

OSSA Educational Programs Catalog

Dear Colleague:

The Office of Human Resources and Education and the Office of Space Science and Applications (OSSA) share a common concern -- education. Every office within NASA has a vested interest in the future of our Nation's students. Indeed, the future of the U.S. space program is dependent upon an educated workforce literate in science, mathematics, and technology. To foster the potential of that future workforce today, NASA offers a wide variety of opportunities to the Nation's educators and their students.

NASA's inspiring mission is the cornerstone of its education program. Our purpose is not simply to use NASA's mission as content, but to use the Agency's programs and activities to demonstrate the exciting application of subject matter at the precollege level and encourage participation in research at the collegiate level. The Office of Human Resources and Education has responsibility for Agencywide guidance of this expansive education program.

In successful partnership between OSSA and the Office of Human Resources and Education, each party in this collaborative effort concentrates on its area of expertise to contribute to NASA's education program. OSSA provides space science and applications content for educational programs and activities specific to those disciplines. The Education Division establishes Agencywide education policy and provides expertise in both developing and managing educational programs. The Education Division also provides guidance on the educational value, feasibility, and usefulness of mission-specific educational projects undertaken by OSSA and other NASA Program Offices.

This catalog provides descriptive information on those current, ongoing, and pilot space science and applications education programs which are primarily funded or managed by OSSA. It does not list the numerous NASA education programs that emanate from other NASA Program Offices and Field Centers.

We hope that you find this catalog of Space Science and Applications Education Programs informative and useful.

Sincerely,

L. A. Fisk
Associate Administrator for
Space Science and Applications

Spence M. Armstrong
Associate Administrator for
Human Resources and Education

INTRODUCTION

NASA'S EDUCATION MISSION

NASA envisions an aeronautics and space program that inspires and better the lives of all Americans, young and old, through our achievements as the world leader in space exploration and aeronautics research. This vision is fundamentally dependent upon the health of our national education system. If NASA is to continue to attract the "best and brightest" -- while at the same time helping to ensure a more technically literate society in the future -- our educational outreach program must target the entire educational pipeline -- from grade school through graduate school.

NASA's Education Mission is to utilize its inspiring mission, its unique facilities, and its specialized workforce to conduct, and to leverage externally conducted, science, mathematics, and technology education programs and activities. These efforts are directed toward helping to meet the National Education Goals and ensuring a sufficient talent pool to preserve NASA and U.S. leadership in aeronautics, space science, and technology.

Each NASA Program Office and Field Center contributes to and has a specific role within the Agency's education plan. To coordinate and provide leadership, the Education Division, Office of Human Resources and Education, has Agency responsibility for policy development, management oversight, coordination, evaluation, and direction of NASA's education program.

SPACE SCIENCE AND EDUCATION

Space science offers exciting content and unique applications to education programs and activities. In response to the space science community's expressed interest in conducting education outreach and the Nation's need for scientific and technical human resources at the turn of the century, the Office of Space Science and Applications (OSSA) is involved in a variety of programs and activities focusing on education.

Compatible with NASA's Education Mission, OSSA uses its unique mission, facilities, and human resources to provide opportunities for conducting and leveraging education activities and programs. OSSA's education objectives are: 1) to assure an adequate supply of scientists and engineers for the OSSA workforce; 2) to help maintain U.S. world leadership in science and technology; 3) to increase the participation of under-represented and non-traditional academic institutions and groups in OSSA programs; 4) to extend OSSA involvement in the academic community to the pre-college levels of elementary, middle, and high school; and, 5) to improve public space-science literacy.

OSSA accomplishes these objectives through a variety of education outreach activities, developed in partnership with the Education Division, which focus on space science. (Table A, page 2) These activities include teacher and faculty enhancement and preparation workshops; student enrichment opportunities; student research opportunities; postdoctoral and advanced research opportunities; initiatives to strengthen educational institution involvement in research; initiatives to strengthen research community involvement in education; and the development of education products.

Many of OSSA's education efforts are pilot programs initiated in response to specific space science community education issues and concerns. While these programs may be experimental in nature, all of OSSA's education activities

are subject to evaluation and review by OSSA, the Education Division, and the broader scientific community. A combination of formal and informal reviews are conducted as appropriate to assure the most effective use of Agency resources in meeting both OSSA's programmatic and education goals. NASA strongly encourages feedback on its education efforts from individuals and groups with an interest in the OSSA program and the Agency's overall education mission.

Teacher and Faculty Enhancement and Preparation

Preparation programs include those targeted for pre-service teacher development in science, mathematics, and engineering disciplines. Activities include the preparation and evaluation of innovative space science education approaches and materials for teacher education. Teacher enhancement programs include continuing education activities, and in-service programs that update skills, as well as enrich and strengthen the theoretical and practical basis for classroom and laboratory instruction. Activities include workshops, special experiences for teachers, and activities that encourage the use of space science and applications subjects to illustrate or supplement existing course content and curriculum.

Student Enrichment Opportunities

Enrichment programs provide opportunities for students to develop new skills, gain experience working with researchers, and/or learn first-hand about space science careers. Enrichment activities include brief courses, summer workshops, and other relatively short-term educational experiences which expose students to space science subjects and processes.

Student Research Opportunities

Student research programs provide direct financial assistance to students at undergraduate and graduate levels (e.g., fellowships, traineeships, scholarships) coupled with space science research experiences (e.g., research and teaching assistantships, stipends to participate in research, and cooperative work-study). These support programs also serve to facilitate the transition of students at the undergraduate and graduate levels into the workplace.

Postdoctoral and Advanced Research Opportunities

Direct support to individuals -- in the form of fellowships, traineeships, and research associateships -- is provided to postdoctoral students and recent advanced degree graduates to conduct space science research. Financial support, advanced training, residency programs, and opportunities to interact with space science researchers are provided to entry-level space scientists and engineers.

Initiatives to Strengthen Educational Institution Involvement in Research

Support provided to academic institutions for institutional initiatives is designed to encourage collaborative partnerships and mentoring relationships among and between educational institutions, the space science research community, and "traditional" or established research institutions. These

initiatives serve ultimately to strengthen and increase both the number and range of academic institutions participating in space science research.

Initiatives to Strengthen Research Community Involvement in Education

Support provided to space science researchers encourages active researchers to enhance their role in the educational process. Space science researchers receive modest funding supplements to establish or strengthen partnerships with the education community through collaborative projects, community outreach activities, and other public education efforts.

Curriculum Enhancement Material

The Office of Space Science and Applications and the Education Division develop education products focusing on OSSA programs and missions. Approved products are distributed through NASA's nationwide network of Teacher Resource Centers, or electronically distributed via Spacelink, NASA's computer information service for educators.

This catalog provides descriptive information on current ongoing and pilot programs conducted at precollege through postdoctoral levels which are primarily funded or managed by OSSA. This catalog is not meant to represent all of NASA's education programs.

TEACHER & FACULTY PREPARATION & ENHANCEMENT

Preparation programs include those targeted for pre-service teacher development in science, mathematics, and engineering disciplines. Activities include the preparation and evaluation of innovative space science education approaches and materials for teacher education. Teacher enhancement programs include continuing education activities and in-service programs that update skills, as well as enrich and strengthen the theoretical and practical basis for classroom and laboratory instruction. Activities include workshops, special experiences for teachers, and activities that encourage the use of space science and applications subjects to illustrate or supplement existing course content and curriculum.

Teacher and faculty enhancement programs update and renew educators' content knowledge and skills related to mathematics, science, and technology concepts. These workshops and introductory research opportunities help teachers integrate space science into their regular classroom curricula. Though workshops may be conducted for teachers at any grade level, NASA places specific emphasis on workshops for precollege (elementary and secondary) teachers. Teacher and faculty programs generally host workshops in the summer and fall. The schedule and duration of activities may vary from year to year, and may range anywhere from one day to several weeks.

ASPEN GLOBAL CHANGE INSTITUTE (AGCI) SUMMER WORKSHOPS

Objective

To provide a forum for an interdisciplinary exploration of current issues in

global environmental change.

Program Description

AGCI was founded in 1989 as a division of the Windstar Foundation. NASA provides support to this non-profit organization through funding for the Consortium for International Earth Sciences Information Network (CIESIN). AGCI's objective is carried out through two interrelated activities:

Science Program: Intense summer science workshops convene leading scholars, who present the results of their current research and participate in discussions on major themes in Earth systems science. These sessions are designed to encourage cross-disciplinary interaction and to provide the opportunity for scientists to "teach each other" about their discipline areas. Science and environmental educators and social scientists are also invited to the summer workshops, in order to facilitate the flow of current information. During the summer of 1991, three workshops, each lasting two weeks, were held involving approximately 100 participants. The 1992 workshop will follow the same format.

Outreach Program: The outreach component of the AGCI is carried out year-round with the objective of fostering a dialogue between the science, education, industry, and policy communities and to develop outreach programs and educational materials that support this objective. Plans include such activities as an industry briefing/dialogue series; public lectures; newsletters; curriculum committees to identify and develop educational products; and a student science Ground Truth Studies Program that engages students in hands-on activities to gather data complementary to NASA satellite measurements, including Mission to Planet Earth and the Earth Observing System. For further information about the Student Global Truth Project, please refer to the entry on the Consortium For International Earth Sciences Information Network, page 10.

Participants

Scientists, educators, and students interested in global environmental change research and related issues. Please note that participation in this summer science program is limited to a space-available basis, by invitation from the Institute.

Additional Information

For additional information, please write to:

Dr. John Katzenberger
Director, Aspen Global Change Institute
100 East Francis
Aspen, Colorado 81611

Dr. Ghassem Asrar
Code SE
NASA Headquarters
Washington, DC 20546

FLIGHT OPPORTUNITIES FOR SCIENCE TEACHER ENRICHMENT (FOSTER)

Objective

To provide an exciting opportunity for teachers to fly onboard NASA's Kuiper Airborne Observatory (KAO) during research missions, and to prepare those teachers to translate the experience effectively into the classroom.

