

SOFIA SUPPORT
NFS 1852.216-80

Contract No. TBD

FULLY INTEGRATED LIFECYCLE MISSION SUPPORT SERVICES

**SECTION A – IDIQ TASK ORDER SCOPE AND
GENERAL INFORMATION**

A.1 Brief Overview and Purpose of Task

Provide a variety of professional level support that will be integrated into a mixed team environment of NASA and other contracted entities for a long term science-based mission. Generally, the support will be performed on-site at a NASA location, utilizing NASA-owned assets unless otherwise specified. Types of support will include but not be limited to the following:

- Engineering (Systems as well as Discipline Specific) - in the areas of design & development, as well as testing and evaluation
- Scientific Research – Astronomical, based on the study of various physical phenomena in support of the development of systems for astronomical use.
- Project/Program Support – Administrative support for managing project related logistics, configuration management, and documentation development.

A.2 Task Description

This Task Request is for specific support services for the Stratospheric Observatory for Infrared Astronomy (SOFIA) Program and associated projects. SOFIA is an international collaborative effort between the National Aeronautics and Space Administration (NASA) and the German Space Agency, Deutsches Zentrum für Luft und Raumfahrt, (DLR). SOFIA is an airborne infrared observatory with a projected 20 year operational mission that is intended to begin in 2013. Currently the program is in Phase D, with some level of science operations. The program and cognizant projects are managed using NASA's program governance model under the most current version of NPR 7120.5 as a Class C mission.

The majority of the work will be accomplished at Ames Research Center although a significant portion will be performed at SOFIA's Science Operations Center at the Dryden Aircraft Operations Facility (DAOF) in Palmdale, CA. In addition, SOFIA will be deployed internationally and some requirements described herein may also support these sub-missions. Thus, while the requirements listed in SOW Section 3 will at a minimum apply, other NASA Center and/or other local jurisdictional requirements particularly for Safety, Reliability and Quality Assurance standards may also apply when providing services.

This task requirement is to support the Program, Platform, and Science Projects as delineated below. These subtasks, below, are listed in the same order and outline structure as the SOFIA Program Work Breakdown Structure (WBS), which follows a 7120.5 format. The tasks

requested are described within each WBS element (e.g., 1.01 - Program/Project Management, Administrative Support). Within each WBS element, the requested sub-tasks are further broken down into those activities that support the A.) SOFIA Program, B.) SOFIA Platform Project, or C.) SOFIA Science Project, in that order.

The Contractor's Task Plan, and commensurate estimate and cost accounting shall be outlined in keeping with this same SOFIA WBS format that clearly reflects the Task Request breakdown into A.) SOFIA Program, B.) Platform Project, and C.) Science Project, within each respective WBS element. The Contractor's monthly 533 Financial Reports or other financial backup information shall also reflect the WBS outline described herein.

A.3 Task Requirements

For all tasks, the contractor shall follow generally accepted project management methods and processes: efforts/projects of significant duration, resource, or facility usage; or involving multiple organizations, Centers or project teams; or those involving significant cost or risk, shall be planned, scheduled, managed and executed in a manner consistent with NASA's standards for project management, systems engineering, software engineering, configuration management, risk management as well as other related practices. Tasks shall be planned and scheduled prior to project start. In the case of on-going efforts from previous task periods, the contractor shall determine if a schedule and other appropriate project documentation exists or not, and if not, shall notify NASA as to which specific necessary plans, documents or data are lacking; NASA will direct the contractor regarding a resolution of the situation. Schedules shall be coordinated with other SOFIA Program and/or SOFIA Platform and/or Science Project teams as appropriate. The contractor shall ensure that the resulting scheduled work is included in the Program and/or Platform Project and/or Science Project schedule as relevant; the contractor shall update their schedule monthly or more frequently if necessary and shall provide technical, cost and schedule reporting monthly.

Subtask 1.01 Program/Project Management and Administrative Support

A. Program

No support required.

B. Platform Project

No support required.

C. Science Project

The SOFIA Science Project requires the following types of Project Management Support services including but not limited to:

1. Based on inputs from technical managers, track the Project's technical progress, and develop reporting documentation, including: weekly and monthly reports to the SOFIA Program Office and Ames Center Management Council (ACMC) and maintain Project Action Item lists.
2. Maintain and distribute upon request a database of Ames based and other personnel who support SOFIA (with their phone numbers and e-mail addresses), broken out by the various supporting organizations. This will include coordinating with other

- SOFIA contractors, as well as the Science Instrument teams and other groups working on SOFIA. This list shall be maintained on line on the SOFIA Portal.
3. Provide administrative support to the Science Project Manager and staff including but not limited to the following: answering telephones, maintaining calendars, scheduling appointments, preparing official and unofficial correspondence, assisting in property inventory, ordering supplies, stocking cabinets, coordinating meetings, attending project meetings as required, coordinating and setting up Project Management meetings and other meetings as required (i.e., WebEx), maintaining meeting notes as required, assisting in planning logistics related to the Project such as furniture moves, shipping, office moves, organizing and maintaining commons areas such as copy rooms and conference rooms. Coordinate and/or perform other organizing and housekeeping tasks such emptying recycling bins when required and perform other duties as assigned, etc.
 4. Perform technical and copy-editing on materials written by Project personnel, compose technical summaries, design and execute layout, and prepare presentation quality material as called for on various documents.
 5. Provide photocopying/printing and distribution. Maintain the office document filing system in accordance with NASA guidelines. Coordinate the maintenance of all SOFIA ARC office tools, including printers, copiers, phones, conference room computers, etc.
 6. Post presentation and meeting materials on SOFIA's Windchill file server, and maintain the Science Project Management work areas.
 7. Assist in making domestic and international travel arrangements and reservations for NASA SOFIA staff as necessary. Prepare, submit, maintain and obtain approvals of travel authorization documents, coordinate travel plans as appropriate.
 8. Provide support to the Science Project Management team for the tracking of computer assets and other SOFIA property as requested.
 9. Initiate requests for new Science Project employees through the IDMax and other systems to assist with on-boarding activities such as, badging, access to IT/Comm including e-mail, and access to the SOFIA Portal and Windchill services and orientation.
 10. Prepare badge requests and other required paperwork for foreign national visitors and staff. Submit computer account requests for foreign nationals working on SOFIA. Track the status of all badges and computer accounts for foreign nationals, and prepare specialized reports as requested.
 11. Provide technical assessments and/or evaluation of IT related solutions.

No Travel is expected for this task.

Subtask 1.02 Systems Engineering and Integration

A. Program

No support requested.

B. Platform Project

No support requested.

