

Balloon-Borne Gamma Ray Experiment Observes Supernova and the Center of Our Galaxy

by Carolynne White

Goddard's Gamma-Ray Imaging Spectrometer (GRIS) successfully completed its second flight aboard a 29.47 million-cubic-foot balloon launched from Alice Springs, Australia. The launch was conducted recently by a team from the National Scientific Balloon Facility (NSBF), managed by Goddard's Wallops Flight Facility.

The November flight was "enormously successful," according to Dr. Bonnard J. Teegarden, Code 660, Goddard's lead scientist for the gamma-ray experiment.

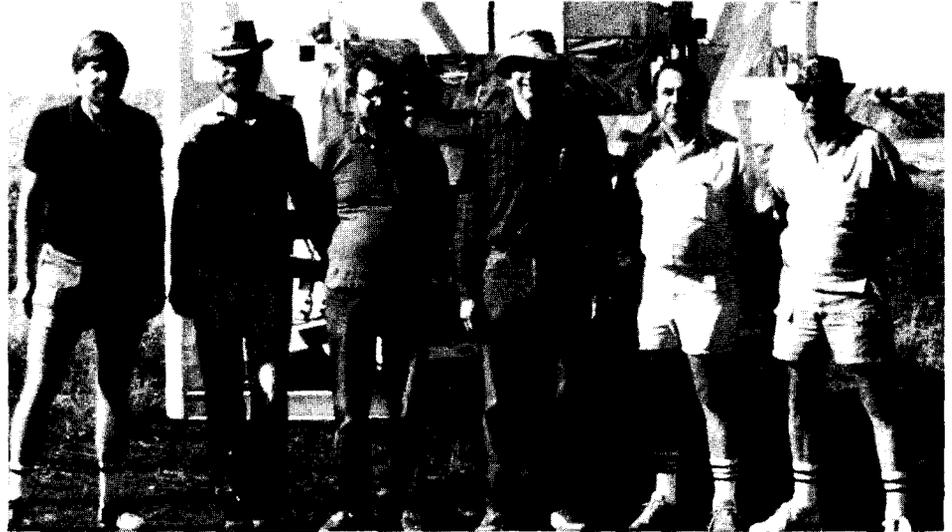
GRIS spent about half of its 43-hour flight observing the center of our galaxy and the other half observing Supernova (SN) 1987A, looking for traces of gamma-ray emission.

Supernovae long have been believed to be sources of gamma-ray emission, according to Dr. Teegarden, but until SN 1987A, none had been detected. Gamma-ray line and continuum emission from SN 1987A has been tracked by instruments on the Solar Maximum Mission (SMM), the Soviet Space Station MIR, and several high-altitude balloons since August, 1987.

During its maiden flight, in May 1988, GRIS detected gamma-ray line emission characteristic of the element Cobalt-56. "Because the profile of the line emission was surprisingly broad and consistent, with no net doppler shift," explained Dr. Teegarden, "it appeared as if we were observing radiation more or less equally from the approaching and receding portions of the nebula. This implies that the nebula is considerably more transparent to gamma-rays than we had thought."

Supernovae-created Elements

Astrophysicists believe that many of the elements heavier than helium (a class which includes Cobalt-56) were created in the aftermath of supernovae. The inner region of the parent star is heated to extremely high temperatures (billions of degrees) for a few seconds after the initial explosion.



OUTBACK SCIENTISTS—Six members of the Gamma Ray Imaging Spectrometer (GRIS) team are shown here on the Australian plain from which the balloon was launched. Pictured (left to right) are: Bonnard J. Teegarden, Code 661; John Stiles of Edgerton, Grimeshauser, & Grier, Energy Measurements, Inc., Albuquerque, NM; Charles Ehrmann (deceased) and Steve Derdeyn, both Code 661; Norman Corlis, Sandia National Laboratories, Albuquerque, NM; and William Lochyer of Edgerton, Grimeshauser, & Grier, Energy Measurements, Inc.

These temperatures are so high that they force the lighter elements present in the center of the star to combine into heavier elements, in a process called nucleosynthesis.

Some of these new elements are created in an excited (radioactive) state. As they decay, they emit radiation at the gamma-ray end of the spectrum. "Because each element has its own characteristic pattern of gamma radiation, we can determine

what kinds of new elements were created," Dr. Teegarden explained.