Program Description

The KAO is a C-141 cargo plane carrying a 1-meter telescope used for infrared astronomy. The FOSTER program will prepare teachers to participate in one or more KAO flights. FOSTER will involve ten teachers in its first year (1992), and plans to build to approximately 40 teachers per year over a five year development period.

Teachers will attend an intensive, pre-flight workshop at the NASA Ames Research Center to help them develop classroom projects based around their flight opportunity. Before and during the flight, teachers will interact with teams of KAO astronomers to understand the research mission underway. Following their flight, teachers will become part of a continuing FOSTER alumni program.

Participants

Elementary and secondary school teachers. In the early phases of the five-year program development (beginning in 1992), the opportunity will be limited to teachers local to the NASA Ames Research Center. If successful, by the end of the five years, the program could be open to the participation of teachers nationally.

Deadlines and Additional Information

For more information on FOSTER contact:

Dr. David Koch
NASA Ames Research Center
Mail Stop 245-6
Moffett Field, CA 94035

Dr. Jeff Bennett
Code SZ
NASA Headquarters
Washington, DC 20546

FUTURE EXPLORATION OF MARS EDUCATIONAL WORKSHOP

Objective

To enhance the content knowledge of teachers through in-depth exposure to a series of NASA planetary science missions.

Program Description

Through an intensive five-day workshop, teachers and students receive detailed presentations on mission science objectives and mission design. During independent teamwork sessions, teachers and students act as members of a strategic plan development team and participate in mission design activities. Participants also work on curriculum development projects with a resultant package of curriculum material to take back to their school districts at the conclusion of the workshop. Workshops are limited to 60 participants and are conducted during school vacations.

The 1992 workshop will be held at the NASA Ames Research Center, Moffett Field, California, June 21-26. Workshops based on the same approach have been organized annually since 1989.

Participants

Secondary school student/teacher pairs with an interest in science.

Deadlines and Additional Information

Future workshops will be held regionally in association with such institutions as members of the National Space Grant College and Fellowship Program. Organizations interested in hosting a workshop for local area teachers should contact:

Ms. Pat Dasch
SAIC
400 Virginia Ave., S.W.
Suite 810
Washington, DC 20024

Mr. Joseph Boyce
Code SL
NASA Headquarters
Washington, DC 20546

HUBBLE SPACE TELESCOPE EDUCATION INITIATIVE

Objective

To use the discoveries of the Hubble Space Telescope to update and renew teachers' knowledge of mathematics, science, and technology concepts.

Program Description

The Hubble Space Telescope Education Initiative is a multi-faceted program which includes teachers' workshops conducted by the Hubble Space Telescope Science Institute (STScI) for educators in the region. The STScI also develops educational products, maintains a computer-based Astronomy Visualization Laboratory, and hosts lectures and opportunities for visitors to view the sky through small telescopes. Other exhibits and educational programs are available at the nearby Hubble Space Telescope's Visitors Center, located in the Maryland Science Center.

Participants

Teachers, precollege students, and the general public in the Baltimore/Maryland/ Mid-Atlantic region. Requests are processed on a first-come, first-served basis.

Deadlines and Additional Information

The first Tuesday evening of each month is Open Night at the Institute for members of the general public. The first Thursday of each month is Education Day, in which teachers and students are invited to visit the Space Telescope Science Institute in Baltimore for a lecture and presentation on career opportunities. For additional information on STScl educational activities contact:

Dr. Eric Chaisson
Space Telescope Science Institute
3700 San Martin Drive
Baltimore, MD 21218

Dr. Ed Weiler
Code SZ
NASA Headquarters
Washington, DC 20546

LIFE IN THE UNIVERSE: AN INTEGRATED SCIENCE TEACHING PROGRAM

Objective

To use the possible existence of life elsewhere in the universe, and the subject of the Search for ExtraTerrestrial Intelligence (SETI), as organizing, integrating, and motivating topics to improve the teaching of sciences to elementary and middle schools nationwide.

Program Description

Science curriculum materials are being created that have natural links to languages, arts, mathematics, and the social sciences to provide an understanding of the multi- disciplinary nature of science while at the same time affecting the daily classroom environment in a comprehensive and exciting way. Six guides are being developed for teachers (three for upper elementary and three for the middle school grades), each one containing hands-on science activities suitable for 10 to 12 weeks of study. Design and testing of the guides began with the first teacher workshop held in the summer of 1991. Further teacher testing and dissemination will occur from the summer of 1992 to the fall of 1994.

Participants

During the pilot phase of the project, participation is limited to upper elementary and middle school teachers and students selected through the SETI Institute.

Deadlines and Additional Information

Near-term program involvement is limited. For additional information, contact:

Dr. John D. Rummel
Code SB
NASA Headquarters
Washington, DC 20546

MARYLAND PILOT EARTH SCIENCES TECHNOLOGY EDUCATION NETWORK (MAPS-NET)

Objective

To provide an innovative, hands-on approach to teaching middle and secondary school students about current Earth observation techniques and technologies.

Program Description

The Maryland Pilot Earth Sciences Technology Education Network (MAPS- NET) workshops teach Maryland educators how to acquire and use live images captured directly from NASA-developed, NOAA- operated meteorological satellites in the classroom. The program plans to establish active ground stations in Maryland middle and secondary schools, as well as teacher support networks to ensure a continuing process for introducing Earth science and related technology into schools. The goal of the MAPS-NET program is to establish a Maryland statewide Earth sciences technology education program by linking the Maryland educational system with unique scientific and technical resources of the state of Maryland including: the NASA Goddard Space Flight Center (GSFC); National Oceanic and Atmospheric Administration (NOAA); and the state's university research base. MAPS-NET is a three-year pilot program.

Participants

Maryland middle and secondary school teachers (grades 6 - 12) are eligible to apply. Though priority will be given to teachers from the Earth and physical sciences, interested teachers from other disciplines are also welcome to apply. There are no pre- existing hardware or technology requirements.

Deadlines and Additional Information

Applications for the annual Summer Workshops were distributed in February throughout the state to science curriculum coordinators. 1992 applications were due in March. The Workshop will be conducted during July 13-24. Up to 20 teachers will be selected to participate each year in workshops planned for the summers of 1992, 1993, and 1994. Application forms and additional information are available from:

Ms. Colleen Steele
WT Chen & Company
1745 Jefferson Davis Highway
Suite 500
Arlington, VA 22202
(703)769-1800

Dr. Gerald Soffen
Code 160
Goddard Space Flight Center
Greenbelt, MD 20771

PLANETARY SCIENCE TEACHERS WORKSHOPS

Objective

To update science teachers' knowledge and increase their understanding of planetary science; to motivate them to include planetary science in their teaching; and to provide the tools to implement these concepts in the classroom.

Program Description

Annual workshops are conducted for middle and secondary school teachers in conjunction with a meeting of the American Astronomical Society's Division of Planetary Sciences (DPS). The DPS meeting is held in October at a different host institution each year, and as many as 70 teachers attend the 2-3 day workshops annually. One graduate credit in either physics or education is awarded to teachers participating in the "Planetary Scientist for a Day" component of the workshop.

Participants

Middle and secondary school teachers.

Deadlines and Additional Information

Interested teachers should contact the Chair, Division of Planetary Sciences, American Astronomical Society (see address below) well in advance of the October meeting to determine the format and schedule for submission of applications. Approximately 70 attendees are selected annually by a panel of DPS members. Selection is based on the quality of the application submitted.

Contact:

Dr. C. Pieters
Brown University
Department of Geological Science
Providence, RI 02912

Dr. Jurgen Rahe
Code SL
NASA Headquarters
Washington, DC 20546

SPACE OBSERVATIONS AS A TOOL FOR TEACHING SCIENCE

Objective

To provide educators with resources to teach students the fundamentals and concepts of science and engineering through hands-on experiments, interactive computer software, remote-sensing data, and student/scientist dialogues.

Program Description

During late 1992, the Jet Propulsion Laboratory (JPL) will undertake a study to explore ways to convert the scientific data from NASA's planetary and Earth science missions into instructional units for teaching basic scientific concepts and methods. It is planned that scaled-down, hands-on experiments will be developed that can be conducted in any classroom. These instructional units will be planned to allow for student experiences similar to those of NASA scientists, specialists, and astronauts.

Science data targeted for inclusion includes upcoming NASA missions, such as TOPEX/Poseidon and Mars Observer in 1992, and SIR-C/X-SAR in 1993.

It is planned to pilot test and evaluate this project in a local Pasadena, California school district. Once implemented, the project is planned to provide teacher training and science kits containing all the necessary materials for instruction.

Participants

Fourth and fifth grade teachers and students.

Deadlines and Additional Information

For more information, contact:

James King, Jr.
Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena, CA 91109

NASA Headquarters Contact:

Dr. Ghassem Asrar
NASA Headquarters
Code SE
Washington, DC 20546

SPACE PHYSICS SUMMER WORKSHOP FOR HIGH SCHOOL TEACHERS

Objective

To enhance teachers' knowledge and understanding of space physics (solar physics, cosmic rays, interplanetary medium, magnetosphere, and Earth's uppermost atmosphere); to generate enthusiasm for space science physics in the school; to develop teaching resources for space physics lessons; and to demonstrate how such studies can be used to teach basic science principles unrelated to space.

Program Description

This pilot program co-sponsored by NASA and various universities will provide teachers with an overview of space physics, investigations and models, and future space physics programs. Teachers will work with university science educators to develop space physics teaching strategies, resources and curriculum during this summer workshop. NASA pays all travel and per diem costs.

Participants

U.S. middle and secondary school physics and chemistry teachers representing a wide geographical distribution are selected based on applications. Up to 40 participants will be accepted.