C. Science Project

Provide services to the SOFIA Science Project in the area of Systems Engineering and Integration (SE&I) Support including but not limited to:

1. Assist the project in planning, scheduling and performing SE&I related activities in accordance with SOFIA's, or where lacking, NASA's SE&I process. In instances where SOFIA guidance on process is lacking, assist in creation of Agency compliant process.
2. Assist in the coordination, planning, scheduling and recording of Science Project Control Board (PCB) meetings.
3. Assist in the identification and tracking SOFIA science risks and mitigations, by participating in the Science Project and Program Continuous Risk Management process that culminate with reporting associated with WBS 1.01, above.
4. Support Science Project SE&I monthly status reports, work schedule updates, and monthly schedule tracking as it relates to SOFIA's SE&I product tree .
5. Provide inputs to the Science Project Integrated Master Schedule.
6. Coordinate and participate in planning and reviewing plans for SOFIA Instrument readiness and SI verification tasks and provide Systems Engineering guidance and inputs to the SI manager.
7. Update the SOFIA Science Project Software Management Plan as necessary and submit it for PCB approval.
8. Represent SOFIA Science Project software development on the Ames Software Engineering Working Group.
9. Provide Systems Engineering and Integration support to the SE&I WBS lead as requested. This includes performing system architecture work and trade analysis, and includes the use of prototypes and simulations as needed.
10. Develop and maintain the Program and the Science Project Concept of Operations documents.
11. Advise the Science Project on software development activities related to the KOSMA Translator. Prepare, coordinate and/or participate in reviews and associated review checklists. Prepare and/or assist in the preparation and/or maintenance of the Software Development Plan, Software Requirements Document, ICD, Software Architecture Document, V&V Plan, V&V Procedures, Software Analysis Report, Test Reports, and Version Description Document. Lead and/or coordinate Configuration Control Boards.
12. Generate and/or track development Requests For Information/Requests For Actions (RFI/RFA), generate and/or analyze review checklists, and maintain NPR 7150.2 compliance matrices for Ground Systems software applications.

Travel for this task is estimated at 1 trip of 3 days duration every other month to the DAOF.

Subtask 1.02.02 Requirements Management

A. Program

No support requested.

B. Platform Project
No support requested.

C. Science Project

Document Review and Requirements Analysis Support for the Science Project

The SOFIA Science Project requires the following types of Document Review and Requirements Analysis Support services:

1. Review and provide technical inputs to or full updates of all ICDs that interface SI-to-Platform, SI-to-SSMO, and SSMO-to-Platform. This includes the following kinds of ICDs:
 - a) SI-to-MCCS
 - b) Other SI-to-MCCS
 - c) SI-to-AS
 - d) SI-to-TA
 - e) SI-to-SSMO
 - f) SSMO-to-Observatory
2. Assist in the development and review of Science Project software and hardware specifications.
3. Assist in the review of Observatory and Platform specifications and design implementations for Segment 3.
4. Assist in the definition, development, and update of Observatory and Platform requirements that require Science Project input, such as TA emissivity, image quality, and jitter. Provide support to the SE&I WBS lead in providing inputs to and reviewing the Science Instrument Developers' Handbook and the SOFIA Command Language (SCL) User's Manual.
5. Provide support to the SE&I WBS lead in review of SI and SSMO documentation.
6. Review and comment on MCCS Flight Manager Requirements and design documents to ensure that the subsystem addresses Science Project needs.
7. Finalize the development of the MCCS Flight Manager Concept of Operations document and update it as required.

Travel for this task is estimated at 1 trip per month of 3 days duration to the DAOF.

Subtask 1.02.03 Configuration and Data Management

A. Program

The SOFIA Program requires the following types of Configuration and Data Management Support services:

Data Center and Document Management:

1. Maintain and operate the SOFIA Data Center including, downloading, producing, copying, distributing, and filing hard copy documents, records, and other archives as requested. Provide help as needed for users to find hardcopy items.
2. Manage documents as required to meet SOFIA approved NASA and Ames record retention requirements. Aid the SOFIA Program Records Retention Manager in defining and implementing Records Retention procedures to address Records Retention Policy defined by NASA and the SOFIA Program.
3. Support the goal of an “all-electronic” SOFIA Data Management System. Facilitate the scanning of Data Center hardcopy records into electronic records as agreed to by NASA. Scan new documents as directed.
4. Ensure requests for hardcopy information are processed within two working days that the Data Center is open for requests under 100 pages. Report metrics of level of effort, number of documents and/or drawings per month.
5. Retrieve, catalogue, and archive pre-2007 SOFIA Images that were never categorized, captioned, or approved for entry into the former SOFIA Image Gallery database.
6. If requested, assist in the migration of the images from the SOFIA Image Gallery database to Windchill.
7. If requested, update and maintain under Program CM control the SOFIA Data Requirements Specification (SOF-1017).

Online Data Management System (Windchill):

8. Provide Windchill and Web Portal support for all phases of requirements development, design, implementation, testing, and maintenance.
9. Prepare and maintain user and admin Help files and procedures for Windchill and the SOFIA Portal.
10. Maintain and manage the Program Lexicon (PD-2009). Load approved updates into Windchill.
11. If requested, help coordinate, support, implement, monitor, manage, and audit user accounts on Windchill and the SOFIA Portal.
12. Migrate files from the CM-NX Archive on Windchill to the appropriate Windchill Library.
13. Provide administrative support to the Windchill Library by loading and managing documents, adding attribute information, and auditing the existing documents to identify and correct problems with filing, naming, attributes, and other document loading issues.
14. Support Program level Windchill servers for Product definition and integration.
15. Provide support to the SOFIA Program on the Windchill servers for ProE CAD development, configuration and desktop integration.
16. Define the processes for engineers to work collaboratively on the SOFIA Windchill servers and maintain the models and drawings.
17. Implement and maintain the Windchill Product structures.
18. Provide Windchill Application Administration support. This includes; configuring the application to meet business and operational requirements, and installing enhancements and version updates.
19. Provide application maintenance support to Windchill and the Portal. This includes installing maintenance releases and bug fixes, and testing new releases.

20. Provide operational support for Windchill and the Portal, including developing and maintaining plans, processes, and schedules for operations and maintenance elements.

Perform Windchill Operations Management Functions:

21. Application Administration

- Oversee business workflow processes development
- Configure WC to support business process requirements, and coordinate with application systems administrator to maintain and configure the system and applications through their development, to include WC, Portal and applications running on the Portal, including the SOFIA Directory and the Document Filename Schema.
- Test business process and application configurations
- Provide technical backup for Application Systems Administration

22. Business Analyst/Coordinator/Liaison

Implement Windchill Business Requirements:

- Analysis of Windchill business processing requirements provided by or developed with the Configuration Management, Data Management, Program Management, users (internal and external), Export Control, and Requirements Management
- Coordinate/Monitor Requirements with Phased Implementation:
- Coordinate and prioritize schedules and plans with/for Data Base administration, application administration, Portal development for new and on-going continuous improvement
- Assist with test plan creation and support execution of Windchill and Portal applications
- Assist in coordination with the system administrators for other SOFIA applications and provide user support as needed:
 - Serena Requirements Management database
 - Rosetta Stone
 - System Support:
 - Monitor and respond to ad hoc events that may impact the system operation including but not limited to the following:
 - Business
 - Upgrades (Applications)
 - Security

23. Software Development

Provide technical and programming support to the development team

24. Liaison/Interface with ARC/MMOC

Manage installation and maintenance of applications (including OS) hardware upgrades, and security patches

Manage WC and Portal IT Security policies and procedures with NASA requirements

Travel for this task is estimated at 1 trip per month of 3 days duration to the DAOF.

