

Earth Science Data and Information System Project

Earth Observing System Data and Information System (EOSDIS) Evolution and Development 2 (EED2) Statement of Work for Providing Development, Sustaining Engineering and Continuous Evolution of Earthdata

NNG15HZ39C

July 26, 2019



**National Aeronautics and
Space Administration**

**Goddard Space Flight Center
Greenbelt, Maryland**

Change Record Page

ISSUE	RELEASE DATE	PAGES AFFECTED	DESCRIPTION
Original	7/26/2019	All	

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1 Project Overview

The Earth Science Data and Information System (ESDIS) Project manages the science systems of the Earth Observing System Data and Information System (EOSDIS). EOSDIS provides science data to a wide community of users for NASA's Science Mission Directorate.

In order for ESDIS to interact with science and other end users, ESDIS operates and manages the Earthdata platform providing a public, centralized web presence that represents and centralizes the capabilities of the EOSDIS and serves as an example of best practices for web development and implementation. The Earthdata infrastructure is highly available, using a series of redundant hardware servers and network paths, to serve the multitude of NASA Earth Science data users.

This task focuses on two specific areas:

- (1) The maintenance and sustaining engineering of the software for the following subsystems: Earthdata website (comprised of the Conduit Content Management System (CMS) and Conduit Web), Earthdata Developer Portal, Earthdata UI; user feedback module; the status application; EECS, the Earthdata Login system; and the Earthdata Code Collaborative (ECC) consisting of the Atlassian suite, Jama, Splunk, and Kayako; and all supporting IT hardware, software (custom and COTS), and related tools.
- (2) The Earthdata Web Infrastructure (WI). The WI includes the support and operations for the Atlassian suite (JIRA, Confluence, Bitbucket, and Bamboo), Jama, Splunk, and Kayako; and all supporting IT hardware, software (custom and COTS), and related tools required for developing and hosting web-based applications and the continuous deployment process. The WI also consists of the staff to support the following shared functions across the WI: UIUX, Continuous Deployments, System Administrators, Network Engineers, and Operations.

This statement of work specifies sustainment engineering, operational support, and additional work to be performed to continue evolving current capabilities with new features.

Applicable Documents

- 423-CDRD-EED2 Contract Data Requirements Document for EED2
 - NPR 2210.1, External Release of NASA Software
 - NPD 2820.1, NASA Software Policies
 - NPR 2810.1A Security of Information Technology
 - NPR 7150.2 NASA Software Engineering Requirements
 - NASA-STD-8719.13B, NASA Software Safety Standard
 - NASA-STD-8739.8, Software Assurance Standard
 - IEEE Standard 730, Software Quality Assurance Plans
 - Section 508 Standards – see <http://www.section508.gov/index.cfm?FuseAction=Content&ID=12>, particularly Subpart B – Technical Standards 1194.22 Web-based intranet and internet information and applications.
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Place of Performance

The place of performance is the GSFC, Greenbelt, MD, and at the contractor's facility in Riverdale Maryland.

2 Scope of Work

2.1 Development and System Engineering

2.1.1 The contractor shall conduct development and system engineering using Agile development methodologies and shall utilize the ECC for tracking NCRs, and for documenting and reviewing requirements.

2.1.2 The contractor shall release all new software as open source following NASA's open source release procedures, unless directed otherwise by ESDIS.

2.1.3 The contractor shall continue incorporating metrics scripts into all Earthdata components (through both the GUI and API), and expose API methods to allow partners to extract metrics relevant to their applications.

2.1.4 The contractor shall continue to maintain capability to classify Earthdata Login user groups by various characteristics, including community group, frequency of use, date of last authentication, and others as required.

2.1.5 The contractor shall provide technical support to assist projects in utilizing the ECC for their applications. The support may include development of interface code for specific applications or specific types of applications.

2.1.6 The contractor shall perform custom code changes as required to improve all Earthdata components scalability, performance, and reliability.

2.1.7 The contractor shall maintain and enhance search functionality on Earthdata with integrated searches of Web content, documentation, and data.

2.1.8 The contractor shall develop/enhance, document, and promote guidelines and best practices for improving User Interface/User Experience (UI/UX) consistency across EOSDIS (all DAACs) tools and Websites. The contractor shall provide general and technical support to DAACs for implementing improved UI/UX. The contractor shall implement UI/UX guidelines and best practices in all EED2-developed components.