The second flight of GRIS revealed that the supernova gamma-ray emission had decayed by a factor of three to four relative to the first flight of the instrument. The GRIS team expected this, because Cobalt-56 has a half-life of 77 days. The GRIS observations also confirmed the broad line profile measured in the first flight.

Continued on page 5

INSIDE

Peace on Earth

**Bob Sclater:
Goddard's
Busiest Launch
Director**

Page 6



Talk from the Top

John W. Townsend Jr

Q: In the August, 1988 "Talk from the Top" column, you noted that Building 16W is "temporarily" housing people. Could you define what you mean by temporary? I have been at Goddard 3 1/2 years in this temporary space; others have been here much longer. The "warehouse" environment has a serious negative impact on attitude, morale, and quality of work!

A: Depending on the fate of the FY 90 and 91 budgets, GSFC may obtain additional people space which will make possible moving out of much of the "temporary" space around the Center as the new buildings come on line.

Q: Will GSFC civil servant personnel eventually (and inexorably) become simply contract monitors, or will there be more in-house projects (i.e. COBE) in GSFC's (and one hopes, NASA's) future?

A: Several employees have written me concerning a drift towards our civil servants becoming simply contract monitors. As I have made clear, I do not intend to let this happen and will work for an active program of in-house satellite projects.

Q: Why is GSFC management allowing more and more work to be taken away from technicians, such as myself? I work in a vacuum deposition lab (coating facility)... which has been allowed to do practically nothing for the last two years. Now, after another reorganization, what work that was left is being shopped around so the lab can be closed...

A: In answer to inquiries concerning technician positions at GSFC, it is true that we have been forced to convert many such positions, through attrition, to create ceiling points for critical engineering hires. However, it is not my intent to eliminate all technician positions at the Center.

Center Director Dr. John W. Townsend, Jr. wants to hear from you! Send your questions to: TALK FROM THE TOP, Code 130.

International Ultraviolet Explorer Wins Presidential Award for Design Excellence

by Randee Exler

The International Ultraviolet Explorer (IUE), NASA's only operating spaceborne telescope, was among the ten winners of the 1988 Presidential Awards for Design Excellence honored in a White House Ceremony recently.

The awards were presented on behalf of President Ronald Reagan by Frank Hodsell, Chairman of the National Endowment for the Arts. Goddard Director Dr. John W. Townsend, Jr., accepted the honor on behalf of NASA.



PRESIDENTIAL AWARD—Dr. John W. Townsend, Jr. accepts the 1988 Presidential Design Award, on behalf of Goddard International Ultraviolet Explorer (IUE), from Frank Hodsell, Chairman of the National Endowment for the Arts.

The IUE, managed by Goddard for NASA, is a joint venture among NASA, the Science and Engineering Research Council of the United Kingdom (SERC) and the European Space Agency (ESA). Professor Robert Wilson, University College, Department of Physics and Astronomy, London England, represented SERC at the ceremony. Professor Martin C.E. Huber, Director, Space Sciences Department, European Space Research and Technology Centre (ESTEC), Noordwijk, Netherlands, represented ESA.

IUE Mission

The IUE mission is designed to obtain information on what stars, nebulae and galaxies are and how they develop. NASA originally designed the spacecraft to "live" for three years and optimistically hoped for five. Almost 11 years later, the IUE continues studying stars, planets, galaxies and interstellar gas 24 hours a day.

The IUE is credited with the discovery of galactic halos—hot gas which surrounds our galaxy; with monitoring volcanic activities on Io, a moon of Jupiter; with beaming the first images of Halley's Comet ever recorded from space; and monitoring the intense emissions of ultraviolet radiation emitted from an exploding star, Supernova 1987A, approximately 163,000 light years from Earth.

24-Hour Operations

Since the IUE's launch into geosynchronous orbit on January 26, 1978, operations have been carried out 24 hours a day; 16 from GSFC and eight from the ESA ground station at Villafranca near Madrid, Spain. Because the system is designed like a traditional telescope, investigators can, with no special training, take control of their observations. As a result, the IUE is used by more scientists than any other telescope and, in terms of research papers in refereed journals, is the most productive instrument of its kind on or off the planet, according to IUE Project Scientist Dr. Yoji Kondo.

