

## A.22 ADVANCING COLLABORATIVE CONNECTIONS FOR EARTH SYSTEM SCIENCE

### 1. Scope of the Program

#### 1.1 Programmatic Description

The objective of NASA's Advancing Collaborative Connections for Earth System Science (ACCESS) Program is to enhance and improve existing components of the distributed and heterogeneous data and information systems infrastructure that support NASA's Earth science research goals. ACCESS projects increase the interconnectedness and reuse of key information-technology (IT) software and services in use across the broad spectrum of Earth system science investigations. The ACCESS Program supports the deployment of data and information systems and services that enable the freer movement of data and information within a distributed environment of providers and users, and the exploitation of needed tools and services to aid in measurable improvements of Earth science data access and data usability. Awarded projects help to improve NASA's heterogeneous data system components by leveraging proven information technologies, protocols, and practices. Selectees under the ACCESS solicitation are expected to rapidly bridge specific gaps in existing information systems and services that support NASA Earth science investigations.

The ACCESS Program welcomes and encourages the novel deployment and reuse of existing technological solutions for the support of Earth science data and information needs. Proposals offering wholly new IT development efforts or those comprising significant risk due to the immaturity of the technical components are not recommended for the ACCESS Program. The ACCESS Program welcomes infusion of mature technologies to supply new tools or services within the scope of this solicitation.

Proposers should note that this ACCESS solicitation is not a duplicative call for activities described in other ROSES-2007 solicitations, including Earth science research and science data product generation under the MEaSURES solicitation (Appendix A.23), Integrated System Solutions and Solution Network development through the Applied Sciences Decision Support through Earth Science Research Results solicitation (Appendix A.20), education-related projects such as the New Investigator Program in Earth Science (Appendix A.21), or information systems research solicited through the Earth Science Technology Office's (ESTO's) Advanced Information Systems Technology program (Appendix A.24).

ACCESS-awarded projects focus exclusively on the use of high technology readiness level (TRL) technology components for improving Earth science data systems (generally TRL 6 and above).

## 1.2 Solicited Areas of Interest

Pursuant to ACCESS program goals, the following areas of interest will inform proposers of the IT and data services sought in this solicitation and illustrate the types of proposals that are deemed responsive to this call.

The ACCESS solicitation for this 2007 call is focused on developing additional data system infrastructure and services to enhance the specific topic areas listed below. NASA's Earth Science Division has been actively promoting a more distributed and heterogeneous data and information system architecture to support the growing demands and needs of a diverse and increasingly IT-sophisticated Earth science user community. These technical areas identified for further development represent NASA's emphasis on leveraging near-term targets for significant data system improvements that are clearly tied to improving and augmenting data access and use of NASA Earth science data. There is significant overlap in the technologies and approaches described below so proposers should use these descriptions to guide the development of a work plan that may satisfy one or more of these topic areas.

- Improve NASA Earth science data interoperability to facilitate the transparent access and/or manipulation of heterogeneous and distributed data by science users. Emphasis should be given to the needs of specific science communities to discover and access multiple data types needed for science research.
- Transition and deploy existing Earth science research analysis tools and software using a web-based "Service Oriented Architecture" (SOA) paradigm so to enhance their reuse (encapsulation) potential for other science domains and improve overall awareness and access of these tools by a broad community. Elegant tool and service design that is simple and intuitive to use is increasingly valuable to evolving our data and information systems.
- Increase users' ability to customize their discovery, access, delivery, manipulation, and/or preferred format of NASA Earth science data and information. Allow users to dynamically alter their web-based working environments to create a virtual workspace where Earth science data, information, and related services can be populated and organized. We also encourage the deployment of these user customization tools be developed within a SOA context of loosely coupled services that are composable and extensible.
- Facilitate the movement of Earth science data products and/or science information into venues where discovery and access can be accomplished via common public search and access tools. Proposers should leverage current NASA data system capabilities to improve the ability of users to discover NASA data and services specific to their research needs. Tools that are able to work across Earth science disciplines are encouraged.

## 1.3 Persistence of ACCESS Tools and Services

The ACCESS Program awards are intended to help bear the costs of technological deployment of needed tools and services rather than as an ongoing funding source for the

maintenance of these tools and services. It is critical that proposals address the tool or service life cycle and means for continued operation once ACCESS deployment resources end. The argument for simplicity of tools and services goes beyond ease of use to low maintenance costs for persistence. NASA recognizes that the use of COTS (commercial-off-the-shelf) and GOTS (Government-off-the-shelf) software, software developed through open source licensing, and other 'freeware,' are of equal consideration for use in ACCESS projects. While it is not always possible to plan with certainty the life cycle of these technologies, proposers should address the likely scenario and make a case for the utility and uptake of these tools and services by the communities they are intended to serve.

