National Aeronautics and Space Administration
Goddard Space Flight Center

Goddard News

Greenbelt, Maryland / Wallops Island, Virginia

March 1994 Vol. 41 No. 3

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Two Goddard managed payloads fly on STS-62

The Space Shuttle Columbia, carrying two Goddard-managed payloads, was launched on mission STS-62 at 8:53 a.m. EST, Friday, March 4 after a 24-hour weather delay.

The NASA Office of Aeronautics and Space Technology-2 (OAST-2) payload managed by Goddard was mounted to a Hitchhiker carrier in the shuttle payload bay. Also flying on STS-62 was Goddard's "frequent flyer," the Shuttle Solar Backscatter Ultraviolet Instrument (SSBUV).

Following are brief descriptions of the six experiments that make-up the OAST-2 payload:

- Emulsion Chamber Technology (ECT) will determine the effectiveness of shielding against the background radiation present in low-Earth orbit leading to improved radiation shielding for humans and sensitive electronic equipment on space vehicles.
- Experimental Investigation of Spacecraft Glow (EISG) and Spacecraft Kinetic Infrared Test (SKIRT) was to designed to quantify the glow caused by the spacecraft striking atoms of oxygen and nitrogen while in low Earth orbit. This will aid in the design of spacecraft and sensitive instruments.
- Thermal Energy Storage (TES) 1 & 2 will provide, for the first time, data for understanding the long-duration microgravity behavior of thermal energy storage materials. The data will assist in the development of advanced space power systems.
- Solar Array Module Plasma Interaction Experiment (SAMPIE) will investigate the interaction of high-voltage spacecraft surfaces with the surrounding space environment. This will provide the basis for high-voltage space power designs.
- Cryogenic Two Phase (CRYOTP) will demonstrate different methods of thermal control in microgravity in order to better dissipate heat generated by miniaturized sensors and electronics in space vehicles.

The six OAST-2 experiments will obtain technology data to support future needs for advanced satellites, sensors, microcircuits and the space station. Data gathered by the OAST-2 experiments could lead to satellites and spacecraft that are cheaper, more reliable and able to operate more efficiently.

The SSBUV instrument was developed at Goddard and is designed to measure ozone concentrations by comparing solar ultraviolet radiation scattered back from the Earth's atmosphere.

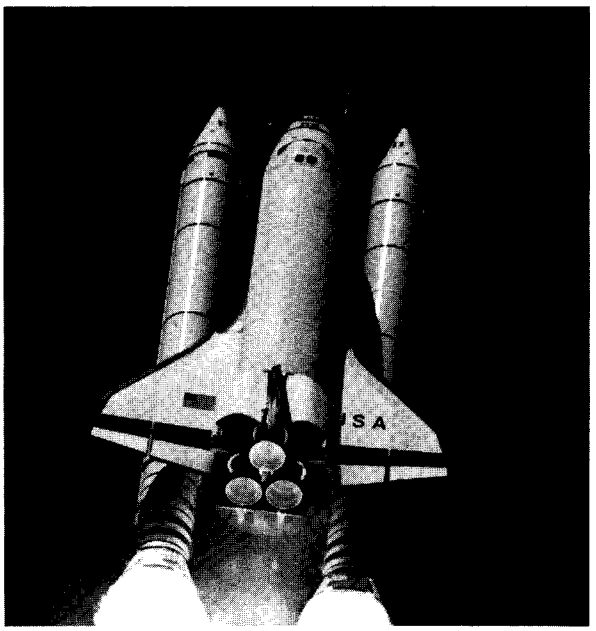
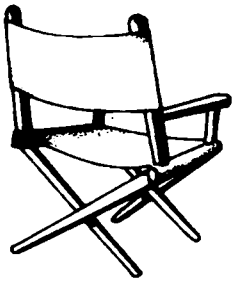


Photo credit: NASA

Space Shuttle Columbia gets underway on its 16th flight, Mission STS-62. Columbia, with a crew of five on the second shuttle mission of 1994, carried two Goddard-managed payloads on its 14-day journey.

SSBUV compares the observations of several ozone measuring instruments aboard National Oceanic and Atmospheric Administration (NOAA) satellites and Goddard's Upper Atmosphere Research Satellite (UARS). The SSBUV data is used to calibrate NOAA instruments to ensure the most accurate readings possible for detection of atmospheric ozone trends. Since SSBUV undergoes rigorous calibration before and after each flight, scientists can determine the reliability of ozone data gathered by other satellite instruments. STS-62 is SSBUV's sixth space shuttle flight.