The jury in its selection of this award-winning spacecraft wrote:

"This Presidential Award for Design Excellence recognizes the importance and complexity of the international effort aimed at developing the most important tool yet devised for the exploration of stars, nebulae and galaxies. This project utilizes the technical know-how and scientific capability of numerous countries and shows the achievements obtainable by multi-national efforts once a unifying purpose is found that will benefit humanity and advance technical progress."

The 1988 awards competition was open for any design project and program supported or commissioned by the Federal government and completed between January 1, 1977 and January 1, 1987. The awards, presented every four years, honor exemplary Federal design achievement. The 1988 award winners were selected from among more than 500 projects undertaken by 64 Federal agencies in 49 states, Puerto Rico, the District of Columbia and nine foreign countries.

Following the Presidential Award for Design for Excellence presentation, 30 members of the IUE team were presented Federal Design Achievement Awards for their efforts with the project.

Continued on page 3

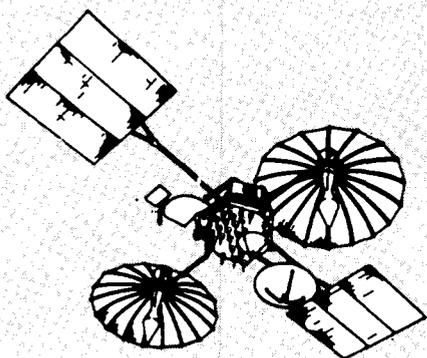
Launch Update: TDRS-C Healthy; TDRS-D Ready

TDRS-C Performs Flawlessly

Since its launch by the crew of Discovery on September 29, the 5,000-pound Tracking and Data Relay Satellite, known as TDRS-3, has been moved for testing to 150 degrees west longitude over the Equator. This location is best for communications with the White Sands Ground Terminal in New Mexico, for spacecraft antenna testing, for pre-mission tests, and mission support for STS-27.

Following deployment of the satellite's antennas and the solar arrays, the satellite's thrusters were first fired on October 2 to start TDRS drifting towards the test location. The satellite's movement was stopped by additional firings on October 11 and 12 when it arrived on station.

Spacecraft communication systems were activated between October 7 and 18. All systems performed flawlessly and testing is ahead of schedule, according to Dr. Dale W. Harris, Code 405, TDRS Project Manager at Goddard.



TDRS-D On Schedule

The TDRS-D spacecraft, scheduled for Space Shuttle launch on February 18, 1988, was flown from TRW in Redondo Beach, CA, to Cape Canaveral Air Force Station, FL, on November 30. There, the spacecraft will be loaded and transported to the Vertical Processing Facility to begin procedures for launch preparation.

NASA Pipeline

AMES RESEARCH CENTER, Mountain View, CA—A Cray Y-MP, the fastest supercomputer in the world is currently undergoing acceptance tests in the Numerical Aerodynamic Simulation Facility (NAS) at Ames. Ames is the first organization to have the new supercomputer, which is expected to be fully operational by January 1989. The Cray Y-MP can exceed one billion computations per second in sustained operation and has achieved peak speeds of 2.37 billion computations per second by concentrating all of its eight processors on a single scientific simulation. The sustained speed of one billion calculations per second is the highest for any existing computer in the world.

LANGLEY RESEARCH CENTER, Hampton, VA—Langley Research Center recently dedicated a new laboratory for testing materials, the Nondestructive Evaluation (NDE) Laboratory. Dr. Joseph S. Heyman, head of the Materials Characterization Instrumentation Section, emphasized the benefits of the new lab to both NASA and industry: "Research in this building, with an energetic tradition of technology transfer to industry, will provide an improved understanding and the instrumentation to measure and predict the state of life of materials and structures."

LEWIS RESEARCH CENTER, Cleveland, OH—NASA Lewis and the Argonne National Laboratory, Chicago, have signed an agreement to begin joint research in the development of high-temperature superconductivity (HTS) materials and technology. The program is regarded by both parties as having the potential to provide significant economic benefits and a world leadership role for the United States. The objective of this major research effort is to exploit recent rapid advances in HTS technology for significant space and aeronautical applications.

