National Science Foundation
4201 Wilson Boulevard
Arlington, Virginia 22230

NSF 11-065

Dear Colleague Letter: The "Earth Cube" - Towards a National Data Infrastructure for Earth System Science

Date: June 9, 2011

Subject: New Solutions to Create Integrated Data Management Infrastructure(s) for Research and Education across the Geosciences

NSF seeks transformative concepts and approaches to create integrated data management infrastructures across the Geosciences. In a new partnership, the Geosciences Directorate (GEO) and the Office of Cyberinfrastructure (OCI) recognize the multifaceted challenges of modern, data-intensive science and education and envision an environment where low adoption thresholds and new capabilities act together to greatly increase the productivity and capability of researchers and educators working at the frontiers of Earth system science.

With the new FY2012 NSF budget thrust, Cyberinfrastructure for the 21st century (CIF21), NSF places significant emphasis on computational and data-rich science and engineering, with the goal of providing a sustainable, community-based and open cyberinfrastructure for researchers and learners. This is a major challenge because the number and volume of data sets have grown to proportions well beyond the range of applicability of traditional data handling tools. Transformative approaches and innovative technologies are needed for heterogeneous data to be integrated, made interoperable, explored and re-purposed by researchers in disparate fields and for myriad uses across institutional, disciplinary, spatial and temporal boundaries.

GEO continues to make substantial investments in collecting data through NSF-supported research facilities and projects, and in helping the geosciences community utilize data collected by other entities around the world. Similarly, OCI makes substantial investments in advanced high-performance computing, data infrastructure, software development, virtual organizations and networking. It is time to integrate these data and technologies in an open, adaptable and sustainable framework (an "Earth-Cube") to enable transformative research and education in Earth System Science; foster common data models and data-focused methodologies; develop next generation search and data tools; and advance application software to integrate data from various sources and advance knowledge.

In addition to the technological aspects, a robust and balanced paradigm will be needed to manage a collaborative effort and build community support. An effective approach to overcoming challenges must constructively engage major NSF-funded observational facilities as well as a diverse range of geosciences data collections and collectors, find commonalities for a data model(s), form sustained partnerships with other entities that collect data (e.g. other Federal and international agencies), and foster symbiotic relationships with industry that will be essential for NSF to consider investment in a prototyping enterprise. It is expected that collaborative efforts will emerge among researchers with keen interest in, and knowledge of, geosciences data collection and use.

The opportunity has never been greater, and NSF seeks input from the community.
Our goal is to create a prototype Earth-Cube system for an agile and robust geosciences-integrating architecture with an inclusive governance paradigm. NSF will host a series of webinars followed by a charrette meeting to rapidly facilitate the early stages of novel approaches for this system. NSF expects that actionable ideas emerging from the charrette will help define future developments of this system in FY2012. The webinars will begin on July 11, 2011 (see details below on how to register for participation in the July 11, 2011 webinar). This dialog with the community will provide context for the GEO data integration vision and offer an opportunity for the community to interact with GEO and OCI leadership. Additional details on the sequence of events will be provided at the webinar and will be posted on the GEO and OCI websites.

Signed

Tim Killeen and Alan Blatecky

INVITATION FOR JULY 11, 4PM-6PM EASTERN TIME - DEAR COLLEAGUE LETTER VIRTUAL MEETING

Tim Killeen and Alan Blatecky invites you to attend this online meeting.

Topic: GEO/OCI DCL- Dear Colleague Letter Virtual Meeting
Date: Monday, July 11, 2011
Time: 4:00 pm, Eastern Daylight Time (New York, GMT-04:00)

To register for this meeting

1. At least 7 days to one hour prior to the above-listed meeting start date and time go to the URL in item 2 to register.
2. To register, go to https://mmancusa.webex.com/mmancusa/j.php?ED=147853132&RG=1&UID=1166808067&RT=MiMxMQ%3D%3D
3. Enter required registration information (only fields marked with asterisks are required).

Once the host approves your request, you will receive a confirmation email with instructions for joining the meeting. The instructions will include a URL to view real-time video and slide presentations over the web and a telephone number with participant pass code to connect to the audio bridge to participate in real-time audio discussions. Upon joining the audio bridge, participants will be placed in listen only mode during the main presentation. A question and answer session will follow the main presentation. Participants will be instructed how to enter the queue to ask questions.

To view in other time zones or languages, please click the link:
https://mmancusa.webex.com/mmancusa/j.php?ED=147853132&RG=1&UID=1166808067&ORT=MiMxMQ%3D%3D

For assistance

1. Go to https://mmancusa.webex.com/mmancusa/mc
2. On the left navigation bar, click "Support".

You also can contact:
Brian Dawson at bdawson@nsf.gov or 1-703-292-4727.
Clifford Jacobs at cjacobs@nsf.gov or 1-703-292-4705.

http://www.webex.com

IMPORTANT NOTICE: This WebEx service includes a feature that allows audio and any documents and other materials exchanged or viewed during the session to be recorded. By joining this session, you automatically consent to such recordings. If you do not consent to the recording, do not join the session.