NASA
National Aeronautics and Space Administration
Goddard Space Flight Center

Goddard News

Greenbelt, Maryland and Wallops Island, Virginia Vol. 37 No. 3 March 1991

Atlantis to Orbit Gamma-Ray Observatory

by John J. Loughlin II

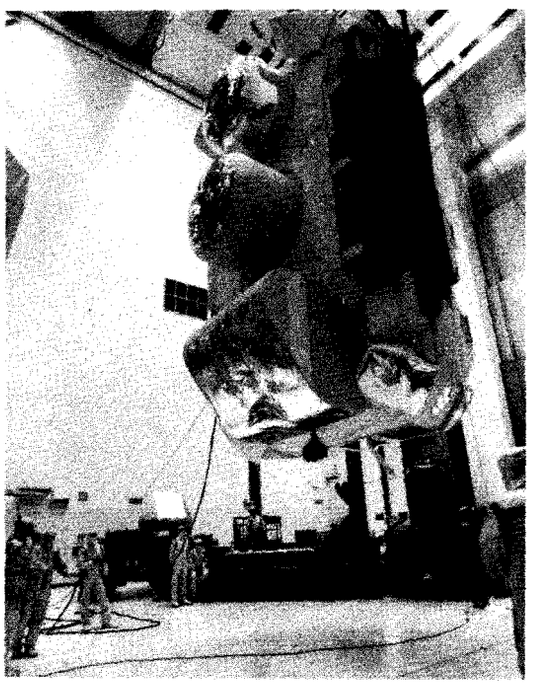
The highlight of the flight of Space Shuttle Atlantis on the STS-37 mission next month will be the day-three deployment of Goddard's Gamma Ray Observatory (GRO).

According to John Hrastar, project manager, Code 403, "GRO is the heaviest NASA scientific satellite ever to be deployed by the space shuttle, weighing in at just over 35,000 pounds (15,876 kilograms.)"

Dr. Don Kniffen, project scientist, Code 662, takes a more scientific approach. Gamma rays interest him because they provide a reliable record of cosmic change and evolution. "Their study will yield unprecedented answers about the structure and dynamics of the Milky Way, the nature of pulsars, quasars and neutron stars as well as clues about the origin and history of the universe itself," he said.

The instruments on board GRO, with sensitivities 10 times greater than that of earlier instruments, will scan active galaxies for new information on quasars. GRO also can detect the very high temperature emissions from what may be the vicinity of stellar black holes and thus provide evidence for the existence of these exotic objects. GRO observations of diffuse radiation will help resolve questions relating to the large scale distribution of matter in the Milky Way and universe, one of the keys to testing theories of an expanding universe beginning with a colossal explosion or "Big Bang."

(Continued on page 4)



BIG, BIGGER, BIGGEST **-- Goddard's Gamma Ray Observatory (GRO), the heaviest scientific payload ever to be launched by the space shuttle, was carefully hoisted into a test cell inside the Vertical Processing Facility at Kennedy Space Center, FL, in early February.**

Goddard's New Deputy Looks Forward to the Future

Pete Burr is a happy man. What else can you call a man who has just been made deputy director of Goddard? A man who looks back on his 30 years of work as so enjoyable that he says, "it feels to me like its only been five years instead of 30. Every day is just a great experience, a challenge, different." Burr was named deputy director on February 19 and moved into his new office in the director's suite in Building 8 in early March.

Before being appointed deputy director, Burr was the head of the Flight Projects Directorate. In that position he had responsibility for the overall direction, development and management of a large number of Goddard projects.

Burr began his career at Goddard as a research engineer with the Satellite Applications System Division, and was a member of the team that integrated and launched the Orbiting Geophysical Observatory (OGO)-B mission in the 1960s. Since then, his positions have included head of the Information Systems Engineering Section in the Tracking and Data Systems Directorate, assistant project manager then project manager of the Test and Training Satellite, spacecraft manager of the Synchronous Meteorological Satellite, project manager of the Solar Maximum Mission, project manager of the Upper Atmosphere Research Satellite (UARS) and deputy director of Code 400.

PHOTO: M. SMALL

A NEW DAY **-- Goddard's new Deputy Director Pete Burr looks forward to the future of GSFC, "I'm going to enjoy this job, I'm sure, and want to do whatever it takes to help."**

Despite the numerous projects Burr has worked on over the years, he says there was not one project he enjoyed the most. "I think what I like the best actually is the Center, the work and the people," Burr said. "It's all been very exciting. I couldn't pick a specific project because I've really enjoyed it all," he added with a quick smile.

Now, while settling into his new position, Burr is looking toward the future and the new possibilities for the Center. "I'm going to enjoy this job, I'm sure, and do whatever it takes to help." He feels the best way to make the Center work is to give the people what they need. "We've got such an innovative and dedicated work force, so lets give them the resources and the environment to get the job done."

