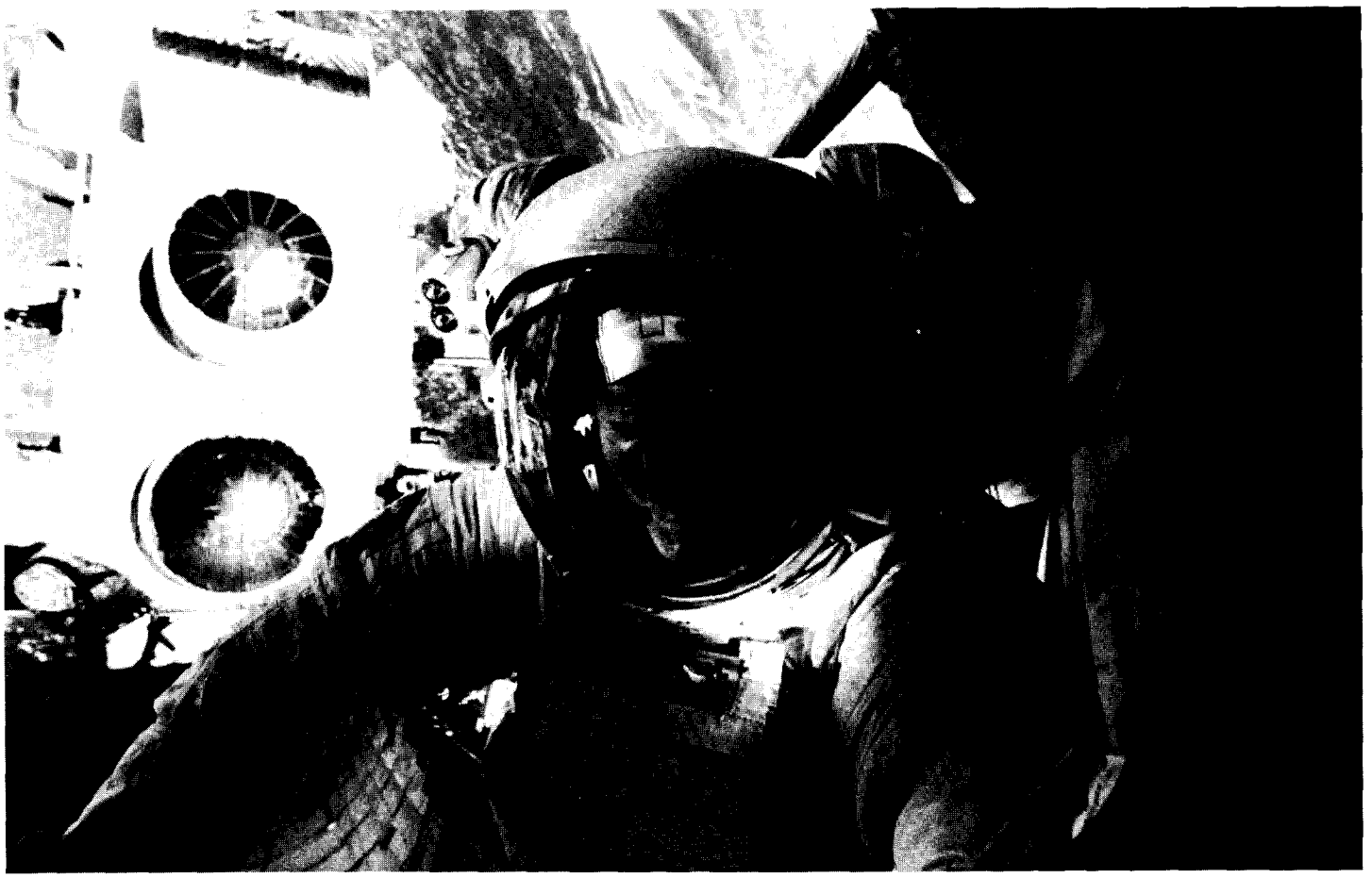
NASA
National Aeronautics and Space Administration
Goddard Space Flight Center

# Goddard News

Greenbelt, Maryland and Wallops Island, Virginia Vol. 37 No. 4 May 1991



*CAN I COME IN NOW ?....* **Astronaut Jerry L. Ross of the STS-37 Atlantis crew smiles in the "doorway" of the orbiter after successfully performing an emergency spacewalk to free the high gain antenna on the Gamma Ray Observatory (GRO), visible over his right shoulder.**

# STS-37 Launches Second Great Observatory

**by John J. Loughlin II**

The Gamma Ray Observatory (GRO), carrying four of the most sensitive gamma ray instruments ever to orbit the Earth, including the Goddard-built Energetic Gamma Ray Experiment Telescope, climbed a column of power into a cloudy Florida sky after a nearly perfect countdown Friday, April 5, 1991.

Two days and one emergency spacewalk later, the massive GRO was set free when Mission Specialist Linda Godwin flipped a switch to release the spacecraft from Atlantis' remote manipulator arm.

The mission of the Gamma Ray Observatory is to complete an all sky survey of gamma-ray sources in about a year, according to project officials. Next on the agenda is to single out specific sources of radiation for intensive study by one or more of GRO's instruments.

The instruments are the Burst and Transient Source Experiment, Marshall Space Center, Huntsville, AL; the Oriented Scintillation Spectrometer Experiment, the Naval Research Laboratory, Washington, DC; the Compton Imagining Telescope, Max-Planck Institute, Germany; and the Energetic Gamma Ray Experiment Telescope, Goddard.

The instruments concentrate on specific ranges of the gamma-ray spectrum with some overlap between them. According to Project Scientist Dr. Don Kniffen, Code 662, the scientific results produced by GRO "will change the way in which we view the whole field of high energy astronomy."

