEARCH RESULTS

(a) This award is subject to the requirements of the, "NASA Plan: Increasing Access to the Results of Scientific Research," which covers public access to digital scientific data and peer-reviewed publications. For purposes of this term and condition, the following definitions apply: (1) Awardee: Any recipient of a NASA grant or cooperative agreement, its investigators, and subrecipient (subaward or contract as defined in 2 CFR 200.92 and 200.22, respectively) at any level.

(2) Final Peer-Reviewed Manuscript: The final text version of a peer-reviewed article disclosing the results of scientific research which is authored or co-authored by the Awardee or funded, in whole or in part, with funds from a NASA award, that includes all modifications from the publishing peer review process, and all graphics and supplemental material prepared by Awardee.

(b) The recipient shall: (1) Comply with their approved Data Management Plan submitted with its proposal, and as modified upon agreement by the recipient and NASA from time to time during the course of the period of performance.

(2) Ensure that any Final Peer-Reviewed Manuscript is submitted to the NASA-designated repository, currently the PubMed Central system at <http://www.ncbi.nlm.nih.gov/pmc/>. NASA's instructions for completing the submission process are available at <https://www.nasa.gov/open/researchaccess/pubspace>. Ensure that the Final Peer-Reviewed Manuscript is submitted to PubMed Central within one year of completion of the peer review process.

(3) Ensure that any publisher's agreements entered into by an Awardee will allow for the Awardee to comply with these requirements including submission of Final Peer-Reviewed Manuscripts to the NASA-designated repository, as listed in paragraph (b)(2) of this term and condition, with sufficient rights to permit such repository to use such Final Peer-Reviewed Manuscript in its normal course, including rights to permit users to download XML and plain text formats.

(4) Hereby represent and warrant that Awardee has secured for recipient the right to submit the Final Peer-Reviewed Manuscript to the NASA-designated repository for use as set forth herein.

(5) Include in annual and final reports a list of Final Peer-Reviewed Manuscripts covered by this term and condition.

(End of Term and Condition)

ADDITIONAL TERMS AND CONDITIONS

1. DENIED ACCESS TO NASA FACILITIES (OCT 2015)

(a)(1) The performance of this contract requires contractor employees of the prime contractor or any subcontractor, affiliate, partner, joint venture, or team member with which the contractor is associated, including consultants engaged by any of these entities, to have access to, physical entry into, and to the extent authorized, mobility within, a NASA facility.

(2) NASA may close and or deny contractor access to a NASA facility for a portion of a business day or longer due to any one of the following events:

(i) Federal public holidays for federal employees in accordance with 5 U.S.C. 6103.

(ii) Fires, floods, earthquakes, unusually severe weather to include snow storms, tornadoes and hurricanes.

(iii) Occupational safety or health hazards.

(iv) Non-appropriation of funds by Congress.

(v) Any other reason.

(3) In such events, the recipient employees may be denied access to a NASA facility, in part or in whole, to perform work required by the cooperative agreement. Recipient personnel already present at a NASA facility during such events may be required to leave the facility.

(b) In all instances where the recipient employees are denied access or required to vacate a NASA facility, in part or in whole, the recipient shall be responsible to ensure recipient personnel working under the cooperative agreement comply. If the circumstances permit, the contracting officer will provide direction to the recipient, which could include continuing on-site

performance during the NASA facility closure period. In the absence of such direction, the recipient shall exercise sound judgment to minimize unnecessary costs and performance impacts by, for example, performing required work off-site if possible or reassigning personnel to other activities if appropriate.

(c) The recipient shall be responsible for monitoring the local radio, television stations, NASA Web sites, other communications channels, for example contracting officer notification, that the NASA facility is accessible. Once accessible the recipient shall resume performance as required by the agreement.

(d) For the period that NASA facilities were not accessible to recipient employees, the contracting officer may—

(1) Adjust the agreement performance or delivery schedule for a period equivalent to the period the NASA facility was not accessible;

(2) Forego the work;

(3) Reschedule the work by mutual agreement of the parties; or

(4) Consider properly documented requests for equitable adjustment, claim, or any other remedy pursuant to the terms and conditions of the contract.

(e) Notification procedures of a NASA facility closure, including recipient denial of access, as follows:

(1) The recipient shall be responsible for monitoring the local radio, television stations, NASA Web sites, other communications channels, for example contracting officer notification, for announcement of a NASA facility closure to include denial of access to the NASA facility. The recipient shall be responsible for notification of its employees of the NASA facility closure to include denial of access to the NASA facility. The dismissal of NASA employees in accordance with statute and regulations providing for such dismissals shall not, in itself, equate to a NASA facility closure in which recipient employees are denied access. Moreover, the leave status of NASA employees shall not be conveyed or imputed to recipient personnel. Accordingly, unless a NASA facility is closed and the recipient is denied access to the facility, the recipient shall continue performance in accordance with the agreement.

