

Amended December 1, 2006

This version of Appendix A.20: Making Earth System data records for Use in Research Environment replaces in its entirety the version titled Research, Applications, and Education Solutions Network that was released with the ROSES-2006 NASA Research Announcement. With this amendment, NASA releases the final text for this solicitation and announces new proposal due dates. Notices of Intent to propose (NOIs) are due January 2, 2007. Proposals are due March 5, 2007.

NASA Earth Science Research Program is renaming the Research, Applications, and Education Solutions Network (REASoN) program, now used entirely for research objectives, to Making Earth System data records for Use in Research Environments (MEaSUREs). The overall objective of MEaSUREs solicitations is to select projects providing Earth science data products and services driven by NASA's Earth science goals and contributing to advancing NASA Earth system "missions to measurements" concept. MEaSUREs may include infusion or deployment of applicable science tools that contribute to data product quality improvement, consistency, merging or fusion, or understanding.

Through the MEaSUREs program, NASA is continuing its commitment to expand understanding the Earth system using consistent records. This program builds on a rich history of past NASA programs including Pathfinder Data Sets, Type 2 Earth Science Information Partners, and most lately Research REASoN projects.

1. Scope of Program

1.1 Overview

The Earth Science Division (ESD) uses NASA's unique capabilities in space to study the fundamental Earth processes that power climate, weather, and natural hazards, and the impact of those processes on the quality of life. In pursuit of its objectives in Earth science research, NASA is generating Earth system data of unprecedented quality and quantity and developing data processing and modeling capabilities to transform these data into products, information, and, ultimately, new knowledge of our planet. NASA Earth science data, data products, and data processing algorithms are stored in archives at centers across the United States and linked by the Internet for data access and distribution.

A major need stated by the NASA Earth science research strategy is to develop long-term, consistent, and calibrated data and products that are valid across multiple missions and satellite sensors.

NASA Earth Science Division has an unprecedented number of missions currently flying. Data product developers have matured mission instrument products through refinement of instrument cal/val and algorithms. Accordingly, ESD is increasingly able to focus research and data production on measurement-based products, beyond single mission instrument products. For creating these basic records, a science measurement focus brings together expertise in multiple instrument characterization and calibration, data processing, science-based product generation and distribution, science tools, and interactive relationships with the broader science community.

Projects selected through this solicitation will work to afford a solution for utilization of NASA assets and capabilities by the following:

- Providing or adding to mature data records needed for NASA Earth System research and, potentially, product science tools and services capabilities;
- Applying ESD principles regarding community involvement, product life cycle planning, and standards and interfaces for interoperability and exchange of data and information; and
- Supporting ongoing data system evolution efforts through participation in one or more Earth Science Working Groups, which include Standards and Interfaces, Technology Infusion, Architecture and Reuse, and Metrics Planning and Reporting.

1.2 Types of Proposals

This 2006 MEaSURES call is focused on these particular Earth science research measurement needs, in the creation of Earth System Data Records (ESDRs), including Climate Data Records (CDRs). An ESDR is defined as a unified and coherent set of observations of a given parameter of the Earth system, which is optimized to meet specific requirements in addressing science questions. These data records are critical to understanding Earth System processes, are critical to assessing variability, long-term trends, and change in the Earth System and provide input and validation means to modeling efforts.

Selected MEaSURES projects will be focused on product generation, availability, and utility. Maturity of algorithm and cal/val activity research is a prerequisite for selection as a MEaSURES project to embark on large-scale data production.

2. Programmatic Information

2.1 Period of Performance

Awards will commence with Fiscal Year 2008 funds.

The period of award for these projects is up to five years. Proposal plans and deliverables described must state the length of effort and provide milestones and deliverables within the timeline.

2.2 Award Type and Funding

The vehicle for projects selected through this solicitation will be a Cooperative Agreement (CA). Proposers should be aware of the differences between a CA and other award vehicles, such as grants. See the *NASA Guidebook for Proposers* and the *Grant and Cooperative Agreement Handbook* for guidance.