The observatory is currently in orbit at an altitude of 287 x 280 statute miles (462 x 451 kilometers) with controllers here at Goddard reporting all systems working exceptionally well.

Scientific observations are slated to begin no earlier than the middle of this month.

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**Q.** Over the past few years, personal computers have become a common and quite useful tool at GSFC. Some employees have PC's of their own which they use at home to get work accomplished. Many private companies have programs set up to encourage employees to purchase PCs which include no-interest loans. What is the possibility of Goddard setting up a similar program?

**A.** There is no provision in the employee benefits program which will allow employees to receive funds through a loan program (with or without interest) in order to purchase personal computers. To the best of my knowledge such a program would have to be sponsored by an employee organization.

**Roger L. Jenkin, Director**
**Office of Human Resources**
**Code 110**

**A.** It is not the policy of the Goddard Employee Welfare Association (GEWA) to make loans to individuals. GEWA loans are made available only to organized clubs. We regret that loans for employees who need computers cannot be made available.

**Jack Van Zant**
**GEWA President**

**Q.** We heard in June 1990 that the use of styrofoam at GSFC would be phased out. There has been little evidence of this so far. What's the story? Goddard is embarking on the Earth Observing System (EOS) portion of the Mission to Planet Earth, but it appears that Goddard is behind the times in doing its part for the environment with regard to reducing the use of disposables, safe recycling, etc. How can we get improvements in these areas?

**A.** A new clause has been added to the food services contract with Canteen Corporation which states that the use of styrofoam will be phased out. When the remainder of styrofoam is depleted, paper products will replace styrofoam in the cafeterias.

**Jack Van Zant**
**GEWA President**

# Using Lasers to Learn about the Planets

**by Susie Marucci**

In elementary school they were called relief maps, those "bumpy" three-dimensional maps that showed a mountain range or a coastline. These are topographical maps. Topography shows all the details of an area studied; the features, both man-made and natural, their height, width and depth. By studying the features of a planet, Earth for instance, on topographical maps, scientists can learn a lot about what is happening, like how beaches are eroding.

Over the next several decades scientists will study how the Earth's various systems affect each other. But for Planetary Geophysicist Dr. Jim Garvin, Code 921, the study session is already in full swing. Although Garvin's personal interests run to volcanoes and craters, one of the projects he currently is working on looks not just at the more interesting physical shapes on our planet, but at all of it. Garvin is working on using lasers to topographically map planets, including the Earth. Topographical mapping can show how features change, like sand dunes migrating over the years or the variations in polar ice levels and much more. It also can present scientists with information about how our world is transforming, for better or worse, over the course of years or decades rather than centuries.

Garvin has been working with diode pumped lasers to look at the topography of volcanoes. Diode pumped lasers are state-of-the-art lasers using a special, new composite material that is excited by pumping light from arrays of extremely small microlasers Over the past few years, since the technology became available to make these more efficient lasers, Garvin has been studying volcanoes by mapping them with laser instruments from airplanes.

Studying the terrain is important because it tells so much more than a photo. While a picture can show how something looks, there is a lot of information a photo cannot give, like height or depth or even volume. Garvin thinks mapping the entire Earth is necessary and that it will provide vital information that we currently do not have. "This fills a niche in science. It's a relevant thing to do," Garvin said. He wants to do it not by mapping areas of the planet miles across, but in swatches the size of football fields. This will provide much more information at human scales.

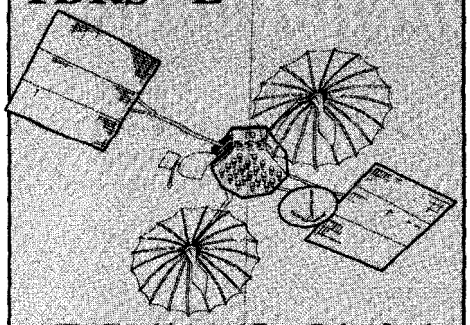
Looking at the topography of the whole Earth is years away; the plan is currently just that, a plan. In the meantime, Garvin and his team are working on two very similar uses of laser mapping in hopes of getting very different results. The first is an instrument called MOLA, the Mars Observer Laser Altimeter, and curiously enough, it will be launched on the Mars Observer, which is expected to fly in mid-1992. Garvin describes the Mars Observer as a small platform, similar to the Earth Observing System (EOS), but not by design.

"When you think about the things you'll want one set of instruments to do to study a planet," he said, "it makes sense that we hit on the same types of instruments." MOLA will map the entire terrain of Mars. Magellan is mapping Venus, but it uses radar, not laser altimeters. Once Magellan completes its mapping, and the Mars Observer maps Mars, then the only close planet that won't be totally topographically mapped is our own.

The second use of laser altimeters currently being built will look homeward. While mapping the topography of the entire Earth from space is still in the planning stage, mapping a part of the Earth, not on the global scale, will become a reality in the next few years. Using the "spare parts" of MOLA and a grant from the Goddard Director's Discretionary Fund, Garvin and his team created SOLAR, the Shuttle Orbital Laser Altimeter and Ranger. It is a Get Away Special experiment that will fly on the shuttle within the next few years. SOLAR is expected to map parts of the deserts of North Africa ("The precise topography is not known, it's a difficult area to work in," Garvin said), Australia and the heights and ranges of cloud systems. The cloud studies are an added benefit of the experiment, but not scheduled as part of the terrain-mapping activities. They will occur when the lasers cannot penetrate the cloud cover to reach the Earth's surface. While that sounds like a drawback, it is not. According to Garvin the information the lasers gather about clouds is very important. He and his team can study the makeup of clouds, including ice crystals that can't be seen in the visible spectrum. Garvin said, "The sci-