OAST-2 is managed by Goddard for NASA's Office of Advanced Concepts and Technology. The Hitchhiker carrier is managed by the Special Payloads Division at Goddard. Neal Barthelme, Code 740.3, is the OAST-2 mission manager. SSBUV is managed by Goddard for NASA's Office of Mission to Planet Earth. Ernest Hilsenrath, Code 916, is the principal investigator and Don Williams, Code 916, is the mission manager.



Directors' Dialogue

Director's Dialogue has had several questions related to the Fund Source 1 (FS-1, personnel compensation) situation this year. Until March 1 of this year the Center had been operating under extremely restrictive guidelines. This had an effect on funding for training, overtime, promotions, awards, hires, and all other FS-expenditures.

Until recently, the Center anticipated a short-fall in FS-1 sufficient to require a furlough of all employees for approximately 8 or 9 days. Consequently, awards and training allocations were both delayed and significantly reduced from previous year's funding levels. Selection and promotion activity was reduced. Only a few hires were approved as exceptions to a hiring freeze imposed by Headquarters.

In March, the Center received a significantly increased FS-1 allocation for the remainder of FY-94. This was the result of a Congressionally approved transfer of funds from other NASA appropriations to the R&PM (and therefore FS-1) accounts.

This has made possible supplemental allocations to the directorates for awards and training, increases in Center-funded training programs, reduced restrictions on overtime, and a resumption of most normal promotion activity. However, the additional funding is not sufficient to return to the spending patterns of recent years. In addition, required reductions in full-time equivalents (workforce), mandated reductions in GS-14 and above positions and in numbers of supervisors and managers will continue to affect the Center's Human Resources activities for the foreseeable future.

We are glad to see a resumption of semi-normal activity and wish that we could return entirely to the funding environment of the late 80s and early 90s. That will not happen. However, the Center has, must, and will continue to strive to provide the best Human Resources program possible within available funding constraints.

Roger Jenkin, director,
Office of Human Resources,
Code 110

Questions for Directors Dialogue may be sent to Directors' Dialogue, Code 130, with or without identification. Due to space limitations, not all questions can be answered. Questions are sent to the appropriate directorate office as written but may be edited for space and clarity before being printed. Some questions may be answered outside of this forum.

Fast Auroral Snapshot Explorer to probe Earth's aurora

This photograph shows the Fast Auroral Snapshot (FAST) Explorer during integration in a cleanroom in Building 5. Instruments currently are being integrated with the spacecraft in preparation for the planned launch of FAST in August 1994. The solar panels positioned above the instruments are from the FAST engineering test unit and will not fly in space. FAST is the second mission of NASA's Small Explorer (SMEX) program, whose aim is to develop and launch spacecraft within three years of start and for $30 million or less.

FAST will study auroras, dazzling displays of light that appear in the skies of the Earths polar regions. FAST will investigate the plasma physics of auroral phenomena and reveal the key physical processes responsible for the acceleration of electrons into the upper atmosphere to produce auroras.

The Goddard-managed FAST is scheduled for launch on a Pegasus rocket dropped from an L-1011 aircraft at Vandenberg Air Force Base's Western Test Range in Lompoc, Calif.

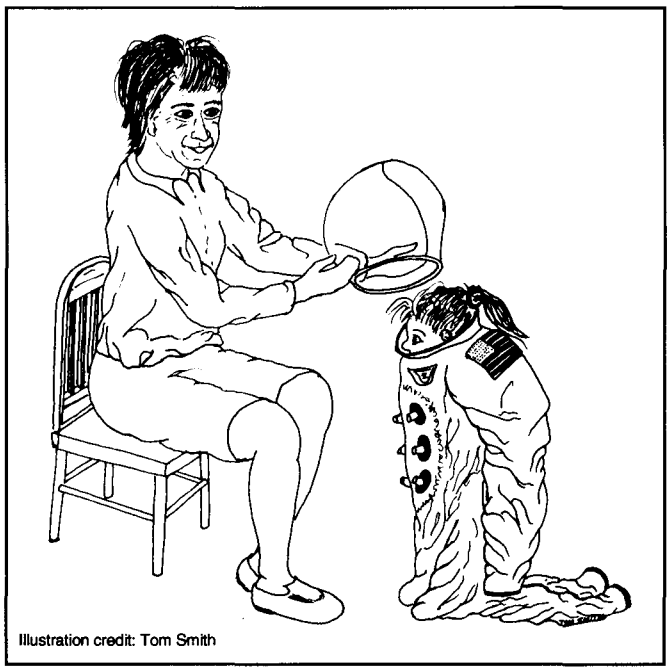
The 400-pound (180-kilogram) spacecraft will be inserted into a polar orbit with an altitude ranging from 220 to 2,600 miles (350 to 4,200 kilometers). A Transportable Orbital Tracking Station (TOTS) has been placed in Poker Flat, Alaska, to collect real-time telemetry.