INSIDE

Herman Hines: A Dedicated Role Model

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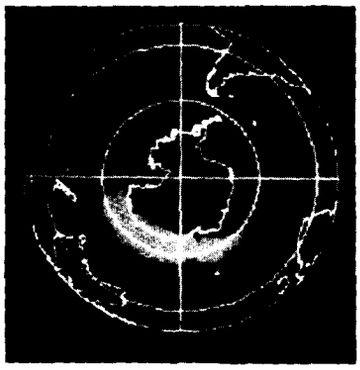
Q: I am writing to request the removal of the stop sign at the intersection of Aerobee Road and Building 11 Road. The gate there is closed, so no traffic approaches from the south. No traffic approaches from the west either since this is a 20-foot-long dead end. The stop sign is totally superfluous. Let's get rid of it.

A: In reviewing your request, I agree that it is not necessary to have the stop sign at this intersection. However, future operational changes, such as gate construction, may cause the reopening of Gate 2. Therefore in the near future, we will have the stop sign covered with a removable yield sign. That way, if Gate 2 is ever opened, the yield sign can be removed for intersection control.

Sherry Foster, Director
Management Operations Directorate
Code 200

Low Level Reported for 1990 Ozone

by Dolores Beasley

1980  1990

QUITE A CHANGE -- **The photo displays two Total Ozone Mapping Spectrometer (TOMS) images for December 1980 and December 1990. Originally in false color, they have been converted into black and white for the Goddard News. In the 1990 image, the hole is seen as the dark area just right of the center. While in 1980, the "hole" is virtually non-existent.**

Goddard has an integral part in NASA's overall effort to study ozone depletion. For example, research by scientists in Code 916, indicates that the 1990 Antarctic "ozone hole" matched the record 1987 ozone depletion in depth, duration and area. Continuing observations by the Goddard-managed Total Ozone Mapping Spectrometer (TOMS) have confirmed that the depletion of stratospheric ozone over Antarctica in 1990 matched the levels observed in 1987 and 1989, the lowest yearly ozone totals recorded. TOMS, an instrument aboard NASA's NIMBUS-7 satellite, has monitored Antarctic ozone concentrations since 1979.

Recently, Goddard scientists confirmed that as in 1987, the 1990 total ozone values within the hole slowly and steadily increased from mid-October through November. The ozone hole breakup occurred in early December, the latest date yet recorded. The "ozone hole" is a large area of intense ozone depletion over the Antarctic continent that typically occurs between late August and early October and typically breaks up in mid-November. Ozone, a molecule made up of three atoms of oxygen, comprises a thin layer of the upper atmosphere that absorbs harmful ultraviolet radiation from the Sun.

TOMS data is just one part of a larger NASA effort to study ozone depletion. Its data is calibrated by the Goddard-developed Shuttle Solar Backscatter Ultraviolet (SSBUV) instrument, a space shuttle payload next scheduled for flight aboard STS-43 in July. Another Goddard project, the Upper Atmosphere Research Satellite (UARS), scheduled for launch this fall, will investigate the chemistry, dynamics and energy flows of the upper atmosphere, particularly in regard to ozone depletion.

The ATLAS-1/Space Shuttle mission in April 1992 will carry several instruments that will complement TOMS measurements of global total ozone by studying the distribution of ozone at various altitudes. In addition, NASA plans to launch three more TOMS instruments in the next few years: aboard a Soviet Meteor satellite in August, aboard a US expendable rocket in late 1993 and aboard the Japanese Advanced Earth Observing Satellite in 1995.

Code 450 is responsible for the management of TOMS.

PHOTOS D. MCCALLUM

REWARD FOR EXCELLENCE -- **Center Director Dr. John M. Klineberg, left, presented the Goddard Excellence Award for Quality and Productivity to Daniel S. Goldin, General Manager, TRW, Space and Technology Systems, Division, Redondo Beach, CA, right. The trophy, an encased brass replica of Dr. Robert H. Goddard's original rocket launcher, recognizes the exceptional performance in attaining higher levels of quality and productivity among GSFC's aerospace industry contractors. TRW won the award for prime contractors based primarily on its excellent track record on two programs: the Gamma Ray Observatory and the Tracking & Data Relay Satellite System. The Goddard Award for Excellence for Small Businesses was presented to GE American Communications, Inc. (Americom), Princeton, NJ, for their excellent performance for the NASA Communications (NASCOM) facility.**

Launch Update:

UARS and TDRS

Upper Atmosphere Research Satellite (UARS)

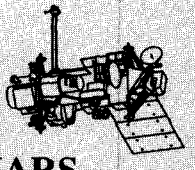
Goddard's Upper Atmosphere Research Satellite (UARS) is moving on track towards a Fall 1991 launch aboard the Space Shuttle Discovery (STS-48). The satellite has been fully integrated, with all instruments on board. The final environmental test, an acoustic test, was successfully completed last month.

Some limited rework and testing remains to be completed before preparing to ship UARS to Kennedy Space Center (KSC), FL. UARS will be shipped down the Atlantic coast from Salem, NJ, to KSC on a NASA barge four months before launch for final check-out and launch operations.

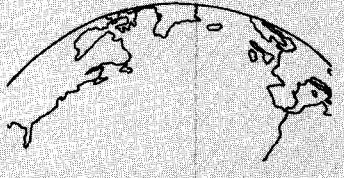
UARS is the spearhead of the US Global Change Project, a long-term, national program of space-based research into global atmospheric change, and is the first in NASA's Mission to Planet Earth Series.

