

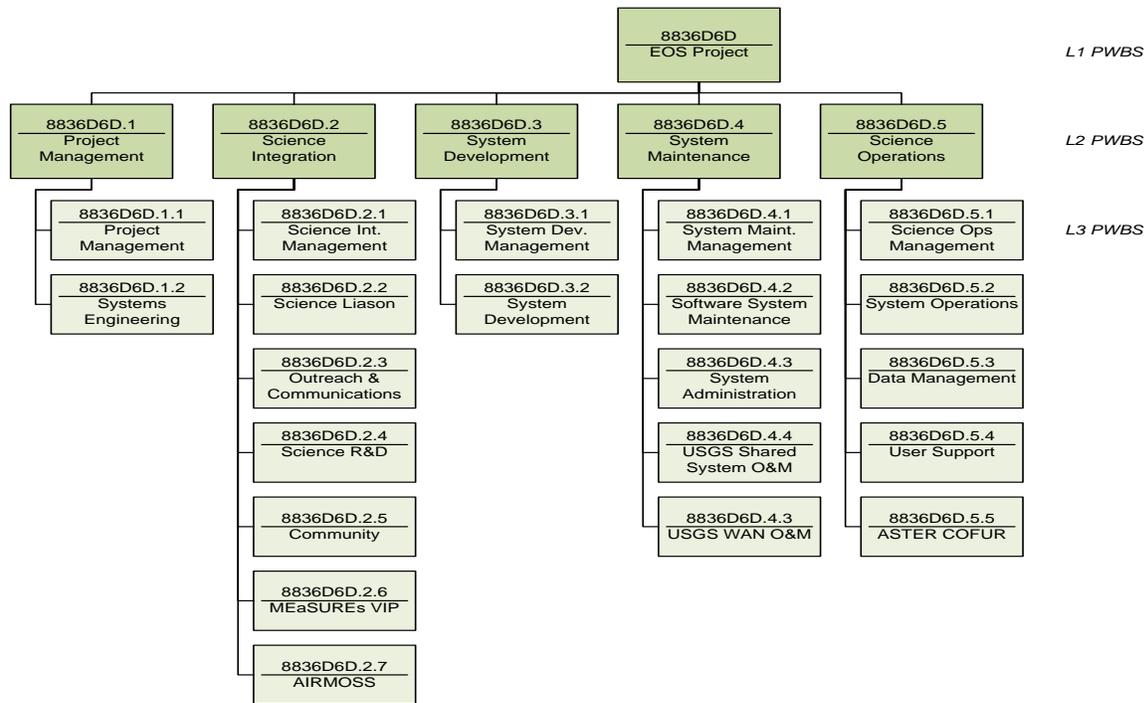
**EARTH OBSERVATION SYSTEMS (EOS) PROJECT
SYSTEM MAINTENANCE SUPPORT (Task Order 18)
STATEMENT OF OBJECTIVES (SOO)**

1 Purpose

The purpose of this Statement of Objectives (SOO) is to provide for Technical Support Services Contract (TSSC) support to the System Maintenance Task within the Earth Observation Systems (EOS) Project at the United States Geological Survey (USGS) Earth Resources Observation and Science (EROS) Center.

2 Scope

The EOS Project Work Breakdown Structure (PWBS) defines the scope of work for the EOS Project to Level 2 (Task) and Level 3 (sub-Task). The objectives for this task order are in support of the System Maintenance Management (8836D6D.4.1), Software System Maintenance (8836D6D.4.2), and System Administration (8836D6D.4.3) sub-Tasks of the System Maintenance Task (8836D6D.4).



3 Period and Place of Performance

The period of performance is from Start of Task plus 12 months.

All work will occur on-site at the USGS EROS Center located near Sioux Falls, South Dakota; however, the government will entertain exceptions for proposed off-site performance.

4 Background

NASA EOS is a long-term, interdisciplinary, and multidisciplinary research mission to study global-scale processes that shape and influence the Earth as a system. The EOS mission is partially accomplished through the provision of a comprehensive data and information system to provide the Earth science

research community with easy, affordable, and reliable access to the EOS and other appropriate Earth science data.