B. Platform Project

No support requested.

C. Science Project

The SOFIA Science Project requires the following types of Configuration Management Support services:

1. Establish and maintain a Configuration Management program for the Science Project. Identify and document configuration management plans, processes, procedures (work instructions); obtain NASA Science Project Office approval of plans, processes and procedures; implement approved plans, processes and procedures.
2. Update the Science Project Configuration Management Plan, the Science Project Data Management Plan, and associated Work Instructions as necessary to document changes in plans, processes, and procedures.
3. Provide training, tools and support resources to the Science Project staff including NASA and contractors to enable the staff to understand the CM processes and utilize them effectively.
4. Schedule, coordinate, and lead Science Project Control Board (SPCB) meetings in accordance with approved plans, processes and procedures, distribute documentation for review and action, and prepare and distribute SPCB minutes.
5. Obtain approval signatures and archive approved documents and CM records on Windchill.
6. Maintain the Science Project Product Control List (PCL). The PCL should list all Science Project deliverables and products, at a detailed and rolled up summary level, and indicate which are hardware and software Configuration Items. The summary roll-ups should be grouped by SOFIA WBS elements. Products and deliverables should be listed, by indentation or other means, where they are associated with second- and third- level milestones of the Science Project. The PCL shall also indicate PCB/WBS owner approval, as appropriate, for each deliverable/product, and indicate revision and other relevant status information. The PCL is to be a comprehensive list of all Science Project deliverables and products produced by the NASA Science Project or under any Science Project contract.
7. Serve as Windchill Library Administrator for the Science Project documents and records online. Serve as Library Manager, but not necessarily owner of data, to oversee and assist as needed to manage library folders and accesses.
8. Assist Windchill Project Work Area Owners in management and administration of their data, as requested.
9. Manage Science drawings online including loading, defining, and implementing search capabilities.

No Travel is expected for this sub-task.

Subtask 1.04 Project Science

A. Program

No support required.

B. Platform Project

No support required.

C. Science Project
No support required

Subtask 1.05 Instrument Development Support

A. Program
No support required.

B. Platform Project
No support required.

C. Science Project

The SOFIA Science Project requires the following types of Instrument Development Support services:

1. Work with the Instrument Development WBS lead, facility scientists, engineers, and operations personnel to maintain the Science Instrument System Specification for the design/development of infrared instrument systems for SOFIA. This specification includes requirements for mechanical and electrical design and analysis, instrument construction, testing, hazard identification and analysis, operations, and instrument maintenance.
2. Negotiate requirements with the airworthiness team led by Platform Project Aircraft Operations.
3. Negotiate safety, mission assurance, and quality assurance requirements with Ames SMA, DAOF QA, DAOF safety, DFRC QA, DFRC safety, and USRA QA.
4. Negotiate requirements with the stakeholders to derive the minimal sufficient set.
5. Coordinate with Science Project and Program SE&I, Platform Project and TA stakeholders to develop, submit and sponsor Configuration Change Requests (CCRs) and/or Requests for Deviations or Waivers (RDWs) through the Science PCB, Platform PCB, SOLIPT, OCCB and PMB, as needed to resolve requirement changes or Science Instrument non-compliances.
6. Coordinate with Science Project SE&I to support MCCS and subsystem design reviews. This includes review of review and data packages, support of review presentations, and generation / disposition of RFIs / RFAs.
7. Assist instrument teams (subcontractors) with interpretation, implementation, and verification of the requirements in the Science Instrument System Specification and the Science Instrument Interface Control Documents and coordinate airworthiness data package submittals to the Science Instrument Airworthiness Team for airworthiness certification.
8. Assist in the development and review of the Science Instrument Developers' Handbook and the SCL User's Manual, and update as necessary.
9. Assist Science Instrument teams in the design, development, and documentation of their software, including compliance with NASA software mission assurance requirements, processes, and documentation.
10. Document the Science Instrument to Observatory software interface.
11. Maintain SOFIA Science Instrument software developed by the Science Project, including the KOSMA to SOFIA Command Language (SCL) Translator.

Travel for this task is estimated at 2 trips/month of 3 days duration to the DAOF.

Subtask 1.06 Aircraft Structures

A. Program

No support requested.

B. Platform Project

Engineering Support for the Platform Project

The SOFIA Platform Project requires the following engineering support services:

1. Review and provide comments on selected structural substantiation analyses or reports. Written comments shall be provided to the ARC Platform Structural Engineer 30 days after analysis or report is delivered to the contractor.

No travel is required for this task.

C. Science Project

No support requested.

Subtask 1.06.04 Aircraft Aero/S&C (Stability & Control)

A. Program

No support requested.

B. Platform Project - Aircraft Aero/S&C (Stability & Control) Engineering

The SOFIA Platform Project requires the following types of engineering support services:

1. Perform post-flight data analysis of open-door envelope expansion flight test results and provide inputs for NASA technical reports to the Platform Project Aerodynamics Lead.
2. Review the final flight test report prepared by DFRC and provide written comments 30 days after the report is delivered to the contractor.

Travel for this task is estimated at 1 trip of 2 days duration to Dryden and/or the DAOF.

C. Science Project

No support requested.

Subtask 1.06.05 Telescope Assembly

A. Program

No support requested.

B. Platform Project - Telescope Assembly Support

The SOFIA Platform Project requires the following types of Telescope Assembly Support services:

1. Track the TA technical progress and provide weekly reports. Reports contents shall include inputs on overall TA progress, accomplishments, and issues. The reports shall be submitted to the Ames Aircraft Lead.
2. Support the creation of schedules for TA-related NASA work and update them on bi-weekly basis.
3. Participate and develop plans for approval by the TA manager to support the Segment 3 Science and Observatory Verification and Validation (V&V) flights.
4. Support the development of a TA V&V strategy and plan to verify SOF-1011 and SOF-1069. Review and provide technical inputs to TA test plans and the TA Requirements Verification Matrix (SOF-1069).
5. In conjunction with the German contractors, prepare Change Control Requests (CCRs), Discrepancy Reports (DRs), Version Description Documents (VDDs), Software Media Release forms and other documentation necessary to go forward to the Project Control Board (PCB) and the NASA/DLR Material Review Board (MRB).
6. Update TA FEM models as required.
7. Support development and test of TA equipment.
8. Serve as technical point of contact for the NASA contribution to TA pointing improvement efforts. Generate plans and schedules to support the effort.
9. Participate in meetings (FRR, AFSRB, Tech Briefs, etc.), workshops, and reviews of design status, test readiness, and other related reviews. Provide responses to RFIs/RFAs resulting from reviews within one week of review.
10. Witness tests for NASA and provide written reports within 30 days.
11. Develop requirements for subcontracted studies and tests; prepare work packages for the studies and tests; track, critique, and evaluate the progress of the studies and tests.
12. Provide analysis and support to the TA fatigue stress assessment.
13. Support image quality improvement, including: providing project leadership, analysis and design support, flight test planning and support, and flight test data review for TA active damping system development, and providing identification and development of further TA damping and jitter reduction improvements
14. Provide analysis support to the evaluation of the aluminum Secondary Mirror replacement.
15. Provide a Telescope Assembly Scientist resident at the DAOF to interface with DLR/DSI, Platform Project personnel, and the Facility Scientist. Tasks shall specifically include assisting the Facility Scientist with developing plans for a spare secondary mirror, evaluating the need for an aluminum tertiary, and developing plans and requirements for the acquisition of a tertiary system, if deemed necessary.
16. Participate in Telescope Assembly (TA) testing and provide weekly reports on TA activities and progress.
17. Assist DSI and USRA with TA maintenance and repair, as requested.
18. Assist DSI and USRA with installation, removal, and maintenance of the secondary mirror buttons, as requested.