HEADQUARTERS, Washington, DC—NASA Administrator James C. Fletcher announced that Franklin D. Martin has been named Assistant Administrator for the Office of Exploration. Martin served as Director of Code 600, Goddard's Space and Earth Sciences Directorate, from 1983 through 1986, where he was responsible for overseeing the effort to carry out broad programs of theoretical and experimental research. The Office of Exploration is responsible for coordinating agency planning activities that expand exploration and the human presence beyond Earth, particularly to the Moon and Mars.

JOHN C. STENNIS SPACE CENTER, Bay St. Louis, MS—Jerry Hlass, currently Director of the Stennis Space Center, will assume the post of Assistant for engineering and technology to the Deputy Administrator at NASA Headquarters, according to NASA Administrator James C. Fletcher. Current Deputy Director Roy S. Estess who began his NASA career in 1961, as head of Goddard's Data Acquisition Facility Section, will succeed Hlass as Director.

IUE Receives Award

Continued from page 2

Current or former GSFC employees cited were Albert Boggess, Code 600; Frank A. Carr (now at NASA Headquarters); Dennis Charles Evans (formerly of GSFC); Michael D. Femiano, Code 712.3; Donald F. Fitzpatrick (retired); Thomas W. Flatley, Code 712.3; H. Richard Freeman (retired); Charles F. Fuechsel, Code 400.6; Henry C. Hoffman, Code 712; Robert B. Jackson, Code 727; Donald A. Krueger, Code 730; Donald C. Lokerson, Code 724; Gerald W. Longanecker, Code 400; Earl R. Moyer, Code 733; Xopher W. Moyer (retired); Everett

J. Pyle, Code 710; Kenneth O. Sizemore, Code 407; Thomas D. Taylor, Code 430; and H. Douglas Vitragliano, Code 683.

ESA representatives were Manfred G. Grensemann, ESTEC; Alain Pierre Fournier-Sicre, ESTEC; and Ferdinando D. Machetio, Hubble Space Telescope Science Institute, Baltimore, MD.

Representing the United Kingdom were: Peter J. Barker, SERC; Harold C. Bevan, Rutherford Appleton Laboratory (RAL) retiree; Dr. Eric Dunford, RAL; Dr. James E. Hall, RAL; Michael Painter, Marconi Space Systems; Michael C.W. Sandford, RAL; Peter A. Vaughan, RAL; and Professor Robert Wilson, University College London.



Manned Flight Awareness Program Honors Sixteen Goddard Employees

by Roberta Valonis

The Manned Flight Awareness (MFA) Program recently honored sixteen Goddard employees for their contributions to NASA's Shuttle program with three days of activities at Kennedy Space Center (KSC).

The event began with a briefing, after which Astronaut Bruce Melnick presented the honorees with a Certificate of Merit.

The first full day of activities began with a visit to Kennedy's Spaceport USA to view the 70 mm IMAX film "The Dream is Alive," followed by a tour of the KSC and the Air Force Museums.

Space Camp Visit

Their visit to Space Camp was a highlight of the tour. As part of the program, the honorees participated in some astronaut training exercises—the multi-axis trainer, the spacewalker, and a motion-based Shuttle cockpit.

To end the day, the Cocoa Beach Chamber of Commerce sponsored a get-acquainted social for the honorees, with plenty of food and a band for dancing out on the deck of the honorees' hotel.

The second day began with a tour of the Merritt Island Tracking Station, part of the Goddard-managed worldwide tracking network. Later, at a reception held in their honor, the MFA Honorees met and talked with members of the Astronaut Corps and

other distinguished guests. Before the reception, the honorees were welcomed by General Forrest McCartney, Director of KSC, followed by congratulatory remarks from Dr. James C. Fletcher, NASA Administrator; Admiral Richard Truly, NASA Associate Administrator for Space Flight; and Arnold Aldrich, Director of NASA's National Space Transportation System (NSTS).

"Cruise to Nowhere"

On the last day of the event, the MFA program moved to a ship for a one-day "Cruise to Nowhere." Whether just relaxing in the sun or participating in the many activities available—Las Vegas-style shows, trapshooting, golf driving, gambling swimming, bingo-playing, movie-going, dancersizing, and horse racing—all the honorees had a wonderful time.