The NASA Earth Science Data and Information System (ESDIS) Project is responsible for providing scientific and other user access to earth data. The ESDIS Project provides access to data through the development and operation of the Earth Observing System (EOS) Data and Information System (EOSDIS). EOSDIS generates higher-level standard data products, and archives and distributes data products. Data products from EOS and other NASA Earth science missions are stored at Distributed Active Archive Centers (DAACs) to support interactive and interoperable retrieval and distribution of data products. The ESDIS Science Operations Office (SOO) is responsible for the overall management of all DAAC Science Operations.

The Earth Observing System Data and Information System (EOSDIS) provide a Core System (ECS) maintained under the EOSDIS Evolution and Development (EED) contract. The ECS Science Data Processing Segment (SDPS) provides a set of archive and distribution elements and is deployed at three Distributed Active Archive Centers (DAACs). The DAACs provide the facilities along with the management and operations support for the production, archive, and distribution of EOS standard data products. DAAC Unique Extensions (DUEs) are developed and maintained to augment the capabilities provided with the Core system.

The LP DAAC is one of the active archive centers in EOSDIS. The LP DAAC is devoted to land processes data in support of the Earth science research community. The LP DAAC provides a repository of discipline related earth science data and expertise, and a mechanism for interaction among scientists, EOS data investigators, and data center specialists; other EOSDIS archive centers, EOSDIS Science Investigator-led Processing Sites (SIPS), and ESDIS project personnel and the EOSDIS contractors.

NASA establishes and sets all policy in regards to operations, systems, and support software. NASA will establish policies and determine requirements, approve designs, plans and procedures, and provide liaison to other NASA-sponsored organizations.

It is the responsibility of the USGS to operate and maintain the DAAC equipment, provide mission support, archive data, support an ordering system for the user community to retrieve data, distribute data, provide user support, and ensure adherence to NASA regulations including, but not limited to, security, health, and safety regulations.

A very large variety and volume of data will be handled, and the LP DAAC activities must work as a part of, and in concert with, a wider NASA data system, the EOS Data and Information System (EOSDIS), and the organization responsible for it, the Earth System Data and Information System (ESDIS).

5 Performance Objectives

5.1 *Objective: Task Management for TSSC activities.*

Measures of Success:

- Adherence to Baseline scope, schedule, and costs
- Effective communication within project team and with USGS task management
- Quality, Cost Control, Timeliness, and Customer Satisfaction

Suggested activities:

- Facilitate communication efforts across the EOS project and with external entities
- Provide technical configuration management activities and best practices
- Support project-wide management processes including documentation, communication
- Maintain currency of Interface Control and other support documentation
- Support technical meetings and working groups
- Support transition of prototypes (and/or other research and development activities) to an Operational capability
- Support inter-project activities with the LTA and other USGS/EROS projects
- Support intra-project activities across task orders
- Maintain currency of EOS technical architecture documentation
- Provide recommendations to increase efficiency and decrease costs at the LP DAAC
- Support travel to other government agencies or locations as necessary in support of LP DAAC requirements.

Outcomes:

- Baseline task management plan to include WBS, scope, schedule, and cost
- Configuration Control Board (CCB) minutes
- Trip Reports and/or Meeting Notes
- Contractor work breakdown structure with associated responsibility assignment matrix
- Weekly status report to include task accomplishments, plans, progress, problems (due by Monday COB for the previous week)
- Monthly Status Report to include task scope, schedule, accomplishments (actual) and plans (forecast); due within 5 days of the end of each month
- Interface Control Documents (ICD's), DUE documentation, and EOS Architecture

Travel

- Travel to technical exchange meetings will be require for up to 8 domestic trips

5.2 *Objective: Integration and Ongoing Support of DAAC Unique Extensions (DUEs) into the LP Environment.*

Measures of Success:

- DUE availability (including ability to operate without manual intervention)
- DUE manageability (documentation, efficiency)

Suggested activities:

- Utilizing a prioritization methodology, provide Sustaining Engineering to include:
 - Corrective maintenance (maintenance activities intended to remove errors or bugs from the software, the procedures, the hardware, the network, the data structures, and the documentation)
 - Preventive maintenance: Regularly scheduled maintenance activities; the intent is to anticipate problems and correct them before they occur.
- Coordinate an Engineering Review Board (ERB)
- Support a capability with USGS Denver (IBIS) to enable credit card orders (ASTER)
- Maintain existing operational DUE's (30+)
- Provide minimal support on procure non-ECS hardware, software, and maintenance services to assure effective and efficient operations of the LP DAAC
- Support the evolution of the LP DAAC Web Site structure
- Support the integration of a more robust Terralook capability in regards to ASTER full resolution browse imagery
- Formalize the integration of AESICS (and overpass predictor) capability into the Core

