

temperature, an outer baffle, and doors that protect the optics from light.

The actual cost of a satellite will depend on the number of instruments to be included, the accuracy of its control

systems, and other factors, Moore said.

NASA will be paying \$75 000 to \$100 000 annually to store the two telescopes.

David Kramer

New international scientific organization is launched

Goal is to harmonize peer review criteria and other research policy issues among developed and developing nations.

Representatives from 44 nations gathered at NSF headquarters in Arlington, Virginia, in May to endorse a set of principles to guide each country's scientific peer-review systems. The two-day meeting marked the debut of the Global Research Council (GRC), an organization that will convene annually to address topics of concern to the international scientific community.

"By forming the research council, we have taken the first step towards a more unified approach to the scientific process on a global scale," NSF director Subra Suresh told reporters. The council, he said, "is intended to be a voluntary, virtual organization that discusses shared goals and aspirations and principles but

also provides a vehicle to further science in a unified way across the globe."

The council traces its origin to a 2010 meeting called by the now defunct European Heads of Research Councils, which the US, other developed nations, and nations with emerging research capabilities also attended. David Stonner, deputy director of NSF's Office of International Science and Engineering, says that the idea floated then was to encourage international collaboration in research by harmonizing each nation's research policies. He notes that funding agencies often can impede international collaborations because of their varying requirements for grant recipients.

"In the 21st century, it's essential

that any developing country look to the incorporation of knowledge into their economies," said Glaucius Oliva, president of Brazil's National Council for Scientific and Technological Development. "We've been doing that in many countries, but it's essential to have a shared forum where experiences can be exchanged and collaboration can be improved."

Confidentiality threatened

Attendees agreed on the principles of expert assessment, transparency, impartiality, appropriateness, confidentiality, and ethical integrity for their peer review systems. The principles are to ensure that "there is no disconnect between what is commonly accepted in institutions with an established history and in those institutions that are just evolving," Suresh said. NSF's requirement that all grantees show how their research will produce societal benefits beyond the narrow confines of the work is not among the principles.

In welcoming the principles, Oliva expressed concern that new federal law in Brazil and court rulings there threaten the confidentiality of peer review. "People are going to court to have access to the confidential [review] reports, and an

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NSF director
Subra Suresh

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rare-earth elements and other materials needed for clean energy technologies. Universities, national laboratories, non-profit organizations, and private companies are invited to compete to host the hub, and DOE is encouraging bidders to form partnerships for submitting proposals, due by 30 August.

The new center, which will be funded at up to \$120 million over five years, will conduct research on mineral processing, the manufacture and efficient use of critical materials, and alternative materials and their recycling. Of particular interest to DOE are materials essential for electric vehicles, wind turbines, and efficient lighting. Specifically, those materials are used in permanent magnets, advanced batteries, thin-film semiconductors, and phosphors. Dysprosium, neodymium, terbium, europium, indium, and yttrium were identified in a December 2010 DOE report (http://energy.gov/sites/prod/files/piprod/documents/cms_dec_17_full_web.pdf) as elements subject to supply risks in the short term of 0–5 years. Other elements identified as “near critical” over the same period were cerium, lanthanum, and tellurium. China is the source of more than 95% of the world supply of rare-earth elements, a category that includes all the critical and near-critical elements except yttrium and tellurium.

The energy innovation hubs consist of collaborative research teams drawn

from multiple scientific, engineering, and, where relevant, economics and public policy disciplines. The materials center is the second hub initiated this year; a center for batteries and energy storage was announced in February, and proposals to host it are under review. That center will focus on accelerating R&D of electrochemical energy storage for transportation and the electric grid. Three other hubs—fuels from sunlight, energy-efficient building systems design, and nuclear energy modeling and simulation—began operations in 2010.

MIT physicist Robert Jaffe welcomed DOE’s announcement, but he said the agency’s commitment to fund a single consortium is “rather narrow.” Legislation is still required, he said, to address the other needs that were identified in an American Physical Society report urging government actions to address “energy-critical materials”; Jaffe chaired the committee that wrote the document. Those other needs include gathering, processing, and disseminating information on resources; production, use, trade, and recycling; policy options; and workforce development. Bills have been introduced in both the House and Senate, and the Senate Committee on Energy and Natural Resources is working to forge a bipartisan compromise bill from separate measures that were introduced by Lisa Murkowski (R-AK) and Mark Udall (D-CO).

David Kramer ■

international statement that [confidentiality] is a fundamental principle is very important for all of us.”

The GRC will have a governing board with equal representation from developed and developing countries. Fifteen of the nations represented at the NSF meeting were developing nations. The GRC has no permanent staff, and each nation covers its attendees’ costs to participate.

Germany and Brazil are slated to co-host next year’s GRC meeting in Berlin, which will cover the topics of scientific integrity and open access to the results of government-funded research.

Matthias Kleiner, president of the German Research Foundation, said that achieving a consensus on scientific integrity will be easier than will agreement on the more complex question of open access, for which situations vary widely from one nation to another. Brazil, for example, has a single organization that provides access to scientific journals for the country’s entire research establishment. Kleiner called for an international “action plan” to be developed by the research funding agencies, publishers, and other stakeholders that will set forth the steps to be taken toward open access over the next five years.

David Kramer

Fifth DOE hub in the works

Energy Secretary Steven Chu has announced establishment of a new energy innovation hub for critical materials R&D. The Department of Energy will provide up to \$20 million this year for a multidisciplinary effort to reduce US dependence on foreign sources of

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attention he has devoted to the courses, they remain without an official sponsor.



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