(2) NASA's Emergency Notification System (ENS). ENS is a NASA-wide Emergency Notification and Accountability System that provides NASA the ability to send messages, both Agency-related and/or Center-related, in the event of an emergency or emerging situation at a NASA facility. Notification is provided via multiple communication devices, *e.g.* Email, text, cellular, home/office numbers. The ENS provides the capability to respond to notifications and provide the safety status. Contractor employees may register for these notifications at the ENS Web site: <http://www.hq.nasa.gov/office/ops/nasaonly/ENSinformation.html>.

(End of Term and Condition)

2. GOVERNMENT PREMISES- PHYSICAL ACCESS AND COMPLIANCE WITH PROCEDURES. (FEB 2016)

(a)(1) The Recipient must apply for permanent NASA/GSFC Personal Identity Verification (PIV) cards (badges) for those employees that will be employed by the Recipient and subcontractors and that will be resident for at least six months at GSFC or at locations controlled by GSFC, such as GSFC leased space. Other personnel may be issued a temporary badge. All personnel must conspicuously display the GSFC PIV card at, or above, the waistline. Refer to GSFC clause 52.204-99, "Recipient Personnel – Identification, Onsite Reporting, and Checkout Procedures" for permanent PIV card issuance procedures.

(2) Visits by foreign nationals are restricted and must be necessary for the performance of the contract and concurred with by the Contracting Officer or by the Contracting Officer's Representative. Approval of such visits must be approved in advance in accordance with Goddard Procedural Requirement (GPR) 1600.1.

(3) Access to the GSFC may be changed or adjusted in response to threat conditions or special situations.

(b) While on Government premises, the Recipient shall comply with all requirements governing the conduct of personnel and the operation of the facility. These requirements are set forth in NASA Procedural Requirements (NPR), NASA Policy Directives (NPD), GPRs, GSFC Policy Directives (GPD), handbooks and announcements. The following cover many of the requirements:

- (1) Harassment and Discrimination Announcements
<http://eeo.gsfc.nasa.gov/policy.html>
- (2) GSFC Workplace Violence Announcement
https://gs279gdmsias.gsfc.nasa.gov/srv/GDMSNEWDatabaseObject?document_id=21144
- (3) GPR 1600.1, GSFC Security Requirements
- (4) NPD 1600.3, Policy on Prevention of and Response to Workplace Violence
- (5) GPR 1700.1, Occupational Safety Program at GSFC
- (6) GPR 1700.2, Chemical Hygiene Program
- (7) GPR 1700.5, Control of Hazardous Energy (Lockout/Tagout)
- (8) GPR 1700.6, Confined Space Program at GSFC
- (9) GPR 1700.7, Electrical Safety
- (10) GPR 1700.8, GSFC Hazard Communication Program
- (11) GPR 1800.1, GSFC Smoking and Other Tobacco Use Requirements
- (12) GPR 1800.6, Occupational Health, Medicine and Employee Assistance Programs
- (13) GPR 1840.2, Industrial Hygiene Program
- (14) GPR 1860.1, Ionizing Radiation Protection
- (15) GPR 1860.2, Laser Radiation Protection
- (16) GPR 1860.3, Radio Frequency Radiation Protection
- (17) GPR 1860.4, Ultraviolet and High Intensity Light Radiation Protection
- (18) NPD 2540.1, Personal Use of Government Office Equipment Including Information Technology
- (19) GPR 2570.1, Spectrum Management and Radio Frequency (RF) Equipment Licensing

- (20) NPR 3713.3, Anti-Harassment Procedures
- (21) GPD 8500.1, Environmental Policy and Program Management
- (22) GPR 8621.4, GSFC Mishap Preparedness and Contingency Plan
- (23) GPR 8710.2, GSFC Emergency Management Program Plan
- (24) GPR 8710.7, Cryogenic Safety
- (25) GPR 8710.8, GSFC Safety Program Management
- (26) GPD 8715.1, GSFC Safety Policy
- (27) GPR 8715.1, Processing of NASA Safety Reporting System (NSRS) Incident Reports
- (28) GPR 8715.8, Fall Protection Requirements for GSFC

Copies of the current issuances of the GPD/GPRs may be obtained at <http://gdms.gsfc.nasa.gov> from a computer onsite (GSFC Government Facility) or from the Contracting Officer. Copies of the current issuances of the NPD/NPRs may be obtained at <http://nodis3.gsfc.nasa.gov> or from the Contracting Officer. The above list may be modified by the Contracting Officer to include additional issuances pertaining to the conduct of personnel and the operation of the facility.

(c) The Recipient may not use official Government mail (indicia or "eagle" mail). Recipients found in violation could be liable for a fine of \$300 per piece of indicia mail used. However, the Recipient is allowed to use internal GSFC mail to the extent necessary for purposes of the agreement.

(End of Term and Condition)

3. PERSONAL IDENTITY VERIFICATION OF RECIPIENT PERSONNEL (DEC 2014)

(f) The Recipient shall comply with agency personal identity verification procedures identified in the *term and condition above in GOVERNMENT PREMISES- PHYSICAL ACCESS AND COMPLIANCE WITH PROCEDURES (FEB 2016)* that implement Homeland Security Presidential Directive-12 (HSPD-12), Office of Management and Budget (OMB) guidance M-05-24 and Federal Information Processing Standards Publication (FIPS PUB) Number 201.