Outcomes:

- DUE Configuration Change Report (monthly)
- DUE release schedule (quarterly)
- DUE software repository consisting of source code (under CM) + documentation
- DUE review including recommendations (annual report + ongoing recommendations)
- ERB notes, including DUE top 5 issues (weekly)

5.3 Objective: Integration and Support of delivered ECS capabilities into the LP environment

Measures of Success:

- Effectiveness of Communication and Coordination with NASA EED contractors
- Core System (ECS) availability (including ability to operate without manual intervention)

Suggested Activities:

- Provide system engineering support
- Support ECS Evolution activities
- Support ECS custom code installs with local EOSDIS Evolution and Development (EED) (one major and 3 minor releases per year)
- Provide metrics data to ESDIS for EMS and other project-tracked metrics
- Maintain multiple test environments (TS2 and TS1)
- Perform ECS regression testing and system configurations
- Perform ECS functional tests and performance exercises
- Create system test plans
- Develop, review and update procedures, resource logs and document chronic problems with trouble tickets
- Notify and coordinate with operations and management issues, problems or system outages
- Identify and investigate efficiencies in the system or processes to benefit operations and/or system performance
- Support problem triage for ECS functions
- Support ECS documentation and engineering reviews and pre-ship activities
- Support local EED and Raytheon Riverdale in system development and maintenance activities

- Provide a document review and maintain on an annual basis Interface Control Documents
- Support ESDIS implementation of coherent web practices and functions
- Provide support for the reprocessing of MODIS data to version 6
- Support integration of new ECS Releases

Outcomes:

- LP DAAC release schedule – weekly
- Top Issues list – weekly
- ECS Test Reports – as needed
- Operations Verification Acceptance Reports

5.4 Objective: Provide security for the LP environment.

Measures of Success:

- Compliance with NASA and USGS security policies
- Timeliness of correcting identified security issues

Suggested Activities:

- Maintain DAAC IT security in compliance with all NASA and USGS guidelines including NPG 2810.1 NASA security guidelines
- Perform hardware and software management which comply with USGS NIST and FISIM security controls
- Perform system level log monitoring to satisfy DOI security requirements

Outcomes:

- USGS Security Plan Revision – According to IMS

5.5 Objective: Provide System, Storage, and Database Administration.

Measures of Success:

- Operational systems meet or exceed 95% up time through the course of the year.

Suggested Activities:

- Provide 24 x 7 on call system support (SA and DBA) for operational systems
- Perform system troubleshooting and tuning activities
- Perform system administration activities
- Maintain system administration documentation
- Perform database administration activities
- Perform database administration troubleshooting and tuning activities
- Maintain database documentation
- Ensure Local Area Network connectivity for LP DAAC
- Perform an evaluation and clean up of the LP DAAC infrastructure
- Perform an evaluation of VMWare and the cost/benefit to the LP DAAC
- Evaluate and support potential Storage Area Network upgrades
- Deploy IBM Endpoint manager across the LP DAAC systems

Outcomes:

- Database Administration Report- monthly
- System / Storage Administration Report – monthly

5.6 Objective: Provide Hardware and Infrastructure Activities.

Measures of Success:

- Minimize ongoing maintenance of LP hardware (200+ virtual servers and multiple PB of on line storage).

Suggested Activities:

- Monitor computer room environment for effective operations to include heating,
- cooling, humidity, etc
- Provide space and equipment planning
- Provide infrastructure support
- Provide for capacity planning and technical refresh planning
- Support ECS hardware requirements
- Support facility modifications to include hardware and space planning along with consolidation activities
- Support hardware tracking responsibilities
- Support capacity planning
- Provide Support for the augmentation of the SAN, which should allow for the addition of MODIS v6 reprocessing

Outcomes:

- Updates to the LP DAAC IT Life Cycle Refresh Plan – quarterly
- LP DAAC IT Life Cycle Refresh Plan – yearly

5.7 Objective: Provide support for integrating new Earth Science Data Records (ESDR) into the ECS and DUE infrastructure.

Measures of Success:

- OVA's are successful for MEaSURES data sets, Global Forest Cover Change (GFCC) and Web Enabled Landsat Data (WELD).