*(Continued on page 5)*

# Launch Update: TDRS - E

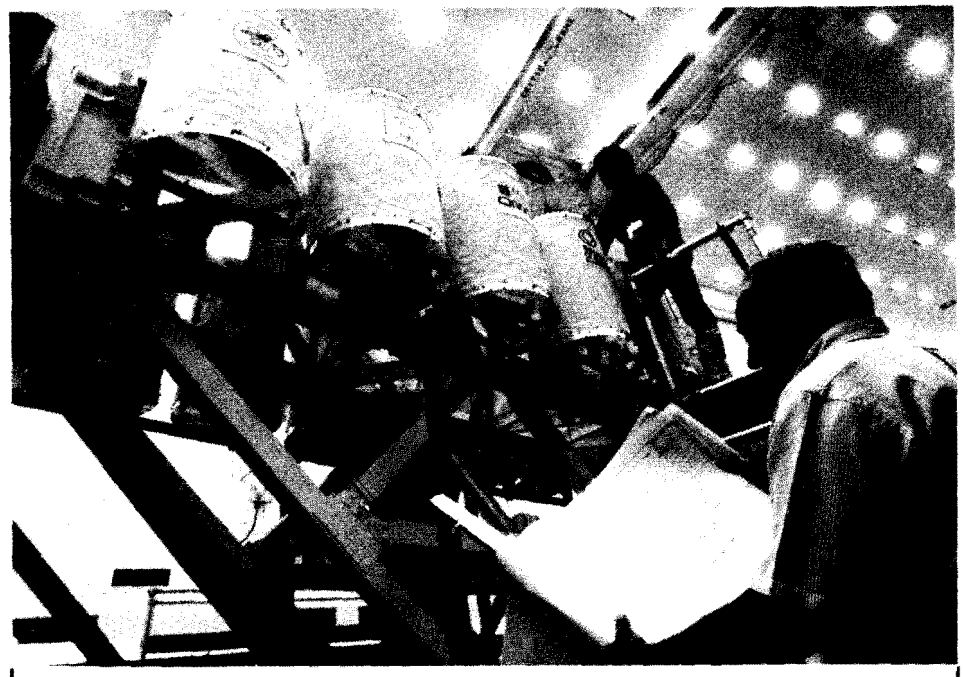


The Tracking and Data Relay Satellite (TDRS)-E, scheduled for launch aboard Atlantis on STS-43, on July 25, 1991, is currently in the Vehicle Processing Facility at Kennedy Space Center, FL, awaiting launch processing scheduled to begin in late April. The Flight Operations Review was successfully completed on March 14, while the Ground Operations Review was successfully completed April 9.

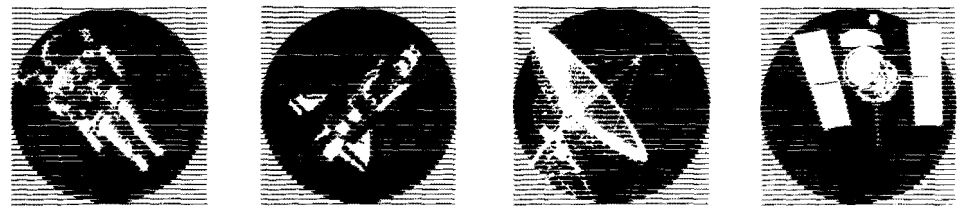
When on-orbit, TDRS-E will be redesignated TDRS-5 and moved to an intermediate location for testing. After testing is completed, TDRS-5 is scheduled to be moved to 174° West longitude replacing TDRS-3. TDRS-3 will then be re-positioned to 62° West longitude for additional operational support as needed.

TDRS-E is the fifth in a series of communications spacecraft planned for the Tracking and Data Relay Satellite System (TDRSS). TDRS-A, now in orbit and known as TDRS-1, was deployed from the Space Shuttle Challenger STS-6 mission on April 5, 1983. TDRS-B was destroyed during the Challenger accident in January 1986. TDRS-C, known as TDRS-3 in orbit, was launched from Discovery on September 29, 1988 on STS-26. TDRS-D, known as TDRS-4 in orbit, was launched from Discovery on March 13, 1990 on STS-29.

Two ground terminals located at White Sands, NM, will be responsible for communicating with the TDRS. One of the terminals began operations in 1983. The second is expected to be operational in 1993. The New Mexico location affords a clear view of the satellites, and service disruptions due to weather are rare in that area. The terminals are responsible for maintaining such functions as transmitting commands to the spacecraft, receiving the user data returned through each TDRS and keeping track of system status.



***DON'T LET IT GET AWAY!!*** **-- In this photo, taken earlier this year at the Operations and Checkout Building at Kennedy Space Center, FL, workers continue assembly, integration and checkout of the Get Away Special (GAS) canisters slated to fly on the Space Shuttle Columbia/STS-40 mission scheduled to launch in late May. *Joanne Baker*, Code 743.3, is inside the fixture; Gary Walters, Code 741.1, looks on from the ground and Pete Patterson, General Electric, is on the stand. This will be the fifty-sixth GAS can to fly. One of the 12 GAS experiments was developed at Goddard: the Orbiter Stability Experiment. It is designed to study space shuttle movement while in orbit. In addition to the experiment, Goddard manages the GAS program.**