(g) The Recipient shall account for all forms of Government-provided identification issued to the Recipient employees in connection with performance under this contract. The Recipient shall return such identification to the issuing agency at the earliest of any of the following, unless otherwise determined by the Government: (1) When no longer needed for grant performance.

(2) Upon completion of the Recipient's employee's employment.

(3) Upon grant completion or termination.

(h) The Grant Officer may delay final payment under a grant if the Recipient fails to comply with these requirements.

(i) The Recipient shall insert the substance of this clause, including this paragraph (d), in all subcontracts or subagreements when their employees are required to have routine physical access to a Federally-controlled facility and/or routine access to a Federally-controlled information system. It shall be the responsibility of the Recipient to return such identification to the issuing agency in accordance with the terms set forth in paragraph (b) of this section, unless otherwise approved in writing by the Grant Officer.

(End of Term and Condition)

4. CONTRACTOR PERSONNEL—IDENTIFICATION, ONSITE REPORTING, AND CHECKOUT PROCEDURES (APR 2013)

(a) In accordance with the GCAM, Personal Identity Verification of Contractor Personnel, the Recipient shall follow Steps 1 through 7 described in Attachment 3, Personal Identity Verification (PIV) Card Issuance Procedures, for each recipient employee (prime and subcontractor) who will have physical access to a NASA-controlled facility (also referred to as “onsite”). The recipient must apply for permanent NASA/GSFC PIV cards for those employees who will be employed by the Recipient onsite for at least six months. The GSFC Security Division will consider permanent PIV cards for other employees of the Recipient on a case-by-case basis, such as employees that are not resident onsite, but must frequently visit. In the future, upon written notice from the Contracting Officer, the Recipient shall follow Steps 1 through 7 in Attachment 3 for each offsite employee (prime and subcontractor) who require remote access to a NASA information system for contract performance.

(b) The Recipient shall notify the GSFC Security Division, Code 240, Attention: PIV Manager, and the Contracting Officer’s Representative (COR) of the recipients designated PIV Requester within 15 calendar days after award of this agreement. The NASA maintained PIV system contains work and home location and contact information for personnel that have permanent NASA PIV cards. The Recipient may contact the PIV Manager, Tel 301-286-2306 for assistance regarding the PIV system.

(c) Each recipient employee shall provide to the Recipient’s designated PIV Requester the basic identifying information required for a PIV Request to be initiated in the PIV System. The PIV Request must be approved by the PIV Sponsor (COR or the Contracting Officer). The COR will resolve any housing or access issues, and review the request for accuracy and completeness. Requests that are approved by the PIV Sponsor will be forwarded to the GSFC Security Division, Code 240, PIV Authorization, Badge enrollment, and Badge issuance.

(d) The Requirement shall submit an annotated PIV Report each month. The GSFC PIV Manager will furnish a PIV print-out to the Recipient no later than the end of each month. The Recipient shall annotate this provided report monthly to correct and update the information as follows:

- (1) Draw a line through the names of employees who are no longer employed by the recipient or that no longer work onsite under the agreement, and;
- (2) Make handwritten changes to any other incorrect data.

The annotated PIV Report shall be separately submitted to the GSFC Security Division, Code 240, Attention: PIV Manager, and to the COR by the 10th calendar day of the month.

For the final PIV Report under the agreement, the GSFC PIV Manager will furnish a PIV print-out to the Recipient no later than two weeks prior to the end of the agreement. The Recipient

shall submit its annotated final PIV Report no later than 3 days prior to the end of the agreement.

If this is a follow-on agreement, at the end of the phase-in period (if any)/start of the basic agreement period, the GSFC Security Division will provide the Recipient a copy of the final PIV Report from the previous agreement. The Recipient shall review the list and redline it as necessary to reflect its employees requiring PIV cards. The redlined list shall be provided the GSFC Security Division within 30 days after the start of the contract.

(e) The Recipient shall ensure that all personnel who have NASA/GSFC issued PIV cards, keys or other property who leave its employment or that no longer work onsite, process out through the GSFC Security Division, Code 240. Employees must return all GSFC issued identification and any Government property no later than the last day of their employment or the last day they work onsite under this contract. The Recipient shall establish appropriate procedures and controls to ensure this is accomplished. Failure to comply may result in the exercise of Government rights to limit and control access to Government premises, including denial of access and invalidation of NASA issued PIV cards and identification.

(End of Term and Condition)

5. RESTRICTIONS ON THE USE OF THE NASA SEAL, INSIGNIA, LOGOTYPE, PROGRAM IDENTIFIERS, OR FLAGS (DEC 2014)

In accordance with 14 CFR Part 1221, the NASA Seal, NASA Insignia, NASA Logotype, NASA Program Identifiers, and the NASA Flags are protected and shall be used exclusively to represent NASA, its programs, projects, functions, activities, or elements.

(k) The use of these devices by recipients shall be governed by the requirements and restrictions set forth at 14 CFR §§ 1221.109-113. Requests for use of these devices by recipients shall be subject to the prior written approval of the NASA Grant Officer in conjunction with the NASA Headquarters, Office of Communications.