Prestigious Award

The MFA Honoree Award is one of the highest and most prestigious awards available to employees of the NASA/industry Shuttle-related team. Early in the Mercury program, NASA and the Astronaut Corps designed and implemented the Manned Flight Awareness Program. The Program demonstrated its effectiveness during the Mercury, Gemini, Apollo, Skylab, and



MULTI-AXIS VIEW—Hugh B. O'Donnell, Code 515, sees the world from an astronaut's-eye view as two Space Camp instructors show him the multi-axis trainer. The Manned Flight Awareness honorees visited Space Camp during their three-day event at Kennedy Space Center.

Shuttle programs. The MFA Program is a team effort of government, contractor, and military employees working together. The objective of the program is to achieve and maintain astronaut safety and mission success throughout the work force through emphasis on motivation and morale.

The next Manned Flight Awareness Honoree Event is scheduled at Kennedy Space Center for the Magellan STS-30 mission in May, 1989.



PRESTIGIOUS AWARD—The Goddard Manned Flight Honorees pose in front of their hotel in Cocoa Beach during their three-day event. Pictured (left to right) are: Bernard J. Pagliaro, Code 284.3; Leslie C. Johnson, Bendix Field Engineering Corporation (BFEC); Gary W. Cooper, Code 743; Arlington R. Morgan, Computer Services Corporation (CSC); Susan J. Leszkiewicz, Code 554; Shubhangi P. Ambardekar, BFEC; Mary L. Walter, TRW Inc.; Cathy A. Reed, CSC; Robert A. Traversy, BFEC; Robin M. Whitehurst, Ford Aerospace Co.; Stephen G. Edwards, BFEC; Beth K. Zimet, CSC; Lynn M. Donnelly, Code 284.6; Robert P. Heacock, Contel Corp. Not pictured are: Hugh B. O'Donnell, Code 515, and John C. Voelkel, Code 542.

Thomas W. Flatley Receives 1988 Moe I. Schneebaum Award



SCHNEEBAUM AWARD—Dr. Thomas W. Flatley, Code 712.3, receives the Moe I. Schneebaum Award from Center Director Dr. John W. Townsend, Jr.

Dr. Thomas W. Flatley, Code 712.3, was awarded the 1988 Moe I. Schneebaum Memorial Award by Center Director Dr. John W. Townsend, Jr., at a ceremony November 7, 1988.

The colloquium lecture was presented by Admiral Grace Hopper (USN, Ret.), who worked on the 1st COBOL compiler and was instrumental in the development of that business computer programming language, and has published over 50 papers

and articles on software and programming languages. Hopper, who began her programming career when she "met" her first computer, the Navy Mark I, in 1944, spoke about the role of the engineer in today's technological society.

Flatley, who has been with Goddard since 1959, received the award "for his pioneering contributions to the field of guidance and control for numerous NASA, DOD, commercial and foreign satellites."



PHOTOS: D. MCCALLUM

GOT A NANOSECOND?—Dr. Grace Murray Hopper uses lengths of colorful telephone cable to illustrate the concept of a nanosecond—the fraction of a second in which a computer can perform a complex operation that may take a human hours.

During his almost 30-year tenure at Goddard, Flatley has been responsible for saving or extending the useful life of many NASA satellites, including the Solar Maximum Mission/Solar Maximum Repair Mission (SMM/SMRM), National Oceanic and Atmospheric Administration-E (NOAA-E), Tracking and Data Relay Satellite (TDRS), International Ultraviolet Explorer (IUE), and Space Electric Rocket Test II (SERT II).

Gamma-Ray Experiment—

Continued from page 1

During both flights, GRIS also observed the center of our galaxy and detected a strong gamma-ray signal at 511 degrees keV, an indication of the annihilation that occurs when electrons and anti-electrons collide. Further observations during the flight indicated that the emission was confined to a region within about 25 degrees of the galactic center. These data strongly support the case for the presence of a compact object (possibly a massive black hole) at the center of our galaxy.

GRIS also detected gamma-ray line emission from Aluminum-26. This radioactive element, with a half-life of about a million years, is an important tracer of nucleosynthesis processes in our galaxy.

