

Federation of Earth Science Information Partners Partnership Application

Please complete all sections to the fullest extent possible and forward completed application to: Carol Meyer, carol.meyer@earthsciencefoundation.org. If you have any questions, please contact her at 877.870.3747.

I. CONTACT INFORMATION

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II. ABOUT YOUR ORGANIZATION

- A. ORGANIZATION/DIVISION/PROJECT NAME: National Center for Atmospheric Research (NCAR)
- B. OVERVIEW OF YOUR PRIMARY ACTIVITIES in regards to the Earth Sciences Community (200 words or less)

NCAR is a federally funded research and development center (FFRDC) devoted to research, service, and education in the atmospheric and related sciences. We conduct scientific research, operate observational and computational facilities for the science community, develop and transfer technology and information products to interested users, and provide opportunities for educational and professional development to post-secondary students and early career scientists. Our primary sponsor is the National Science Foundation (NSF), with important additional support provided by other U.S. government agencies. As an FFRDC, NCAR has a strategic partnership with NSF, and we fully embrace NSF's mission and overarching goals: helping the United States to uphold a position of world leadership in science and technology, promoting the transfer of new knowledge to society, and contributing to excellence in science and technology education.

- C. Please list and briefly describe the primary product(s) or service(s) that your organization provides (will provide) to the Earth Sciences community.

NCAR:

- Provides high-performance computers and networks, world-class data archiving and storage, research data sets, advanced mathematical tools, knowledge environments and visualization technologies.
- Develops and deploys observing facilities and data services to serve the needs of geosciences research community.
- Addresses the complex scientific questions directly related to major environmental challenges. Climate, weather, and other atmospheric and Earth System models are pursued both in partnerships with and on behalf of the wider scientific community.
- Develops a comprehensive, quantitative understanding of the coupled Sun-Earth System that ranges from investigating basic solar physics and activity and upper atmosphere structure and dynamics, to the influences of radiative, particulate, and magnetic outputs of the Sun on the Earth and its atmosphere and magnetosphere.
- Conducts directed research that enhances fundamental scientific understanding, fosters knowledge and technology transfer and supports applied research to expand the reach of atmospheric science.
- Prepares our community for the future, fostering early science career development in fields related to atmospheric science, as well as organizing and supporting new science initiatives, university interactions, and continuing education at NCAR.

- Promotes collaborations on Earth System/society interactions, hydrologic sciences, biogeochemistry, and building societal resilience to weather and climate hazards.

D. Please give a main website address for the proposed Partnership:

Web Address: www.ncar.ucar.edu

III. HOW YOUR ORGANIZATION WILL BENEFIT FROM/CONTRIBUTE TO THE EARTH SCIENCE INFORMATION PARTNERS (ESIP) FEDERATION

- A. Describe current or anticipated users of your products and services and how you think the Federation can help you better serve this population. (200 words or less)

NCAR is a crossroads for scientific interaction and collaboration. We work closely with universities, environmental research and assessment programs, government laboratories, and other international and national research institutions to define grand challenge problems in the atmospheric, solar, and related sciences; and we collaborate with these partners to organize and support communities of leading experts in sustained, long-term projects that address such problems. We maintain strong ties to innovative researchers and other centers of excellence, nationally and internationally, and include our partners in decision making and direction setting for our institution. NCAR is also a venue for the interaction of science and society. Our partnerships and interactions with decision makers in business and industry; nongovernmental organizations; and local, national, and international governmental bodies and agencies are steadily increasing. We reach out to diverse groups interested in the atmospheric and Earth system sciences and conduct our work in an open and transparent manner. We see active engagement with stakeholders who can use and benefit from our work as a fundamental responsibility and view the Federation as a strong partner who will support new interagency collaborations for developing and promoting cyberinfrastructure in the geosciences.

- B. Describe any Earth science technologies that you have developed and are willing to bring to the Federation's efforts to provide best-practices. (200 words or less)

Some of NCAR's expertise and major science technologies include:

Models

A primary NCAR activity is creating models that enhance human understanding of the atmosphere, the Earth system, and the Sun. Our efforts help scientists worldwide to better understand—and continually refine their knowledge of—how the Earth's systems work.