(l) The use of these devices by recipients for any purpose other than as authorized by NASA regulations shall be prohibited. Their misuse shall be subject to the penalties authorized by statute, as set forth in 14 CFR §1221.115 and shall be reported as provided in 14 CFR §1221.116.

(End of Term and Condition)

6. MICRO-PURCHASE THRESHOLD (OCT 2017)

Micro-purchase Threshold. The non-Federal entity must use one of the methods of procurement as prescribed in 2 CFR 200.320 (A). As defined in 2 CFR 200.67, the micro-purchase threshold for acquisitions of supplies or services made under grant and cooperative agreement awards is —

(i) \$10,000; or

i (ii) As set by 48 CFR Subpart 2.1 FAR or

ii (iii) Such higher threshold as determined appropriate by the head of the relevant executive agency and consistent with audit findings under chapter 75 of Title 31, United States Code, internal institutional risk assessment, or State law.

(End of Provision)

7. REPORTING REQUIREMENTS REGARDING SEXUAL HARASSMENT, OTHER FORMS OF HARASSMENT, OR SEXUAL ASSAULT (April 2020)

(a) The Principal Investigator (PI) and any Co-Investigator(s) (Co-I) identified on a NASA award are in a position of trust. These individuals must comport themselves in a responsible and accountable manner during the award period of performance, whether at the recipient's institution, on-line, or at locales such as field sites, facilities, or conferences/workshops. Above all, NASA wishes to assure the safety, integrity, and excellence of the programs and activities it funds.

(b) For purposes of this term and condition, the following definitions apply:

1. *Administrative Leave/ Administrative Action:* Any temporary/ interim suspension or permanent removal of the PI or Co-I, or any administrative action imposed on the PI or Co-I by the recipient under organizational policies or codes of conduct, statutes, regulations, or executive orders, relating to activities, including but not limited to the following: teaching, advising, mentoring, research, management/ administrative duties, or presence on campus.

Finding/Determination: The final disposition of a matter involving sexual harassment or other form of harassment under organizational policies and processes, to include the exhaustion of permissible appeals exercised by the PI or Co-I, or a conviction of a sexual offense in a criminal court of law.

3. *Other Forms of Harassment:* Non-gender or non-sex-based harassment of individuals protected under federal civil rights laws, as set forth in organizational policies or codes of conduct, statutes, regulations, or executive orders.

4. *Sexual harassment:* May include but is not limited to gender or sex-based harassment, unwelcome sexual attention, sexual coercion, or creating a hostile environment, as set forth in organizational policies or codes of conduct, statutes, regulations, or executive orders.

(c) *The recipient is required to report to NASA:* (1) Any finding/determination regarding the PI or any Co-I that demonstrates a violation of the recipient's policies or codes of conduct, relating to sexual harassment, other forms of harassment, or sexual assault; and/or (2) if the PI or any Co-I is placed on administrative leave or if any administrative action has been imposed on the PI or any Co-I by the recipient relating to any finding/determination or an investigation of an alleged violation of the recipient's policies or codes of conduct, statutes, regulations, or executive orders relating to sexual harassment, other forms of harassment, or sexual assault.² Such reporting must be submitted by the Authorized Organizational Representative (AOR) to NASA's Office of Diversity and Equal Opportunity at <https://missionstem.nasa.gov/term-condition-institutional->

harassment-discr.html within 10 business days from the date of the finding/determination, or the date of the placement of a PI or Co-I by the recipient on administrative leave or the imposition of an administrative action.³

Recipient agrees to insert the substance of this term and condition in any subaward/subcontract involving a co-investigator. Recipient will be responsible for ensuring that all reports, including those related to co-investigators, comply with this term and condition. (e) Each report must include the following information:

- NASA Award Number;
- Name of PI or Co-I being reported;⁴

Type of Report: Select one of the following:

- Finding/Determination that the reported individual has been found to have violated the recipient's policies or codes of conduct, statutes, regulations, or executive orders relating to sexual harassment, other forms of harassment, or sexual assault; *or*
- Placement by the recipient of the reported individual on administrative leave or the imposition of any administrative action on the PI or any Co-I by the recipient relating to any
- finding/determination, or an investigation of an alleged violation of the recipient's policies or codes of conduct, statutes, regulations, or executive orders relating to sexual harassment, other forms of harassment, or sexual assault.

The recipient must also provide:

- A description of the finding/ determination and action(s) taken, if any; *and/or*
- The reason(s) for, and conditions of placement of the PI or any Co-I on administrative action or administrative leave.

The recipient, at any time, may propose a substitute investigator if it determines the PI or any Co-I may not be able to carry out the funded project or activity and/or abide by the award terms and conditions.

In reviewing the report, NASA will consider, at a minimum, the following factors:

- a. The safety and security of personnel supported by the NASA award;
- b. The overall impact to the NASA-funded activity;
- c. The continued advancement of taxpayer-funded investments in science and scientists; and
- d. Whether the recipient has taken appropriate action(s) to ensure the continuity of science and that continued progress under the funded project can be made.