The most sensitive astrophysical high-resolution gamma-ray spectrometer currently available, GRIS uses an array of 7 large high-purity Germanium crystals to

make precise measurements of gamma-ray energies. The Germanium detectors are surrounded by a massive sodium iodide active shield to suppress gamma-ray background radiation. The total weight of the payload is 3,760 lbs.

The GRIS experiment is a joint project of Goddard, AT&T Bell Laboratories, Murray Hill, NJ; and Sandia National Laboratories, Albuquerque, NM. The participating Goddard scientists (all from Code 660) are Dr. Scott D. Barthelmy, Dr. Neil Gehrels, Dr. Jack Tueller, and Dr. Bonnard Teegarden. Other scientists are M. Leventhal, AT&T Bell Laboratories; and C. J. MacCallum, Sandia National Laboratories.

The October flight of GRIS was in conjunction with another NASA experiment, which measured gamma-ray and hard X-ray emissions. Dr. Gerald Fishman, of the Marshall Space Flight Center, Huntsville, AL, was the principal investigator for this experiment.



LAUNCH-READY GRIS—Goddard's Gamma Ray Imaging Spectrometer (GRIS), a balloon-borne experiment to study gamma-ray emissions from gamma-ray sources such as Supernova 1987A and the center of our galaxy, is shown here encased in its gondola, ready to fly. The cardboard crush padding around the four feet of the gondola help insure a soft landing for the delicate instrumentation.

INSIDE

Bob Sclater: Goddard's Busiest Launch Director

by Randee Exler

You can find him on the first and third Sunday of the month high on the hill where the Visitor Center (VC) stands. With ignitor in hand, VC Manager Robert "Bob" Sclater leads the crowd in the familiar refrain of "five, four, three, two, one, lift-off!" All eyes turn to the sky as another model of a NASA rocket soars into the afternoon sky.

Sclater always wears a cap when he conducts the model rocket launches. One of his most recent acquisitions was obtained at a Soviet/American model rocket competition conducted at the Wallops Flight Facility Visitor Center several months ago. "It was a very positive activity," he recalled.

The VC manager maintains that Goddard's Greenbelt VC is the most active launch site in the world. This fact is hard to argue when, weather permitting, Sclater launches between 60 and 70 rockets for model enthusiasts of all ages twice a month. This translates into approximately 800 launches a year, making him one of the space agency's busiest launch directors.

"The model rocket launches are really a lot of fun," the Greenbelt resident commented. "Sometimes I say to the audience, 'Can you believe that I'm getting paid for this?' This always gets a laugh!"

Before working at Goddard, Sclater was a part of the model rocket crowd. "I never dreamed that someday I'd be running the show!" he said.

Family Activity

Sclater got involved with model rockets about ten Halloweens ago. "I was looking for something for my son to do that wouldn't involve going door to door begging for candy!" the concerned parent explained.

He added, "Building and launching model rockets develops a child's craftsmanship and scientific skills. It can also be a real family-oriented activity where mothers, fathers, big kids and little kids all get involved."

Sclater has worked at the Greenbelt VC for six years. As an employee of Omniplan, he has served as the facility manager since 1986. Prior to his Greenbelt stint, Sclater managed the Visitor Center at the Wallops Flight Facility for two years.

"I enjoyed working at Wallops very much," he said. "I'm very partial to the area. It's much less crowded, and the peo-



SCLATER

ple are friendlier and more considerate," he recalled. "You don't find people pulling out in front of you on the road or butting in line at the grocery store."

Former Teacher

"Working at Wallops was my first job experience after working 15 years in a strictly child-related environment," the former Prince Georges County music teacher explained. "I taught on all three levels but most of my time was spent on the junior high level," he said.

Sclater is still involved with music. He plays saxophone in a National Guard Band located in Washington, DC. They drill on Monday nights and perform regularly.

Watching Sclater work with groups of all ages demonstrates that his classroom training has not been wasted in his current position. He's a friendly man with a warm smile who talks to people in words they understand. He parallels space travel to swimming pools and elevators and other experiences that the average person has had on Earth.

"Working with the variety of people that I do makes my job fun," Sclater stated. "The people range from preschoolers to folks coming through here for a conference," he added.

"I don't have a favorite age group but I will say that I regret to see the kids lose the enthusiasm that they carry with them in elementary school," he lamented. Sclater has observed that by middle school the students are starting to become blas-

and are less likely to show any excitement they may feel.