Travel for this task is estimated at 3 trips per month of 5 days duration to the DAOF.

C. Science Project

Telescope Assembly and Science Instrument Interface Support
No support requested.

Subtask 1.06.07 Mission Communication and Control System (MCCS)

A. Program

No support requested.

B. Platform Project - Mission Controls and Communications

The SOFIA Platform Project requires the following types of Mission Controls and Communications Systems Support services:

1. If requested, provide advice and assistance in the design and documentation of the Mission Controls and Communications System (MCCS).
2. If requested, witness tests for NASA and provide written reports within 30 days of the tests.
3. Participate in weekly engineering meetings and System Safety Working Group meetings.
4. Assist in the development of 'coordinate transform mathematical equations' and associated algorithms for various SOFIA observing scenarios.
5. Provide mathematical and coordinate system expertise consistent with quaternion representation of coordinate systems and their rotations.
6. Review SOFIA literature, existing scenarios, telescope design material, coordinate reference frame definitions, technical notes, and ICDs to augment mathematical and systems knowledge to apply in the Coordinate Transformation equation/scenario development process.
7. Interview the Infrared Astronomy scientific community within the SOFIA Science Project and associated Science Instrument teams to understand the intended use of the SOFIA TA/MCCS systems during observing scenarios.
8. Inspect/analyze defined SCL and underlying TA pass-thru command sets to understand the available and supported inputs available to apply to mathematical equations.
9. Inspect/analyze defined MCCS Housekeeping (HK) data to identify where computed variables should update MCCS HK variables published for observer or for verification/validation purposes.
10. Propose, report, and support schedule reporting on the equation development/review effort, reporting weekly on the accuracy of the schedule and its associated estimates to completion.
11. Participate in the Coordinate Transformation Working Group, responding to actions/requests for elaboration, reviewing associated scenarios for completeness and their impact upon other scenarios.
12. Support the development of the MCCS Flight Manager requirements and design specifications documentation.

Travel for this task is estimated at 1 trip of 2 days duration every other month to the DAOF.

Subtask 1.07 Science and Mission Operations

A. Program

No support requested.

B. Platform Project
No support requested.

C. Science Project - Mission Operations Support

The SOFIA Science Project requires the following types of Mission Operations Support services:

1. Participate and contribute to preparation for meetings, workshops, and reviews of documentation, as well as operational readiness, design, and other related reviews.
2. Contribute to SOFIA Mission Operations plans and procedures, process flows, and templates.
3. Support Telescope Assembly Alignment Simulator (TAAS) operations at the DAOF and ARC, as requested.
4. Support maintenance of the TAAS software, as necessary.

Travel for this task is estimated at 1 trip every other month of 3 days duration to the DAOF.

Subtask 1.09 Ground Systems

A. Program
No work requested.

B. Platform Project
No work requested.

C. Science Project - Ground Systems Support

The SOFIA Science Project requires the following types of Ground Systems Support services:

1. Support Science Instrument integration as requested.
2. Support development, upgrades, and testing of Science Instrument support equipment such as the PI Racks, the PI Rack Dollies, the Counterweight Racks (CWR), and the CWR Lifting Device.
3. Provide additional Ground Systems support as requested.
4. Develop and execute integrated systems test procedures for Science Project Ground Systems.
5. Support monitoring of the DAOF facilities construction projects for the Science Labs and the MCF and resolving issues that are identified.
6. Advise the Science Project on operations related software development activities such as the Data Cycle System (DCS), Science Instrument Data Pipelines, the Cycle Scheduler, the Short Term Planner, FMI, TA, and other Simulators. Participate in reviews, and review software documentation, including requirements and test results. This support is expected to include developing software prototypes and using existing KAO software tools to validate SOFIA Science Project software. This includes the specific task of keeping KAO flight-planning utilities running so that they can be used to validate that all needed functions are included in the newly developed flight planning tools and that new flight plan results match those of the KAO tools.

7. Update or generate Requirements Specifications for SOFIA Science and Mission Operations and Ground Facilities, including the SSMO, the SSMO-SOC, and the SSMO-SSC.
8. Review the requirements set for the specifications and ICDs listed in Appendix A and provide corresponding traces up and down for the SSMO leg of the SE01-068 specification tree from Level 2 through Level 4.
9. Prepare materials in support of SOFIA Observatory System Requirements Reviews (SRRs). Example: SE01-006 SRR support.
10. Support development and maintenance of other Ground System Specifications, the SOFIA Specification Tree, and Interface Control Documents related to Ground Systems.
11. Develop or review SOFIA Science and Mission Operations Verification and Validation (V&V) Plans for Ground Systems Specifications and Interface Control Documents.
12. Develop the necessary templates and documentation to record the V&V method in advance of the execution of the Analysis, Test, Demonstration, or Inspection.
13. Support the development of the test and demonstration procedures required for V&V of SSMO Specification Tree requirements.
14. Support execution and documentation of V&V for SSMO systems, including discrepancy reports and waivers.
15. Develop an end-to-end Data Architecture and Concept of Operations documentation.
16. Assist with data architecture requirements development and develop prototype data architecture software to support concept development and to meet observatory needs for Phase 1 of Segment 3 Observatory operations.
17. Participate in the development process for data handling software tools.

Travel for this task is estimated at 1 trip per month of 3 days duration to the DAOF.

Subtask 1.10 Integration and Test

A. Program

No work requested.

B. Platform Project

No work requested.

C. Science Project - Integration and Test Support

The SOFIA Science Project requires the following types of Integration and Test Support services:

1. Perform SI ICD verification planning, compliance assessment, and procedure development, and participate in procedure execution, in preparation for SI installations. This includes developing and maintaining SI ICD verification matrices, and writing discrepancy reports and waiver requests.
2. Support Observatory-level evaluation and testing, including provision of inputs to test plans, procedures, and reports, participation in the execution of the tests, review of Observatory discrepancy reports, and analysis of test results.
3. Review Science Project hardware and software verification test plans along with appropriate test procedures, witness verification tests, and review verification reports.