## 2. Programmatic Information

### 2.1 Proposal Submission and Evaluation

In addition to the required content given in the *NASA Guidebook for Proposers*, ACCESS proposals must address these additional factors:

- The ACCESS Program, while focusing on IT deployment, is based on serving the science community. Proposal teams that comprise representation of both IT experts and Earth scientists are essential.
- Proposals should be tied directly to an Earth science research issue(s) or investigations with a clear objective and work plan for technology execution and deployment.
- Proposals should identify the main Science Focus Area to be served by the technical work proposed. These are:
  - Climate Variability and Change;
  - Carbon Cycle and Ecosystems;
  - Earth Surface and Interior;
  - Atmospheric Composition;
  - Weather; and
  - Water and Energy Cycle.
- The period of award for these projects is two years. While in some instances an additional year of funding may be awarded, proposal work plans and deliverables described must be limited to two years.
- Work plans should include the current state of practice/application for the tool or service proposed and identifies the improvements or augmentation that will result from the two year ACCESS award.
- If the proposal is leveraging or extending past work funded by the ACCESS Program, the relevancy to this current ACCESS solicitation should be made clear.
- Proposals submitted in response to this solicitation should provide an operations concept for continuance of the tools and services developed for the ACCESS Program. Proposers should review the *NASA Data Rights and Related Issues* document (see Appendix A.27) to include plans for the future state of their information system software rights.

- Proposals should discuss the overall software or tool’s effective total life-cycle cost of development and follow-on maintenance.

In addition, proposals selected by the ACCESS Program will be asked to have representation on one or more Earth Science Data System Working Groups (ESDSWGs). All ACCESS proposals must identify which ESDSWGs they wish to have representation on and should also budget a quarter-time (.25) FTE for these activities (see <http://esdswg.gsfc.nasa.gov/> for additional information). Proposals should also include a small travel budget for annual ESDSWG meetings. Note, this is an ACCESS Program requirement and thus is not subject to project waivers or negotiation.

## 2.2 Award Type and Funding

The funding vehicle for any award under this solicitation will be a Cooperative Agreement (CA). Proposers should be aware of the differences between a CA and a grant. For additional information, proposers should review the *NASA Grant and Cooperative Agreement Handbook* (<http://ec.msfc.nasa.gov/hq/grcover.htm>). Proposers may wish to discuss this form of agreement with their institutions prior to submission of an ACCESS proposal.

This solicitation expects to provide approximately \$3.5M per year for approximately seven to seventeen funded projects for a two-year cooperative agreement period, with an option for a third year extension. Proposers that plan on seeking a third year’s funding must submit a project plan midway through year two. Additional information on possible third-year activities will be provided to all awardees at a later date. All work funded under this ACCESS solicitation must be completed within two years from the CA start date.

It is expected that approximately \$200K - \$500K per year will be provided for each ACCESS award. The maximum award will not exceed \$500K per year. Proposal budgets for ACCESS projects will vary commensurate with the scale and scope of the activities proposed. Only the most substantive projects with broad scope (satisfying multiple topic areas) should propose budgets near the maximum yearly funding limit.

## 3. Summary of Key Information

Expected total program budget for new awards	~ \$3.5M
Number of new awards pending adequate proposals of merit	~ 7-17
Maximum duration of awards	2 year, possible third year extension (see Section 2.2)
Due date for Notice of Intent to propose (NOI)	See Tables 2 and 3 in the <i>Summary of Solicitation</i> of this NRA.
Due date for proposals	See Tables 2 and 3 in the <i>Summary of Solicitation</i> of this NRA.

NASA strategic objective(s) which proposals must state and demonstrate relevance to	Every proposal must address one or more strategic goal(s) or strategic outcome(s) from Table 1. See also Sections I(a) and IV(e) in the <i>Summary of Solicitation</i> of this NRA.
General information and overview of this solicitation	See the <i>Summary of Solicitation</i> of this NRA.
Detailed instructions for the preparation and submission of proposals	See the <i>NASA Guidebook for Proposers Responding to a NASA Research Announcement – 2007</i> at <a href="http://www.hq.nasa.gov/office/procurement/nraguidebook/">http://www.hq.nasa.gov/office/procurement/nraguidebook/</a> .
Page length for the central Science-Technical-Management section of proposal	15 pp; see also Chapter 2 of the <i>NASA Guidebook for Proposers</i> 5
Submission medium	Electronic proposal submission is required; no hard copy is required. See also Section IV in the <i>Summary of Solicitation</i> of this NRA and Chapter 3 of the <i>NASA Guidebook for Proposers</i> .
Web site for submission of proposal via NSPIRES	<a href="http://nspires.nasaprs.com/">http://nspires.nasaprs.com/</a> (help desk available at <a href="mailto:nspires-help@nasaprs.com">nspires-help@nasaprs.com</a> or (202) 479-9376)
Web site for submission of proposal via Grants.gov	<a href="http://grants.gov">http://grants.gov</a> (help desk available at <a href="mailto:support@grants.gov">support@grants.gov</a> or (800) 518-4726)
Funding opportunity number for downloading an application package from Grants.gov	NNH07ZDA001N-ACCESS
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