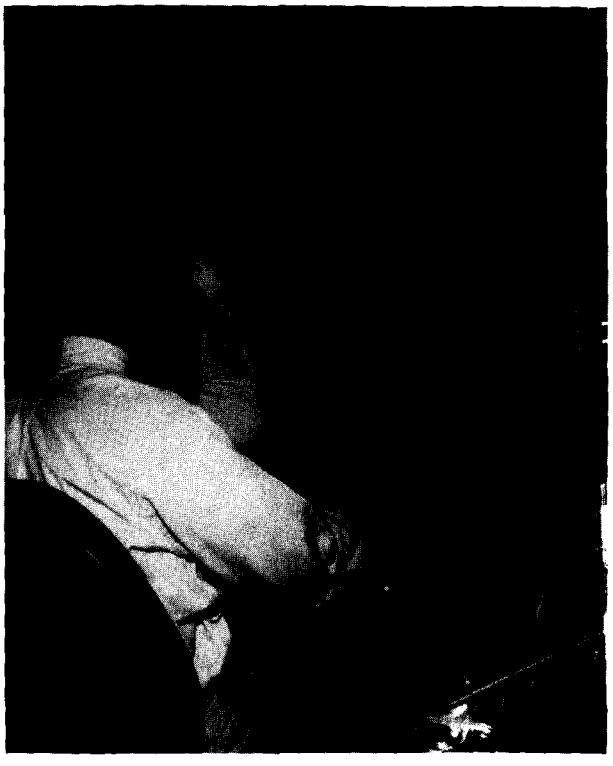
# Greenbelt Visitor Center Events for June

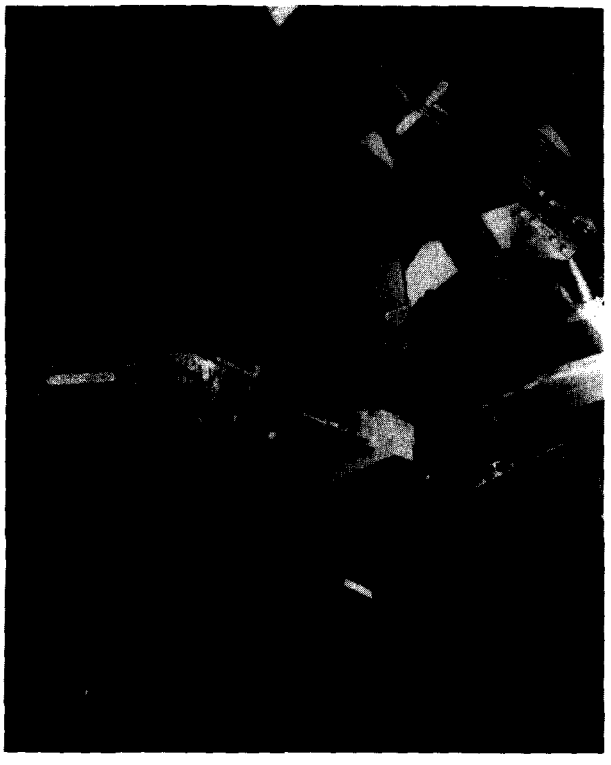
The Visitor Center is open to the public five days a week, Wednesday through Sunday, from 10:00 a.m. to 4:00 p.m., closed all federal holidays. There is no admission charge and parking is free. The Visitor Center is accessible to individuals with disabilities. Its staff members will provide Braille copies of exhibit text throughout the facility to individuals with visual impairments. For the hearing impaired, there are telecaptioned videos on most exhibits and interpreters can be provided for all events with at least seven days notice. For more information call x6-8981.

**Launch Site Goddard** -- Sunday, June 2 and 16, 1:00 p.m. Safety and fun -- a great combination for a Sunday rocket launch. All launches are monitored for safety and take place on the Visitor Center grounds. Bring a rocket or just come to watch them fly.

**Saturday Videos** -- Saturday, June 8, 1:00 p.m. View "Doing Something about the Weather." Weather does not happen, it is caused. All three weather scales -- the microphysical (tiny particles), middle (fronts and cells) and global (layers of atmosphere) -- act together to form a total system. One of the many benefits of the space shuttle has been the opportunity to observe these conditions in zero gravity. The shuttle can also observe from a more advantageous position the charged particles of the solar wind streaming into space. This video offers a fine account of the causes of the weather.

**Know and Tell** -- Sunday, June 23, 1:00 p.m. "Monitoring Global Climate Variability and Trends from Meteorological Satellites" -- Join Dr. Joel Susskind, Meteorological Satellites (METSAT) project scientist of the Modeling and Simulation Branch of Goddard's Laboratory for Atmospheres, as he shows results of the interrelationships of global patterns of surface and atmospheric temperatures, atmospheric moisture and precipitation.





PHOTOS: P. BALTZELL

*LOOK MA, NO HANDS* -- **Mike Lyons, Director of Flight Systems at NASA Headquarters (standing, photo on left) looks on as Mark Jaster, Code 408, Automation and Robotics Development manager, demonstrates the Flight Support System/Servicing Aid Tool (FSS/SAT) Simulator by operating the FSS/SAT control arm. Lyons was at Goddard in mid-April reviewing the Goddard projects funded by the Office of Space Flight. The simulator is at Goddard for experimental use and will be used for proof-of-concept demonstrations and astronaut crew training. The SAT, itself, will eventually be carried aboard the shuttle, to help astronauts service and maintain Goddard-developed satellites that are designed to be serviced on-orbit. The SAT will allow astronauts to change out Multimission Modular Spacecraft (MMS) modules and keep satellites working without bringing them back to Earth. One of the functions of the SAT is depicted in the two photos. The photo on the right shows the SAT simulator slave arm reacting to movements of the SAT control arm that Jaster is making in the photo on the left. The system is teleoperated. That means the slave arm is following the motions that Jaster is making with the control arm through electronically sent commands. In the same manner that it will work in space, when the slave arm receives a specific command, it positions the end of an 18-inch Modular Service Tool (MST) into an MMS module guide hole in the satellite mock-up (right photo). The tool then latches to the module and the operator has the slave arm remove it for replacement.**

# Goddard's Commercial Programs -- Changing and

**by Cheryll Madison**

Goddard's Office of Commercial Programs has been receiving kudos and fostering the growth of small high-technology businesses this month.