2.3 Proposal Evaluation

Evaluation criteria are given in Section C.2 of the *NASA Guidebook for Proposers*. These criteria are intrinsic merit, relevance, and cost realism/reasonableness. In addition to the factors for intrinsic merit given in the *NASA Guidebook for Proposers*, the intrinsic merit of a proposal shall include the following factors:

- The extent that proposals identify the Earth Science research need or use for the ESDR/CDR. Proposers should cite documentation of key measurement needs found in NASA or NASA-participating (e.g. Climate Change Science Program) related strategic plans, documents, roadmaps, or other materials.
- The extent that proposals document ESDR/CDR community establishment and maturity level, citing established cal/val, peer-reviewed publications for algorithms, and product quality and usage summaries.
- The extent that proposals identify all challenges in the development and production of the proposed ESDR/CDR and describe the effort required.

2.4 Other Requirements

All MEaSURES projects will meet the following requirements:

- Proposers must maintain a public WWW-compliant presence.
- Data and information shall be publicly available, preferably via Internet transfer. A tailored *Data Rights* section will be applied to resultant Cooperative Agreement (CA), under which scientific data and scientific software (software used for processing raw instrument data into scientific data) will be exchanged without restriction as to its disclosure, use, or duplication.
- Cooperative Agreement project management will seek community scrutiny and review of product quality and acceptability.
- Proposers selected by the MEaSURES Program will be asked to have representation on one or more Earth Science Data System Working Groups (DSWGs). MEaSURES proposers must identify which DSWG(s) they wish to have representation on. Proposers should budget a quarter time (0.25) FTE and

adequate travel budget for these activities (see <http://esdswg.gsfc.nasa.gov/> for additional information).

2.5 Relationship to Other ROSES Program Elements

Any proposer whose project would require high performance computing should refer to the *Summary of Solicitation*, Section I(d), "NASA-provided High-End Computing Resources." This section describes the opportunity for successful proposers to the MEaSURES program to apply for computing time on either of two NASA computing facilities, at Goddard Space Flight Center's Computational and Information Sciences and Technology Office or at Ames Research Center's Advanced Supercomputing Division.

MEaSURES does not solicit proposals for systems and information technology. Information technology deployment of data and information systems and services and tools that enhance NASA's data and information systems infrastructure, increase the interconnection of services for research, and enable freer movement of data and information within the distributed system of users and providers are invited to apply to the Advancing Collaborative Connections for Earth System Science (ACCESS) Program, which will be solicited in ROSES 2007.

MEaSURES does not solicit proposals for science data products algorithm development or refinement or for cal/val activities. These research activities are solicited through other Earth Science Research Program opportunities, most recently Earth System Science Research Using Data and Products from TERRA, AQUA, and ACRIMSAT Satellites (Appendix A.15).

3. Summary of Key Information

Expected annual program budget for new awards	~ \$25M
Number of new awards pending adequate proposals of merit	~ 25 - 40
Maximum duration of awards	5 years
Due date for Notice of Intent to propose (NOI)	January 2, 2007
Due date for proposals	March 5, 2007
NASA strategic objective(s) which proposals must state and demonstrate relevance to	Every proposal must address one or more strategic goal or strategic outcome 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 – 2006</i> at http://www.hq.nasa.gov/office/procurement/nraguidebook/ .
Page length for the central Science-Technical-Management section of proposal	20 pages; see also Chapter 2 of the <i>Guidebook for Proposers</i>
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	http://nspires.nasaprs.com/ (help desk available at nspires-help@nasaprs.com or (202) 479-9376)
Web site for submission of proposal via Grants.gov	http://grants.gov (help desk available at support@grants.gov or (800) 518-4726)
Funding opportunity number for downloading an application package from Grants.gov	NNH06ZDA001N-MEASURES
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