4. Develop hardware and software verification test plans and procedures for the SI-SSMO systems, including SI-to-DCS, SI-to-FMI, and SI-to-SIL.
5. Review V&V test results for SI, SSMO, and SI-to-SSMO interfaces. This includes:
 - a) DCS tests
 - b) FMI tests
 - c) SI-to-DCS tests
 - d) SI-to-SIL tests
 - e) SI-to-SOC tests
 - f) SI-to-PIF tests
6. Support Observatory Verification and Validation (V&V) by contributing to the development of the V&V Plan, the V&V Matrix, and associated V&V activities (inspection, analysis, demonstrations, and/or tests).
7. Support development and tracking of Observatory level metrics.
8. Provide design, cost and schedule for development of a Power Draw Test Fixture. Following review of design, costs and schedule, complete 3 -5 units as directed.

Travel for this task is estimated at 1 trip per month of 3 days duration to the DAOF.

SECTION B - TECHNICAL SPECIFICATIONS

B.1 Staffing Requirements

The Contractor will be expected provide appropriate expertise at the minimum levels below to fulfill the requirements/deliverables described in this task. These are not necessarily allocable to any given sub-task and the contractor in coordination with the Task Manager will have the ability to perform reprioritization among subtasks to meet surge requirements. Additional support may be required to successfully manage and meet the requirements described herein. In instances where this may be necessary the Contractor shall coordinate with the cognizant NASA task manager prior to implementation:

JOB TITLE	EXPECTED COVERAGE¹	EXPECTED QUALIFICATIONS
Admin	4160 (2)	One Senior Level, One Standard Grade Level with backgrounds in project support and familiarization with office tools and project management processes.
Clerical	4160 (2)	Standard Grade Level with experience in configuration management systems and processes. Windchill in particular.
Scientist	2080 (1)	Masters/PhD Level in Astronomy with emphasis on development of observatory systems
Senior Engineer (Systems and Discipline)	18,720 (9)	Expect B.S. or higher and/or extensive experience in the areas of: Systems Engineering and Integration, Electrical/Electronic, and Mechanical
Engineer (Systems)	6240 (3)	Expect B.S. or higher and/or experience in the areas of: Systems Engineering and Integration,

¹ Quantities are WYEs based on a full year of task performance

		and testing, evaluation and analysis
Software Engineer	12,480 (6)	Two Senior Level, four Standard Grade Level with B.S. or higher in appropriate field of study including mathematics and/or appropriate level of experience in the areas of software development and/or software testing and evaluation.

B.2 ODC Requirements

CATEGORY	ITEM(s)	AMOUNT
Travel	8 trips/month @ 3 days each	\$6,000/month
to Dryden DAOF	1 trips/month @ 2 days each	\$500/month
	3 trips/month @ 5 days each	\$3,000/month
Training		
Materials		
Other		

B.3 Deliverables

#	TITLE	DUE DATE
1	Subtask 1: provide accomplishment/status reports	Weekly
2	Subtask 2: coordinate safety inspections, update all databases related to inspections, and coordinate resolution of safety issues and findings	Monthly, with 30 days to implement corrective actions
3	Subtask 3: document and database support; workshop, meeting, and/or conference support	Monthly

SPACE TECHNOLOGY OFFICE SUPPORT
NFS 1852.216-80

Contract No. TBD

FULLY INTEGRATED LIFECYCLE MISSION SUPPORT SERVICES

SECTION A – IDIQ TASK REQUEST SCOPE AND GENERAL INFORMATION

A.1 Task Description

The overall requirement of this task is to provide support to the Ames Chief Technologist as it advocates for and coordinates technology investments and transfer, pursues innovative partnerships, and manages the Center Innovation Fund and strategic technology studies.

The Ames Center Chief Technologist (CCT) serves as the principal advisor and advocate on matters concerning Center technology initiatives, and is responsible for coordinating and tracking technology investments across the Center. The CCT Office also serves as the Center's technology point of entry and contact with the Agency's Office of the Chief Technologist (OCT), other NASA Centers, government agencies, academia and the commercial aerospace community.

The Office is responsible for developing and executing innovative technology partnerships, technology transfer and commercial activities, and the development of technology collaboration models for the Center.

The CCT Office also provides a technology and innovation focus for Ames through the following goals and responsibilities:

- Manage the solicitation, evaluation, review and award of the Center Innovation Fund (CIF).
- Initiate, coordinate and integrate technology investments across the Center, including mission-focused technology development activities supporting the NASA Mission Directorates, which “pull” technology development based upon established Mission needs, and Office of the Chief Technologist (OCT) initiatives that perform “push” technology development and demonstration.
- Lead Strategic Technology Studies initiated and/or supported through the Agency's OCT, as needed. Currently, six strategic technology studies and initiatives are managed by the CCT Office, including: Advanced Digital Materials and Manufacturing for Space (ADMMS); Technologies for Biological Space Exploration (T4BSE); Cyberphysical Systems Modeling and Analysis (CSMA); Designing High Confidence Software Systems (DHCSS); Science Instruments for Small Missions (SISM); Small Spacecraft Mission Enterprise (SSME); and Emerging Aeronautics Systems and Technologies (EAST).
- Host the NASA-Ames Center for Innovation and Technology Enhancement (N-CITE) in order to facilitate communication and enable collaborations between the NASA Ames Research Center (ARC) and the residents of the NASA Research Park (NRP).

- Change culture at the Center towards one of creativity and innovation, particularly in regard to workforce development.
- Document/demonstrate/communicate societal impact of the Center's technology investments, by leading technology transfer and commercialization opportunities for the Center.

A.2 Task Requirements

The Contractor shall provide the complete range and scope of skills and capabilities needed to fully meet the requirements of this IDIQ Task Request and to meet the requirements of the deliverables that will be defined by the government IDIQ Task Requester.

The Contractor shall plan, manage, control and coordinate all assigned work under the Fully Integrated Lifecycle Mission Support Services (FILMSS) Contract.

All work shall be identified, defined in scope, prioritized and managed by the Contractor to ensure that appropriate and necessary resources are applied. Where inadequate resources or conflicts exist that cannot be resolved within the scope of the IDIQ Task Request, the Contractor shall notify the NASA IDIQ Task Request Manager, COR and CO and take the necessary steps to revise the requirements of the IDIQ Task Request through the approved process.

The Contractor shall provide technical and administrative support in accordance with the subtasks described herein and ensure that all subtasks are performed efficiently, effectively and within the scope of the IDIQ Task Request.

The subtask number, title and description of efforts to be performed under this Plan are detailed below.