Among the greatest benefits of America's space exploration and aeronautics research programs are spinoffs -- commercial products and processes created when private enterprise adapts new aerospace technology to take advantage of opportunities in the marketplace. Over the years NASA-derived technology has been the basis for more than 30,000 spinoffs.

One such spinoff has saved thousands of lives and has won a place for Goddard in the Space Technology Spinoff Hall of Fame, which honors individuals and companies responsible for practical applications of space research. The life-saving and award-wining device is the Automatic Implantable Cardioverter Defibrillator (AICD).

## Heart-Monitoring Device

The AICD is a heart-monitoring device--an implantable cardiac pacemaker--that recognizes life-threatening rhythms and automatically delivers electric shocks to the heart to restore it to normalcy. An air-tight, battery-powered device the size of a package of cigarettes, the AICD is implanted in a patient's abdominal wall with leads extending to the heart. It continuously monitors the electrical activity of the heart for the presence or absence of life-threatening arrhythmias, or heart rhythm irregularities, known as ventricular tachycardia and ventricular fibrillation. If an arrhythmia is detected, the device delivers a corrective electrical shock to the heart, restoring a normal heart rhythm.

Goddard's AICD is now in use by more than 15,000 patients world-wide. The AICD has reduced expected sudden cardiac death during the first year of use from 30 percent to less than two percent. Total survival for patients using the device is 92 percent at one year and 76 percent at five years.

Approximately 50,000 people die in the US each year due to ventricular fibrillation, where the electrical conduction system of the heart becomes short-circuited. The muscles of the heart contract in disorganized fashion, and the heart does not pump blood efficiently. When it can be applied in time, electric shock defibrillation is generally successful in restoring normal electrical activity to the heart.

This spinoff began as a direct result of humans in space. As the population of astronauts became more diverse, the possibility of a cardiac episode during a mission needed to be considered. Goddard's Office of Technology Utilization, Johns Hopkins University Applied Physics Lab, Laurel, MD, and Intec Systems, Inc., Pittsburgh, PA, began collaborating in 1979 on using space technology in the development of the award-winning AICD, incorporating microminiature circuits with built-in microprocessors and the ability to communicate. It also provides programmability to adapt to individual patient require-

# Scientists Believe a Colder Upper Atmosphere May Imply a Warmer Earth

**by Jessie Katz**

Scientists have peered into the atmosphere and once again, forced it to reveal some long-held secrets.

Goddard's Dr. Arthur Aikin, Code 916, a scientist in the Atmospheric Chemistry and Dynamics Branch, was one of an international group of scientists who reported a 10-year, 2.5 degree centigrade temperature decrease in the lower mesosphere, at an altitude of 34.2 miles (55 kilometers) above the Earth. Such a decrease is predicted by some models of global warming because of enhanced concentrations of carbon dioxide ($CO_2$), methane and other gases.

The measured temperature decrease, according to a paper published by Aikin, is evidence of an enhanced greenhouse effect, the warming of the climate that occurs when the greenhouse gases prevent the Earth's heat from escaping into the atmosphere.

The increase of greenhouse gases causes the temperature of the atmosphere to change. As short wavelength radiation is trapped, air becomes warmer near the surface. At the same time, there is an increase in the amount of longwave radiation in the middle atmosphere. The result, depending upon cloud cover and other factors, is that the surface may warm by one to two degrees centigrade and the temperature in the mesosphere may drop by as much as ten degrees centigrade.

Aikin, along with co-authors David Kendig, ST Systems Corporation, Lanham, Maryland; Marie-Lise Chanin, Service d'Aeronomie, Verrieres Le Buisson, France; and John Nash, United Kingdom Meteorological Office, Bracknell, found the Earth's atmosphere at the 25 to 43.4 mile (40 to 70 kilometer) altitude range was best for measuring short-term temperature changes which may be caused by human activity because the fluctuations are greater in the mesosphere than those nearer the Earth's surface. According to Aikin, "The problem with making surveys closer to the Earth's surface is that there is a margin of error around one to two degrees centigrade. So, in studies of a decade or two, it is easier to detect changes in the upper atmosphere where changes are larger."

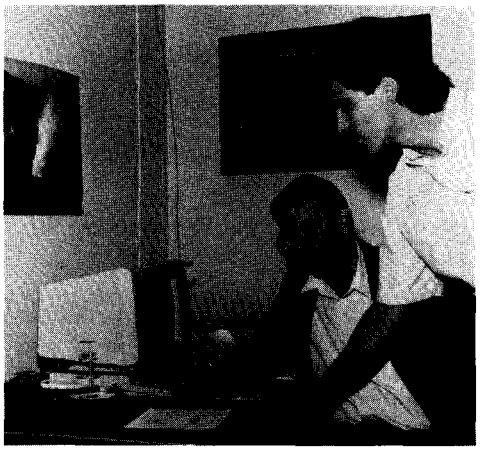


PHOTO: D. MCCALLUM

*TIME, GRAPHS AND GLOBAL WARMING* -- **Dr. Arthur Aikin, Code 916, seated, discusses a graph of changes in mesospheric ozone and temperature as a function of time with co-author David Kendig, of ST Systems Corporation.**

Aikin does not believe this temperature drop is related to the 11-year solar cycle. The study conducted by Aikin and his co-authors lasted 10 years (1980-1990) and showed a steady drop in temperature without any evidence of a cycle being involved.