Using 10 instruments developed by US, Canadian and United Kingdom principal investigators, UARS will measure and correlate data on upper atmospheric chemistry, composition, temperature, winds and dynamics.

The UARS Project Office is in Code 430, Luis Gonzales is project manager. The UARS Project Scientist is Dr. Carl A. Reber, Code 910.



UARS



Tracking and Data Relay Satellite (TDRS)

The TDRS-E satellite, scheduled for an STS-43 launch this summer, has arrived at KSC. It was flown to KSC from Los Angeles on a C-5A Galaxy cargo aircraft early this month. TDRS-E has now been placed in the Vertical Processing Facility.

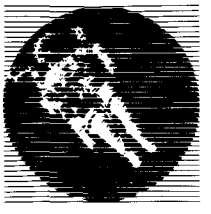
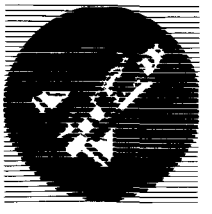
This will be the fifth TDRS launch.

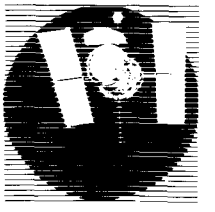
NASA Pipeline

HEADQUARTERS, Washington, DC -- NASA Administrator Richard Truly officially presented the NASA 1990 George M. Low Trophy, NASA's Quality and Excellence Award, to Bob Minor, President, Space Systems Division, Rockwell International Corp., Downey, CA, on March 4. The award recognizes NASA prime contractors, subcontractors and suppliers for outstanding achievement in quality and productivity improvement and total quality management. Rockwell's Space Systems Division provides a diverse base of products and services ranging from production of the fifth space shuttle orbiter to existing orbiter refurbishment and a variety of specialized studies in support of space operations.

LYNDON B. JOHNSON SPACE CENTER, Houston, TX -- Johnson employee Leo Monford has been named NASA's Inventor of the Year. The invention that earned him the award is a Docking Alignment System. Monford works for the Space Servicing Systems Project, part of JSC's New Initiatives Office. He is the first JSC employee to receive the award since its inception in 1980. The award will be presented March 28 at a NASA Headquarters ceremony.

MARSHALL SPACE FLIGHT CENTER, Huntsville, AL -- Scientists from several US government and university laboratories recently reported on their findings of the rare atmospheric isotope Beryllium-7 on the surface of the Long Duration Exposure Facility (LDEF). The isotope is radioactive and produced naturally by cosmic ray reactions in Earth's atmosphere. The isotope has been studied as a means of tracing the distribution and transport of atmospheric gases in the lower atmosphere. Marshall's Dr. Gerald Fishman said the finding is significant from several aspects. The isotope is mainly produced at much lower altitudes than where the LDEF was orbiting. The detection of Beryllium-7 on the LDEF surface now opens the door for more detailed studies of the interaction of gases with spacecraft in low Earth orbit.



Greenbelt Visitor Center Events for April

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. The Visitor Center is accessible to individuals with disabilities, including Braille copies of all exhibit text and telecaptioned videos on most exhibits for the hearing impaired. For more information call x6-8981.

Launch Site Goddard -- Sunday, April 7 and 21, 1:00 p.m. For over 16 years, people of all ages have come out to the Visitor Center to launch more than 1,500 model rocket each year. With the weather getting warmer, come spend a pleasant Sunday afternoon launching rockets or watching them fly.

Saturday Videos -- Saturday, April 13, 1:00 p.m. View "The Weather Watchers." This video dramatically explains the use and importance of meteorological information about severe storms, obtained from NASA satellites. The tape contains unusual footage of the formation of tornadoes and actual shots of their incredible force.

Know and Tell -- Sunday, April 28, 1:00 p.m. "The Most Violent Storms in Nature" -- Join Dr. Bill Shenk, of Goddard's Severe Storm Branch of the Laboratory for Hydrospheric Processes, and project scientist for the Geostationary Operational Environmental Satellite (GOES) project, as he explains how the GOES satellites give us the advantage of maintaining a constant vigil over the Earth's weather and atmosphere. The GOES system continuously watches the atmospheric conditions that breed tornadoes, hurricanes and other severe storms. The triggers for such events often are detected by satellites before the storms happen. When storms do develop, the satellites monitor storm life cycles, track their movements and relay data to ground receiving antennas.

Goddard's GRO

(Continued from page 1)

The four instruments on GRO were selected by NASA to provide the first comprehensive, coordinated observations of a broad gamma-ray energy range with much better sensitivity than any previous mission. They are the Burst and Transient Source Experiment (BATSE), the Oriented Scintillation Spectrometer Experiment (OSSE), the Imaging Compton Telescope (COMPTEL) and the Energetic Gamma Ray Experiment Telescope (EGRET). Egret is the largest instrument ever built in-house by Goddard (see story below). During the first 15 months of the mission, an all-sky survey is planned. The observing program that follows will be guided by the results of this survey.