2.1.9 The contractor shall develop/enhance Earthdata Login APIs needed to enable ESDIS and DAAC applications, including Web-based and programmatic (machine-to-machine) client systems, to fully integrate with Earthdata Login.

2.1.10 The contractor shall provide technical and development support to assist implementers in integrating their applications with Earthdata Login. The support will include potential support and development of interface code that may be needed for Earthdata Login onboarding of specific applications, as well as development of reference implementation examples, and documentation.

2.1.11 The contractor shall continue to maintain Earthdata Login roadmap detailing system components, architecture, and ongoing progress of deliverables.

2.1.12 The contractor shall monitor and assess technologies that will allow Earthdata Login to become more interoperable with user registration systems from other systems and agencies.

2.1.13 The contractor shall conduct and document all meetings on the Wiki.

2.2 Sustaining Engineering and Operations Support

2.2.1 The contractor shall maintain operations concepts for integrating Earthdata Login with EOSDIS applications.

2.2.2 The contractor shall provide technical support for integrating DAAC applications with Earthdata Login. The work will include working with respective application development groups and stakeholders in defining detailed requirements for the applications identified and assisting them in resolving issues encountered during the integration activities.

2.2.3 The contractor shall continue to organize and implement 4 distinct environments that are consistent across all versions of URS: SIT/DIT (for internal development testing), alpha, beta/UAT, and Operations. For Earthdata Login, ensure that partners and testers understand how to create Earthdata Login accounts in all appropriate environments, and which environments use these types of accounts.

2.2.4 The contractor shall provide corrective, adaptive, and perfective engineering and operations support to all components of Earthdata. This activity will include system administration, help desk functionality, planning and execution of periodic system upgrades, monitoring to support metrics collection, NCR and trouble ticket management, and support to patches and releases including use of automated deployment capabilities. NCR prioritization will be accomplished in conjunction with ESDIS.

2.2.5 The contractor shall provide hosting and hardware configuration as required. The contractor shall recommend and procure additional hardware to support scalability as necessary.

2.2.6 The contractor shall provide interim status and hold reviews to chart progress and direction of all deliverables.

2.2.7 The contractor shall support the integration of ESDIS-approved 3rd party Web applications, tools, and portals within the Earthdata infrastructure including those from the Sea Level Change Portal team, the DAACs, and ACCESS projects. Support may include development, system administration, help desk functionality, metrics collection, and documentation.

2.2.8 The contractor shall support 3rd party developers in the utilization of public Earthdata APIs (e.g. by clients) with help desk functionality and documentation.

2.3 Functional Requirements

2.3.1 The contractor shall maintain and support interoperability of the Earthdata website with other EOSDIS components including Earthdata Login, Common Metadata Repository (CMR), Earthdata Search, ESDIS Metrics System (EMS) and the Global Browse Imagery Services (GIBS) and its client Worldview.

2.3.2 The Earthdata Login shall support 24x7 availability to end users.

2.3.3 The Earthdata Login shall support an API on top of authentication capabilities to support integration of applications.

2.3.3 The Earthdata Login shall support a minimum response rate of 600 Earthdata Login requests per second.

2.3.4 The Earthdata Login shall support a minimum of 1 million end user registration records.

2.4 Development, Test, and Production Environments

2.4.1 Development and Test Environment

The Development & Test Environment facilitates both development and partner test. The on-premises system resides in Building 32, Room C101. The cloud system shall be through the NASA-compliant General Application Platform (NGAP). This environment shall allow for testing with the various partners. The Development and Test Environment shall be configured to accommodate Performance Testing.

2.4.2 Production Environment

The Production environment shall reside in Building 32, Room C101.

The System is designed for redundant failover. Both the Primary and Secondary Systems will be co-located in Building 32, Room C101.

The System shall reside on the Goddard Mission Network on its own address space.

DNS Services will be provided by the NISN Mission Network.

If approved by ESDIS, the cloud Production environment shall be through NGAP.

2.5 Security

All Earthdata components shall comply with all NASA security guidelines and standards.

2.6 Section 508 Compliance

The contractor shall develop and maintain Earthdata compliance with Section 508 Standards, particularly, standard 1194.22 Web-based intranet and internet information and applications.

2.7 Project Deliverables

See TPR for project deliverables

3 Period of performance

Period of performance is October 1, 2019 through August 31, 2020.