Subtask 1 Collaborative Tools

Subtask 1.1 Virtual Meetings

- The Contractor shall provide support the STO in its use of collaborative tools such as Adobe Connect in support of staff meetings and other STO business;
- The Contractor shall support the broadcast, recording and remote attendance of seminars, workshops and other meetings using Adobe Connect, HD Videoconferencing, Livestream, Teleplace and other collaborative tools;
- The Contractor shall provide support for STO video conferencing, including providing recommendations for videoconferencing equipment and conference room configuration.

Subtask 1.2 Website Support

- The Contractor shall lead or assist in producing, developing, and maintaining the STO websites including development of specialized applications/websites (such as workshop websites) as necessary, and coordinate compliance with all NASA webpage guidelines, restrictions, and security controls;
- The Contractor shall assist with the conceptual development of CCT/STO website;

- The Contractor shall produce graphics, presentations and documents in support of the STO office.

Subtask 2 Technical Support Services

Subtask 2.1 Culture of Innovation at the Ames Research Center (ARC)

- The Contractor shall help facilitate the development of partnerships and collaboration with other NASA Centers, other government agencies, and traditional and non-traditional non-government partners, and explore new business opportunities to enhance future technology development;
- The Contractor shall use innovative tools to get technology information out, including social media;
- The Contractor shall support the activities of the NASA-Ames Center for Innovation and Technology Enhancement (N-CITE);
- The Contractor shall support the Ames Exploration Academy with respect to outreach and cutting across organizational stovepipes in the development of new technologies;
- The Contractor shall assist in the development of an incubator capability to develop technology concepts;
- The Contractor shall support Ames technology special studies;
- The Contractor shall support the development of innovative technology in response to solicitations and Agency technology priorities;
- The Contractor shall support the Agency's Innocentive Program.

Subtask 2.2 Special Studies

The contractor shall support initiatives and studies in technology areas of strategic interest to accelerate solutions to Agency challenges and to ensure that Ames makes its strongest contribution. Particular initiatives and studies are selected based on a number of factors to include synergies with Ames core competencies, future interest areas, and the strategic direction of the Agency. Multi-disciplinary teams comprised of Ames staff supplemented with subject matter experts from other Centers and external entities define and implement these initiatives and studies.

Subtask 2.2.1 Small Instruments for Space Missions (SISM) Study

The work task is to support the Ames CCT in the development of the Small Instruments for Space Missions (SISM) study, sponsored by NASA's Office of the Chief Technologist (OCT). This is a multi-Center study to investigate the state-of-the-art and gaps in science instrument technologies applicable to small Earth and space missions.

In support of this effort, the Contractor shall:

- Support the definition of spacecraft platform capabilities, in terms of mass, volume, power available for p/l, etc., and shall identify existing or developing instruments that fit within each platform capability envelop as well as gaps in instrument technologies. Identified gaps will not be limited to whole instrument systems, but will also include incremental improvements required in specific instrument subsystems or parameters. The instrument space will be open to all categories of instruments (e.g., Earth and space

science, orbital and lander (etc.), low and high TRL, etc.) This effort shall rely heavily on cross-reference to the Agency's Space Technology Roadmaps.

- Support the development of two to three design reference missions (DRM) capable of using example instruments identified within a given platform capabilities category. Rationale shall be given as to why the DRM(s) and corresponding instrument(s) were selected. Based on the selection of instruments for a given DRM, science objectives shall be defined. Selection of the DRM's (including instruments and science objectives) shall also take into consideration recommendations from the Agency's Decadal Surveys and Strategic Plans, where appropriate. The goal in developing DRMs is to pick promising mission concepts that can accomplish a set of science objectives within the limited resources made available to smaller missions.

SECTION B - TECHNICAL SPECIFICATIONS

B.1 Staffing Requirements

SUBTASK	JOB TITLE	HOURS	QUALIFICATIONS
1	Content Developer	100	BA/BS; min. 5 years relevant experience Experience with scientific and/or educational writing experience; extensive computer skills and software knowledge
2	Audiovisual Specialist	120	BA/BS; min. 10 years relevant experience in virtual communications and collaborations and the innovative technologies that support them.
3	Technology Partnership Business Developer	2080	BA/BS in engineering, physical science, computer- or related science; min. 3 years relevant experience. Must be able to evaluate external partner technologies, expertise, and strengths to determine relevance and ensure maximum utility to NASA missions and Ames core strengths; and conversely, evaluate potential attractions of NASA-funded technologies, expertise and facilities to external partners.
4	Science Instrument Technician	300	BA/BS in engineering, physical science, computer- or related science; min. 3 years relevant experience. Must be able to understand how maximize science return from innovative, smaller spacecraft platforms so as to ensure maximum utility to NASA missions and Ames core strengths.

B.2 ODC Requirements

CATEGORY	ITEM(s)	AMOUNT
Travel	Subtask 2: 2 trips to Washington DC, average 5 days each	\$5,000
	Subtask 2: other trips to conferences, meetings, as requested	\$4,000
Training		
Materials	Subtask 3: Display materials, equipment and services	\$2,000
Other	Subtasks 1,2,3: Miscellaneous supplies	\$5,000

B.3 Deliverables

#	DELIVERABLE	DUE DATE
1	Subtask 1 & 2: status report	Monthly
2	Subtask 1: set up virtual collaboration software and other preparations in support of virtual meetings	5 business days prior to event
3	Subtask 2: technical displays, brochures, posters, videos, DVDs, etc.	15 days prior to event

11 - OFFICE OF THE CHIEF SCIENTIST SUPPORT
NFS 1852.216-80

Contract No. TBD

FULLY INTEGRATED LIFECYCLE MISSION SUPPORT SERVICES

**SECTION A – IDIQ TASK REQUEST
SCOPE AND GENERAL INFORMATION**

A.1 Task Description

The Ames Office of the Chief Scientist (OCS) serves as the principal advisor and advocate on matters pertaining to the scope and conduct of science research at the Center, and on how best to integrate new and emerging research and technology areas with the Center's capabilities.

The OCS works with the Center Director and Organizational Directors to create and maintain an environment that motivates and sustains research excellence across the Center, while maintaining relevance to the Agency's strategic plans. The Office provides independent advice to the Center Director on the health and viability of the Center's research activities. The OCS promotes collaborative interactions and research across Center Directorates and across NASA Centers. The Office works closely with the Center's Senior Management to formulate agreements and plans for institutional support of research at the Center.

The OCS is responsible for dissemination of new scientific knowledge gained by Center researchers to the external community, to stakeholders within the Agency and within other government organizations, and to the general public. The Office organizes scientific and engineering research seminars and workshops, in coordination with the Center Director.

The Office uses its experience and expertise to identify new and promising areas of scientific and engineering research, and supporting technologies, that can be integrated into the Center's existing capabilities. The Office works with the Center Director and Organizational Directors to support the business case for developing and sustaining new and emerging research areas, and to ensure that these areas are aligned with the interests of NASA, or other supporting government agencies or customers. The Office also contributes to long range planning activities, and to the formulation of objectives and program plans for areas of emerging research and technology. The OCS facilitates and develops international, inter agency, academic and/or commercial collaborations to sustain new research initiatives.