Deadlines and Additional Information

The workshop will be inaugurated at the University of Iowa during the summer of 1992. Teacher's application forms and letters of recommendation from school principals for the 1993 workshop at the University of Colorado will be due in February 1993. For more information about these workshops, contact:

Dr. J. David Bohlin
Code SS
NASA Headquarters
Washington, DC 20546

STUDENT ENRICHMENT OPPORTUNITIES

Enrichment programs provide opportunities for students to develop new skills, gain experience working with researchers, and/or learn first-hand about space science careers. Enrichment activities include brief courses, summer workshops, and other relatively short-term educational experiences which expose students to space science subjects and processes.

Student enrichment opportunities are generally offered during the summer months. Student workshops and NASA Center experiences may last anywhere from three to ten weeks. Proposals are generally due in the February-March time frame. Selections are made between March and May. Most workshops and enrichment programs begin in June.

CONSORTIUM FOR INTERNATIONAL EARTH SCIENCES INFORMATION NETWORK (CIESIN) STUDENT GROUND TRUTH STUDIES PROGRAM

Objective

To increase student awareness of the process and benefits of space; to promote science and mathematics as tools for understanding and addressing real world problems; and to encourage careers in science and mathematics.

Program Description

Student Ground Truth Studies Project. The Ground Truth Studies Project creates

a hands-on opportunity for students to learn about their local environment and how it relates to global change. During the initial pilot phase, more than 1,000 K-12 students in 12 states were exposed to Ground Truth Studies materials and draft curriculum in their classrooms. NASA supports this effort through CIESIN, a non-profit organization established to conduct research for the purpose of enhancing the scientific and policy making communities' access to Earth science, social science, and information related to global change research and issues. The program is conducted by the Aspen Global Change Institute in Colorado, working with OSSA personnel at NASA's Marshall Space Flight Center and Ames Research Center. (For more information about AGCI, refer to the entry on page 4.)

As part of its mission, CIESIN examines access to global change information for science education purposes. The following pilot projects are also sponsored by CIESIN in the area of global change education:

Global Student Village (GSV). The GSV is a project carried out under the auspices of the Space Agency Forum on the International Space Year (SAFISY), Panel of Experts on Education and Applications. Its purpose is to deploy low-cost, direct-readout meteorological Earth station operations into educational institutions in developing countries. CIESIN intends to initiate the installation and training for direct-readout operations in up to six countries during 1992 -- Mexico, Costa Rica, Brazil, Thailand, Czechoslovakia, and Nigeria.

Knowledge Transfer Process: An Exploration in the Technological Delivery of Global Change Information. This pilot project has been established with the objective of designing and field testing technological approaches for the delivery of global change information in the area of education that also have application to other sectors of society. To this end, CIESIN is planning an interactive video disk (Windows on Global Change), targeted for middle school students, which will introduce environmental and global change concepts and information, as well as provide students with hands-on experiences in handling and analyzing remotely-sensed data.

Participants

CIESIN pilot projects cover K-graduate level.

Deadlines and Additional Information

Ralph Coppola
Program Manager for Knowledge Transfer
Saginaw Valley State University
2250 Pierce Road
University Center, MI 48710

Martin Ruzek
Code SE
NASA Headquarters
Washington, DC 20546

VISITING STUDENT ENRICHMENT PROGRAM (VSEP)

Objective

To provide high school and college students with exposure to space science careers through temporary summer employment.

Program Description

The Visiting Student Enrichment Program is designed to place students in temporary summer employment positions with the NASA Goddard Space Flight Center's (GSFC) Space Data and Computing Division. In addition to meaningful work experience, program participants are invited to lectures and field trips to gain a broad appreciation for the mission and activities at GSFC. Each of the selected students is matched with a designated Division staff member for approximately 10 weeks at GSFC. Each student presents his or her summer project at the end of the program.

Participants

This program is open to high school students and full-time students at the undergraduate and graduate levels with backgrounds and interests in the physical sciences, computers, and mathematics.

Deadlines and Additional Information

Applications must be submitted in response to an announcement which is released in the early spring of each year to U.S. high schools and colleges.

Participant selection is made in the spring. Participants begin the program in June and complete the program in mid-August. Application and selection questions should be addressed to:

Mr. David Holdridge
Goddard Visiting Scientist Program, Code 610.3
Goddard Space Flight Center
Greenbelt, MD 20771

Mr. Joseph Bredekamp
Code SM
NASA Headquarters
Washington, D.C. 20546

GSFC/USRA GRADUATE STUDENT SUMMER PROGRAM IN EARTH SYSTEMS SCIENCES

Objective

To spur interest in interdisciplinary studies within the Earth system sciences and to enable selected students to pursue specially tailored research projects in conjunction with a NASA Goddard Space Flight Center (GSFC) mentor.

Program Description

GSFC's Earth Science Directorate, in conjunction with the Universities Space Research Association (USRA), sponsors a ten-week Graduate Student Summer Program. Selected students work on an intensive research project at GSFC for the majority of the program period. Each student is given significant latitude to choose from a pool of research projects and mentors. Project topics are

developed and implemented in conjunction with scientists from the three Earth science laboratories at Goddard: The Laboratory for Atmosphere, the Laboratory for Terrestrial Physics, and The Laboratory for Hydrospheric Processes. During the project period, all selected students are invited to weekly informal lunch-time sessions with a variety of GSFC researchers. Students are expected to produce oral and written reports on their summer research activities. The written reports are intended to be shared with members of the global change research community and subsequent program participants.

Participants

The program is open to all students enrolled in, or accepted to, an accredited graduate program in the physical or biological processes, mathematics, computer science, or engineering. In addition, the first six days of the summer program are comprised of a lecture series entitled "Studying the Earth from Space" which is also open to the general public on a space-available basis.

Students are selected on the basis of academic record; proven motivation and qualification to pursue interdisciplinary or multidisciplinary research related to Earth sciences; clarity and relevance of research interests to NASA programs; and letters of recommendation.

Deadlines and Additional Information

Applications for the 1992 session were due February 14, 1992, with selection announcements made March 16, 1992. For additional information contact:

Paula L. Webber
Program Coordinator
Goddard Visiting Senior Scientist Program
Mail Code 610.3
NASA Goddard Space Flight Center
Greenbelt, MD 20771

LUNAR AND PLANETARY INSTITUTE SUMMER UNDERGRADUATE INTERN PROGRAM

Objective

To broaden undergraduate students' understanding of space sciences and acquaint them with the excitement that a career in planetary science can provide.

Program Description

Undergraduates learn how research projects are conceived, conducted, how results are tested, and how research projects are presented and defended through exposure to the research environment and the conduct of individual research projects under the guidance of an experienced scientist. Approximately 15 undergraduate students are competitively selected each year to work on a selected research topic under the guidance of a space scientist during a 10- week summer program at the Lunar and Planetary Institute (LPI) in Houston, Texas. Participants attend weekly seminars and lectures and, at the conclusion of the program, present a paper describing the results of the research.

Participants

College or university undergraduate students are selected by a panel of LPI and JSC scientists.

Deadlines and Additional Information

Proposals are submitted in response to an LPI announcement distributed widely in the fall of each year to both U.S. and foreign colleges and universities. Proposals are reviewed by a panel of LPI and JSC scientists. Selection is based on proposals which demonstrate planetary science capabilities and potential. Participant selection is made in the spring; participants begin the program in June and complete the program in mid-August. For further information, contact:

Dr. Bevan French
Code SL
NASA Headquarters
Washington, DC 20546

PLANETARY BIOLOGY AND MICROBIAL ECOLOGY PROGRAM

Objective

To provide advanced students and experienced scientists with theory and practice in the assessment of the microbial impact on Earth as a planet.

Program Description

The Planetary Biology and Microbial Ecology Program provides advanced students and experienced scientists with an intensive 10-week course consisting of lectures given by visiting specialists and permanent faculty, and intensive laboratory and field work in the general area of biogeochemical cycling of the biogenic elements. The program promotes the development of a community of scholars to pursue interdisciplinary research toward an understanding of the influence of the biota on the atmosphere, water, and sediments. In addition, the program focuses on the integration of remote sensing data with field and laboratory research to study global biogeochemical cycling.

Participants

Advanced graduate students and post-doctoral fellows with backgrounds in microbiology, atmospheric sciences, geology, or geochemistry are eligible to participate.

Deadlines and Additional Information

This course was held in 1991, and will be offered again in 1993. All courses are conducted in the summer. Scientists are selected by the Program Director and the permanent faculty on the basis of their curriculum vitae and letters of recommendation. Contact:

Dr. Kenneth Nealson
Center for Great Lakes Studies

University of Wisconsin 600
East Greenfield Ave.
Milwaukee, WI 53204

Dr. Mel Averner
Code SB
NASA Headquarters
Washington, DC 20546

PLANETARY BIOLOGY INTERN PROGRAM

Objective

To provide opportunities for graduate and senior undergraduate students to participate with investigators at universities and NASA Field Centers in on-going research projects related to the biological aspects of NASA's planetary exploration goals.

Program Description

Each year, approximately ten interns work with NASA-sponsored investigators for 8 weeks during the summer in the areas of global ecology and remote sensing, microbial ecology and biomineralization, Closed Ecological Life Support Systems (CELSS), and the origin and early evolution of life. Interns submit final reports on their research projects at the end of the 8-week session. Selected interns will receive a stipend of \$2,000 for the 8 weeks of their participation in the program and transportation costs not to exceed \$800. The award is non-renewable.

Participants

Graduate students and senior under- graduates with exceptional academic records who are majoring in biology or other sciences related to planetary biology such as paleontology, atmospheric sciences, and geochemistry are eligible to apply.