"I like seeing the kids when they're really excited!" Sclater said.

"Preschoolers get really excited. They want to talk to you as much as you want to talk to them," he commented. "As kids get older, they become shy about asking basic questions about how the astronauts eat or go to the bathroom." Adults ask a lot of questions about money, according to the VC manager.

Basic Concepts

To help people understand the basic concepts of the space program, Sclater often uses analogies to get his point across. When explaining the Shuttle's external fuel tank, he may ask a group of young children, "Do your mother and father stop at the gas station?" "Of course!" the children will answer.

"Are there any gas stations in space?" he continues. The obvious answer the young children always give with glee is, "No!" according to Sclater. The children are able to understand now why we have to carry fuel into space.

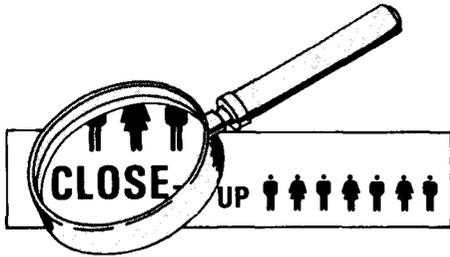
This year about 70,000 people will visit the VC. Model rocket launches are the biggest crowd drawers but about one third of all VC guests come to Goddard for public tours. The free walking tour of Building 3/14 is given at 2:00 p.m. on Wednesday, Thursday and Friday.

"When I first started giving tours, there was an effort on my part to come up with a finished product and then I realized there can't be one," Sclater said. "What we work with is changing and the level of the presentation changes with the audience. It's an evolving process," he explained.

A new activity that is proving to be quite popular is the monthly Saturday evening star watch. "We seem to be attracting a lot of families that enjoy looking through our telescopes," Sclater said.

VC Romance

There's a romantic notion that when one falls in love, one sees rockets and stars. This is particularly true for Bob Sclater. About two years ago, a woman came to the VC inquiring about the model rocket launches for her then 10- and 12-year-old daughters. The woman, Peggy, and Bob married last May. This just proves that at Goddard's Visitor Center, anything is possible!



DOUDS

DAVID M. DOUDS, formerly Multi-mission Modular Spacecraft Cadre Manager within the Satellite Servicing Project, Code 408, was reassigned as Assistant Project Manager for Servicing Missions. Douds replaces **WILLIAM STEWART**, who was reassigned to the Upper Atmosphere Research Satellite Project, Code 430, as Launch Systems Manager.

ROBERT F. THEIS, formerly of the Planetary Atmospheres Branch, has been reassigned as Assistant Chief for Scientific Computing, Code 610. His new job includes representing Code 610 on center committees which are planning and

implementing networks and data systems for GSFC. His responsibility encompasses one of the largest divisions on Center, with 130 civil servants and 150 contractors located throughout Building 21 and 22.

Theis has plans for his division: "As we move into the future, we must take proper measures so that science is enhanced by good computer facilities," said Theis. "Computers—especially in theoretical areas—must be 'user-friendly' to insure that the computers are serving the ends of the science."



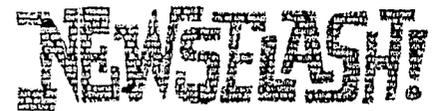
THEIS

Goddard's new Associate Director of the Mission Operations and Data Systems Directorate, Code 500, is **RICHARD TAGLER**. As Associate Director, Tagler shares responsibilities with the Director and the Deputy Director for total Directorate activities which are focused on the engineering, design, development, and operation of advanced data systems and data communications systems to support spaceflight mission operations.

Tagler, who came to Goddard in 1964 as a measurement and instrumentation systems engineer, also has served Goddard in many other managerial positions, including Chief of the Networks/Tracking and Data Relay Satellite Systems Management Office.



TAGLER



Goddard welcomes **CHARLES TULIP, JR.**, the newly-named Comptroller of the Goddard Space Flight Center. Tulip comes to Goddard from his most recent position as the Director of the Institutional Program Analysis Division (Code BI) in the Office of the Comptroller at NASA Headquarters.

