NASA applications

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Upper Atmosphere Research Satellite that will investigate the chemical and dynamical processes of the stratosphere. NASA will study jointly with the Department of Agriculture and NOAA improved techniques for forecasting production of major agricultural commodities in primary producing areas, and the US Geological Survey will assist in the development, over a period of 10 to 20 years, of models of contemporary motion of major tectonic plates and other geodynamic activities using space observations.

The decision to put NASA back into the communications-satellite field was actually made by the White House, according to Rasool. Although the program currently enjoys a large commercial success, both the radio spectrum and the physical spacing of the satellites in the geosynchronous orbit are getting very crowded. The communications R&D effort will concentrate on the development of multi-beam antennas for the Ka-band (30/20 GHz).

Materials processing. The committee on the scientific and technological aspects of materials processing in space, sponsored by the National Research Council, recently assessed NASA's MPS program. The committee urged more extensive research on the ground to allow us to understand the role played by gravity in materials processing.

NASA appears to be following the committee's recommendations. The 1980 budget shows an increase in the level of effort in the ground-based part of the MPS program and the most recent NASA five-year planning document states: "We anticipate that commercial involvement in the program will become progressively more sophisticated—that it will start with breadboard experiments on the ground and in aircraft and will grow to full reimbursement for the costs of operating hardware in space."

Crystal growth and solidification, one of the MPS program's more established areas, will over the next five years emphasize research on applying floating zone techniques to crystal growth and improvement of methods for preparing materials for infrared detectors. NASA will attempt to involve private users through joint projects and by leasing to them Shuttle–Spacelab materials-processing equipment that the Office of Space Transportation Systems plans to develop. As a newer area of endeavor, the MPS program will also emphasize containerless processing methods to produce target structures for inertially confined fusion research, will make accurate measurements of the high-temperature properties of reactive materials, will grow crystals from solutions using a recently invented method of electroepitaxy, and will investigate research applications for the large-volume, ultrahigh vacuum available in space.

Space science. NASA describes its five-year space-science plan as the minimum program it can follow and still pursue what NASA planners consider to be crucial scientific exploratory objectives, and that retains a balance between the three scientific areas in which the Office of Space Science is engaged: astrophysics, planetary studies and solar-terrestrial relations. The current planning for the next five years includes the initiation of the Gamma Ray Observatory, Venus Orbiting Imaging Radar, Origins of Plasma in Earth's Neighborhood, Gravity Probe B, Halley Flyby/Tempel 2 Rendezvous, Advanced X-ray Astrophysics Facility and a Solar Probe. A detailed discussion of space science over the next five years will appear in a future issue of PHYSICS TODAY. —MEJ

Temmer to do nuclear physics in Shanghai

Georges M. Temmer, professor of physics and director of the nuclear physics laboratory at Rutgers University, will go to China next February as part of a reciprocal exchange program set up by China's Scientific and Technical Association and the US Committee on Scholarly Communication with the People's Republic of China. He is the lone physicist among 15 American scholars who were selected through a nationwide competition to participate in the Senior Scholar Research Program. Temmer will spend five months at Futan University in Shanghai performing PIXE (proton-induced x-ray emission) studies and experiments in archeology, channeling and beam-foil spectroscopy with a Chinese-built 3-MV Van de Graaff. This will be Temmer's fourth trip to China; he visited there in 1973, in 1977 and this July.

Grants for research projects in China

The Committee on Scholarly Communication with the People's Republic of China has announced a competition for grants to support research projects in China and fellowships for advanced language training and coursework at Chinese universities for the academic year 1980–81 under the National Educational Exchange Program between the US and the People's Republic of China. The competition is open to graduate students and scholars in all fields and is funded by the Federal government and the Committee.

A detailed announcement on all programs can be obtained by writing to the Committee on Scholarly Communication with the People's Republic of China, Educational Exchange Program, National Academy of Sciences, 2101 Constitution Avenue, Washington, D.C. 20418. The application deadline is 2 November.

Carl Sagan to produce science series for 1980

Carl Sagan Productions and KCET, Los Angeles have begun production of a 13-part television series devoted to astronomy, space exploration and other science topics. Titled *Cosmos*, the series will be shown in 1980. Co-produced by the British Broadcasting Corporation and West Germany's Polytel International, it is funded by grants totaling $8 million from Atlantic Richfield, the Corporation for Public Broadcasting and the Arthur Vining Foundations. Sagan, the director of the Laboratory for Planetary Studies and the David Duncan Professor for Astronomy and Space Studies at Cornell University, will narrate the series and be a coauthor (along with Adrian Malone, who was executive producer of the BBC series "The Ascent of Man").

in brief

A new international journal devoted to "speculative" papers in the physical, mathematical, biological and engineering sciences called *Speculations in Science and Technology* is now being published. Annual subscriptions are available for $58 (Australian) from Speculations in Science and Technology, Western Australian Institute of Technology, Perth 6102, Western Australia.

Information on available Fulbright-Hays awards for university teaching and advanced research abroad is available from the Council for International Exchange of Scholars, Suite 300, 11 Dupont Circle, Washington, D.C. 20036. Depending on the country in question, applications must be submitted anywhere from 12 to 18 months before the grant period.

Science and Technology: Annual Report to the Congress, the first annual study of science and technology issued under the National Science and Technology Policy Act of 1976, is now available in limited supply from NSF Public Information Branch, 1800 G Street, N.W., Washington, D.C. 20550. Other copies will be available later from the Government Printing Office.

Copies of *Government Involvement in the Innovation Process*, a report prepared for the Office of Technology Assessment by the MIT Center for Policy Alternatives, are available from the US Government Printing Office. The GPO stock number is 052-003-00576-0, and the price is $2.50. □