(f) Upon receipt and review of the information provided in the report, NASA will consult with the AOR, or designee. Based on the results of this review and consultation, the Agency may, if

necessary and in accordance with 2 CFR 200.338, assert its programmatic stewardship responsibilities and oversight authority to initiate the substitution or removal of the PI or any Co-I, reduce the award funding amount, or where neither of those previous options is available or adequate, to suspend or terminate the award. Other personnel supported by a NASA award must likewise remain in full compliance with the recipient's policies or codes of conduct, statutes, regulations or executive orders relating to sexual harassment, other forms of harassment, or sexual assault. With regard to any personnel not in compliance, the recipient must make appropriate arrangements to ensure the safety and security of other award personnel and the continued progress of the funded project. Notification of these actions is not required under this term and condition.

Other personnel supported by a NASA award must likewise remain in full compliance with awardee policies or codes of conduct, statutes, regulations, or executive orders relating to sexual harassment, other forms of harassment, or sexual assault. With regard to any personnel not in compliance, the awardee must make appropriate arrangements to ensure the safety and security of other award personnel and the continued progress of the funded project. Notification of these actions is not required under this term and condition.

(End of Provision)

8. NATIONAL DEFENSE AUTHORIZATION ACT (NDAA) (AUG 2020)

Prohibition on certain telecommunications and video surveillance services or equipment.

(a) Grant and cooperative agreement recipients and subrecipients are prohibited from obligating or expending grant funds to:

(1) Procure or obtain,

(2) Extend or renew a contract to procure or obtain; or

(3) Enter into contract (or extend or renew contract) to procure or obtain equipment, services, or systems that use covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. As described in Pub. L. 115-232, section 889, covered telecommunications equipment is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).

i. For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).

ii. Telecommunications or video surveillance services provided by such entities or using such equipment.

iii. Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise, connected to the government of a covered foreign country.

ARTICLE 6 UNIQUE AWARD TERMS AND CONDITIONS

PROHIBITION ON CONTRACTING FOR CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT. (AUG 2020)

(a) *Definitions.* As used in this clause—

Backhaul means intermediate links between the core network, or backbone network, and the small subnetworks at the edge of the network (*e.g.*, connecting cell phones/towers to the core telephone network). Backhaul can be wireless (*e.g.*, microwave) or wired (*e.g.*, fiber optic, coaxial cable, Ethernet).

Covered foreign country means The People's Republic of China.

Covered telecommunications equipment or services means—

(1) Telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities);

(2) For the purpose of public safety, security of Government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities);

(3) Telecommunications or video surveillance services provided by such entities or using such equipment; or

(4) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

Critical technology means—

(1) Defense articles or defense services included on the United States Munitions List set forth in the International Traffic in Arms Regulations under subchapter M of chapter I of title 22, Code of Federal Regulations;

(2) Items included on the Commerce Control List set forth in Supplement No. 1 to part 774 of the Export Administration Regulations under subchapter C of chapter VII of title 15, Code of Federal Regulations, and controlled—

(i) Pursuant to multilateral regimes, including for reasons relating to national security, chemical and biological weapons proliferation, nuclear nonproliferation, or missile technology; or

(ii) For reasons relating to regional stability or surreptitious listening;

(3) Specially designed and prepared nuclear equipment, parts and components, materials, software, and technology covered by part 810 of title 10, Code of Federal Regulations (relating to assistance to foreign atomic energy activities);

(4) Nuclear facilities, equipment, and material covered by part 110 of title 10, Code of Federal Regulations (relating to export and import of nuclear equipment and material);

(5) Select agents and toxins covered by part 331 of title 7, Code of Federal Regulations, part 121 of title 9 of such Code, or part 73 of title 42 of such Code; or

(6) Emerging and foundational technologies controlled pursuant to section 1758 of the Export Control Reform Act of 2018 (50 U.S.C. 4817).

Interconnection arrangements means arrangements governing the physical connection of two or more networks to allow the use of another's network to hand off traffic where it is ultimately delivered (*e.g.*, connection of a customer of telephone provider A to a customer of telephone company B) or sharing data and other information resources.

Reasonable inquiry means an inquiry designed to uncover any information in the entity's possession about the identity of the producer or provider of covered telecommunications equipment or services used by the entity that excludes the need to include an internal or third-party audit.

Roaming means cellular communications services (*e.g.*, voice, video, data) received from a visited network when unable to connect to the facilities of the home network either because signal coverage is too weak or because traffic is too high.

Substantial or essential component means any component necessary for the proper function or performance of a piece of equipment, system, or service.

(b) *Prohibition.* (1) Section 889(a)(1)(A) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2019, from procuring or obtaining, or extending or renewing a contract to procure or obtain, any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. The Recipient is prohibited from providing to the

Government any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, unless an exception at paragraph (c) of this clause applies or the covered telecommunication equipment or services are covered by a waiver described in FAR 4.2104.

