

INTERSTELLAR MAPPING AND ACCELERATION PROBE
ANNOUNCEMENT OF OPPORTUNITY
NNH17ZDA0070

AMENDMENT 1
CHANGE IN IMAP STUDENT COLLABORATION FOCUS ALLOWING
BROADER PARTICIPATION AND UPDATE OF THE IMAP PROGRAM LIBRARY
LISTING

The following changes are made to the Foreword, Section 5, and Appendix D of the IMAP AO. Bold text indicates additions, while deletions are struck through.

FOREWORD

Student Collaborations (SC) provide current or aspiring graduate or undergraduate students, including advanced high schoolers, ~~Student Collaborations (SC) provide aspiring undergraduate (as well as advanced high school and, on an exceptional basis graduate) students~~ opportunities for an authentic research experience that increases their interest in scientific and technical careers and enthusiasm for space exploration, while equipping them with engineering and science skills. NASA requires proposals to include a Student Collaboration opportunity. A Student Collaboration incentive will be provided. **[Amended August 17, 2017.]**

5.5.3 *Student Collaboration* **[Amended August 17, 2017.]**

Proposals are *required* to define a Student Collaboration (SC) that is a separate part of the proposed investigation.

PI-led missions potentially provide active research opportunities for **current or aspiring graduate or undergraduate students, including advanced high schoolers** ~~aspiring undergraduate (as well as advanced high school and, on an exceptional basis graduate) students~~. SCs may involve students in multiple phases of a mission spanning scientific formulation; mission planning; systems engineering; design and development of flight hardware; qualification, test and integration; and mission operations and data analysis.

An ideal SC provides a hands-on experience for students that focuses on the unique demands of instrument development, flight systems, environments, and operations, and on the opportunity to acquire early knowledge of systems engineering techniques. SC provides the opportunity for authentic, real-world experiences that span development through the operational phases of a mission. **The focus on graduate students, undergraduate students as well as advanced high**

~~schoolers for the IMAP SC is~~ Undergraduate SC is a priority because it is at this critical junction that individuals, including from groups traditionally underrepresented or underserved in STEM, make decisions to pursue and persist in degrees that will provide the skills required by the future space science workforce.

APPENDIX D

PROGRAM LIBRARY [Amended August 17, 2017.]

IMAP Acquisition Homepage: <https://soma.larc.nasa.gov/STP/IMAP/>

IMAP AO Library: <https://soma.larc.nasa.gov/STP/IMAP/imap-program-library.html>

Strategic Documents

1. NPD 1001.0B, *2014 NASA Strategic Plan*
2. *2014 Science Mission Directorate Science Plan*
3. *2013 National Research Council Decadal Strategy for Solar and Space Physics report, Solar and Space Physics: A Science for a Technological Society*

Program Specific Documents

1. STP Program Plan
2. Class B Explorers & Heliophysics Projects Division Mission Assurance Requirements document
3. Class C Explorers & Heliophysics Projects Division Mission Assurance Requirements document
4. *Guidelines and Criteria for the Phase A Concept Study*
5. *ELV Launch Services Information Summary*
6. ~~*NASA Launch Services Program (LSP) Advisory Services Plan*~~
7. *Space Communications and Navigation (SCaN) Mission Operations and Communications Services (MOCS)*
8. ~~*The Explanatory Guide to the NASA Science Mission Directorate Educational Merit Evaluation Factors for Student Collaboration Elements*~~ ***IMAP Student Collaboration Document***
9. *TRL 6 Examples*
10. *SMD Mission Extension Paradigm*
11. *Microsoft Excel version of the template tables in the AO:*
Table B1: Example Science Traceability Matrix
Table B2: Example Mission Traceability Matrix
Table B3a: Total Mission Cost RY\$ Profile Template

Table B3b: Total Mission Cost FY\$ Profile Template

Table B5: Master Equipment List

12. *SPD-19, Meeting the 70% JCL Requirement in PI-led Missions*
13. *Draft Model Contract for Phases B/C/D/E*
14. *NASA/Heliophysics References List for Technology Demonstration Options*
15. *2017 Call Letter for Heliophysics Senior Review*
16. *Listing of Significant Changes from Draft AO*
- 17. *Available Spectrum and Channel Limits by Allocated Service***
- 18. *Budget Summary, Exhibit A***

NASA and Federal Documents

1. *NPR 7120.5E, NASA Space Flight Program and Project Management Requirements*
2. *NPR 7123.1B, NASA Systems Engineering Processes and Requirements*
3. *NID 8020.109, Planetary Protection Provisions for Robotic Extraterrestrial Missions*
4. *NPD 8020.7G, Biological Contamination Control for Outbound and Inbound Planetary Spacecraft*
5. *NPD 7100.10F, Curation of Institutional Scientific Collections*
6. *NASA-HDBK-6022, NASA Handbook for the Microbiological Examination of Space Hardware*
7. *NASA/CP-2002-211842, A Draft Test Protocol for Detecting Possible Biohazards in Martian Samples Returned to Earth*
8. *NASA/SP-2010-3404, NASA WBS Handbook*
9. *NPR 8715.6B, NASA Procedural Requirements for Limiting Orbital Debris and Evaluating the Meteoroid and Orbital Debris Environments*
10. *NASA-STD-8719.14A, NASA Process for Limiting Orbital Debris*
11. *NPR 8715.3C, NASA General Safety Program Requirements,*
12. *Statement of Federal Financial Accounting Standards 4: Managerial Cost Accounting Standards and Concepts*
13. ~~*Procurement Information Circular (PIC) 05-15*~~ *NPR 8705.4, Risk Classification for NASA Payloads*