One of the more exciting facets of the Gamma Ray Observatory, according to Robert Plastine, a ground systems engineer, TRW, Code 519.5, is that as far as GRO is concerned, Goddard is "where it's at." "The Payload Operation Control Center, Science Support Center and the EGRET Data Analysis Area are all right here," he said.

IT'S BIGGER THAN ALL OF US -- **The flight crew of STS-37 pose beside the Gamma Ray Observatory (GRO) in the Payload Hazardous Servicing Facility at Kennedy Space Center, FL, in January. Pictured from left: Steven R. Nagel, commander; Ken D. Cameron, pilot; and Jay Apt, Jerry L. Ross and Linda Godwin, the three mission specialists.**

The GRO Team

These experts are the main players on the Goddard GRO team:

John A. Hrastar, GRO Project Manager, Code 403.0
Dr. Donald A. Kniffen, GRO Project Scientist, Code 662.0
Thomas A. LaVigna, GRO Deputy Project Manager, Code 403.0
Karl N. Schauer, GRO Mission Operations Manager, Code 501.0
Robert W. Ross, GRO Systems Manager, Code 403.0
Martin A. Davis, GRO Observatory Manager, Code 403.0
Jimmy E.Cooley, GRO Instrument Manager, Code 403.0
Dr. Carl E. Fichtel, Co-Principal Investigator, EGRET, Code 662.0
Dr. Eric G. Chipman, Chief Scientist/Project Manager, GRO Science Support Center, Code 668.1

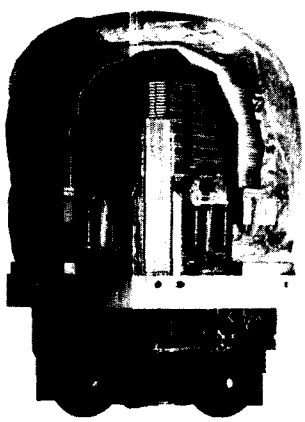
EGRET: Goddard's Most Complex Instrument and Joint Endeavor

by Cheryll Madison

A familiar sight in the clean room in Building 7 for the past 10 years, the Energetic Gamma Ray Experiment Telescope (EGRET) is the largest, and probably the most complex, instrument for which Goddard has had prime responsibility, according to Dr. Carl Fichtel, Code 660. He and Dr. Klaus Pinkau of the Max Planck Institute, Garching, Germany, are the co-principal investigators for EGRET, one of the four instruments to be launched as part of the Gamma Ray Observatory (GRO). The instrument, built entirely in-house at Goddard, has more than ten times the sensitivity of any high-energy gamma-ray telescope ever to orbit the Earth.

To study these high-energy gamma rays, EGRET employs a markedly different technology than any of the other GRO experiments--spark chambers that produce an image of the tracks of fast particles to determine the location of the incoming gamma ray. EGRET's broad aperture will enable it to conduct the first all-sky survey of the gamma-ray sky.

A very important aspect of the EGRET program was the very close cooperation between the scientists and engineers in Codes 300, 600 and 700 over a period of almost two decades. At Goddard, this joint effort was nurtured by Fichtel, representing Code 660, and Charles Campbell, EGRET Manager, representing Code 720.1. The major part of the hardware, the thermal design, quality control, alignment, integration and testing were Goddard's responsibility.



A cut-away view of the Energetic Gamma Ray Experiment Telescope (EGRET) showing the spark chamber for gamma-ray conversion in the upper third of the photograph, the coincidence system in the middle third, and the crystal to measure the gamma ray energy in the bottom third. The gas bottles to resupply the spark chamber are at the bottom.

Code 660 had responsibility for all the scientific work at GSFC, including the spark chamber and the central coincidence system, as well as the majority of the electronics sub-systems.

David Bersch, Code 662, and Nancy Laubenthal, Code 664, developed the extensive software. Abigail Harper, Code 303, served as product assurance engineer.

Tom Huber, director of engineering, Code 700, comments, "Beyond the scientific advances we hoped EGRET will achieve, we have witnessed that EGRET has already proven that the excellent interaction between the scientists and engineers at Goddard makes it possible to build an instrument like EGRET."

Thirteen Instruments Chosen for EOS-A

Global change -- even the words make people stop and think about the future of planet Earth. One of Goddard's contributions to study global change is the Earth Observing System (EOS), the centerpiece of NASA's Mission to Planet Earth program. Recently the 13 instruments for EOS-A, the first in a series of orbiting platforms, were chosen. EOS-A will circle the Earth gathering data about potential global warming and other critical aspects of global change such as the Earth's radiation balance, atmospheric circulation and land-surface properties.

EOS-A is expected to launch before the end of this century. The project scientist for EOS is Dr. Jeff Dozier, University Space Research Association, Code 900, project manager is Jerry Madden, Code 420.

The EOS-A chosen instruments are:

AIRS/AMSU-A/B (Atmospheric Infrared Sounder/Advanced Microwave Sounding Units) -- AIRS and AMSU-A/B will measure atmospheric temperature profiles and will provide data on atmospheric water vapor, cloud cover and sea- and land-surface temperatures.