(2) Section 889(a)(1)(B) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2020, from entering into a contract, or extending or renewing an agreement with an entity that uses any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, unless an exception at paragraph (c) of this clause applies or the covered telecommunication equipment or services are covered by a waiver described in FAR 4.2104. This prohibition applies to the use of covered telecommunications equipment or services, regardless of whether that use is in performance of work under a Federal agreement.

(c) *Exceptions.* This clause does not prohibit recipients from providing—

(1) A service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements; or

(2) Telecommunications equipment that cannot route or redirect user data traffic or permit visibility into any user data or packets that such equipment transmits or otherwise handles.

(d) *Reporting requirement.* (1) In the event the Recipient identifies covered telecommunications equipment or services used as a substantial or essential component of any system, or as critical technology as part of any system, during contract performance, or the Recipient is notified of such by a subcontractor at any tier or by any other source, the Recipient shall report the information in paragraph (d)(2) of this clause to the Contracting Officer, unless elsewhere in this agreement are established procedures for reporting the information; in the case of the Department of Defense, the Recipient shall report to the website at <https://dibnet.dod.mil>. For indefinite delivery contracts, the Recipient shall report to the Contracting Officer for the indefinite delivery agreement and the Contracting Officer(s) for any affected order or, in the case of the Department of Defense, identify both the indefinite delivery contract and any affected orders in the report provided at <https://dibnet.dod.mil>.

(2) The Recipient shall report the following information pursuant to paragraph (d)(1) of this clause:

(i) Within one business day from the date of such identification or notification: The agreement number; the order number(s), if applicable; supplier name; supplier unique entity identifier (if known); supplier Commercial and Government Entity (CAGE) code (if known); brand; model number (original equipment manufacturer number, manufacturer part number, or wholesaler number); item description; and any readily available information about mitigation actions undertaken or recommended.

(ii) Within 10 business days of submitting the information in paragraph (d)(2)(i) of this clause: Any further available information about mitigation actions undertaken or recommended. In addition, the Recipient shall describe the efforts it undertook to prevent use or submission of covered telecommunications equipment or services, and any additional efforts that will be incorporated to prevent future use or submission of covered telecommunications equipment or services.

(e) *Subcontracts*. The Recipient shall insert the substance of this clause, including this paragraph (e) and excluding paragraph (b)(2), in all subcontracts and other contractual instruments, including subcontracts for the acquisition of commercial items.

(End of Term and Condition)

RESTRICTION ON FUNDING ACTIVITY WITH CHINA.

(a) Definition - “China” or “Chinese-owned company” means the People’s Republic of China, any company owned by the People’s Republic of China or any company incorporated under the laws of the People’s Republic of China.

(b) Public Laws 112-10, Section 1340(a) and 112-55, Section 539, restrict NASA from contracting to participate, collaborate, coordinate bilaterally in any way with China or a Chinese-owned company using funds appropriated on or after April 25, 2011. Contracts for commercial and non developmental items are exempted from the prohibition because they constitute purchase of goods or services that would not involve participation, collaboration, or coordination between the parties.

(c) This cooperative agreement may use restricted funding that was appropriated on or after April 25, 2011. The contractor shall not contract with China or Chinese-owned companies for any effort related to this contract except for acquisition of commercial and non-developmental items. If the contractor anticipates making an award to China or Chinese-owned companies, the contractor must contact the contracting officer to determine if funding on this contract can be used for that purpose.

(d) Subcontracts - The contractor shall include the substance of this clause in all subcontracts made hereunder.

(End of Term and Condition)

ARTICLE 7 REQUIRED PUBLICATIONS AND REPORTS IN ACCORDANCE WITH 2 CFR 1800

The recipient shall submit the publications and reports indicated below:

A. QUARTERLY REPORT

Throughout the term of the Agreement, the Recipient shall submit a quarterly report (government fiscal quarter). Two (2) copies shall be submitted or otherwise provided to the Cooperative Agreement Technical Officer, one (1) copy shall be submitted or otherwise provided to the Agreement Administration Office and one (1) copy to the Grants Officer. The report shall contain two (2) major sections:

1. Technical Status Report. The technical status report will detail technical progress to date on research milestones, all problems, technical issues or major developments during the reporting period. The technical status report will include a report on the status of the collaborative activities during the reporting period.

2. Business Status Report. The business status report will provide summarized details of the resource status of this Agreement. This report should compare the resource payment, expenditures, and status with the current Annual Budget Plan. Cost and labor hours or percentage effort for universities should be shown by task for the current quarter and for the cumulative total per year. Cost and labor hours or percentage effort for universities for each task should be shown for the cost elements identified under "D. ANNUAL BUDGET" below. Any major deviations shall be explained along with discussion of adjustment actions proposed.

B. ANNUAL REPORT

Throughout the term of the Agreement, the Recipient shall submit an annual report. Prior to the submission of the annual report, a review of the proposed report will be conducted by the GSFC CATO. The annual report will describe technical progress and accomplishments for the year in all research areas of the ARPP. The report shall consist of papers describing technical accomplishments in specific research areas suitable for presentation and publication. The annual report will include the utilization of subject inventions by Recipient if requested

C. JOURNAL ARTICLES

Journal articles in general and joint GSFC/CREH Center journal articles are strongly encouraged as a major reporting mechanism of this research effort.