The ten-year study used data both from ground-based studies in France and from the British Stratospheric Sounding Unit (SSU) instrument flown aboard most of the US TIROS weather satellites.

The scientists' report also indicates that after longer study during this decade, they should be able to estimate more accurately how the atmosphere responds to greenhouse gases.

Analysis of existing data is a key component of NASA's Mission to Planet Earth, a coordinated program of ground-, airborne- and space-based research designed to study the Earth as an integrated environmental system.

# Bettering the World We Live In

ments. Through telemetry, the device can be read to determine if a defibrillating pulse has been provided and if so, to look at the electrocardiogram just prior to and following the episode. Subsequently, the AICD has been commercialized by Cardiac Pacemakers, Inc., Pittsburgh, PA.

Don Friedman, Code 702, Chief of the Office of Commercial Programs, accepted the "Spinoff" award for GSFC at the Seventh National Space Symposium of the United States Space Foundation in Colorado Springs, CO, in April. GSFC was one of two winners out of ten nominees.

## Small Business Assistance

In another coup for commercial programs, the Small Business Innovation Research (SBIR) Program, continues to grow and to be a successful stimulant to local small businesses. SBIR recently held their second workshop this year. Nona Minnifield, Code 702, a commercial programs specialist, says that "the program, started in 1983, and this year has awarded forty-two Phase-B contracts."

SBIR program objectives include stimulating technological innovation in the private sector, strengthening the role of small business in meeting Federal research and development needs, increasing the commercial application of Federally supported research results, and fostering and encouraging participation by minority and disadvantaged persons in technological innovation.

To qualify for a research grant, businesses must have five hundred or less employees and the principal investigators must spend fifty-one percent of their time on the proposed project. These workshops are held to support the technology transfer and business opportunity Memoranda of Understanding that GSFC, has in place with the state governments of Maryland, Virginia and West Virginia.

## Lasers to Learn about Planets

*(Continued from page 2)*

ence that we are hoping to do [with SOLAR] is broad." And because SOLAR is so similar to MOLA, it will give Garvin and his team a chance to see how the MOLA experiment will function around Mars.

While he is looking to Mars, and perhaps someday the Moon, Garvin still believes that mapping the entire Earth using a laser altimeter spacecraft is vital.

"That's what people like me do," he explained. "We try to measure topography, shapes of landforms, and understand why they change, how they grow, how they wear down and how they influence how we live."

INSIDE

# NACA and Wallops: An Echo of Teamwork

by Keith Koehler

Teamwork. It's what makes successful businesses and organizations: people pulling together despite the obstacles so a project can be completed successfully. Like the call of the tens of thousands of waterfowl that nest each year along this peaceful stretch of Eastern shore, the teamwork that launched Americans into the space age easily is recognized along the tarmac and in the hangers of Goddard's Wallops Flight Facility. With little funding and even less public recognition, teamwork was the rocket fuel that kept the National Advisory Committee for Aeronautics (NACA), the ancestor of NASA, on the leading edge of the technology of the day.

Two employees at the Goddard's Wallops Flight Facility, with a combined experience of 73 years, remember fondly the days when, much like today, teamwork meant the making or breaking of a project. Dick Johnson, Code 833.2, and Bob Duffy, Code 800, are the remaining two members of those at Wallops who worked for NACA. Many things have changed during their careers but the love of their work has remained constant.

Johnson, who came to Wallops in October 1956, said the Eastern Shore was a "good place to live and work." His memory spans back to the Mercury program when, like many of Goddard's employees today, he "didn't want to miss a day of work."

Duffy, who reached 39 years at Wallops in April 1991, noted that the programs, including development of supersonic aircraft designs, the Scout program, advanced technology developments and sounding rockets, have kept him at Wallops. "It's fun work," he said.

**Johnson's memory spans back to the Mercury program when like many of Goddard's employees today he, "didn't want to miss a day of work."**

Smiles come to their faces when they reminisce about the days of old on the island named for John Wallop, a 17th century English surveyor on the shore. Of his early days, Duffy said the more things change, the more they remain the same. "Everyone still does their best in whatever needs to be done even though we don't enjoy the closeness that developed from riding the ferryboat to and from the island. Everyone supports the project of the day."

Johnson, a photographer under NACA, noted, "We had a fairly unique damage control system." Like the volunteer fire departments still in service across much of rural America, he explained, "Everyone would drop what they're doing and jump on the truck." If you needed help you found the people. "People did more than one job," according to Johnson. "Leaving the Navy and going to Wallops was like going to heaven," he stated.

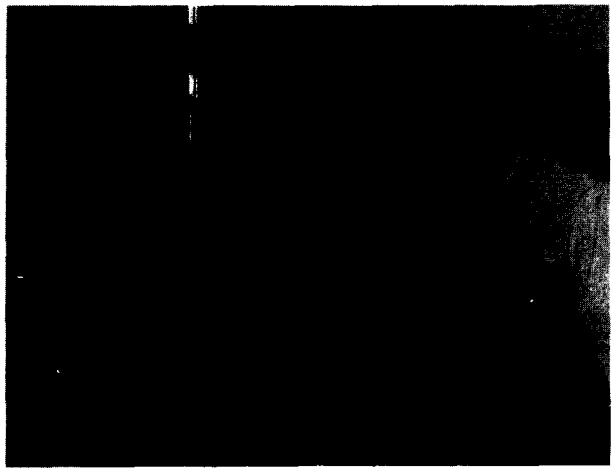


PHOTO: A. REW

*REMEMBERING WHEN* -- **Dick Johnson, Code 833.2, left, and Bob Duffy, Code 800, look at a history of the early days of Wallops and reminisce about a time they remember well -- when NASA was just an idea, and NACA, the National Advisory Committee for Aeronautics, was the space organization.**

Wallops Island in the early to mid 1950s employed about 75 people, five of whom were engineers, and one was Duffy. Duffy said the Wallops activities provided "very good opportunities for the local people." The engineers would train them in various operations such as radar and launch vehicle assembly.