The first SMEX mission, the Solar, Anomalous and Magnetospheric Particle Explorer (SAMPEX), was launched July 3, 1992. The next SMEX mission is the Submillimeter Wave Astronomy Satellite (SWAS), scheduled for launch in late 1995.

Have your daughter share the day with you at Goddard

Goddard is participating in the "Take Our Daughters to Work" (TODTW) day, April 28. Employees and contractors are encouraged to participate in this national event. It's a day where people all across the nation will take their daughters or somebody else's daughter to work with them.

The girls will get a chance to see what it's like to go to work for the day. It should be an exciting day at Goddard! The day will start with a welcome in the Building 8 auditorium. Some of the day's activities will include: a talk by a Goddard employee and former astronaut, discussions and demonstrations on Goddard projects and activities, career videos and a picnic lunch at the Visitor Center.



"You may not fit this suit now...But Sally Ride had to grow into hers too!"

There's still time for employees and contractors to volunteer to lead a talk, demonstration or other activity. You may also volunteer to be a mentor for the day. The TODTW committee is recruiting girls 9-to-15 years old because, according to recent studies, girls' self-perceptions and confidence drop considerably at that time.

Girls who don't have parents who work at Goddard will be matched with a volunteer mentor. If you're interested, call Mary Dant at 286-7301. Carol Jo Crannell, Code 682, and Marla Moore, Code 690, are leading the TODTW effort at Goddard.

What's Up? March 1994

Extreme Ultraviolet Explorer
Days in orbit: 600
EUVE continues to perform well. Intermittent guide star acquisition problems in star tracker #2 have been experienced since slewing to a target February 20. But the problem should not significantly compromise the quality of the observation. Similar problems occurred January 6 and 7 when this target also was observed and are most likely attributable to numerous additional stars in the tracker's field of view.

Compton Gamma-Ray Observatory
Days in orbit: 1,030
The observatory is in the normal pointing mode. The performance of the batteries continues to be monitored very closely, with power configurations adjusted as necessary. The observatory is functioning normally, with primary systems powered from modular power subsystem 2, which is performing very well. Modular power subsystem 1 continues to support a reduced load of mainly heaters.

Solar, Anomalous and Magnetospheric and Particle Explorer
Days in orbit: 576
SAMPEX continues to acquire all science and engineering data without any significant problems or operational errors. The control center is undergoing changes in preparation for the Fast Auroral Snapshot Explorer launch in August. Another front-end-processor will be upgraded next week and the new SAMPEX software still is being tested in parallel to the normal SAMPEX operations.

International Ultraviolet Explorer
Days in orbit: 5,876
IUE observed the star HDE 245770 during a X-ray and gamma ray outburst that has been detected by the BATSE experiment of the Compton Gamma Ray Observatory. During this outburst HDE 245770 became the brightest gamma ray source in the galaxy. IUE also observed Nova Cas 1993 as its UV flux rapidly faded during a major dust formation event (see IAU Circular #5938). The IUE observations give important information about the nature of the dust forming in the envelope of this nova.

Goddard forms ties with a vocational high school

by Tammy Jones

Goddard has formed a partnership with Edmondson-Westside Senior High School, Baltimore. The vocational school has been adopted as a pilot project under the Partnership of Youth Program.

"This partnership gives Goddard an opportunity to share its experience, and influence the lives of young people for the better," said Dr. Allan Sherman, deputy director of the Engineering Directorate, Code 700.

Goddard and Westside will work together in promoting programs that prepare students through training and work experience. Plans call for four students from the high school to work with mentors this summer in Code 700. "This is a great opportunity to capture the enthusiasm and experience of employees and transfer it to students," said Sherman.