See story next issue

Wallops Meteorologist Receives Vaisala Award in Beijing

FRANK SCHMIDLIN, a meteorologist at Goddard's Wallops Flight Facility, Code 672, recently traveled to Beijing, China, to receive the prestigious Professor Vilho Vaisala Award, presented to him by the President of the World Meteorological Organization, (WMO), Dr. Zou Jingmeng.

Schmidlin received the award for the "Best Science Paper of 1987," in conjunction with John Nash, a scientist from England. The award culminates three years of participation in international radiosonde comparisons, beginning in 1984.

These comparisons have led to important adjustments in the differing radiosonde data from different countries so that meteorologists can make more accurate analyses and forecasts.



METEOROLOGICAL AWARD—Frank Schmidlin (left), Code 672, receives award from World Meteorological Organization President, Dr. Zou Jingmeng, with interpreter (center).

STS-26 Astronaut Mike Lounge Visits Goddard

Mission Specialist Mike Lounge brought a spectacular Shuttle's-eye view of the Earth with him when he visited Goddard on November 15. The astronaut presented a program on slides and film from Discovery's four-day mission to deploy the Tracking and Data Relay Satellite (TDRS-C), along with his commentary on the mission and the space program.

After the program, Lounge fielded questions from the audience. Many wanted to know what it's really like to fly in the space shuttle—especially on the mission representing NASA's return to flight!

Earlier in the day, Lounge visited Goddard's partnership school, Robert Goddard Middle School, where he was interviewed by students and staff member Dave Zahren, on school-wide television. Dave Zahren also taped a five-minute segment with astronaut Lounge for the Prince Georges' County cable system's Science Series.

Veteran Astronaut

A veteran astronaut, Lounge's first shuttle flight was in 1985, when he served as a mission specialist on STS 51-L, a mission recorded by NASA as one of the most successful space shuttle missions yet flown.

Lounge's duties during the mission included deployment of the Australian AUSSAT communications satellite and operation of the Remote Manipulator System (RMS).



GODDARD GIFT—On behalf of "The Men and Women of the Goddard Space Flight Center," Center Director Dr. John W. Townsend, Jr., accepts a plaque commemorating Discovery's historic return to flight from Mission Specialist Mike Lounge. The plaque contains an American flag that was flown aboard the Space Shuttle Discovery on its four-day mission to deploy the Tracking and Data Satellite (TDRS-C).

PHOTO: R. FRISCH

Goddard Recovers from Computer Virus

by Carolynne White

Goddard was hit less severely than other institutions on the Internet computer network by a computer "virus" which infiltrated the network on the morning of Thursday, November 3.

The NASA Science Internet Project Office (NSIPO) at Ames Research Center, Mountain View, CA, notified Goddard's Advanced Data Flow Technology Office (ADFTO), Code 630.4, at about 7:30 a.m. that morning that a computer virus was running rampant on the network. (A computer virus is a program that can replicate

itself like a human virus, sometimes causing damage to programs and data, and can be transmitted through electronic mail, telephone data lines, and floppy disks.)

This particular virus was not designed to erase data; it simply replicated and transmitted itself as many times as possible.

The original phone call from Ames gave the ADFTO staff information describing symptoms of the virus and steps taken by the NSIPO to isolate the NASA computer networks from the rest of the Internet. Goddard, like other NASA centers, was disconnected from the network, but was one of the first to be reconnected, at approximately 3:00 p.m. the next day, Friday, November 4, according to Sol Broder, head of the Advanced Data Flow Technology Office.

At 2:00 p.m. that afternoon, Ashok Jha, Code 630.4, gave a presentation on the virus at the Goddard Unix User Group meeting and distributed a virus "vaccine" in the form of instructions for software changes.

The following morning, the ADFTO staff distributed additional information on virus fixes to the Goddard community as it came in.

"The net effect on us was essentially zero, except for loss of connection to the outside world for that day and a half," said Broder. "But on the positive side, the virus infection heightened the awareness of our computer community and emphasized the need for individual security measures."

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 first of each month. For additional information, contact Code 130, 286-8956.

The GODDARD NEWS staff is:

Executive Editor
Jim Elliott
Managing Editor
Carolynne White

Editorial/Production Advisor

Randee Exler

Senior Editors

Michael Braukas, Carter Dove, and
Joyce Milliner

Editorial Assistant

Monica Rose