Deadlines and Additional Information

Application forms should be submitted by March 1, together with an official copy of transcripts for all undergraduate and graduate work; a curriculum vitae; a brief type-written description (1-2 pages) of academic goals and career plans; an explanation of what the desired accomplishments are through the internship program; and two letters of recommendation from faculty members that cover academic achievement, career potential, and character. Selected applicants will be notified the last week of April. Application forms can be obtained by writing to:

Planetary Biology Intern Program
Office of Sponsored Programs
Marine Biological Laboratory
Woods Hole, Massachusetts 02543

Dr. John Rummel
Code SB
NASA Headquarters

Washington, DC 20546

SPACE LIFE SCIENCES TRAINING PROGRAM (SLSTP)

Objective

To provide undergraduate students with an opportunity to learn about and experience space life sciences research activities in preparation for potential careers in space research.

Program Description

The SLSTP is an intensive 6-week training course for undergraduate students. The course is conducted in the summer at the NASA Kennedy Space Center (KSC). Students work with NASA researchers on flight and ground support experiments to learn about teamwork, project schedules, and special considerations in space experimentation including the constraints of working in microgravity. In addition to offering research experience, the curriculum includes lectures, tours, and special projects to provide a complete overview of the field of space life sciences. Whenever possible, students are able to participate in the actual operations of flight experiment development, processing, and analysis. The program is usually scheduled for mid- June through July each year. After the successful completion of the program, students receive five semester hours of tuition-free college credit from Florida A&M University.

Participants

Undergraduate students in their sophomore, junior, or senior year who are currently enrolled in an accredited U.S. college or university and who are pursuing their first undergraduate degree in the life sciences, pre-medicine, bioengineering, or related fields are eligible to apply. Graduating seniors (those students who will complete their senior year prior to the start of the program) are not eligible to apply. Student selection is made on a nationally competitive basis.

Deadlines and Additional Information

Student selection is based on a variety of factors including grade point average, communication skills, extracurricular activities, and letters of recommendation. Applications must be postmarked by January 31 each year. Applicants are notified of acceptance/ nonacceptance no later than March 31. Application forms and materials may be obtained from:

Program Director, Space Life Sciences Training Program
Florida A&M University
College of Pharmacy & Pharmaceutical Sciences
106 Honor House
Tallahassee, FL 32307

Dr. Ronald J. White
Code SB
NASA Headquarters
Washington, DC 20546

SUMMER SCHOOL FOR EARTH SCIENCES: PROCESSES OF GLOBAL CHANGE

Objective

To provide an educational opportunity on topics related to current research in global change for Ph.D. students and recent Ph.D. graduates.

Program Description

This 5-day lecture series is sponsored by NASA and organized jointly by the Jet Propulsion Laboratory, California Institute of Technology, and the California Space Institute, University of California at San Diego. Course content consists of lectures by leading global change researchers on topics such as An Overview of Global Change; Biogeochemical Cycles; Hydrological Cycles; Chemistry of the Atmosphere; Atmospheric Radiation; History of Climate; Modeling Climate Change; Climate Feedback Mechanisms.

Participants

The course is directed to recent Ph.D. graduates (within five years) or Ph.D. candidates. Up to 100 students can be accommodated for the program. There is no registration fee. Partial support for travel and lodging is available for a limited number of students.

Deadlines and Additional Information

The application deadline was April 1, 1992. Selected participants were notified May 1, 1992, and the course will be held June 22- 26, 1992, at the University of California, San Diego. For more information on the scientific content at this summer school, please contact:

Daniel J. McCleese
MS 183-335
Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena, CA 91109

For further information regarding the logistics of this summer school, please contact:

Neil L. Nickle
MS 180-704
Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena, CA 91109

NASA Headquarters Contact:

Dr. Ghassem Asrar
Code SE
NASA Headquarters
Washington, DC 20546

SUMMER SCHOOL FOR HIGH PERFORMANCE COMPUTATIONAL SCIENCES (SSHPCS)

Objective

To promote computational science education through the NASA Center for Computational Sciences (NCCS) at NASA Goddard Space Flight Center and the Universities Space Research Association (USRA).

Program Description

The Summer School for High Performance Computational Sciences is a 3-week program for graduate students pursuing doctoral degrees in the physical sciences with an interest in massively parallel computing. The NCCS generally provides comprehensive research in Goddard's space and Earth sciences programs. On the basis of application, 16 graduate students are selected each summer to participate in this intensive computational physics lecture series. The students will be divided into four teams to facilitate hands-on computer training and small group interaction.

Participants

This program is open to U.S. university graduate students involved in disciplines related to the space and Earth sciences. Students should have passed their Ph.D. qualifying exams.

Deadlines and Additional Information

Applicant selection is performed by a committee that evaluates candidates on the basis of demonstrated scholastic excellence, qualifications, and interests relative to space and Earth sciences, plus experience and/or interest in computational physics. Applications should include a curriculum vitae (or resume) with a publication list, a description of relevant experience, an academic transcript showing 2 full years of work, and two letters of reference. Applications should be submitted prior to May 1 to the following person:

Mr. David Holdridge
Code 610.3
NASA Goddard Space Flight Center
Greenbelt, MD 20771

Mr. Joseph Bredekamp
Code SM
NASA Headquarters
Washington, DC 20546

SUMMER SCHOOL FOR PLANETARY SCIENCE

Objective

To broaden undergraduate and graduate students' understanding of planetary science-related topics.

Program Description

This is an annual program for undergraduate and graduate students. Students representing a wide range of scientific disciplines and different countries participate in a week-long series of lectures and discussions on planetary science-related topics conducted at the California Institute of Technology. These meetings provide an important opportunity for the participants to learn about planetary science and interact with top researchers in the field.

Participants

This program is open to U.S. and foreign undergraduate or graduate students in planetary science.

Deadlines and Additional Information

Applications are to be prepared by the students and must be endorsed by a member of the faculty. All applications are reviewed by a panel of scientists from the Jet Propulsion Laboratory and the California Institute of Technology. Selection is based on student interest and qualifications as well as an attempt to achieve a geographical and international balance. Approximately 80 participants are selected annually. Applications should be submitted by March 31 to:

Office of Space Science and Instruments
Jet Propulsion Laboratory
Pasadena, CA 91109

Dr. Jurgen Rahe
Code SL
NASA Headquarters
Washington, DC 20546

STUDENT RESEARCH OPPORTUNITIES

Student research programs provide direct financial assistance to students at undergraduate and graduate levels (e.g., fellowships, traineeships, scholarships) coupled with space science research experiences (e.g., research and teaching assistantships, stipends to participate in research, and cooperative work-study). These support programs also serve to facilitate the transition of students at the undergraduate and graduate levels into the workplace.

Student research opportunities are administered annually. Announcements are made throughout the year. Proposals are generally due between January and March. Selections are made during the summer months. Fellowships begin in the late summer and early fall.

GLOBAL CHANGE RESEARCH GRADUATE STUDENT FELLOWSHIP

Objective

To train the next generation of Earth scientists and engineers to manage data

and information generated by the Earth Observing System (EOS) in support of NASA's Global Change Research Program.

Program Description

Selected graduate students conduct research in the areas of climate and hydrologic systems (including tropical precipitation), ecological systems and dynamics, biogeochemical dynamics, solid Earth processes, solar influences, human interactions, and data and information systems. Other areas of research are acceptable, provided that the specific research topic is relevant to NASA's global change research efforts including EOS, the Tropical Rainfall Measuring Mission (TRMM), and NASA's Mission to Planet Earth program. Awards are made for an initial one-year period but may be renewed annually up to three years based on satisfactory progress as reflected in both academic performance and evaluation by the faculty advisor. The amount of award for 1992 is \$20,000, which may be used as a stipend to defray living expenses, tuition, travel, books, supplies, and fees. An additional amount of \$2,000 is available by request for the faculty advisor's use in support of the student's research. A total of 96 fellowships have been awarded since the inception of the program in 1990, and up to 45 new fellowships will be awarded in 1992, subject to availability of funds.

Participants

Graduate students admitted or enrolled in a full-time Ph.D. program at an accredited U.S. university. Students may enter the program at any time during their graduate work. They may also apply in their senior year, prior to receiving their baccalaureate degree, but must be admitted and enrolled in a Ph.D. program at a U.S. university at the time of award. Individuals accepting this award may not concurrently receive other Federal funds including other Federal fellowships, internships, or employment. U.S. citizens and resident aliens will be given preference; however, non-U.S. citizens pursuing their graduate studies in the U.S. may also apply.

Deadlines and Additional Information

In a national competition, participants are selected based on their research proposal submitted and their academic credentials. Proposals are judged through a two-step peer review process and selected by NASA Headquarters on a competitive basis. Criteria for selection include academic excellence, the quality of the proposed research, and the relevance of the proposed research to the NASA Global Change Research Program. The evaluation process includes representatives from NASA Headquarters, NASA Field Centers, Earth sciences professional societies, and academic institutions. The deadline for receipt of proposals is April 1 for the following academic year. Selection announcements are made June 30. Anticipated fellowship start dates are September 1. For more information, please contact:

Dr. Ghassem Asrar
Code SE
NASA Headquarters
Washington, DC 20546

GRADUATE STUDENT RESEARCHERS PROGRAM (GSRP)

Objective

To reach a culturally diverse group of promising U.S. graduate students whose research interests are compatible with NASA's programs in space science and aerospace technology.

Program Description

Fellowships of up to \$22,000 are awarded for 1 year and are renewable, based on satisfactory progress, for up to 3 years. Forty of the 80 new awards are sponsored by the NASA Office of Space Science and Applications (OSSA) in the fields of astrophysics, Earth science, life sciences, solar system exploration, space physics, and microgravity science and applications. The remaining 40 awards are distributed throughout NASA Field Centers. Fellows selected by NASA Field Centers must spend some time in residence at the Center, taking advantage of the unique research facilities of the installation and working with Center personnel.

A component of this program is designed to increase minority participation in NASA space science and technology programs. The Graduate Student Researchers Program Underrepresented Minority Focus Component (GSRP UMF) selects 40 new awardees each year based on competitive evaluation of academic qualifications, proposed research plan and/or plan of study and planned utilization of NASA research facilities.