D. ANNUAL BUDGET

As a part of the preparation of the Annual Research Program Plan, the Recipient shall submit 1 copy each of the annual budget to the Grants Officer, the Agreement Administrator and the Cooperative Agreement Technical Officer by March 31 of each year. The annual budget shall contain cost estimates by task sufficiently detailed for meaningful evaluation. The Recipient is required to submit separate budgets for each partner. Budgets must be presented by each project for the cost elements identified below:

- a. Direct labor categories and labor hours associated with the research effort. (For universities, the percentage of research time and salaries to be charged should be identified by the academic year and summer effort).
- b. An itemized list of permanent equipment to be acquired showing the cost of each item. Permanent equipment is any article of nonexpendable tangible personal property having a useful life of more than two years, and an acquisition cost of \$5,000 or more per unit.
- c. A general description and total estimated cost of expendable equipment and supplies.
- d. The total estimated cost for travel and a general description of contemplated travel (purpose of travel, destination, and number of trips). Identify travel and transportation costs associated with staff rotation, if any.
- e. Other direct costs (e.g., publications, computer costs, and insurance).
- f. Cost for consulting services, if any, showing number of days, daily rate, and estimated travel/per diem costs. The need for consulting services must be fully justified.
- g. For other than CREH participants, a description of services or materials that are to be awarded by subagreement or partner. For awards totaling \$10,000 or more, provide the following specific information:
 - (1) If known, the identification of the proposed subawards and an explanation of why and how the partner was selected or will be selected.
 - (2) Whether or not the award will be competitive and, if noncompetitive, rationale to justify the absence of competition.
 - (3) The proposed acquisition price in sufficient detail to allow for meaningful evaluation.
- h. Indirect costs indicating whether rates used are fixed or provisional and the time frames to which they are applicable (e.g., a fixed rate may apply until a specified date, after which the rate becomes provisional).

E. FINAL REPORT

1. The Recipient shall submit a Final Report making full disclosure of all major technical developments by the Recipient within ninety (90) calendar days of completion or termination of this Agreement. The Final Report shall contain a final accounting of all Federal funds expended during the term of the Agreement. With the approval of the Cooperative Agreement Technical Officer (CATO), reprints of published articles may be attached to the Final Report. An original plus (1) copy shall be submitted to the Cooperative Agreement Technical Officer (CATO) with copies to the Agreement Administrator.

2. The Recipient shall make distribution of the Final report as follows: Cooperative Agreement Technical Officer (CATO) - 1 original plus 1 copy; Agreement Administration Office - 1 copy, and the Grants Officer - 1 copy.

3. The Final Report shall be marked with a distribution statement to denote the extent of its availability for further distribution, release, and disclosure with additional approvals or authorizations.

REPORTS	REPORT DUE/FREQUENCY	DISTRIBUTION
Quarterly Federal Financial Reports (SF 425)	Within 30 days following the end of each quarter of the Federal fiscal year. <i>(Ref. GCAM – Appendix D6)</i>	HHS/PMS
Annual Inventory Report of Federally-Owned Property in Custody of the Recipient	No later than October 15 of each year. NOTE: Negative reports are not required. <i>(Ref. GCAM – Appendix D7)</i>	FMO, IPO
Progress Reports	Annually, 60 days prior to the anniversary date of the grant/cooperative agreement (except final year). <i>(Ref. GCAM – Appendix D2)</i>	TO, GO, NTR
Disclosure of Subject Inventions/Reportable Items (New Technology Report (NTR))	Within 2 months after inventor discloses it to recipient. <i>(Ref. GCAM - Appendix D8, Appendix D23 and Appendix D24)</i> <i>eNTR</i> <i>(http://invention.nasa.gov)</i>	PO, TO, GO, NTR
Election of Title to a Subject Invention	Within 2 years of disclosure of a subject invention being elected, except in any case where publication, on sale or public use of the subject invention being elected has initiated the one-year statutory period wherein valid patent protection can still be obtained in the United States, at least 60 days prior to the end of the statutory period. <i>(Ref. GCAM - Appendix D8 and Appendix D23)</i>	PO, TO, GO

Interim New Technology Summary Report (NTSR)	Every 12 months from the date of the grant/cooperative agreement. (Note: Negative reports are required.) (Ref. GCAM – Appendix D8, Appendix D23 and Appendix D24 eNTR (http://invention.nasa.gov))	GO, NTR
Notification of Decision to Forego Patent Protection	As applicable, not less than 30 days before the expiration of the response period required by the relevant patent office. (Ref. GCAM – Appendix D8 and Appendix D23)	PO, TO, GO
Utilization of Subject Invention/Reportable Items	Every 12 months from the date a subject invention is elected. Note: Negative reports are required. (Ref. GCAM – Appendix D8 and Appendix D23)	PO, TO, GO
Annual NASA Form 1018 Property in the Custody of Contractors	Due not later than October 15 of each year. Note: Negative reports are required. (Ref. GCAM – Appendix D25)	FMO, IPO
FINAL REPORTS	REPORT DUE	RECIPIENT
Final New Technology Summary Report (NTSR)	Within 90 days after the expiration date of the grant/cooperative agreement. (Note: Negative reports are required.) (Ref. GCAM Appendix D8, Appendix D23 and Appendix D24) eNTR (http://invention.nasa.gov)	PO, GO, NTR
Properly Certified Final Federal Financial Report, SF 425	Within 90 days after the expiration date of the grant/cooperative agreement. (Ref. GCAM – Appendix D2) For research related training program grants, the summary	FMO, GO