Computational and Data Archival Resources

NCAR's Computational & Information Systems Laboratory is a world leader in supercomputing and cyberinfrastructure, providing services to over 60 UCAR member universities as well as NCAR and the larger geosciences community.

Field Campaigns and Observing Facilities

Many in NCAR's community of scientists rely on observational data to gain insights on atmospheric phenomena and related Earth system processes. To get a better grasp on these problems, major field campaigns involving dozens to hundreds of researchers, often from a wide spectrum of academic disciplines and many national and international institutions, must be staged. Over weeks or months, we deploy a host of sensors and bring back large quantities of data for analysis.

Technology Transfer

Technology transfer effectively morphs scientific discoveries and research tools into commercially viable products. A critical part of our "science serving society" mandate, technology transfer

leverages innovative research and applies it to solving societal issues.

- C. Describe how your proposed membership would contribute to the efforts and the mission of one or more standing committees, working groups and/or clusters. See Page 3 for descriptions of the different activities of the various standing committees, working groups, and clusters. (200 words or less)

Given NCAR's mission in serving the atmospheric sciences community to:

- Understand the behavior of the atmosphere and related physical, biological, and social systems
- Support, enhance and extend the capabilities of the university community and the broader scientific community, nationally and internationally
- Foster the transfer of knowledge and technology for the betterment of life on Earth

We see roles for us in the following committees and clusters as they pertain to data services and cyberinfrastructure:

- Education
- Information Technology and Interoperability
- Products and Services
- Web Services
- Semantic Web
- Data Preservation and Stewardship
- Discovery

- D. Describe your own use of Earth science information and data and how you would see this use enhanced by your partnership in the Federation. (200 words or less)

Tools and data in the earth sciences have continued to grow in volume, diversity and complexity. In response to this trend, national efforts such as NSF's recent EarthCube initiative have strongly supported a convergence of cyberinfrastructure, tools and data services to best meet future scientific challenges. Historically, NCAR has been able to devote only modest resources to developments in cyberinfrastructure such as semantic web, web services and data discovery technologies. However, we believe that enhanced development in these areas can be realized through partnerships with other agencies and organizations to meet these evolving needs in a resource limited environment. It is envisioned that NCAR and its community would benefit strongly from these collaborations as the nation converges its cyberinfrastructure to meet growing needs in the more conservative fiscal environments that are projected for the future.

IV. YOUR CHOICE OF MEMBERSHIP TYPE. PLEASE PICK ONE.

ESIP-I (primarily a data center/archive)

ESIP-II (primarily a research center)

ESIP-III (primarily applications and education)

ESIP-IV (primarily a sponsoring member)

V. Any other comments about your proposed membership and its relation to the Federation that you

wish to provide.

Thank you for your application for partnership in the ESIP Federation.

List of Federation Committees and Clusters

Administrative Committees

Executive Committee: Comprised of all standing and administrative committee chairs, ESIP Type Representatives, the President and Vice President of the Federation. Oversight body for most day-to-day activities of the Federation, acts on behalf of the Assembly between meetings.

Constitution and Bylaws: Provides counsel on matters related to the constitution and bylaws and other related issues (e.g. amendments to government documents)

Finance and Appropriations: Oversees financial resources of the Federation, including the annual budgeting process.

Partnership: Reviews and processes all applications for membership before making applications available for review by members of the Federation. Deals with other membership-related issues.

Standing Committees:

Commercial Development: Promotes a forum wherein commercial development of Earth science information can be fostered. (inactive)

Community Engagement: Provides a forum for the Federation to promote partner products and to engage new users for data products and services. (inactive)

Education: Provides a forum to make accessible to educators and learners at all levels in both formal and informal educational contexts the Earth science data, information, tools, and curricula available within the ESIP Federation.

Information Technology and Interoperability: Provides a forum for discussing information technology and interoperability issues of the Earth science community and serves as a central point for activities in this realm.

Products and Services: Provides a forum for defining best practices and defining requirements for earth science products and services. Currently is involved in developing an inventory of partner products and services.

Clusters (presently active, April 2009):

- Web Services
- Semantic Web
- Data Preservation and Stewardship
- Decisions
- Air Quality
- Federated Search
- Water