ASTER (Advanced Spaceborne Thermal Emission and Reflection, formerly ITIR) -- ASTER will provide high-resolution images of the land surfaces and clouds for climatological, hydrological, biological and geological studies.

CERES (Clouds and the Earth's Radiant Energy System) -- CERES will continue long-term measurements of the Earth's radiation budget through observations of both short and long-wave radiation.

EOSP (Earth Observing Scanner Polarimeter) -- EOSP will make global observations of polarized light to quantify the role of aerosols and clouds in heating and cooling the Earth. EOSP is a Goddard instrument. The principal investigator is Larry D. Travis, Code 940, of the Goddard Institute for Space Studies.

HiRDLS (High-Resolution Dynamics Limb Sounder) -- HiRDLS will use an infrared radiometer to measure levels of trace gases -- such as ozone, water vapor, chlorofluorocarbons and nitrogen compounds -- that are contributors to the greenhouse effect.

LIS (Lightning Imaging Sensor) -- LIS will collect data on lightning distribution and variability across the Earth.

MISR (Multi-Angle Imaging Spectro-Radiometer) -- MISR will obtain global observations of the directional characteristics of reflected light.

MODIS-N/-T (Moderate-Resolution Imaging Spectrometer) -- MODIS consists of two imaging spectrometers for the measurement of biological and physical processes in the study of terrestrial, oceanic and atmospheric phenomena. MODIS-N/-T are Goddard instruments. Principal investigator for MODIS is Vince Salomonson, Code 900.

STIKSCAT (Stick Scatterometer) -- Scatterometers are microwave radars that collect all-weather measurements of surface wind speeds and directions over global oceans.

The following two instrument investigations have been conditionally confirmed for flight on the first EOS-A satellite:

MIMR (Multifrequency Imaging Microwave Radiometer) -- MIMR will obtain global observations of a variety of parameters important to the hydrologic cycle, such as atmospheric water content and rain rate.

MOPITT (Measurements of Pollution in the Troposphere) -- MOPITT is planned to obtain global measurements of carbon monoxide and methane in the troposphere.

The following instrument has been confirmed for flight on a platform of opportunity (if space is available on this platform):

ACRIM (Active Cavity Radiometer Irradiance Monitor) -- ACRIM will make long-term measurements of the total solar irradiance to help determine the influence of variations in solar output on climate change.

The following instrument investigation has been confirmed for development:

HIRIS (High-Resolution Imaging Spectrometer) -- HIRIS will use its high-resolution imaging capabilities to study biological and geophysical processes, as well as interactions along borders of different ecosystems.

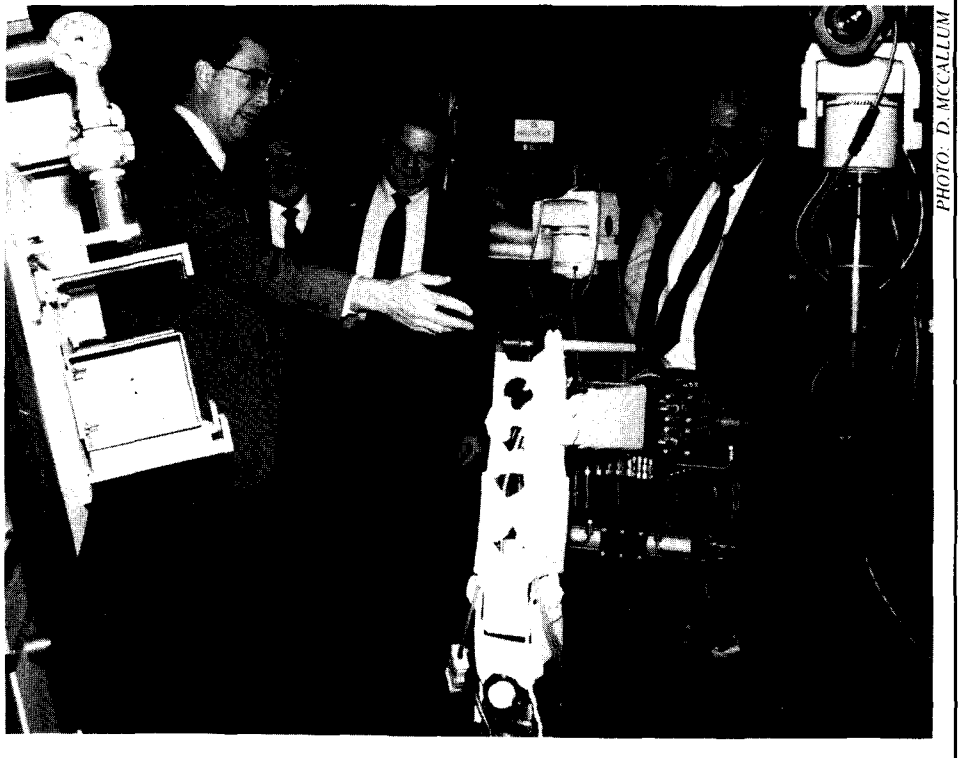


PHOTO: D. MCCALLUM

A VISIT FROM DOWNTOWN -- **NASA Deputy Administrator J.R. Thompson Jr. visited Goddard February 13 and toured the Center, including the robotics lab in Building 11. John Azzolini, Code 714, head of the Robotics Branch, explains the Kraft arm for the Flight Telerobotic Servicer simulation. Pictured from left: Azzolini; Goddard's Associate Director Dr. James Trainor, Code 100; Director of the Engineering Directorate Tom Huber, Code 700; Thompson's Executive Assistant Tom Hatala and Thompson.**

INSIDE

Herman Hines: A Dedicated Role Model

by Jessica Katz

Herman Hines blends his career with kids and has found success with the mixture.