Additional NASA and Federal Documents

All NASA Policy Directives (NPD) and NASA Procedural Requirements (NPR) documents referenced in this AO may be found in the NASA Online Directives Information System (NODIS) Library (<http://nodis3.gsfc.nasa.gov/>)

NPD 1360.2B, Initiation and Development of International Cooperation in Space and Aeronautics Programs

NPR 7150.2B, NASA Software Engineering Requirements

NPD 5101.32E, Procurement, Financial Assistance

NPR 8580.1A, NASA National Environmental Policy Act Management Requirements

NPD 8610.7D, Launch Services Risk Mitigation Policy for NASA-Owned and/or NASA-Sponsored Payloads/Missions

NASA-STD-8739.8, Standard for Software Assurance
NPR 8000.4A, Agency Risk Management Procedural Requirements

NASA technical standards documents may be found in the public access portion of the NASA Standards and Technical Assistance Resource Tool (START)
(<http://standards.nasa.gov/>)

NASA technical reports may be found on the NASA Technical Reports Server (NTRS)
(<http://ntrs.nasa.gov/search.jsp>)

NASA/SP-2016-6105 Rev 2, *NASA Systems Engineering Handbook*
NASA/SP-2011-3422, NASA Risk Management Handbook
NASA/SP-2014-3705, NASA Space Flight Program and Project Management Handbook

The Federal Acquisition Regulations (FAR) may be accessed at
<https://www.acquisition.gov/?q=browsefar>. The following parts of the Federal Acquisition Regulations are referenced in this AO.

FAR 15.403-4, "Requiring certified cost or pricing data (10 U.S.C. 2306a and 41 U.S.C. 254b)"
FAR 15.406-2, "Certificate of Current Cost or Pricing Data"
FAR 33.101, "Protests Definitions"
FAR 52.219-8, "Utilization of Small Business Concerns"
FAR 52.219-9, "Small Business Subcontracting Plan"
FAR 52.222-26, "Equal Opportunity"
FAR 52.226-2, "Historically Black College or University and Minority Institution Representation"
FAR 52.227-11, "Patent Rights – Ownership by the Contractor"
FAR 52.227-14, "Rights in Data – General"
FAR 52.233-2, "Service of Protest"

The NASA FAR Supplement (NFS) may be accessed at
<http://www.hq.nasa.gov/office/procurement/regs/nfstoc.htm>. The following parts of the NASA FAR Supplement are referenced in this AO.

NFS 1815.208, "Submission, modification, revision, and withdrawal of proposals"
NFS 1835.016-70, "Foreign participation under broad agency announcements"
NFS 1852.225-71, "Restriction on Funding Activity with China"
NFS 1852.225-72, "Restriction on funding Activity with China – Representation"
NFS 1852.227-11, "Patent Rights--Retention by the Contractor"
NFS 1852.227-70, "New Technology"
NFS 1852.227-71, "Requests for Waiver of Rights to Inventions"
NFS 1852.233-70, "Protests to NASA"
NFS 1852.234-2, "Earned Value Management System"
NFS 1872.308, "Proposals submitted by NASA investigators"

NFS 1872.403-1, "Advisory subcommittee evaluation process"
NFS 1872.705-1, "Appendix A: General instructions and provisions"

~~NASA Procurement Information Circulars (PICs) may be accessed at
<http://www.hq.nasa.gov/office/procurement/regs/pic.htm>.~~

The Code of Federal regulations (CFR) may be accessed at
<http://www.gpo.gov/fdsys/>. The following parts of the Code of Federal Regulations
are referenced in this AO.

14 CFR Part 1250, "Nondiscrimination in Federally-Assisted Programs of NASA"
14 CFR Part 1265, "Governmentwide Debarment and Suspension
(Nonprocurement)"
15 CFR Parts 730-774, "Export Administration Regulations"
22 CFR Parts 120-130, "International Traffic in Arms Regulations"

The United States Code (USC) may be accessed at <http://www.gpo.gov/fdsys/>. The
following parts of the United States Code are referenced in this AO.

42 USC 4321 *et seq.*, "National Environmental Policy Act of 1969, as amended
(NEPA)"

Executive Orders may be accessed at [http://www.archives.gov/federal-
register/executive-orders/](http://www.archives.gov/federal-register/executive-orders/). The following Executive Orders are referenced in this
AO.

Executive Order 12114, "**Environmental effects abroad of major Federal
actions**" (see [http://www.archives.gov/federal-register/codification/executive-
order/12114.html](http://www.archives.gov/federal-register/codification/executive-order/12114.html))

Homeland Security Presidential Directive HSPD-12 (see
<http://www.dhs.gov/homeland-security-presidential-directive-12>)

In summary: The IMAP Student Collaboration focus has changed to allowing broader student participation and the IMAP Program Library listing in Appendix D has been updated.

On or about August 17, 2017, this Amendment to the NASA IMAP AO will be posted on the NASA research opportunity web site <http://nspires.nasaprs.com>.

Questions on this solicitation may be addressed by E-mail to the IMAP Program Scientist: Arik Posner E-mail: arik.posner@nasa.gov (subject line to read "IMAP AO"). Responses to all inquiries will be answered by E-mail.