A.2 Task Requirements

The Contractor shall provide the complete range and scope of skills and capabilities needed to fully meet the requirements of this IDIQ Task Request and to meet the requirements of the deliverables that will be defined by the government IDIQ Task Requester.

The Contractor shall plan, manage, control and coordinate all assigned work under the Fully Integrated Lifecycle Mission Support Services (FILMSS) Contract.

All work shall be identified, defined in scope, prioritized and managed by the Contractor to ensure that appropriate and necessary resources are applied. Where inadequate resources or conflicts exist that cannot be resolved within the scope of the IDIQ Task Request, the Contractor shall notify the NASA IDIQ Task Request Manager, COR and CO and take the necessary steps to revise the requirements of the IDIQ Task Request through the approved process.

The Contractor shall provide technical and administrative support in accordance with the subtasks described herein and ensure that all subtasks are performed efficiently, effectively and within the scope of the IDIQ Task Request.

The subtask number, title and description of efforts to be performed under this Plan are detailed below.

Subtask 1 OCS Support: Junior Staff Member

- The contractor shall supply the Chief Scientist a junior staff support person for the Staff Science Manager position.
- The contractor shall support the Chief Scientist with various activities not limited to supporting meetings, document, planning, and strategic development.

SECTION B - TECHNICAL SPECIFICATIONS

B.1 Staffing Requirement

SUBTASK	JOB TITLE	HOURS	QUALIFICATIONS
1	Staff Science Manager	2080	B.A./B.S./M.S.; min. 2 years relevant experience including management and international organizations experience.

B.2 ODC Requirements

None identified but it is expected that some travel will be required. Additionally various supplies may be required for meetings

B.3 Deliverables

None

EARTH SCIENCES AIRBORNE MISSION SUPPORT
NFS 1852.216-80

Contract No. TBD

FULLY INTEGRATED LIFECYCLE MISSION SUPPORT SERVICES

**SECTION A – IDIQ TASK ORDER SCOPE AND
GENERAL INFORMATION**

A.1 Task Description

NASA is engaged in an airborne atmospheric sampling mission involving investigators from a variety of non-federal government institutions. This mission involves significant fieldwork to both domestic and international locations.

This task includes science-enabling functions for non-federal scientists, engineers, and technicians engaged in NASA Earth Science Airborne field experiments, specifically the Airborne Tropical Tropopause Experiment (ATTREX).

A.2 Task Requirements

The Contractor shall provide the complete range and scope of skills and capabilities needed to fully meet the requirements of this IDIQ Task Request and to meet the requirements of the deliverables that will be defined by the government IDIQ Task Requester.

The Contractor shall plan, manage, control and coordinate all assigned work under the Fully Integrated Lifecycle Mission Support Services (FILMSS) Contract.

All work shall be identified, defined in scope, prioritized and managed by the Contractor to ensure that appropriate and necessary resources are applied. Where inadequate resources or conflicts exist that cannot be resolved within the scope of the IDIQ Task Request, the Contractor shall notify the NASA IDIQ Task Request Manager, COR and CO and take the necessary steps to revise the requirements of the IDIQ Task Request through the approved process.

The Contractor shall provide technical and administrative support in accordance with the subtasks described herein and ensure that all subtasks are performed efficiently, effectively and within the scope of the IDIQ Task Request.

The subtask number, title and description of efforts to be performed under this Plan are detailed below.

Subtask 1 Travel arrangements and reimbursement for the Airborne Tropical Tropopause Experiment (ATTREX)

The contractor will facilitate the participation of ATTREX non-government investigators in the mission, including: making travel arrangements for hotels, rental cars, and airplane tickets as required and providing reimbursement services for these investigators.

- The Contractor shall perform the management and administrative work to meet the requirements of this core element/task request. This encompasses management of staffing and funding to ensure tasks, products and deliverables are completed in compliance with their technical, schedule, and budget requirements.
- The Contractor shall support Core Element/Task Order cost planning, tracking and management. The contractor team shall support planning activities with other ARC NASA entities, NASA Centers, NASA Headquarters and NASA International Partners.
- The Contractor shall provide projections of resource management costs associated with manpower, travel and materials to the end of the Core Element/Task Order period.
- The Contractor shall monitor deliverables and identify personnel responsible for review and response to those deliverables.
- The Contractor shall implement appropriate planning and control techniques to ensure effective use of personnel and resources and maintain appropriate mix of core/contract personnel to meet Core Element/Task Request objectives.

SECTION B - TECHNICAL SPECIFICATIONS

B.1 Staffing Requirements

SUBTASK	JOB TITLE	HOURS	QUALIFICATIONS
1	Administrative Assistant	2080	BA/BS; min. 2 years relevant experience

B.2 ODC Requirements

CATEGORY	ITEM(s)	AMOUNT
Travel	N/A	
Training	N/A	
Materials	N/A	
Other	N/A	

B.3 Deliverables

#	DELIVERABLE	DUE DATE
1	Planning, logistics, coordination and other necessary arrangements for ATTREX campaigns	15 days prior to event
2	Summary report on support activities	15 days after event

EDUCATION & PUBLIC ENGAGEMENT SUPPORT
NFS 1852.216-80

Contract No. TBD

FULLY INTEGRATED LIFECYCLE MISSION SUPPORT SERVICES

SECTION A – IDIQ TASK ORDER SCOPE AND GENERAL INFORMATION

A.1 Task Description

Education fuels advances in humankind's understanding of the universe, advanced technology breakthroughs, enhanced air travel safety and security, and expanded the frontiers of scientific research. The Agency is committed to excellence in science, technology, engineering and mathematics education to ensure that the next generation of Americans can accept the full measure of their roles and responsibilities in shaping the future. The Ames Education Office contributes to the Agency's tradition of investing in the Nation's education programs and supporting the country's educators who play a key role in preparing, inspiring, exciting, encouraging, and nurturing the young minds of today who will be the workforce of tomorrow.

In 2012 and beyond, NASA will continue to pursue three major education goals:

- Strengthening NASA and the Nation's future workforce
- Attracting and retaining students in science, technology, engineering and mathematics, or STEM, disciplines
- Engaging Americans in NASA's mission

A.2 Task Requirements

The Contractor shall provide the complete range and scope of skills and capabilities needed to fully meet the requirements of this IDIQ Task Request and to meet the requirements of the deliverables that will be defined by the government IDIQ Task Requester.

The Contractor shall plan, manage, control and coordinate all assigned work under the Fully Integrated Lifecycle Mission Support Services (FILMSS) Contract.

All work shall be identified, defined in scope, prioritized and managed by the Contractor to ensure that appropriate and necessary resources are applied. Where inadequate resources or conflicts exist that cannot be resolved within the scope of the IDIQ Task Request, the Contractor shall notify the NASA IDIQ Task Request Manager, COR and CO and take the necessary steps to revise the requirements of the IDIQ Task Request through the approved process.