After nearly 22 years, this Goddard veteran has supported several missions in the Information Processing Division (IPD), Code 560, and is currently the IPD/NMOS (Network Maintenance and Operations Support) project manager for the Upper Atmosphere Research Satellite (UARS). Hines also spends his spare time acting as a role model and mentor for school kids.

As IPD project manager until the planned UARS launch in November, he will track the development and delivery of software, hardware and acceptance testing activities for UARS. After UARS is launched, he will trade his role as project manager for that of IPD mission manager and be responsible for seeing to it that all the UARS data entering the Data Capture Facility arrives at the Central Data Handling Facility and is put on line for access by the user community.

Hines will stay with the UARS project throughout the life of the mission, which is expected to last at least 18 months. This is his first time as both project manager and mission manager. "In my position, I've got to identify project requirements and make sure that those requirements are satisfied during the development phase, because I will have to live with this project after development is completed," the Richmond, VA, native explains.

Although Hines has been with Bendix Field Engineering Corporation since 1988, his Goddard career has been spent with at least four different contractors and about 20 different Goddard projects. He was employed by the Lockheed Engineering and Management Services Company for nearly seven years prior to working for Bendix.

Computers have played a major role in Hines' career. He has been working with them since the day he arrived here in May 1969. After the 1969 Apollo Moon landing, he was hooked on the space program. Hines two favorite projects are: the 1974 ATS-6 because it was the first mission for which he had managerial responsibilities and his next big mission, the Dynamics Explorer, launched in 1981. In fact, he's still the mission manager for the Dynamics Explorer, but as of February 28, the satellite no longer receives scientific data, and the project is being phased down.

Hines, a dapper professional, joined the Air Force right out of high school. During his four-year hitch in the Strategic Air Command, Hines was introduced to and developed his interest in computers. He started college at the University of Maryland (Atlantic Division) while still overseas, originally majoring in Computer Science, and eventually received his bachelor degree in Management from Bowie State University.

PHOTO: P. BALTZELL

Hines

Hines has been working with kids since 1974 when his sister, Carol, a Baltimore school teacher, asked him to come to speak to her class. He enjoyed it so much, and was so good at it, that she asks him to return year after year. That began Hines' career as a role model. "The more I go to schools and talk to young people, the more I see the need for it," the father of two says.

Hines was one of the original members of the Goddard Black History Club. His work with the club's Outreach Committee has given Hines the opportunity to help students focus on careers in the aerospace industry. He is the outgoing chairman of the committee.

Hines also likes to get others involved. "I have a list of people I can call on when schools call and ask for someone to speak during Black History Month, for science fairs, or someone to talk to young people about math, science and engineering careers," he said.

In September 1990, Hines was the Black History Club Coordinator for Children and Research Engineers Enjoy Rockets (CAREER), a collaboration between Goddard's Offices of Equal Opportunity, Public Affairs, the Goddard Black History Club and the Anacostia Museum of the Smithsonian Institution. More than 100 fourth through ninth grade minority students to participated in "hands-on" educational activities with teachers and Goddard mentors. "I recruited all of the mentors who helped out... and I ran around getting the pizzas and sodas for lunch. I coordinated the Goddard end of the CAREER program," Hines happily reports.

One of Hines' proudest accomplishments comes from his work in the Greenbelt CARES Youth Service Bureau tutoring program. He is especially proud of his work with two brothers assigned to him by the Greenbelt CARES. They were considered talented and gifted by the school system but their academic work took a sharp drop downward. Hines talked with the boys, brought them to Goddard to talk with some role models and turned them around. As a result, the older brother is a Meyerhoff Scholar at University of Maryland Baltimore County majoring in Aerospace Engineering. His scholarship will finance his education through the PhD level. The younger brother has a full four-year scholarship to the University of Maryland at College Park. "I didn't do anything special except to say to them, 'Hey guys, your education is serious business.' What they really needed was somebody to explain to them the criteria for getting a job in a highly competitive society," the mentor says modestly.

The community appreciates Hines' work with students. After sending a mentor to the William H. Lemmel Middle School in Baltimore County, a group of the school's honor roll students wrote him saying, "Thank you for adding positive memories to our educational experiences. It is adults like you who make a difference in the lives of young people. We shall always remember our special observance of Black History Month 1991."