	<i>of research report is completed by the Student.</i>	
Summary of Research / Education Activity Report	Within 90 days after the expiration date of the grant/cooperative agreement. <i>(Ref. GCAM – Appendix D2)</i> <i>For research related training program grants, the summary of research report is completed by the Student.</i>	TO, GO, NTR, STIPO
Final Inventory Report of Federally-Owned Property	Within 60 days after the expiration date of the grant/cooperative agreement. <i>(Ref. GCAM – Appendix D7)</i>	CC, IPO, GO
Final NASA Form 1018 NASA Property in the Custody of Contractors	Within 30 days after the expiration of the grant or cooperative agreement. <i>(Ref. GCAM – Appendix D25)</i>	FMO, IPO

ARTICLE 8 CERTIFICATIONS, ASSURANCES, AND REPRESENTATIONS

1. CERTIFICATION OF COMPLIANCE ON PROPOSAL COVER PAGE

By submitting the proposal identified in the Cover Sheet/Proposal Summary in response to this Research Announcement, the Authorizing Official of the proposing organization (or the individual Proposer if there is no proposing organization) as identified below—

- (a) Certifies that the statements made in this proposal are true and complete to the best of his/her knowledge;
- (b) Agrees to accept the obligation to comply with NASA award terms and conditions if an award is made as a result of this proposal; and
- (c) Confirms compliance with all applicable terms and conditions, rules, and stipulations set forth in the Certifications, Assurances, and Representations contained in this NRA or CAN. Willful inclusion of false information in this proposal and/or its supporting documents, or in reports required under an ensuing award, is a criminal offense (U.S. Code, Title 18, Section 1001).

(End of Term and Condition)

2. CERTIFICATION REGARDING LOBBYING

No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subawards, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000, and not more than \$100,000 for each such failure.

(End of Term and Condition)

3. ASSURANCE AND REPRESENTATION ON CHINA RESTRICTIONS SET OUT IN SECTION 1340 OF PL 112-10 AND SECTION 539 OR PL 112-55

By submission of its proposal, the proposer represents that the proposer is not China or a Chinese-owned company, and that the proposer will not participate, collaborate, or coordinate bilaterally with China or any Chinese-owned company, at the prime recipient level or at any subrecipient level, whether the bilateral involvement is funded or performed under a no-exchange of funds arrangement.

(End of Term and Condition)

4. REPRESENTATION REGARDING WHISTLEBLOWER PROTECTION AS PROVIDED IN PL 113-235 TITLE VII SECTION 743, ALL SUBSEQUENT APPROPRIATION ACTS, AND 10 U.S.C. § 2409

A corporation or prospective recipient represents that employees or contractors of such entity seeking to report fraud, waste, or abuse are NOT required to sign internal confidentiality agreements or statements prohibiting or otherwise restricting such employees or contractors from lawfully reporting such waste, fraud, or abuse to a designated investigative or law enforcement representative of a Federal department or agency authorized to receive such information. Additionally, the corporation or prospective recipient represents that an employee of a contractor, subcontractor, grantee, or subgrantee or personal services contractor may not be discharged, demoted, or otherwise discriminated against as a reprisal for disclosing to a person or body described in paragraph two of 10 U.S.C. 2409 information that the employee reasonably believes is evidence of gross mismanagement of a National Aeronautics and Space Administration contract or grant, a gross waste of Administration funds, an abuse of authority relating to an Administration contract or grant, or a violation of law, rule, or regulation related to an Administration contract (including the competition for or negotiation of a contract) or grant. A person who believes that the person has been subjected to a reprisal prohibited by 10 U.S.C. 2409 subsection (a) may submit a complaint to the Inspector General of the National Aeronautics and Space Administration.

(End of Term and Condition)

ACRONYMS

AGO = ADMINISTRATIVE GRANT OFFICER IPO = INDUSTRIAL PROPERTY OFFICER
NTR = NEW TECHNOLOGY REPRESENTATIVE CC = CLOSEOUT CONTRACTOR
PO = PATENT COUNSEL OFFICE
FMO = FINANCIAL MANAGEMENT OFFICE TO = TECHNICAL OFFICER
GO = NASA GRANT OFFICER
UAO = UNIVERSITY AFFAIRS OFFICER
HHS/PMS = HEALTH AND HUMAN SERVICES PAYMENT MANAGEMENT SYSTEM STIPO
STIPO= SCIENTIFIC & TECHNICAL INFORMATION PROGRAM OFFICE