The partnership was initiated by Dillard Menchan, chief of the Equal Employment Opportunity Office, Code 120, who saw a need to broaden NASA's outreach beyond just academically gifted students who are interested in careers in science and engineering.

"Many students in urban schools have ambitions in technical fields which don't require college degrees. We need to expand our scope to include those students," said Menchan.

Edmondson's principal, Irby Miller, said he realizes that for Edmondson's students to be prepared, the school's technological programs must meet the demands of the changing work force. Miller's vision is to establish Edmondson-Westside as the school system's Center for Applied and Related Computer Technology Education.

"When parents, students and businesses think of computers and computer technology education, they will think of Edmondson-Westside High School," said Miller.

Miller adds that Edmondson will be the paragon of the system as it relates to computer technology education. The focal point will be an expanded computer program center for business education, electronics, drafting, printing, and automotive mechanics and diagnosis and repair of business machines.

Goddard will provide career awareness activities for the students participating in the project here. There will be tours, training for teachers and students, internship programs, speakers bureaus, and mentoring.

Photo Credit: Debbie McCallum

Participating in the Goddard/Edmonson-Westside partnership ceremony are, from left to right: Lloyd Bower, Baltimore City Public School Board commissioner; Judy Werely, Baltimore City Public Schools partnership coordinator; Dr. Allan Sherman, deputy director, Engineering Directorate, Code 700; Rosita Dorsey, Edmonson-Westside student; Irby Miller, Edmonson-Westside principal; and Dr. Patricia Newby, Southwest Area assistant superintendent.

Goddard celebrates Black History Month

Goddard's Black History Club (BHC) presented several programs during February in commemoration of the 1994 Black History Month.

The highlight was the Annual Scholarship Dinner Dance at La Fontaine Bleu in New Carrollton. The University of Maryland Eastern Shore (UMES), Princess Anne, was the 1994 recipient of a $3,000 gift for two African-American students pursuing degrees in science.

Dr. William Hytche, president of UMES, accepted the award on behalf of the university and its students.

The BHC also presented Bill Weston, Code 552, and the family of the late Patricia Walker (former human resource specialist for Computer Science Corp.) with an award for lifetime contributions to the club. Herman Hines, Code 562.7, received the President's Award for outstanding service during the past year. Special Recognition awards were presented to David Carter, Code 924; Barbara Holmes, Code 552; Hank Middleton, Code 205.1; Marshall Shepherd, Code 912, and Gale Whitehead, Code 520.9.

Dr. Yvonne Freeman, NASA's associate administrator for the Equal Employment Office, attended the events and offered remarks. Freeman commended the club for its accomplishments and encouraged club members to continue to assist youths.

Other activities included a lecture and slide presentation by Eraka Rouzorondu, founder and president of Ascension Productions.

Rouzorondu discussed the contribution Africans have made to civilization and emphasized that African-Americans must continue to build upon their past accomplishments.

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NASA works at tapping the potential of all employees

by Tammy Jones

Dr. Yvonne Freeman, associate administrator of Equal Opportunity Programs for NASA, addressed employees at Goddard during Black History Month in February.

Freeman gave a speech entitled, "NASA - What Have You Done for African-Americans Lately?" but the theme of the presentation was more like "African-Americans, What Have You Done for Yourselves?" It was a speech filled with inspiration and words of encouragement for African-American employees at Goddard.

Freeman asked employees to look beyond the achievements of their parents and grandparents and to study the contributions of all of their ancestors.

"In your family line is the genius of those who were born into a barren land and built the pyramids. In the oasis of your mind is the consciousness of those who have charted the stars, kept time by the sun, and planted by the moon, those whose sweet potatoes produced over 200 products and are now recognized as the first food for space hydroponically grown as part of a CELLS experiment at Tuskegee," said Freeman.

Freeman reflected on the history of African-Americans in this country and the many strides that have been made up until now. In remembering the racism she was subjected to as a child in the South, Freeman acknowledged that equal opportunity and affirmative action have helped make a difference in America's workforce.