CLOSE-UP

Congratulations to the following employees on their recent appointments: **CHRISTOPHER SCOLESE,** Project Manager for the Earth Observing System (EOS) Platforms Project, Code 421...**MARTIN DONOHUE,** Project Manager for the EOS Instruments Project, Code 422. Congratulations to **DALE FAHNESTOCK,**

PHOTO: M. SMALL

SCOLESE *HARRIS*

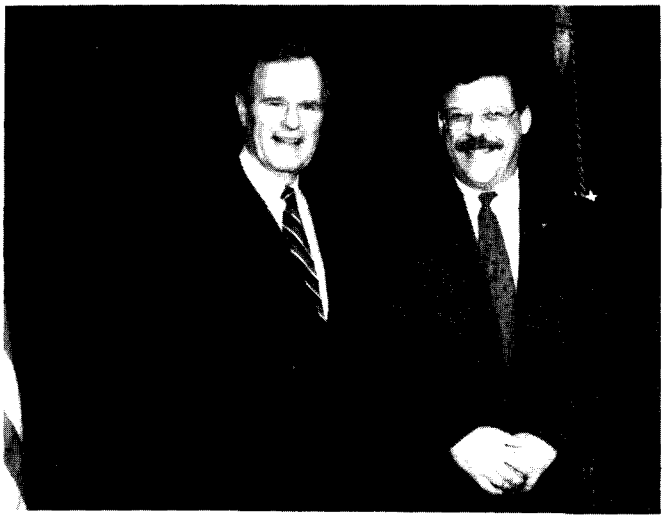
Code 500, and **DR. JOHN MATHER**, Code 685, for receiving Stellar Awards. The awards are part of the Rotary National Award for Space Achievement. Stellar Awards are presented to individuals who have made career-long contributions to the space program... Congratulations to the four Goddard senior managers who received Meritorious Executive Presidential Rank Awards from NASA Administrator Richard Truly: **JOSEPH T. MCGOOGAN**, Director of Suborbital Projects and Operations at Wallops Flight Facility, Code 800; **DR. JAMES HANSEN**, Head of the Goddard Institute for Space Studies (GISS) in New York City, Code 940; **DR. DALE HARRIS**, Acting Director of Flight Projects and **CHARLES L. DUNFEE,** Associate Director for Acquisition, Code 200. Only five percent of Government senior executives may be chosen each year for this award.

NASA Trivia

1. This number followed the name of each of the Mercury missions. Project Mercury was the only manned mission to have this distinction. What were the number and the missions?

2. Everyone knows the name of the mammoth rocket used to launch men to the moon, the Saturn V, but can you name the huge rocket planned as a follow to Saturn that was to be several times larger that the Saturn V?

Trivia Answers:
1. 7. Freedom 7, Liberty Bell 7, Friendship 7, Aurora 7, Sigma 7, Faith 7.
2. Although it was never actually built, the huge Nova booster was designed for the more ambitious Lunar missions and even Mars missions NASA had sought for the '70s and '80s.



***PRESIDENTIAL HONORS* -- In a recent White House ceremony, President George Bush, left bestowed the Distinguished Executive Presidential Rank Award to GSFC Director Dr. John M. Klineberg. One of seven NASA executives to receive the federal government's highest award for top management, Klineberg was director of NASA's Lewis Research Center, Cleveland, OH, when he was nominated for the award. Each year, only one percent of the employees in the Senior Executive Service may receive the rank of "Distinguished Executive." The President expressed his thanks, "I really congratulate you all from the bottom of a very, very grateful heart." Four Goddard senior managers also received Presidential Rank Awards (see Close-Up, left). Although NASA has less than five percent of the Senior Executive Service, NASA managers were awarded 12 percent of the presidential rank awards, for a total of 32 awards NASA-wide.**

GIVE

On February 6, the Bloodmobile was conducted in the Building 8 Auditorium and 196 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 at the Bloodmobile.

# Gallons	Name	Code	# Gallons	Name	Code
1	Nancy Agamennone		2	Laura Ottenstein	732
1	Jeffrey Bolognese	725	1	Charles Powers	313
3	Scott Douglas	542	2	John Ruby	410
14	Mort Friedman	480	1	Lawrence Ryan	663
8	James Hagemeyer	696	4	David Saldona	
2	Robert Heindenreich		1	Michael Sapsara	
4	Joseph Iffrig	530	1	Bradley Schoener	110
2	Margaret Kulpa		11	Phillip Smith	725
1	Sheng Lee		3	Mary Walsh	700
1	David Mitchell	470			

The next Bloodmobile is scheduled for April 3 in the Building 8 Auditorium. Watch Dateline Goddard for more details.