According to Johnson, project details were described to all personnel and everyone got fired up about them. Employees got to meet the scientists, know their fears and the risk of the experiments.

Duffy, a test engineer in the pre-flight jet wind tunnel during the 1950s, noted that because Wallops was a very remote site, there were few visits by headquarters officials. However, the committee discussed and approved the X-15 project during a meeting that was held in the cafeteria on Wallops Island, he said.

In addition to the few visits by headquarters officials, local residents who did not work at Wallops knew little of the work being conducted on the barrier island. Most of the work had military aspects so it was played down. "There was very little public affairs activity," Duffy said.

Johnson added that there was a big change when NASA was established. Under NACA, the programs were "low profile," he said. However under NASA, the focus was to "high visibility" programs.

Both men agreed that in their extensive experiences at Wallops the Little Joe program, which was the development of the Mercury space capsule and its systems, was one of the most memorable.

According to Johnson, "Little Joe was probably the most interesting thing I can relate to." Wallops started with the program in its infancy and worked with it almost to finish. Many aspects of the capsule were tested at Wallops, the capsule shape, the heat shields, parachute systems and the escape systems. "We watched it grow day to day," he added.

**Of his early days, Duffy said the more things change, the more they remain the same. "Everyone still does their best in whatever needs to be done even though we don't enjoy the closeness that developed from riding the ferryboat to and from the island. Everyone supports the project of the day."**

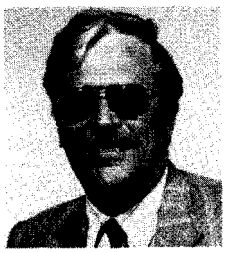
Duffy added that today's countdown for the space shuttle is based on experiences from the Little Joe. Countdowns were originally continuous counts of 32 to 36 hours long. This would include a person working the entire count. From this experience, "holds" were built into the count, he said.

Of course, every minute on the island was not spent working on projects. Wallops was known as an excellent location for catching channel bass so the employees took advantage of it. They would stay late to fish and have a friend with a boat pick them up, because in those days the island was not accessible by car. As Johnson noted, "You couldn't call your wife to come pick you up."

## CLOSE UP

Congratulations to the following employees on their recent appointments: **MARILYN MITCHELL,** Head of the Funds Accounting Section, Code 211.2...**DWAINE KRONSER,** Head of the Publications and Graphics Services Section, Code 253.1, in the newly reorganized and retitled Technical Information Services Branch

*KRONSER*



*MOLTERE*

(formerly the Graphics and Publications Branch)...**RONALD MOLTERE,** Head of the Photographic and Reproduction Services Section, Code 253.2, in the Technical Information Services Branch...**ARTHUR OBENSCHAIN,** Project Manager, Code 415, of the newly established Geostationary Operational Environmental Satellite (GOES) Project...**JOSEPH DEZIO,** Deputy GOES Project Manager, Code 415...**DAVID FROMME,** Deputy Project Manager for Resources for the GOES Project, Code 415

## GIVE

On April 3, the Bloodmobile was held in the Building 8 Auditorium and 153 prospective donors volunteered to donate blood. The following is a list of Goddard employees who were cited by the American Red Cross with gallon pins.

| # Gallons | Name | Code |
|---|---|---|
| 7 | Edwin Vaughan | 563 |
| 2 | Enrico Sabatino | |
| 2 | William McGunigal | 728 |
| 2 | James Thieman | 933 |
| 2 | Joan Tarkington | 504 |
| 2 | Regina Gernatt | 523 |
| 1 | Allison Lopez | |
| 1 | Winthrop Johnson | |
| 1 | Robert Kasa | 733 |
| 1 | Jack Balakirsky | 551 |

The next Bloodmobile is scheduled for June 5 in the Building 8 Auditorium. Watch *Dateline Goddard* for more details.

PHOTO: D. MCCALLUM

*CONTRACTORS HONORED* -- **Six contractor finalists were awarded plaques for the 1990 Goddard Excellence Awards. Center Director Dr. John Klineberg presented the plaques during a ceremony April 22. Deputy Director for Flight Assurance Brian Keegan, Code 300, gave the opening remarks and spoke of the Goddard Excellence Award Program. The Goddard Excellence Awards are given annually for quality and productivity improvements. Representing the six finalist contractor companies are, from left: Dr. Frederick J. Hawkins, president, Omitron, Inc.; Thomas Swales, president, Swales and Associates, Inc.; Jack Swartz, Stanford Telecom; Azmat Ali, president, NYMA, Inc.; Steve Nalyszka, General Electric Astrospace; and David Wollston, Ithaco, Inc. In addition to the six finalists, two Goddard Excellence Awards were presented. The Goddard Excellence Award for Prime Contractors was presented to TRW in Redondo Beach, CA, on January 31, 1991. The Goddard Excellence Award for Small Businesses went to General Electric Americom, Princeton, NJ, on April 30, 1991.**

# A Tree Grows in Greenbelt

**by Susie Marucci**

Take 120 children and almost any event, and the kids will have a great time. That was the case during Earth Week, when the students of the Goddard Child Development Center (GCDC) came out of their classrooms to spend lunchtime planting a tree in their own backyard.