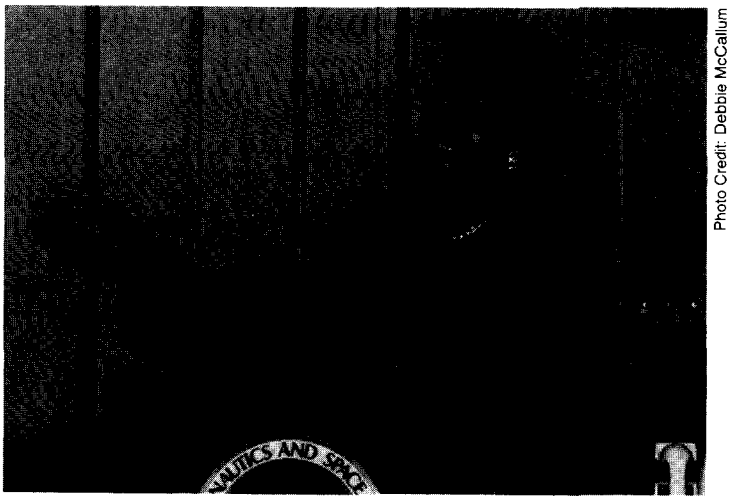


Photo Credit: Debbie McCallum

Dr. Yvonne Freeman

Women and minorities in the administrative professional workforce, for example, has grown threefold in the past 20 years (from 19.6 percent to 59.1 percent). African-American representation has almost tripled (from 4.1 percent to 11.8 percent) during this same period. In the engineering field, the representation of women and minorities has quadrupled (from 6.2 percent to 26.2 percent). African-Americans have grown two and a half times (from 1.9 percent to 4.7 percent).

Freeman said NASA's leadership is committed to change. Administrator Dan Goldin has demonstrated that through leadership by example. Since joining NASA two years ago, Goldin has appointed six women and six minority men in SES positions.

Since Goldin has headed NASA, minorities have been promoted to the following positions: deputy general counsel, associate administrator for Aeronautics, associate administrator for Equal Opportunity Programs, associate administrator for Small & Disadvantaged Business Utilization, associate administrator for Safety & Mission Assurance, and center director for Lewis Research Center. Minorities also are heading directorates at Lewis Research Center, Kennedy Space Center and Langley Research Center.

In the eyes of the Clinton administration NASA has been selected as an agency that can be "reinvented," and Goldin is trying to make it happen. But Goldin makes it clear that he alone cannot change this agency. Goldin said managers at NASA have to make more of an effort to include all people. "I want you to understand that my stance on diversity is not window dressing. It's not some pie-in-the-sky goal, and it's not optional," said Goldin. "This will happen at NASA; I will make it happen. The people who report to me have got to do better. I want to see a sense of urgency about this. I want to see significant progress, I want to see a NASA that looks like America."

In prepared remarks he made for the NASA Equal Opportunity Council meeting, Goldin said that he is more than just concerned about the lack of diversity at NASA. "I've said it publicly many times, and I want to repeat this now: the space program belongs to America. NASA is about making dreams come true—everybody's dreams."

"I'm tired of receiving letters from disenfranchised employees—women who are disenfranchised, minorities who are disenfranchised, young people, older people. You don't have to be 55 to be a senior executive at NASA. Nor should a 60 year old be overlooked for promotions because they're not part of the good-old-boy network," Goldin said.

According to Freeman, many of the problems that she sees at NASA will serve as guidelines and not stop signs. "Equal opportunity, affirmative action and workforce diversification are challenges which I accept and which I share with you, inviting your creativity and management expertise to change the paradigm from one of blame to one where together we can make a difference in ensuring equality of opportunity at NASA," said Freeman.

Black History Month

continued from page 4.

In a program sponsored by Goddard's African-American Advisory Committee, Freeman discussed some of the recent advances made by African-Americans within NASA.

The month long activities ended with a performance by the DuVal High School, Greenbelt, Gospel Choir and Jazz Band. The choir and band impressed their audience with a wide range of spiritual and musical selections.

The Goddard Black History Club invites everyone to attend its monthly meetings on the second Tuesday of each month at 11:30 a.m. The meetings are held in Building 12, room C206. For more information call Dana Dunsen, Code 560, at 286-4994.

Seeing the "big picture"

By Karen W. Davis

William B. Keegan, known as Brian to his friends and co-workers, is deputy director of Goddard's Flight Assurance Division, code 300. Keegan began his career at GSFC 28 years ago and has been in his current position since 1986. He is a native rural Baltimorean and lives in Ellicott City with his wife of 32 years, whom he married in September 1962, right out of college. He attended Loyola College in Baltimore, where he majored in physics. Keegan has three children and two grandchildren.