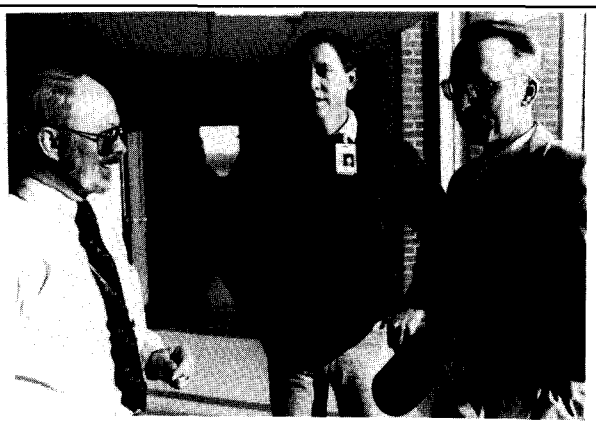


PHOTO: R. FRISCH

***OUT OF UNIFORM* -- STS-43 crew members Pilot Mike Baker and Mission Specialist Jim Adamson were at Goddard February 15 for some hands-on training for Goddard's Shuttle Solar Backscatter Ultraviolet (SSBUV) experiment. The training consisted of an overview of SSBUV objectives by SSBUV Principal Investigator Ernest Hilsenrath, Code 916, and a discussion of payload and missions operations by SSBUV Experiment Manager Donald Williams, Code 916, but most of the day was spent in training in the Building 21 clean room. During the busy day, Baker, center, and Adamson, right, took a few minutes out to talk with Williams, left. SSBUV is scheduled to fly on STS-43 in July. This will be SSBUV's third flight to calibrate instruments aboard satellites that study ozone levels.**

CENTER SIDE Lines

PEGSAT REVISITED -- PEGSAT, named for the Pegasus launch vehicle, was a great success, according to PEGSAT Project Manager Bob Pincus, Code 740.2. PEGSAT was a battery-operated satellite which was designed and built completely in-house. PEGSAT was ready to fly within six months of the project being given the go ahead to start work. The satellite, launched April 5, 1990, had a designed life expectancy of three months but worked for nine months, until January 7, 1991. The battery-operated satellite's mission was: to obtain environmental measurements from the Pegasus launch vehicle, to deploy a small Navy satellite and to release chemicals over northern Canada as a precursor to the Combined Release and Radiation Effects Satellite (CRRES).

GODDARD TAKES OVER MANAGEMENT OF SCOUT PROGRAM -- At the beginning of this year Goddard took over management of the Scout launch vehicle program which had been run at NASA's Langley Research Center, Hampton, VA, since 1959. Scout stands for the Solid Controlled Orbital Utility Test system and is a four-stage solid fuel satellite system capable of launching a 385-pound satellite into a 500-mile orbit. There have been 113 Scout launches to date with an overall 96 percent success rate. The next Scout launches will be the payloads PROFILE and REX, both military payloads and both scheduled for separate launches in June. Following those will be the launch of Goddard's Solar, Anomalous and Magnetospheric Particle Explorer (SAMPEX) in June 1992. The project will be managed at Goddard by Norm Peterson, Code 470.

SPREADING THE EOS NEWS -- A display, copies of the newsletter *The Earth Observer*, brochures and a model of the Earth Observing System (EOS)-A platform were on display February 15-18 at the meeting of the American Association for the Advancement of Science held at the Sheraton Hotel in Washington, DC. More than 5,000 people attended the meeting. Turnout for information about EOS was very good according to Charlotte Griner, STX, Code 900, a senior administrator supporting the EOS project science office. "It was very successful. There was a lot of interest in EOS," Griner said. She added, "We're trying to educate the scientific community about EOS." The EOS exhibit will be on display again March 25-28 at Space Expo '91 in Washington, DC.

NASA
National Aeronautics and Space Administration
Goddard Space Flight Center

Goddard News

The GODDARD NEWS is published monthly by the Office of Public Affairs, Goddard Space Flight Center, Greenbelt, MD 20771.

Deadline for submitted material is the fifteenth of each month. For additional information contact Code 130, (301) 286-7504.

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Scientific Balloon Circumnavigates Antarctica

Personnel of the National Scientific Balloon Facility (NSBF), Palestine, TX, successfully conducted a scientific balloon flight operation in Antarctica recently which was the largest balloon and heaviest payload ever to circumnavigate that continent. Goddard's Wallops Flight Facility manages the NASA Scientific Balloon program, including the management of NSBF.

The 29.47 million-cubic-foot balloon was launched at McMurdo, Antarctica, carrying a suspended weight of 3,750 pounds, including a scientific payload for Dr. R. Lin of the University of California at Berkeley. Several piggyback experiments were flown on the Lin payload including ones for Drs. T. Parnell of the Marshall Space Flight Center, Huntsville, AL; B. Price of the University of California at Berkeley; and G. Parks of the University of Washington at Seattle.

The science objective of this flight was to make cosmic ray, gamma ray and hard X-ray measurements at near polar latitudes. Several Long Duration Balloon (LDB) subsystems, currently under development, also were flown to obtain engineering performance data in the Antarctica balloon flight environment.

After circumnavigating the Earth about the pole in less than nine days, a distance of almost 4,300 nautical miles, the flight was terminated and the payload landed just 113 nautical miles from the launch site. The payload was recovered in good condition and returned to McMurdo Station. Performance of the balloon, balloon flight control systems and LDB subsystems was highly successful. Performance of the scientific instruments will be determined after post-flight analysis of the data can be accomplished.

OOPS . . .

In the February 1991 issue, an error was made in the Close-Up column. The photographs showing Dr. Franco Einaudi and William J. Campbell were reversed.