Participants

Eligibility for the program is limited to full-time (as defined by the university) graduate students from an accredited U.S. college or university. Applicants must be citizens of the United States. Students may enter the program at any time during their graduate work or may apply prior to receiving their baccalaureate degree. All applications must be sponsored by the student's graduate department chair or faculty advisor.

Deadlines and Additional Information

Each year, approximately 80 new awardees are selected based on competitive evaluation of their academic qualifications, proposed research plan and/or plan of study, and their planned utilization of NASA research facilities.

Applicants should submit ten copies of all proposal materials by February 1 of each year to the appropriate NASA facility (NASA Headquarters or Field Center). NASA Field Center proposals should be addressed to the attention of the Program Administrator listed in the GSRP Handbook. Copies of the GSRP Handbook can be obtained by contacting:

GSRP
Code SPM-20
NASA Headquarters
Washington, DC 20546

Ms. Dolores Holland
Code S
NASA Headquarters
Washington, DC 20546

Mr. John Lynch
Code FEH
NASA Headquarters
Washington, DC 20546

MICROGRAVITY UNDERGRADUATE RESEARCH OPPORTUNITIES

Objective

To encourage undergraduate student interest in science and engineering through research activities conducted with NASA and academic scientists.

Program Description

In this program, undergraduates propose, develop, and perform research using NASA low-g, ground-based facilities, under the guidance of a faculty sponsor. Available facilities include research aircraft, drop towers, and tubes at NASA Field Centers. Currently, this is operating as a pilot program at the Massachusetts Institute of Technology (MIT), and has existed since the fall of 1989. Approximately 30 undergraduates are participating in small teams developing concepts for drop tower and low-g aircraft experiments. The first set of research proposals have been written and are under review at MIT. Final selection of accepted proposals will be made by NASA and selected investigations will be given access to NASA facilities. It is anticipated that participation in this program will increase substantially in the future, with five universities involved in the program by 1995.

Participants

This opportunity is open to undergraduate students at selected U.S. colleges and universities pursuing programs within the field of microgravity sciences.

Deadlines and Additional Information

Proposals for research opportunities will be accepted from institutional sponsors beginning in Fiscal Year 1992. Selections will be made by the Director of the Microgravity Science and Applications Division. The criteria for selection include institutional strengths, qualification of faculty sponsors, curriculum relevance, and cost.

Dr. Bradley M. Carpenter
Code SN
NASA Headquarters
Washington, DC 20546

UNDERGRADUATE FELLOWSHIP PROGRAM IN PLANETARY ASTRONOMY

Objective

To provide an opportunity for a limited number of talented undergraduate students to participate in active planetary research.

Program Description

The projects supported involve students in either ongoing research programs or research projects specially designed for this purpose. Fellowships may be 1, 2, or 3 years in duration. Ongoing NASA research grants are supplemented with up to \$5,000 per student per year. Projects may be carried out during the summer months, during the academic year, or both. Students funded under this program will be invited once a year to visit a major research institution.

Participants

The program is open to undergraduate students in astronomy or related sciences at U.S. institutions sponsoring Principal Investigators in the Planetary Astronomy Program.

Deadlines and Additional Information

Applications must be submitted by a Principal Investigator of the Planetary Astronomy Program and should state succinctly the academic qualifications of the undergraduate and how he or she will be involved in the research process. Selection will be made by the Discipline Scientist, Planetary Astronomy Program, based on peer evaluation of the qualifications and potential of the student as well as the significance and appropriateness of the work to be conducted. Applications should be submitted by March 31 of each year to:

Dr. Jurgen Rahe
Code SL
NASA Headquarters
Washington, DC 20546

POSTDOCTORAL AND ADVANCED RESEARCH OPPORTUNITIES

Direct support to individuals -- in the form of fellowships, traineeships, and research associateships -- is provided to postdoctoral students and recent advanced degree graduates to conduct space science research. Financial support, advanced training, residency programs, and opportunities to interact with space science researchers are provided to entry-level space scientists and engineers.

Postdoctoral and advanced research opportunities are announced in the summer and fall. Proposals may be due during the fall or winter, depending on the program. The majority of programs make their selections in February, with fellowships and associateships beginning in the late summer and early fall.

AEROSPACE MEDICINE RESIDENCY PROGRAM

Objective

To train medical doctors in the preventive medicine primary specialty of Aerospace Medicine concentrating in areas related to the health and well-being of pilots, astronauts, and all others who travel in air or space.

Program Description

The Aerospace Medicine Residency Program, located at Wright State University in Dayton, Ohio, is a civilian residency program. The program is fully accredited by the Accreditation Council for Graduate Medical Education and provides all of the academic requirements, supervised preventive medicine training, and practice required by the American Board of Preventive Medicine. The Residency Program is typically a 2-year program consisting of 46 hours of graduate course work in courses such as epidemiology, environmental health, hyperbaric medicine, human factors, biostatistics, and health resources administration. In addition, during the second year each student selects and pursues a research topic in aerospace medicine, resulting in the completion of a thesis. The second year also includes clinical training in aerospace medicine at Wright-Patterson Air Force Base or other locations. The Master of Science in Aerospace Medicine degree is awarded upon successful completion of all requirements.

Participants

Students in this international residency program must have an appropriate medical degree to pursue a clinical/research track in Aerospace Medicine or students with a baccalaureate degree with a strong physiology background may enroll in a non-clinical track emphasizing research. Residents from countries outside the U.S. must hold an ECFMG certificate to be issued a temporary medical certificate.

Deadlines and Additional Information

Applications are accepted on a continuing basis throughout the year. A selection committee from the Aerospace Medicine Residency Program meets annually to review applications. Selections are announced in February of each year for those Residents who will begin the program in July. Application forms may be obtained from:

Aerospace Medicine Residency Program
Wright State University School of Medicine
Department of Community Medicine
P. O. Box 927
Dayton, OH 45401-0927

Donald F. Stewart, M.D.
Manager, Aerospace Medicine
Code SB
NASA Headquarters
Washington, DC 20546

COMPTON GAMMA RAY OBSERVATORY (GRO) FELLOWSHIP PROGRAM

Objective

To provide promising young scientists with opportunities for research on problems related to gamma ray astronomy compatible with the interests of the host institutions.

Program Description

Fellows may work at any U.S. research institution or company involved in Compton GRO or gamma-ray astronomy related research. The duration of the fellowship is a total of 3 years, which includes an initial period of 2 years and an extension of another year, which may be granted after a positive midterm review. Fellows devote full-time effort to their research programs and receive an annual stipend, benefits, and a travel allowance. Upon completion of their research, each fellowship participant must submit a research report to NASA for distribution to the community and the public for archiving.

Participants

Recent postdoctoral scientists (not more than 5 years after doctorate) in Astronomy, Physics, and related disciplines are eligible for this fellowship. Participants must be English-speaking and working at a U.S. institution.

Deadlines and Additional Information

Announcement of Opportunity issued: 9/92
Proposals Due: 12/92
Selection of Fellows: 3/93
Program begins: 10/93

Selection of participants for the Fellowship program will be based on scientific merit of the proposal, feasibility of proposed research, quality of applicant, and relevance to the GRO mission. The selection official is the Director of the Astrophysics Division, NASA Headquarters. Detailed Announcement of Opportunity, including the application form and instructions is available upon request from the Gamma Ray Observatory Science Support Center at the address listed below:

Gamma Ray Observatory
Science Support Center, Code 668.1
Goddard Space Flight Center
Greenbelt, MD 20771

Dr. Alan Bunner
Code SZ
NASA Headquarters
Washington, DC 20546

EUVE POSTDOCTORAL FELLOWSHIP PROGRAM

Objective

To provide an opportunity for promising young scientists to work on research problems in extreme ultraviolet astronomy.

Program Description

Fellows may work at any U.S. research institution involved in EUVE or extreme ultraviolet astronomical research. The duration of the fellowship is two years, with a possible third year extension. Fellows devote full-time effort

to their research programs and receive an annual stipend, benefits, and a travel allowance. Upon completion of their research, each fellow- ship participant must submit a research report to NASA for distribution to the community and the public for archiving.

Participants

Recent postdoctoral scientists (not more than 5 years after doctorate) in Astronomy, Physics, and related disciplines are eligible for this fellowship. Participants must be English-speaking and working at a U.S. institution.

Deadlines and Additional Information

Announcement of Opportunity: 7/92

Proposals Due: 10/92

Selection of Fellows: 2/93

Program begins: 7/93

For more information contact:

Dr. Yoji Kondo
Goddard Space Flight Center
Code 684
Greenbelt, MD 20771

Dr. Robert Stachnik
Code SZ
NASA Headquarters
Washington, DC 20546

HUBBLE POSTDOCTORAL FELLOWSHIP PROGRAM

Objective

To provide an opportunity for highly qualified, recent postdoctoral scientists to conduct independent programs of HST- related research in association with the permanent staff of a U.S. host institution of their choice.

Program Description

The Hubble Postdoctorate Fellowship Program provides for 2 research periods of 1 year each, with a possible addition of a third year depending on the midterm review. Each applicant must formulate a specific research plan that is related to HST science and that is generally compatible with the research activities of the host institution. The proposed research need not be based directly on HST data, but its relevance to HST science should be stated clearly and unambiguously. Fellows devote full-time effort to their research programs and receive an annual stipend, benefits, and a travel allowance. Upon completion of their research, each fellowship participant must submit a research report to NASA for distribution to interested members of the scientific community and the public for archiving.

Participants

To be eligible for this program, applicants must have earned a Ph.D., Sc.D., or equivalent research degree in Astronomy, Physics, or a related discipline after January 1, 1990. Applicants who have not yet formally received their degree must present evidence of having completed the academic requirements before commencing the fellowship. Hubble Fellowships are open to English-speaking citizens of the United States and other countries.