William Keegan

Keegan's department is responsible for safety, reliability and quality assurance on center. He monitors the processes associated with testing and operation of flight systems, and oversees the assurance "technologies," which include the related engineering activities, electrical parts, materials, and the implementation of the design and review stages. Prior to his current position, Keegan was chief of Goddard's Verification Engineering Office, where he was responsible for planning the environmental test activities to qualify flight systems before launch.

Keegan describes his job as completely enjoyable. "I am intimately involved in solving the technological problems associated with projects. I continue to stay involved in both the technological and administrative aspects to achieve the big picture." Keegan has been involved in other activities on center in addition to his role in the Flight Assurance Division. For the past four years, he has been the chairman of the Evaluation Committee for the Goddard Contractor Excellence Award.

Keegan also serves as chairman for the Metric Committee, which is responsible for implementing a plan to use the metric system of measurement for the entire center. He also served on the committee that prepared the center's Strategic Plan, which was released at the end of 1991 and helps monitor the progress the center has made in implementing this plan.

Keegan is one of the lucky few who enjoys his job. "I enjoy the distinct feeling of success from a successful launch. I am proud that I personally had a role, along with my organization to get the job done."

According to Keegan, for the past two or three years he has noticed a better sense of team spirit between the directorates.

"There used to be a feeling of parochialism, and directorates set up their own boundaries. But now, I think that we all see the "big picture," that we all strive for the common goal of keeping Goddard at the forefront of space research and technology," says Keegan.

Keegan takes pride in this new spirit of cooperation and team effort.

"We're not fighting turf wars anymore. We're all pulling together to focus on the particular task at the moment and I am proud to be a part of this. For example, our division had the reputation of the police officer or enforcer. We have moved away from that image because everyone on center seems to realize that we all play a role in producing a quality product. Flight Assurance is simply one aspect of this. Besides, police officers get a lot of grief for not being able to solve problems in their area and this is due to lack of support from the citizens. This is clearly not the case in our role here at Goddard," says Keegan.

Keegan says there is flexibility within the center to get involved in extra-curricular activities that are not necessarily job related.

"Individuals here at Goddard are encouraged to get involved in things they find interesting. This allows all of us to become better, well-rounded individuals by accepting responsibility to do things beyond the call of duty. It allows us to shape our minds as well as our jobs. I find that people really enjoy their jobs and the challenges of pushing technology with things that are different and never done before. A happy workforce is created when we make some of the things we enjoy compatible with our daily jobs," he says.

Blood Drive

During the holidays, the metropolitan area experienced blood shortages. Because of this Goddard held an emergency Bloodmobile on December 27, and forty-five pints of blooded were collected. Following is a list of Goddard employees who reached gallon marks on December 27.

# of Gallons	*Name*	*Code*
1	Debbie Henretty	712.3
1	Jennifer Bracken	712.1
1	Scott Sanner	284.2
2	Bob Calvo	300.1
2	Clara Hughes	684.2

On February 2 the Bloodmobile was held in Building 8. The number of pints collected was 194. We exceeded our goal by 29 percent. Following is a list of Goddard employees who reached gallon marks on February 2.

# of Gallons	*Name*	*Code*
1	Ronald Elkins	
1	John Christensen	407
1	Stephen Steenrod	916
1	Kathleen Kull	712
1	Timothy Bailey	200.1
2	Lori Keehan	511.2
2	George Rumney	931
2	Larry Parsons	235.1
2	Dianne Hagerty	111
3	Gregg Bluth	921
3	Jeffrey Bolognese	721.1
3	David Reuben	270
4	Mary McKaig	700
4	Cathleen Coleman	500.9
5	Catherine Gormley	151
5	Patricia Vornberger	971
6	Joseph Iffrig	530.9

The next Bloodmobile will be held April 6 in Building 8. Watch DATELINE for details.

Associate director given additional duties

Joe Alexander, associate director of Space Sciences, Code 600, has been designated acting chief, Laboratory for Extraterrestrial Physics, Code 690. He will have all signatory authority inherent to this position. Alexander will serve in the position until it is filled. He also will continue in his duties as the associate director for Space Sciences.

Goddard engineer honored

Dana Dunsen, Code 560, recently received the named Black Engineer of the Year Special Recognition Award. The award is given annually by the Career Communications Group, Baltimore, Md., to an engineer with less than five years work experience, who demonstrates tremendous potential for future engineering contributions.