The Contractor shall provide technical and administrative support in accordance with the subtasks described herein and ensure that all subtasks are performed efficiently, effectively and within the scope of the IDIQ Task Request.

The subtask number, title and description of efforts to be performed under this Plan are detailed below.

Subtask 1.0 NASA Academies Support

The NASA Ames Education & Public Outreach Division is responsible for two NASA Ames Academies; the Space Exploration Academy and the Aeronautics Academy. The contractor will work with the Education Director and the Task Manager throughout each aspect of developing the Strategies and processes being used for each Academy.

The Contractor shall:

1. Provide a highly skilled core team of education and STEM engagement product developers with a diverse range of skills, who can provide leadership and guidance to sub-contractors and partners in the development and implementation of Education plans for multiple programs in parallel.
2. Provide staff with the technical knowledge and skills in multiple areas which may include developing education content, graphics, Web development, writing, planning and presenting Education workshops, webcasts, planning and executing public events, evaluation, and project management.
3. Provide staff with the technical knowledge and experience required to provide an effective interface between Ames Education and mission personnel.
4. Support the Ames Academies through outreach; review and selection of student participants; identification of mentors; and general management and implementation of the program
5. Support the development and implementation of the NASA Ames Academy for Space Exploration & the Aeronautics Academy. Expertise will be required for the planning, organization, and coordination of each year's Academies. The support will be divided into three phases. Phase 1 will include strategic planning, resource requirements definition, networking for sponsors, soliciting university participation, recruiting, defining funding sources, and identifying PI support. Phase 2 will include curriculum planning, application processing, student selection, scheduling, and materials preparation. Phase 3 is the coordination and implementation of the Academy.
6. The contractor shall work in concert with the Task Manager and the Chief of the Education Office to develop a strategy to support the mission of the NASA Ames Academy. The contractor shall work with the NASA Task Manager and the Chief of the Education Office to define the requirements for each year and for each academy and initiate contacts for resources.
7. The contractor shall participate in networking and requesting PI support. The contractor will be the primary point-of-contact for PI participants, and the State Space Grants program.
8. The contractor shall support the research and planning for the curriculum, utilizing expertise in the field as required.
9. The contractor shall coordinate the application process and student selection.

10. The contractor shall prepare and coordinate the materials, facilities, and resources required to support the academy.
11. The contractor shall assure all resources are available, coordinate students with PI mentors, assure all activities are conducted in alignment with NASA safety policy, and escort students for off-site trips.
12. The contractor shall provide feedback and reports to NASA management as required by the NASA Task Manager and Chief of the Education Office.
13. The Contractor shall provide a de-briefing and lessons learned presentation to the Task Manager and other NASA and Contractor personnel involved in each Academy, after the Academy is completed.
14. Provide the full range of skills required to execute the requirements from conception through development and outreach, to include the ability to purchase any required materials or services and to support travel needs.

Subtask 2.0 Education and Public Engagement Support

The NASA Ames Education & Public Outreach Division is responsible for NASA Ames Education programs such as Internships, Fellowships, Scholarships, and Educator Professional Development, as well as Public Engagement Activities such as STEM Engagement and Institutional Engagement. The Contractor may be involved with any of the following areas.

The Contractor shall:

1. Support the development and execution of public education activities, experiential learning opportunities, and STEM challenges to engage the public in NASA's mission.
2. Develop, implement and update program or project Education and Communication plans, including production of detailed media plans specifying activities and products coinciding with significant mission milestones, events, and scientific discoveries
3. Develop and disseminate Ames program and project information, services and products with the goal of informing the science and education communities, the media, and the public of achievements and opportunities for participation
4. Develop science, research, educational and outreach tools, such as websites, newsletters, brochures, videotapes, compact disks, apps, displays, and kindergarten through 12th grade educational/classroom materials
5. Coordinate and participate in outreach events to engage the public, such as local community and school events, scientific meetings and education conferences
6. Coordinate all program and project Education and Public Engagement activities with the Ames Strategic Communications and/or the Education/Public Engagement Offices; also ensure that activities are consistent with NASA Headquarters Education & Communication policies

7. Support capacity development and building of relationships with STEM institutions and organizations. Specifically institutions and organizations that support:
 - Higher education,
 - Elementary and secondary education through conceptual infrastructure (e.g., science or technology standards or guidelines), and
 - Informal science and technology education.
8. Support Agency educator professional development efforts to meet NASA's objectives.
9. Provide administrative support services for Ames education programs. Including onboarding, logistical support with facilities, organizing tours, gathering and reporting on metrics, communicating with students, and operational support for the Education program.
10. Additional activities may include:
 - Work closely with Education and missions in the continuing development of mission Education plans
 - Develop methods that update the general public with new information resulting from the Missions, use technology to communicate activities (i.e. post on YouTube and other sites)
 - Provide status report weekly to Task Requestor
 - Provide cumulative status report on all tasks at end of period of performance
 - Develop and test new and modified products such as mobile applications, games, etc.
 - Conduct teacher professional development workshops at national, regional, and key state venues – e.g., teacher conferences
 - Represent Missions in NASA booths at major national teacher conferences
 - Support and encourage education activities for missions with training, bookmarks and posters, and joint participation at education venues such as teacher conferences, career days, and major events
 - Advocate and encourage collaboration and the use of mission materials/products by organizations such as museums, professional organizations, etc.,
 - Develop and distribute supporting materials such as posters, bookmarks, banners, etc.
 - Update and maintain websites and associated files to reflect current content, products, and materials

SECTION B - TECHNICAL SPECIFICATIONS

B.1 Staffing Requirements

SUBTASK	JOB TITLE	HOURS	QUALIFICATIONS
1	Education Program Specialists	4160	BA/BS, Minimum 5 years relevant experience
1	Educational Aide	800	BA/BA, minimal relevant experience
2	Education Program Specialist	TBD	TBD
2	Education Research Analyst	TBD	TBD
2	Instructional Systems Specialist	TBD	TBD
2	Educational Aide	TBD	TBD

B.2 ODC Requirements

CATEGORY	ITEM(s)	AMOUNT
Specialty Subs/Vendors	None	\$0
Travel	To science teachers conferences, math symposia	\$3000
	To SpaceGrant meetings, Academy educational trips	\$50,000
	Recruitment trips	\$3000
Training	Special presentations	\$2000
Materials	Display materials, posters, informational material, websites, etc.	\$2,000
Other	Web services support	\$1000

B.3 Deliverables

#	Title	Due Date
1	Status Report	Monthly
2	Conference travel, transportation, displays, etc.	Starting 8 weeks prior to conference
3	Websites per demand, with registration pages	As needed
4	Meeting reports	Within 2 weeks after conference
5	Education and Communication Plans	Annually, as part of Phase I
6	End of Academy Summary Briefing	Annually
7	Displays, educational materials, brochures, etc.	Ongoing
8	Performance Measure Reporting	Upon completion of each event
9	Weekly highlights report	weekly