Deadlines and Additional Information

Announcement of Opportunity issued: 8/92
Application due: 11/92
Notification of Acceptance: 2/93
Fellowship terms start: 9/93

Selection of participants for the Fellowship program will be based on the scientific merit of the proposal, feasibility of proposed research, quality of applicant, and relevance to the HST mission. Final selection will be made by Nino Panagia of the Space Telescope Science Institute. Program information can be obtained by contacting:

Dr. Nino Panagia
Space Telescope Science Institute
3700 San Martin Drive
Baltimore, MD 21218

Dr. Ed Weiler
Code SZ
NASA Headquarters
Washington, DC 20546

NATIONAL RESEARCH COUNCIL RESIDENT RESEARCHERS ASSOCIATESHIPS (RRA) PROGRAM

Objective

To provide postdoctoral scientists and engineers of unusual promise and ability opportunities for research on problems, largely of their own choice, that are compatible with the interests of the sponsoring laboratories, and to contribute thereby to the overall efforts of the Federal laboratories.

Program Description

The National Research Council, through its Associateship Program Office, conducts a national competition to recommend and make awards to outstanding scientists and engineers at recent postdoctoral and experienced senior levels for tenure as guest researchers at participating laboratories. Recent doctoral graduates are provided with an opportunity for concentrated research in association with selected members of the permanent professional laboratory staff, often as a climax to formal career preparation. Recently established scientists and engineers are afforded an opportunity for research without the interruptions and distractions of permanent career positions.

The RRA program is administered by the National Research Council under a contract monitored by NASA's Education Division, Higher Education Branch. The

Office of Space Science and Applications provides funding and placement for three-fourths of all NASA RRA's.

Participants

This program is open to Ph.D.'s in science and engineering disciplines relevant to NASA research programs. As many as 225 Associateships are awarded annually. Foreign Nationals are eligible for this program.

Deadlines and Additional Information

Each applicant must submit a research proposal that relates to a specific research opportunity at the desired NASA Field Center. Awardees must hold a Ph.D., Sc.D., or other earned research doctoral degree recognized in U.S. academic circles as equivalent to the Ph.D., or must present acceptable evidence of completion of all formal academic requirements for one of these degrees before tenure may begin. Selections are made three times a year in March, July, and October. Information on application procedures and deadlines for submission of all necessary materials and supporting documents is available upon request from the:

Associateship Programs - GR 430A
National Research Council
2101 Constitution Ave., NW
Washington, DC 20418

Ms. Elaine Schwartz
Code FEH
NASA Headquarters
Washington, DC 20546

PLANETARY ASTRONOMY POSTDOCTORAL FELLOWSHIPS

Objective

To provide an opportunity for a limited number of talented postdoctoral scientists to conduct planetary research at academic research institutions of their choice.

Program Description

Fellowships of \$30,000 per year (includes salary and research support) are awarded for 2 years with a renewal option for a third year. The proposed host research institution is usually different from the Ph.D-granting institution and the applicant's present institution.

Participants

This program is open to postdoctoral scientists in Planetary Astronomy who have received their Ph.D. degrees within the past 2 years or who will have received their degree by the time of award.

Deadlines and Additional Information

Deadline for receipt of proposals is April 1 of each year. Earliest starting dates are after October of that year. The general format of the proposal should be similar to the format suggested in the most recent NASA Planetary Astronomy Research Announcement. Required information includes an endorsement by the Director of Sponsored Research of the institute where the applicant plans to conduct the research and at least three letters of recommendation, one of which should come from the sponsor at the proposed host institute, another from the thesis advisor. Selection criteria include qualifications and promise of the applicant, proposed scientific program, and appropriateness of the proposed host institute for the proposed work and qualifications of the scientists working there. Submit eight copies of the proposal to:

Planetary Astronomy
Code SL
NASA Headquarters
Washington, DC 20546

SPACE BIOLOGY RESEARCH ASSOCIATESHIPS

Objective

To help to develop a cadre of scientists knowledgeable in the emerging discipline of Space Biology.

Program Description

Associates carry out ground-based research in NASA-approved laboratories that provide the necessary facilities and a suitable research environment to train individuals to study the role of gravity in the evolution and adaptation of animals and plants.

Participants

Eligible candidates must be U.S. citizens holding a Ph.D, D.Sc., M.D., D.D.S., or D.V.M. degree. Associates may come from many different disciplines including zoology, developmental biology, botany, and physiology (animal and plant).

Deadlines and Additional Information

To be considered for this program, applicants must contact the laboratories of their choice (from a list of NASA-approved labs that is furnished by the program coordinator) and submit a research proposal, resume, letters of recommendation, and statement of future aspirations. Completed proposal packages are due March 15. Initiation of funding for selected proposals takes place from July to November. The Director of the host laboratory must approve the study and submit a statement of support, together with the proposal package to:

Dr. Gerald Sonnenfeld
Chairman, NASA Award Committee
Department of Microbiology and Immunology
School of Medicine
Health Sciences Center, Room 1115-A

University of Louisville
Louisville, Kentucky 40292

Dr. Thora Halstead
Code SB
NASA Headquarters
Washington, DC 20546

INITIATIVES TO STRENGTHEN EDUCATIONAL INSTITUTION INVOLVEMENT IN RESEARCH

Support provided to academic institutions for institutional initiatives is designed to encourage collaborative partnerships and mentoring relationships among and between educational institutions, the space science research community, and "traditional" or established research institutions. These initiatives serve ultimately to strengthen and increase both the number and range of academic institutions participating in space science research.

NASA/UNIVERSITY JOINT VENTURE (JOVE)

Objective

To develop aerospace research capabilities and to promote science and engineering education by means of NASA/university partnerships.

Program Description

JOVE concentrates on institutions of higher education which have had little or no involvement in the Nation's aerospace program. In that regard, JOVE is a capability building program, akin to the National Science Foundation's EPSCoR (Experimental Program to Stimulate Competitive Research). The participating universities are expected to use their JOVE research connection as a basis for curriculum development, the enhancement of student research potential, and outreach programs to students at that institution and in the broader community served by that institution. The university commitment to the joint venture includes granting release time for one or more faculty members to conduct research during the academic year. A minimum of 25 percent full-time equivalent per faculty member must be obligated to the project to permit adequate research progress. The summer stipends of the faculty are shared, 50% contributed by NASA, 50% by the institution. Student support for the project can vary in category and extent as appropriate for each individual situation. Student salaries are shared equally by NASA and the university up to a maximum of \$10,000 per year from NASA.

Educational outreach activities are designed by the university, including, but not limited to, special courses, space science survey courses for high school students, and summer space camps at the university for teacher or student enrichment. JOVE utilizes electronic networking to link universities and colleges with the NASA mission database to involve faculty and students in aerospace research. The JOVE experience begins with the first summer when one or more faculty participants spend a 10-week research internship at a NASA Center or at a mentor university. This period of research is equivalent to the NASA Summer Faculty Fellowship Program experience. The commitment to the JOVE program by both NASA and the institution of higher learning is for three years.

Participants

Participants include: 55 academic institutions in 37 states, including Puerto Rico; 112 faculty research associates; and about 30 students, graduate and undergraduate.

Deadlines and Additional Information

Announcement Date: October Orientation Conference

Proposals Due: December 15

Selection Date: February 15

Begin Date: June 1

Candidate institutions are invited to send a representative to the JOVE Orientation Conference held each October. Prospective institutions must identify areas of research, faculty credentials, potential research matches with NASA mentors, suggested curriculum development, and outreach. JOVE institutions are selected based on the validity and potential outcomes of the research matches, on the strength of the institutional commitments to the JOVE program objectives, and on geographical and ethnic distribution factors. Interested institutions, which have had less than \$100,000 of annual NASA support for the last three years, should contact:

Dr. Frank Six
Mail Stop DSO1
University Affairs Office
Marshall Space Flight Center
Huntsville, Alabama 35812

Mr. Joseph Alexander
Code S
NASA Headquarters
Washington, DC 20546

HISTORICALLY BLACK COLLEGES AND UNIVERSITIES (HBCU)

Objective

To develop research and education programs at Historically Black Colleges and Universities (HBCUs) that provide science and engineering research outcomes pertinent to NASA's requirements. To train undergraduate and graduate minority students in science and engineering disciplines.

Program Description

Through grants awarded to HBCU Principal Investigators, science and space science research will be conducted. Correspondingly, the training of undergraduate and graduate students in those research techniques will be funded. Unsolicited proposals will be accepted from faculty members of HBCUs in disciplines related to NASA research requirements. HBCU faculty members may respond to any NASA research announcement.

Participants

All universities that qualify as an Historically Black College and University under the criteria of 34 C.F.R.608.2 and that have either post-baccalaureate programs leading to graduate degrees in science, engineering, or mathematics or doctoral degrees in health professions.

Deadlines and Additional Information

Direct inquiries to:

Minority University Research and Education
Division, Manager, HBCU Programs
NASA Headquarters
Code EU
Washington, DC 20546

NASA MINORITY UNIVERSITY PROGRAM FOR OTHER UNIVERSITIES

Objective

To collaborate with institutions of higher learning having significant minority enrollments, to meet NASA's research objectives and increase the number of individuals from underrepresented groups and the disabled in the pool of graduate researchers.

Program Description

NASA Minority University Program for Other Universities provides opportunities

for universities with significant minority enrollments and disabled students to become involved in the Agency's educational and research efforts. Management strategies are initiated to expand and increase the involvement of minority universities, especially Hispanic-serving and tribal colleges, and underrepresented minority and disabled faculty in NASA-sponsored research. The Agency is also working in conjunction with other universities to develop a pool of undergraduate and graduate underrepresented minorities and individuals with disabilities, who have advanced degrees in NASA-related disciplines. Additionally, special efforts are underway to enhance the retention and advancement of minority and disabled secondary students in mathematics-based curricula, and to provide science enrichment opportunities for in-service teachers.