Tom Sliwiak and Drew Bowie, both of Melwood Horticultural Training Center (MHTC), working for Rich Stewart, Code 290, and members of the Plant Operations and Management Division (POMD), finished digging the hole that would soon be the tree's new home. Larry Bohlen, Code 731.2, president of the Goddard Conservation Club (GCC), talked to the children and the other guests about how trees can make our world better. When Bohlen asked the youngsters what trees did to help people, many small voices came out with ideas ranging from how pretty trees look to the shade they provide.

Bohlen told the eager youngsters that trees produce oxygen and store carbon dioxide, a greenhouse gas. The tree, a twelve-foot tall green ash, was provided by POMD which worked with the GCDC to arrange the event and choose the site. This tree was larger than those typically planted, therefore it has a better chance of survival.

In addition to watching the tree planting, Goddard employees had the chance to celebrate Earth Week by attending talks by representatives of Earth science missions addressing environmental issues. In separate sessions, speakers discussed the Total Ozone Mapping Spectrometer (TOMS), the Upper Atmosphere Research Satellite (UARS), the Tropical Rainfall Measuring Mission (TRMM), Landsat and the Earth Observing System (EOS), and one session dealt with the Goddard environment.

PHOTO: M. SMALL

**KEEPING THE CENTER GREEN -- Larry Bohlen, Code 731.2, president of the Goddard Conservation Club, left, helped Brandan Clarke, a five-year-old student at the Goddard Child Development Center (GCDC) as he raised the first shovel full of dirt to plant the new tree at the GCDC. One hundred and twenty children took turns scooping dirt over the tree as members of the Plant Operations and Management Division kept the tree upright. Holding the tree in place were Tom Sliwiak, Melwood Horticultural Training Center (MHTC), left; Stacy Parsons, MHTC, center; and Drew Bowie, MHTC, right.**

*WE GATHER TOGETHER* -- **Thirteen honorees from Goddard were part of the Manned Flight Awareness Honoree Event, recognizing people who have worked on the shuttle or shuttle payloads continuously for the last 10 years. The four-day event was planned to coincide with the 10th anniversary of STS-1. John Young and Robert Crippen, the commander and pilot of STS-1, respectively, presented the certificates to the Goddard and Headquarters honorees in the afternoon of April 11. Goddard honorees, from left to right standing are: Gerald T. Page, Computer Sciences Corporation (CSC); William K. Wells, Bendix Field Engineering Corporation (BFEC); George C. Kronmiller Jr., Code 531; Daniel A. Spintman, Code 530; Robert R. Stanley, Code 515 and George T. Jenkins, Code 530. Seated are: John P. Gale, BFEC; Wesley J. Bodin, Code 530; Vaughn E. Turner, Code 540; Gary A. Morse, Code 530; Elizabeth K. Tervo, CSC; William F. Way, BFEC, and Shantaram M. Ingale, CSC.**

PHOTO: M. MATTES

# CENTER SIDE Lines

**LYME DISEASE** -- While the deer on Center add a special atmosphere to Goddard, they also carry a risk for urban office workers: Lyme Disease. Deer ticks are transmitters of Lyme Disease. These ticks are about the size of a pinhead, much smaller and harder to see than the common dog tick, but may swell after attachment. While Lyme Disease has not been directly linked to the Center in the past, employees should be aware of the symptoms. Early symptoms may include a red ringlike, or bulls-eye-like, rash which may feel warm, itchy or painful and possibly be associated with fever, chills, swollen glands, fatigue, headaches and more in the early stages. As the disease progresses, more than half of those suffering will develop a condition similar to arthritis, most often swelling in the knee joints. Preventative measures include daily inspection of skin for rashes and ticks and wearing long pants and long sleeve shirts when walking in grassy or wooded areas. If you have any questions about Lyme Disease, call the Health Unit at x6-6666.

**PRESIDENTIAL SPORTS CHALLENGE AWARD** -- NASA Headquarters has initiated an intercenter competition, using the Presidential Sports Award program as its model. The concept is simple: interested employees keep track of all of the fitness activities that they participated in from March 1991 through September 1991. There are many fitness and sport categories including jogging, fitness walking, volleyball, bowling, golf, racquetball, roller skating and many more. Although this time period already has begun, there is still plenty of time to qualify for the intercenter competition. For more information call John Gilligan at x6-6668.

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## Goddard Honors Manned Flight Awareness Honorees

**by Susie Marucci**

Some weeks are full of excitement. That was the case the week of April 8. Not only was that week the 10th anniversary of the launch of STS-1, which began a new era in space flight, but that week the Space Shuttle Atlantis came back to Earth, and approximately 375 Manned Flight Awareness (MFA) honorees and their guests came to Goddard for a special tour and luncheon, as part of their four-day visit to the Washington area. Thirteen of the honorees were from Goddard (see photo above).

This Manned Flight Awareness award was a new one. It was open to mid-level management who have worked on the shuttle or payloads continuously for the last 10 years. The event was planned to honor those who contributed to the STS-1 flight and who are currently supporting the space shuttle program and have made a significant contribution beyond their normal work on the shuttle or payload programs.

While at Goddard they were welcomed by Center Director Dr. John Klineberg and the ten busloads of honorees toured Goddard facilities including NASA Communications, the Space Telescope Operations Control Center, the Spacecraft Systems Development and Integration Facility and the National Space Science Data Center (NSSDC) in Building 26.

During the four days of the Honoree Event, groups from various centers participated in some separate events. For the honorees from Goddard and NASA Headquarters, the presentation of certificates was quite different from that of the others. John Young and Robert Crippen, the commander and pilot of STS-1, respectively, presented the certificates to the Goddard and Headquarters honorees in the afternoon of April 11. That was the day honorees toured Goddard, and also the day the Space Shuttle Atlantis landed after deploying the Gamma Ray Observatory.