Suggested Activities:

- Preparation of the system for the accompanying ESDR
- Perform system testing and tuning activities
- Provide estimation planning for on line storage

Outcomes:

- ESDR plans
- OVA reports

6 Assumptions and Constraints

6.1 *The TSSC contractor shall comply with the USGS Manual Fundamental Science Practices (<http://www.usgs.gov/usgs-manual/>), which govern how scientific investigations, research, and activities are planned and conducted and how information products are reviewed and approved for release and dissemination. Information products, as defined by the aforementioned Manual, shall*

- be subject to peer-review and subsequent approval by a Government Approving Official for official release.*
- 6.2 *The TSSC contractor shall interact/interface with other program offices within the USGS, EROS, and other federal, state, and local agencies and will likewise interact/interface with other support contractors providing support services to these program offices.*
 - 6.3 *The Government will provide all property necessary for the execution of work performed on-site at the EROS Center. The Government may, on an exception basis, provide property for work performed off-site. "Provide" and "Property" are as defined in Federal Acquisition Regulation 45.101.*
 - 6.4 *The TSSC contractor shall comply with the USGS EROS Acceptance of Data Collections by the USGS Operational Procedure (as amended) for all matters related to the consideration, acceptance, and retention of remotely sensed, cartographic, and Earth science data from other agencies and organizations for long-term preservation and access from the USGS EROS Center.*
 - 6.5 *The TSSC contractor shall comply with requirements of customer Memorandums of Understanding, Memorandums of Agreement, or similar documents which will be made available either through EROS internal website, on electronic media (DVD) or hardcopy.*
 - 6.6 *Travel within the Continental United States (CONUS) may be required in support of this SOO (not to exceed \$20,000).*
 - 6.7 *The task BOE shall break out costs to Level 4 of the WBS. In specific cases, the USGS may request that reporting be provided at lower levels of the WBS. Monthly detail shall be provided.*
 - 6.8 *The monthly status report shall break out progress, plans, problems, and risks Level 4 of the WBS. In specific cases, the USGS may request that reporting be provided at lower levels of the WBS.*
 - 6.9 *The TSSC should identify any "reserve" included in this task order estimate. For the purpose of this SOO, reserve is defined as labor/ODC costs within the plan to perform the general scope but not allocated to specific work at the time of the task plan development.*
 - 6.10 *TSSC will work cooperatively with NASA EED Contractor to support ECS*
 - 6.11 *TSSC will participate in EED document reviews and Integrated Product Teams (IPT's) as necessary.*
 - 6.12 *TSSC will continue to identify and recommend potential system and/or operations flow efficiencies for the ECS baseline and other LP DAAC DUE systems*
 - 6.13 *TSSC will effectively troubleshoot issues to ensure maximum system availability (goal of 95% or more availability)*
 - 6.14 *TSSC will provide on call staff to address operational issues or problems as notified by LP operations*
 - 6.15 *All currently operational DUE's will be supported thru System Maintenance. Corrective and preventive engineering and minor enhancements will be handled thru the ERB process. Any enhancement engineering work will be completed in EOS Task 17.*

- 6.16 *TSSC will provide for weekly configuration management, including CCB processes and procedures. Configuration management should cover the ECS system and all DUE's.*
- 6.17 *TSSC is responsible to have a communications plan to assure that the necessary discussions and connections are made to mitigate communications risks.*
- 6.18 *TSSC will maintain DAAC IT security in compliance with NASA and USGS security guidelines including the recommended security controls specified in NIST 800-53.*
- 6.19 *TSSC will support LP DAAC Development (including "labs") environment along with Test (TS1 and TS2) and OPS environments.*
- 6.20 *TSSC shall identify any hardware and software requirements necessary beyond standard GFE.*

7 Reference Information

LP DAAC System Documentation, Operating Procedures, Management Plans (LP DAAC Docushare)

LP DAAC System Architecture Plan, Version 2.5, March 2013.

LP DAAC System Engineering and Management Plan, Version 4.0, September 2013.

NASA SE doc

Systems Engineering Handbook: A Guide for System Life Cycle Processes and Activities, INCOSE, Version 3.2, 2010.

A Guide to the Project Management Body of Knowledge (PMBOK), Fourth Edition, Project Management Institute (PMI), 2008.