Participants

As a result of the above efforts during FY 1991, the number of minority universities involved in the Agency's research and educational programs increased from 8 in FY 1990 to 18 in FY 1991. At least 89 faculty members and 72 principal investigators were involved in efforts that focused on increasing the participation of underrepresented minorities in the Agency's research and education programs. Additionally, approximately 5,915 underrepresented elementary, secondary, undergraduate, and graduate students were being served, and 61 grants were awarded totalling \$4.7 million. Also during this period,

the Office of Space Science and Applications provided \$650,000 in support of seven principal investigators' research at six different minority universities.

Deadlines and Additional Information

On July 1, 1992, research proposals are due from underrepresented minority faculty interested in conducting research relative to NASA's mission. These proposals are in response to a program notice issued on March 31, 1992 by the Office of Equal Opportunity Programs in collaboration with the Office of Space Science and Applications and the Office of Aeronautics and Space Technology. Approximately 25 awardees will receive up to \$75,000 annually for no more than 3 years.

Interested academicians and students should contact:

Ms. Bettie White
Equal Employment opportunity
Mail Code EU
NASA Headquarters
(202) 358-1540

MINORITY UNIVERSITY-SPACE INTERDISCIPLINARY NETWORK (MU-SPIN)

Objective

To provide and improve electronic access between Historically Black Colleges and Universities (HBCU's) and Minority Universities (MU's) and the major research networks, including the NASA Science Internet and the National Science Foundation Network.

Program Description

The MU-SPIN program is a networking and education initiative for Historically Black Colleges and Universities (HBCU), Minority Universities (MU), and other universities with large minority student enrollment. The program's main goal is to interconnect the computing facilities of HBCU's and MU's with the NASA Science Internet, and to promote awareness and usage of wide area networking technology in support of collaborative interdisciplinary scientific research among faculty, students, and NASA scientists. The program consists of four major components: 1) wide area networking; 2) faculty/student development; 3) the residence program; and, 4) the Users Working Group.

Participants

This program is open to the students and faculty of Historically Black Colleges and Universities, Minority Universities, and Universities with large minority student enrollment.

Deadlines and Additional Information

The MU-SPIN Program provides opportunities for faculty and students through a number of programs. For a list of the programs and their application procedures and deadlines, contact:

Dr. Nagi Wakim
MU-SPIN Program Coordinator
Code 930.5
Goddard Space Flight Center
Greenbelt, MD 20771

Mr. Joseph Bredekamp
Code SM
NASA Headquarters
Washington, DC 20546

UNIVERSITY-BASED COOPERATIVE PROGRAM IN EARTH SYSTEMS SCIENCE EDUCATION

Objective

To attract undergraduate science majors with solid foundations in relevant sciences to future studies and work in Earth systems science.

Program Description

Under this pilot program, selected universities will participate cooperatively with other universities and NASA in two inter-related activities--curriculum development and scientific exchange. Each university is required to develop and offer an introductory survey course in Earth systems science and a senior-level, interdisciplinary course. The introductory course will present an overview of Earth systems science to a broad segment of the student body, including both science and non-science majors. The senior level course will be taught jointly by faculty members from at least two academic departments with supplemental lectures from other in-house faculty, advanced graduate students, postdoctoral students, as well as visiting faculty and researchers from other universities or NASA laboratories. In addition to the curriculum development portion of the program, each university will participate in an effort involving short-term visiting scientists from other participating universities and NASA Field Centers. These visitors will provide additional technical insight and foster interdisciplinary education and research through their special expertise and perspectives which may differ from the host institutions. In addition, each university will work with a scientist from a NASA Center who will serve as a sponsor for their academic program. The NASA- sponsoring scientist may join in the identification and formulation of course work and relevant projects, facilitate access to NASA data, technical material, and other resources, and locate other NASA-based scientists to serve in a resource lecture pool from which universities may draw visiting lecturers.

Participants

The program is targeted for universities throughout the United States with a commitment to developing an interdisciplinary Earth science program at their institution. The audience served by the project is undergraduate students. If this program is successful, it may be expanded to include other universities and graduate- level students, as well as arrangements for postdoctoral research opportunities at NASA and universities. For this reason, only universities that have both undergraduate and graduate-level programs in relevant disciplines were eligible for the pilot program.

Deadlines and Additional Information

Announcements were distributed April 1990 to 100 targeted universities. Twenty-two universities were selected on July 12, 1990. There are no plans at the present time to include additional universities in the pilot program. Additional information may be obtained by contacting:

Dr. Donald R. Johnson or
Dr. Michael W. Kalb
Universities Space Research Association
4950 Corporate Drive, Suite 100
Huntsville, AL 35806
(205) 895-0582

Dr. Ghassem Asrar
Code SE
NASA Headquarters
Washington, DC 20546

INITIATIVES TO STRENGTHEN RESEARCH COMMUNITY INVOLVEMENT IN EDUCATION

Support provided to space science researchers encourages active researchers to enhance their role in the educational process. Space science researchers receive modest funding supplements to establish or strengthen partnerships with the education community through collaborative projects, community outreach activities, and other public education efforts.

The intent of research grant supplements for education is to encourage the participation of researchers funded by NASA space science disciplines to develop projects that use the excitement of space to promote general educational goals, with particular emphasis on mathematical, technological, and scientific literacy. Successful education involves a cooperative effort between schools and school districts, universities, government agencies, industry, and others. Space science researchers are urged to create a working relationship with other education groups including: local teachers or school district officials; planetaria or science museums; and concerned representatives of local industry. A partial listing of OSSA- funded U.S. educational institutions participating in NASA-sponsored research and education partnerships is provided in Appendix B.

ASTROPHYSICS GRANT SUPPLEMENTS FOR EDUCATION (AGSE)

Objective

To encourage scientific researchers to devote a fraction of their total efforts to educational projects.

Program Description

Grant supplements are designed to foster innovation and experimentation, leveraging small projects for a larger educational impact. Supplements may cover the cost of salary support, including undergraduate assistants, school

teachers, and others. Proposals are solicited in four major areas for 1992: 1) astronomy workshops for school teachers; 2) innovative concepts for bringing the excitement of astronomy to underrepresented minorities and women; 3) interactive, educational software; and 4) educational materials to be disseminated through established NASA distribution systems.

Participants

Astrophysics principal investigators with current grants (active as of July 1, 1992) in any of the following programs: High Energy Theory and Data Analysis; Astrophysics Data System; Astrophysics Data Program; Long-Term Space Astrophysics Research; UV Research and Analysis Program; UV Sounding Rocket Program; IR/Radio Theoretical and Laboratory Astrophysics; IR/Radio Instrumentation and Detector Development; Compton GRO Post-Doctoral Fellowships; Hubble Space Telescope Post-Doctoral Fellowships; Guest Investigator Programs for HST, CGRO, IUE, COBE, ROSAT, and/or EUVE.

Principal investigators are eligible to submit one proposal per project. However, any principal investigator may submit a second proposal which either supplements a successful prior proposal or creates a related project.

Deadlines and Additional Information:

Deadline for Proposals: June 10, 1992
Selection of AGSEs: July 1992
Program Award Period: August 1, 1992 to
July 31, 1993

For further information contact:

Dr. Jeff Bennett
Code SZ
NASA Headquarters
Washington, DC 20546

AGSE COMPTON GAMMA RAY OBSERVATORY EDUCATIONAL TRAINEESHIPS

Objective

To provide an opportunity for scientists involved with the Compton Gamma Ray Observatory to work directly with teachers or students interested in astronomical research from an educational standpoint.

Program Description

A new initiative in 1992, the intent of the Compton Gamma Ray Observatory Educational Traineeships (CETs) program is to provide an educational experience that will enable a student or teacher to better understand scientific research; it is not to be used to provide general research assistance to NASA scientists. CETs are administered through the Astrophysics Grant Supplements for Education (AGSE) program (p. 28). Compton scientists may submit a proposal to provide a research opportunity for high school teachers or students; limited opportunities may be available for undergraduate students as well. CETs will be awarded as add-ons to existing Compton research grants.

Participants

Proposals may be submitted by any scientist who is a current Compton Observatory Principal or co-Investigator, Guest Investigator, or Fellow.

Deadlines and Additional Information

Deadlines to be determined.
For additional information contact:

Dr. Alan Bunner
Code SZ
NASA Headquarters
Washington, DC 20546

EDUCATIONAL INITIATIVES AUGMENTATION PROGRAM

Objective

To address primarily the specific problem of training a scientific workforce that will assure continuity of excellence for the planetary program and secondarily the general problem of improving science education.

Program Description

The Educational Initiatives Augmentation Program began in October 1991. Existing Principal Investigators in NASA's Planetary Geology and Geophysics, Planetary Materials and Geochemistry, Planetary Astronomy, and Planetary Atmospheres programs will propose augmentations to their research funding to support a named graduate student for 4 years, an unnamed undergraduate student to work with the graduate student each year, and an outreach program of the Principal Investigator's design that will involve the investigator-graduate-undergraduate team in an activity to provide local high school teachers and students with insights into the research process, its excitement, the kinds of planetary research problems that are being addressed, and how research is accomplished.

Participants

Principal Investigators in NASA's Planetary Geology and Geophysics, Planetary Materials and Geochemistry, Planetary Astronomy, and Planetary Atmospheres programs may participate in this program.