Photo Credit: Peter Baltzell

Dana Dunsen

Dunsen, a native of Baltimore, joined Goddard in July 1991 after graduating with honors from Morgan State University. She is a system engineer for the Packet Processing Data Capture Facility in the Information Processing Division. Dunsen plays a major role in planning, assessing and troubleshooting hardware and system integration issues.

Nominated by Goddard's African American Advisory Committee for the award, Dunsen says "the competition was said to be tough and over 200 engineers were considered." The award is based on technical competence, job assignments, outreach involvement, engineering potential and academic education.

Dunsen was inspired at age 13 to become an engineer after watching a Public Broadcasting Program on which a NASA engineer discussed his responsibilities.

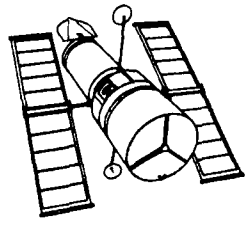
COMMUNITY DAY

NASA's Goddard Space Flight Center

SUNDAY, APRIL 24, 1994
10:00 a.m. to 4:00 p.m.
Goddard Visitor Center, Greenbelt, Maryland

10:30 a.m. to 3:00 p.m.	Special guided bus tours of the Center
11:00 a.m. and 2:00 p.m.	Spacesuit demonstrations
12:00 Noon	Musical entertainment
1:00 p.m.	HST Presentation by Dennis McCarthy
3:00 p.m.	Model rocket launches

For more information call: 301/286-8955
Visitor Center phone: 301/286-8981
TDD: 301/286-8955



Local students come to Goddard for a high-tech science expedition

by Tammy Jones

For two weeks in March, busloads of students and teachers packed into Goddard's Visitor Center auditorium for a unique scientific expedition. The students were taking part in the JASON Project Voyage V: Live from Belize. Each JASON expedition is designed to excite and engage students in science, technology, and education and to motivate and train their teachers.

This was the JASON Foundation's fifth expedition. This year, the science activities and experiments took place in the rain forests, coral reefs, cave systems and Mayan ruins of the Central American country of Belize. It was chosen to study the health of Earth and the effect people have on the planet.

The installation of a satellite receiving station and a custom-designed personal computer platform magically transformed the auditorium into a special "interactive classroom" of the future. During each broadcast, students and teachers engaged in real-time communication with the expedition's participants, and exchanged and compared data with Dr. Robert Ballard, founder of the JASON Project, and other scientists.

Photo Credit: Erica Drezek

Dennis Christopher, Code 130.3, moderates a discussion among local middle school students about the structure of coral polyps during the JASON broadcast.

When participants opened the door and walked into the vestibule adjacent to the auditorium, they found themselves in the middle of a mist-covered, tropical rain forest complete with a cave, sound effects, running water, Mayan friezes, insects, birds, snakes and poison dart frogs. The rain forest was designed and coordinated by Erica Drezek, AlliedSignal Technical Services, Code 543.8, and built by students from High Point High School, Beltsville.

"This became a school-wide learning experience. In order to build the 8 foot by 16 foot rain forest, technology, art, social studies and science students worked together," said Dave Stevens, JASON coordinator for Goddard's Educational Programs Office, Code 130.3.

Goddard was selected as a Primary Interactive Network Site (PINS) for the first time this year. It joins museums, research institutions, school systems and universities as a broadcast site. There are more than 25 PINS in the United States, England, Canada and Bermuda. Each PINS provides an opportunity for education, interactively, technological advances and a working partnership with the JASON Project and its sponsors. More than a million students have participated in JASON expeditions through the PINS and broadcasts.

According to a report by the U.S. Department of Health and Human Services, childrens' interest in science appears to fade as they get older. By the time they enter the 7th grade, more than half have lost their interest in science. "The dire statistics make this type of educational interaction that much more vital," said Jan Ruff, chief, Office of Public Affairs, Code 130.

"Goddard is very committed to education, and our plan with this program is to involve as many students as possible," added Ruff. Fifty-four elementary, middle and high schools from Maryland, Pennsylvania and Delaware participated in the JASON expedition at Goddard.

Goddard News

National Aeronautics and Space Administration — Goddard Space Flight Center

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Deadline for submitted material is the tenth of each month. For additional information contact Fred Brown (301) 286-7277, TDD (301) 286-8955.

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