Deadlines and Additional Information

Requests for supplemental support for the Educational Initiatives Augmentation Program will be included in the NASA Research Announcements (NRA's) issued annually. NRA's normally are released in early spring with a request for proposals due in May or June. Each supplemental request for this program must include the name and qualifications of the graduate student, a brief explanation of how his or her selected research project relates to the Principal Investigator's research program, and whether or not this is the student's first year of research on the proposed project. The request must

also outline the graduate- undergraduate team concept that will be employed, a summary describing the program proposed to introduce high school teachers and students to the research environment, and a two or three page attachment prepared by the candidate graduate student which describes and justifies the research project he or she proposed to undertake. Ten new requests will be selected each year. Selections will be made by the Director of the Solar System Exploration Division, NASA Headquarters based on the following criteria: quality of the proposer's research; qualification of the graduate student and the importance and quality of his or her project; perceived value of the proposed high school teacher-student program; and the commitment of the proposer to the undergraduate-graduate team concept. Selections will be announced well in advance of the beginning of each academic year.

Dr. Henry Brinton
Code SL
NASA Headquarters
Washington, DC 20546

INITIATIVE TO DEVELOP EDUCATION THROUGH ASTRONOMY (IDEA)

Objective

To expand the opportunities for both the professional and amateur astronomical research community to contribute to improving education in the United States by taking advantage of the universal appeal of astronomy.

Program Description

The Initiative to Develop Education through Astronomy (IDEA) represents a commitment by the NASA Astrophysics Division to pre-collegiate and public learning in support of the National Education Goals. IDEA is based on small augmentations of funding, and modest additional efforts by scientists, that can be leveraged for a large impact on education.

The objectives of IDEA are to:

1. Enhance the mathematical, technological, and scientific literacy of all Americans. The national education strategy states that we must have lifelong learning to help us become a nation of students." Public interest in astronomy makes it ideal for communicating mathematical, technological, or scientific concepts.
2. Promote learning and studying in every area, particularly at the elementary level, by integrating the excitement of astronomy into the everyday school curriculum. Astronomy can be used to increase interest not only in science, but in virtually every subject area including art, history, social sciences, mathematics, drama, literature, and more.
3. Increase the representation in science of minorities and of women. Throughout history, astronomy has proven to be of interest to every human culture, and to women and men alike, making it ideal for motivating scientific study by groups presently under-represented in science.

4. Improve the content accuracy and presentation quality of astronomical information available to the public. To achieve its educational potential, astronomical science must be presented in a clear and stimulating manner.

IDEA embodies a wide variety of programs. IDEA program development is driven by three main, complementary strategies: 1) to directly bring the excitement of astrophysics to teachers, students, and the public; 2) to capitalize on unique features of space astronomy missions; and 3) to facilitate the participation of the space astrophysics community in supporting the National Education Goals.

Additional Information

To obtain further information about IDEA contact:

Dr. Jeff Bennett
Code SZ
NASA Headquarters
Washington, DC 20546

SPACE PHYSICS RESEARCH AND ANALYSIS GRANT SUPPLEMENTS

Objective

To actively involve the Principal Investigators of Space Physics Supporting Research and Technology (SR&T) grants in educational outreach activities, either in their local communities or in cooperation with NASA's education programs.

Program Description

Space Physics Educational Outreach Supplements are an on-going program, first advertised in the NASA Research Announcement (NRA) for the Space Physics SR&T program for FY 1993. Principal Investigators awarded a research grant may also propose for a supplement to conduct an education activity directed at primarily high school or undergraduate teachers. Direct involvement of students is also allowable. Funded activities may include the development of educational materials for NASA to distribute through its education programs and centers.

Participants

Research scientists at U.S. institutions qualified to perform state-of-the-art research in Space Physics may participate. Participation of specific U.S. high school and undergraduate college teachers and/or students depends on supplements proposed for support and is not directly controlled by NASA.

Deadlines and Additional Information

The NRA for the 1993 SR&T program was released in the spring of 1992. Selections from the submitted proposals will be announced in 1992. Depending on the nature of the outreach proposal, funding of up to \$5,000 per year may be provided for each of three years. For additional information, contact:

Dr. David J. Bohlin
Space Physics Division
Code SS
NASA Headquarters
Washington, DC 20546

CURRICULUM ENHANCEMENT MATERIAL

The Office of Space Science and Applications and the Education Division develop educational products focusing on OSSA programs and missions.

Examples of typical NASA-developed curriculum enhancement materials include short Educational Briefs (4 pages) and "Educational Topics" (2 pages), teacher's guides with activities, videotapes (which can also be disseminated on NASA Select, a cable TV channel), slide sets, and more. Materials usually highlight scientific results from specific missions, but they may also target broader space science concepts (e.g., the electromagnetic spectrum, galaxies, etc.). Products may be developed by space science researchers, education specialists, NASA's Field Centers, and other members of the space science community.

Successful products are reproduced and distributed by NASA, typically reaching as many as 25,000-50,000 teachers. Approved products are distributed through NASA's nationwide network of Teacher Resource Centers, or electronically distributed via Spacelink, NASA's computer information service for educators. For detailed descriptions of NASA's distribution mechanisms for educational products, please refer to Appendix D.

A partial listing of space science-related education materials that have been developed in a collaborative effort between OSSA and the Education Division is provided in Appendix A.

APPENDIX C

OSSA EDUCATIONAL OUTREACH STEERING GROUP

Charter: To properly focus, coordinate, and leverage our many and varied educational outreach activities through the exchange of information.

Membership: A voting board representing the Associate Administrator, the OSSA Program Office and all of its research disciplines, chaired by the Assistant Associate Administrator (Science and Applications).

Chairperson
Joseph K. Alexander,
Assistant Associate Administrator
(Science and Applications)
Office of Space Science and Applications (OSSA)

Earth Sciences and Applications Division

Astrophysics Division
Ghassem Asrar
Georgia LeSane

Jeff Bennett
Lia LaPiana

Flight Systems Division
Philip Cressy
Anne Novotny

Life Sciences Division
Ronald White
Barbara Lujan

Microgravity Sciences and
Applications Division
Brad Carpenter
Joel Kearns

Solar System Exploration Division
Joseph Boyce

NASA Education Division
Pamela Mountjoy Bacon

Space Physics Division
David Bohlin

OSSA Graduate Student
Researchers Program
Dolores Holland

Executive Secretary
Cynthia Buck

APPENDIX D

NASA EDUCATIONAL RESOURCES

NASA Spacelink: An Electronic Information System

NASA Spacelink is a computer information service that allows individuals to receive news about current NASA programs, activities, and other space-related information, including historical and astronaut data, lesson plans, classroom activities, and even entire publications. Although primarily intended as a resource for teachers, anyone with a personal computer and a modem can access the network.

The Spacelink computer access number is (205) 895-0028. Users need a computer, modem, communications software, and a long-distance telephone line to access Spacelink. The data word format is 8 bits, no parity, and 1 stop bit.

NASA Spacelink may also be accessed through the Internet, a worldwide computer network connecting a large number of educational institutions and research facilities. Callers with Internet access may reach NASA Spacelink at any one of the following addresses:

spacelink.msfc.nasa.gov
xsl.msfc.nasa.gov
192.149.89.61

For further information about NASA Spacelink:

Spacelink Administrator
NASA Marshall Space Flight Center
Mail Code CA21
Marshall Space Flight Center, AL 35812

NASA Educational Satellite Videoconferences

During the school year, a series of educational programs is delivered by satellite to teachers across the country. The content of each videoconference varies, but all cover aeronautics or space science topics of interest to the educational community. The broadcasts are interactive: a number is flashed across the bottom of the screen, and viewers can call collect to ask questions or to take part in the discussion.

For further information about NASA's videoconferences:

Videoconference Coordinator
NASA Aerospace Education Services Program
300 North Cordell
Oklahoma State University
Stillwater, OK 74078-0422

Dr. Malcom V. Phelps
Technology and Evaluation Branch
Education Division
Code FET
NASA Headquarters
Washington, DC 20546

Teacher Resource Center Network

To make information available to the education community, the Education Division has created the NASA Teacher Resource Center Network. Teacher Resource Centers (TRCs) contain a wealth of information for educators: publications, reference books, slides, audio cassettes, videocassettes, telelecture programs, computer programs, lesson plans and activities, and lists of publications available from government and nongovernment sources. A TRC is located at each of the NASA Field Centers. Because each Field Center has its own areas of expertise, no two TRCs are exactly alike.

Regional Teacher Resource Centers (RTRCs) serve educators who cannot visit a TRC easily. They are located at science centers, museums, educational institutions, and other non-profit organizations throughout the country.

NASA's Central Operation of Resources for Educators (CORE) was established for the national and international mail-order distribution of NASA-produced educational materials in audiovisual format. Orders are processed for a small fee that includes the cost of the media. Send a written request for a catalogue and order forms to:

NASA CORE
Lorain County Joint Vocational School
15181 Route 58 South
Oberlin, OH 44074

For more information about the
Teacher Resource Center Network:

Dr. Malcom V. Phelps
Technology and Evaluation Branch
Education Division
Code FET
NASA Headquarters
Washington, DC 20546

NASA Spacelink contains a complete listing of addresses for TRCs, RTRCs, and
NASA CORE.

APPENDIX E

IF YOU ARE INTERESTED IN RECEIVING FUTURE UPDATES OR OTHER INFORMATION ON OSSA
EDUCATIONAL OUTREACH ACTIVITIES, OR WOULD LIKE TO COMMENT ON THIS CATALOG,
PLEASE DETACH THIS PAGE AND RETURN IT TO:

OSSA Educational Affairs Liaison
Office of Space Science and Applications
Code SPS
National Aeronautics and Space Administration
Washington, D.C. 20546

YOUR NAME

JOB TITLE/
POSITION

EMPLOYER/PROFESSIONAL
AFFILIATION

ADDRESS

PHONE

PLEASE CHECK ALL THAT APPLY:

Please include me on your distribution list for future informational
materials.

Please send me a copy of the 1992 OSSA Educational Outreach Catalog,
Looking to the Future.

Please remove me from your distribution list.

The information provided in the O SSA Educational Outreach Catalog was:

- Extremely useful
- Very useful
- Somewhat useful
- Not very useful
- Not useful

OTHER COMMENTS: