

Groundbreaking at New White Sands Facility



SECOND GROUND STATION—This is an artist's concept of the second Tracking and Data Relay Satellite System (TDRSS) ground station being built at White Sands, NM. This station will serve as a backup to the existing ground station and will support the increased mission requirements in the Nation's space program in the mid-1990s. To be located just a short distance from the existing facility, the new \$18.5 million ground station, with a main building of 80,000 square feet, will feature the latest state-of-the-art equipment. Ground breaking for the facility took place on September 9. It is expected to be completed in July 1989.

Dignitaries Participate in Event

by Jim Elliott

Leading NASA, New Mexico and Las Cruces dignitaries participated in ground-breaking ceremonies for NASA's \$18.5 million ground terminal at White Sands, NM on September 9.

Speakers at the 10 a.m. ceremony included Robert O. Aller, Associate Administrator for Operations, NASA Headquarters; Secretary Thomas Thornhill, New Mexico Department of General Services; David Steinborn, Mayor of Las Cruces; and John Quann, Goddard Deputy Director.



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scheduled for June 1988.

The facility being built is the second ground station for NASA's Tracking and Data Relay Satellite System (TDRSS), a system of in-orbit satellites used for com-

munications with other orbiting satellites, including the Space Shuttle. The new facility is located three miles north of the existing TDRSS ground terminal. Construction is expected to be completed by mid-1989, according to Donald P. Eckel, Goddard's project manager.

The new ground terminal is necessary, Eckel said, to serve as a backup to the existing station and to meet the increased mission requirements in the Nation's space program in the 1990s.

When in operation, the facility is expected to hire approximately 150 persons, Eckel said. Following the ground-breaking ceremony, the guests attended a reception and toured the existing ground terminal.

Other attending dignitaries included State Senator Harold Foreman; State Representative Leonard Sheffield and Mrs. Sheffield; Henry G. Steele, representing State Senator Ellen Steele; Dr. John Stapp and Gregory Kennedy, International Space Hall of Fame (Alamogordo); Major General Joe Owens, Commander, White Sands Missile Range; and representatives

from the offices of U.S. Senator Pete Domenici and U.S. Congressman Joseph Skeen, both from New Mexico.

Others included H. James Fox, Bureau of Land Management; Lt. Col. Harry Betlay, U.S. Air Force Communications Support Facility; George Myerson, Computer Sciences Corporation (Beltsville, MD); Robert Campbell and Chris Willadsen, Stevens, Mallory, Pearl and Campbell, Architects, Albuquerque; and David Batcho, Batcho & Kauffmann Associates, Archaeologists, Las Cruces.

The construction contractor is The Argee Corporation, Denver, Colorado.

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New NASA Ground Station Keeps Pace With Spacecraft Technology

by Michael Braukus

Advances in NASA spacecraft technology have led to the development of sophisticated instruments that generate large amounts of data. Spacelab, the Hubble Space Telescope and the Cosmic Background Explorer are just a few of the upcoming NASA space missions that will generate huge amounts of scientific information.

Good communications between Earth and orbiting spacecraft are essential to a successful mission. For this reason, NASA developed the "Space Network" (SN), a communications system that will increase information exchanges between low-orbiting spacecraft and the ground.

The SN consists of orbiting Tracking and Data Relay Satellites plus the White Sands, NM ground station and the Network Control Center at Goddard. The Tracking and Data Relay Satellite Sys-

tem (TDRSS) is the main element of Goddard's SN.

At present, the TDRSS has only one satellite in operation. Eventually, three satellites will comprise the operational system—with each satellite in geosynchronous orbit 22,300 statute miles from Earth, each able to relay signals from the ground to orbiting satellites and, conversely, scientific and other data from an orbiting satellite to a station on the ground. A fourth satellite will be placed in orbit as a spare.

When operational, TDRSS will permit communications with and tracking of orbiting satellites for 85 percent of an orbit or better, as opposed to 20 percent with ground stations alone.

Additional ground support will be provided when a new second ground ter-

terminal, now under construction, is completed. Located three miles north of the existing TDRSS Ground Terminal, which has been in operation since 1983, the new facility will act as a backup and respond to the increased communications demands of the Nation's space program, according to Donald P. Eckel, Goddard's project manager for the new facility.

The \$13.1 million construction contract for the new ground terminal was awarded to Argee Corporation of Denver, CO. The facility is expected to be completed by late 1989 and in full operation by early 1993.

When completed, the new ground terminal will include an 80,000-square-foot main terminal, a 25,000-square-foot technical support building and a 9,000-square-foot power plant. It will house electronics worth more than \$300 million and employ approximately 150 people.

Excavation for Second Ground Terminal Opens Window Into Past

by David Batcho

Editor's Note: In keeping with NASA's Federal responsibilities with regard to the protection of our Nation's cultural resources, test excavations were conducted near the site of the Second Tracking and Data Relay Satellite System (TDRSS) Ground Terminal (STGT), in White Sands, NM, to determine if the construction of the STGT would adversely impact any significant archaeological or historical sites. Following are excerpts from a report prepared by David Batcho, Batcho and Kauffman Associates of Las Cruces, NM, NASA's archaeological consultants for the project, who uncovered American Indian artifacts near the site of the STGT:

"...it soon became apparent that one of the sites contained the undisturbed remains of a pithouse settlement, while the other—located a few miles farther south—contained the remains of a temporary camp, probably once used to gather and process wild foods.

"Pithouses were a common type of dwelling used by prehistoric Indians in the Southwest. They are called pithouses because they are constructed by first digging or scooping out a large hole or depression in the ground..."

"The superstructures excavated... were



PREHISTORIC ARTIFACTS—Virgil True, Station Director, White Sands Ground Terminal (right) shows Howard Ottenstein, Office of Public Affairs, Code 130, Indian artifacts near the site of the second Tracking and Data Relay Satellite System Ground Terminal.

...perhaps six or seven feet in diameter, and dug into the ground about a foot deep. This suggested that they probably were used for only a very short period, maybe a month or so, while the Indian group was camped in the area.

"One of the excavated structures had burned (after its abandonment) and fortunately for the archaeologists, appears to

have been fairly quickly covered by blowing sand. As a result, some of the charred roofing material was found still lying on the floor in nearly the exact same position as when it fell... The preliminary radiocarbon analysis indicates that this little structure was built more than 1,200 years

Continued on page 4

The Votes Are In: GSFC Space Station Logos Selected

When the Office of Space Station, NASA Headquarters solicited ideas from around the Agency for a new logo for the Space Station, 12 Goddard employees and their associates put pens to paper and created 22 original designs.

"The Space Station Project and the Office of Public Affairs would like to thank everyone who submitted designs," said Ron Browning, Space Station Manager. "The turnout was greater than we expected," he explained. "Choosing the winners was very difficult."

Browning, along with Randee Exler, Office of Public Affairs, and Carol Kulwich, Presentations Department, narrowed down the entries to three final logo

designs. They based their joint decision on the following logo criteria developed by the Office of Space Station, NASA Headquarters:

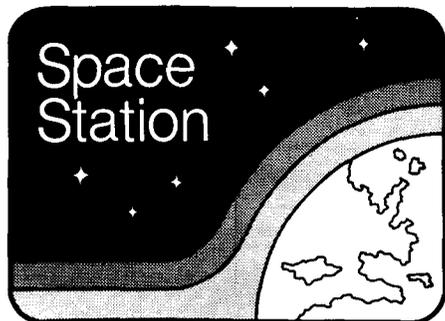
"It should be bold, new and lend itself to a variety of imaginative uses . . . it should be simple enough to be used on a variety of printed materials, such as publications and vugraphs, as well as for applications such as lapel pins, decals and cloth patches . . . the logo will represent a project that will evolve and grow over time . . . Faddish designs, or those that are configuration-specific could be out of date quickly."

The selected logos were submitted by Bob Watson, Code 515.1; Dominic Man-

zer, Code 711.2 with Elsie Grant, TS Infosystems (TSI), Code 616; and Kent McCollough, TSI, Code 616 with Elsie Grant.

Additional entries were submitted by Sheila A. Alpers, Unisys, Code 500; Troy Ames, Code 522.1; Ben Chao, Code 621; Rick P. Collins, Bendix, Code 534; Deborah Foch, Computer Sciences Corporation, Code 550; Gloria Goodman, Code 420; John M. Lindsay, Code 401.6 and Rachel E. Tocylowski.

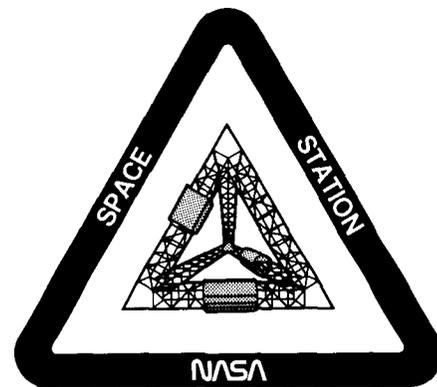
The three selected logos were submitted to the Office of Space Station. The logo designs from all of the Centers will be presented to the Space Station Management Council this month.



Dominic Manzer, Code 711.2/Elsie Grant, TS Infosystems (TSI)



Kent McCollough, TSI/Elsie Grant, TSI



Bob Watson, Code 515.1

"Need Travel Assistance? Ask Mr. Foster!"

There have been some major changes in Goddard's travel office. The most obvious one is a change in personnel.

The Scheduled Airline Traffic Office (SATO), which had been at Goddard since 1979, did not have their agency-wide contract renewed by NASA. "This is in no way reflective of the performance of the SATO staff at Goddard," explained Bob Herrick, Traffic Management Specialist. "Our SATO personnel took extra steps in their job. They cared about the people they served."

Ask Mr. Foster Travel Service replaced SATO. This company has been in the travel business since 1888, according to Lauren Naiman, Site Manager and "there really was a Mr. Foster."

As the story goes, Ward G. Foster, a travel buff, owned a gift shop across from a popular hotel in Florida. When guests had travel related questions, the hotel staff

would direct them to the gift shop to "ask Mr. Foster."

Ask Mr. Foster Travel Service is the largest independently owned travel agency in the country with 460 offices nationwide.

according to Naiman. In addition to government travel assistance, the Ask Mr. Foster staff can help you plan your next vacation. This company offers special discounts for selected tours and cruises.



NEW TRAVEL OFFICE PERSONNEL—Pictured are the team of Ask Mr. Foster Travel Service personnel at Goddard. FRONT ROW (left to right): Lauren Naiman, Linda Raduazo, Gigi Bellucci. BACK ROW (left to right): Jim Luker, Siobhan Adams.

First Satellite-Aided Save Remembered

COSPAS/SARSAT, the satellite-aided international search and rescue program, celebrated the fifth anniversary of its first save this month.

This historic save was made in the midst of 50-foot trees and 7,000-foot mountains in British Columbia, Canada, on September 10, 1982. Three persons, searching for another downed aircraft, crashed in the mountains and activated their Emergency Locator Transmitter (ELT). The distress signal was picked up by the Soviet satellite Cospas I, which relayed the signal to Canadian authorities, who alerted rescue forces.

That save marked the first time in history that a satellite had assisted directly in the rescue of people in distress.

Since then, at least 916 lives have been saved through the assistance of satellites—500 air, 378 marine and 38 pedestrian.

The system now has five satellites in operation, three Soviet and two American.

Sponsored by Canada, France, the Soviet Union and the United States, COSPAS/SARSAT is designed to reduce the time required to rescue air and maritime distress victims and to find victims who otherwise probably would not be found.

SARSAT (Search and Rescue Satellite-Aided Tracking) equipment is carried on National Oceanic and Atmospheric Administration (NOAA) satellites. Canada provides transponders; France provides

onboard receiver/processors, and the United States provides the spacecraft.

The U.S. effort is supported by NASA, the National Oceanic and Atmospheric Administration, the Air Force and Civil Air Patrol and the Coast Guard and its auxiliary.

COSPAS (Russian acronym for Space System for Search of Vessels in Distress) equipment is carried on Soviet Cosmos satellites. The Soviet Union provides its own equipped spacecraft and launch.

All four countries, as well as Norway and the United Kingdom—provide ground stations. Other participating nations are Bulgaria, Finland, India and Denmark. Brazil is expected to join in the near future.

Goddard is responsible for the research effort behind the program. The SARSAT System Evaluation and Development Laboratory (SEDL), located in Building 22, is where software routines are developed and tested to process emergency beacon signal data and make it more useful. Doug Kahle is the SEDL and Local User Terminal Manager. Fred Flatow, Code 480, is the SARSAT Mission Manager.

An understanding was signed with the International Maritime Satellite Organization (INMARSAT), London, England, in February 1987 to provide administrative secretariat services for the program. When the COSPAS/SARSAT Steering Committee meets in London this November, the international delegates will toast the fifth anniversary of this humanitarian project.

Excavation

Continued from page 2

ago, probably some time between 650 and 750 A.D.

"In addition to the structures themselves, a broad area around and between the pithouses was also excavated. These are what archaeologists call activity areas. These activity areas contained the remains of outdoor camp and cooking fires, as well as large quantities of the everyday debris of living—the trash. This trash consisted of pieces of broken pottery, several arrowheads, and discarded or broken stone tools and the chips of stone left over from making them. Also, a large amount of burnt and unburnt animal bone was found—the last remains of many meals... Analysis has shown that most of these bones are from jackrabbits..."

The second site which was excavated was small and did not contain any structures. The main feature of this site was an excellently preserved roasting pit. Early settlers in the area have described how roasting pits were used by the nearby Mescalero Apaches when the white man first arrived...

"The roasting pit site... is probably about 1,000 years old..."

"While construction is about to begin on this new, high technology facility—to give us another window into space—archaeologists have, likewise, been able to open a small, yet intimate, window into the dim past."

The Baltimore Sun recently carried this Letter to the Editor, written by Howard Ottenstein, Code 130, The Goddard News staff thought that it was worth sharing with our readers:

Geese at Goddard

Editor: If Aberdeen has its eagles, Goddard Space Flight Center is proud of its geese. Indeed, so popular has Goddard become as a nesting preserve for Canada geese that almost once every two years, whole families must be gathered up and shipped to "Goddard East," better known as the Wallops Flight Facility, a division of Goddard, located on Virginia's Eastern Shore about one hour south of Ocean City.

There, they never again need to fear crossing Goddard's main road at Greenbelt, Md., and dodging the cars of some 7,000 employees. Whole families of deer also roam Goddard's rolling green acres, but their grace and beauty are admired from afar. Goddard, Greenbelt — a lovely place to work.

Howard K. Ottenstein.



RESEARCH EFFORT—Doug Kahle, Code 480, and Hugo Hodge, Westinghouse, in the SARSAT System Evaluation and Development Laboratory (SEDL). Goddard is responsible for the research effort behind COSPAS/SARSAT, the satellite-aided search and rescue program.

Nimbus-7 Gears Up for the 1990's

The Nimbus-7 Operations Control Center, Building 3, is shrinking. More than 2,000 square feet of vintage 1960 computer hardware is being replaced by a desk top computer, monitor and printer.

"The Expert Nimbus Operations System (ENOS) can do everything that the old system can do and more. It's a more cost effective operation," explained Mike Forman, Nimbus-7 Operations Manager.

"I estimate that the ENOS will save between \$40,000 and \$60,000 a month in power requirements, maintenance and operating costs," he said. "One of the benefits of this system is that it frees up valuable space for other operations."

The ENOS is a data base driven software/hardware system which evaluates Nimbus-7 telemetry in real time for purposes of health, safety and condition of the spacecraft, according to Richard "Dick" Stephenson, General Electric/RCA

Government Services. Personnel in the Nimbus-7 Operations Control Center have been using the system since June.

"The ENOS is truly transportable," Stephenson said. "It can provide on pass visibility to Nimbus-7 anywhere that a NASCOM (NASA Communications Network) line is transferring Nimbus-7 data."

The Operations Control Center has been manned 24 hours a day since Nimbus-7 was launched in 1978. Operators send and verify commands to the spacecraft through the NASCOM at Goddard.

"It's a lot easier and faster now that everything is in one room," according to Forman.

Nimbus-7 is the last in a series of Nimbus spacecraft designed to survey the atmosphere of the Earth, map land and water characteristics, and observe weather and climate patterns. Five experiments aboard Nimbus-7 are still in operation.

Space Engineering Centers Announced

by Randee Exler

More than 300 Universities throughout the country were invited to participate in a pre-proposal video conference about a new NASA program which is being designed to expand the Nation's engineering talent base for research and development.

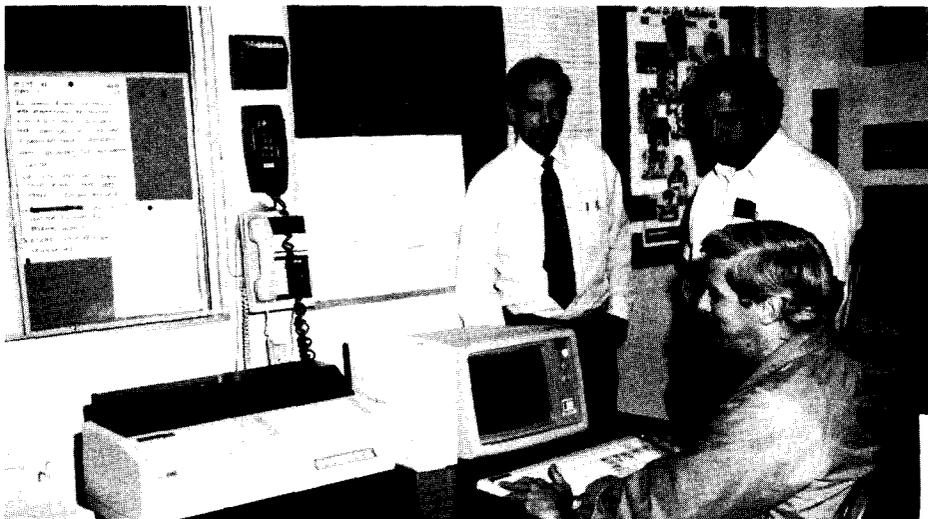
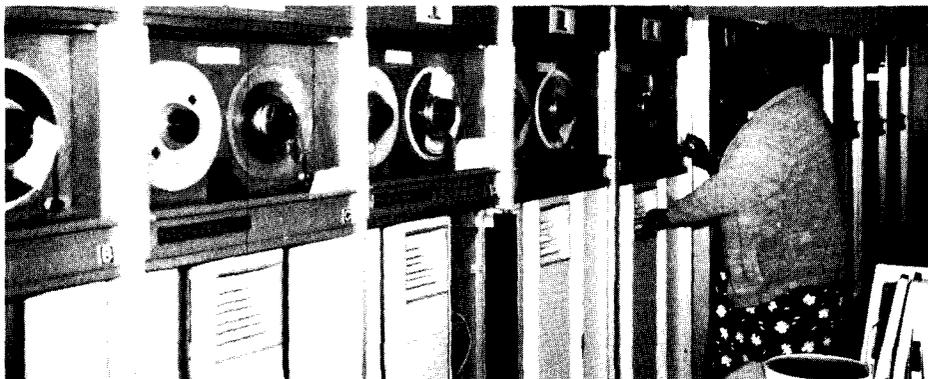
NASA's Office of Aeronautics and Space Technology (OAST) announced plans recently to establish a number of university-based Space Engineering Research Centers. The goal of these Centers is to enhance and broaden the capabilities of the Nation's engineering community to meet the needs of an expanding space program.

Each Center will be established under a NASA grant. The Centers are expected to focus on one or more of the research and technology areas that will enhance operational bases on the Moon, manned and unmanned missions to Mars, missions to other parts of the solar system and Earth observations.

The university Centers' programs may involve collaborative activities with other universities, industrial and other organizations as well as one or more NASA Centers, according to the program notice. Up to eight Centers may be established in the first year of the program, based upon the proposals submitted.

The preproposal video conference which originated from Goddard's Visitor Center on September 2, was introduced by Center Director Dr. John W. Townsend, Jr. and led by Raymond Colladay, Associate Administrator for Aeronautics and Space Technology, NASA Headquarters. It included an overview of the program as well as a question and answer session.

University contacts at Goddard for this program are Dr. Henry Plotkin, Code 700 and Dr. Gerald Soffen, Code 600.



BEFORE AND AFTER—TOP: Jeannette Brooks, Bendix, switches a tape on the old Nimbus telemetry housekeeping/processing system. This bank of computers represents about one-half of the equipment being replaced in the Nimbus-7 Operations Control Center. BOTTOM: Two rooms of computer hardware are being replaced by a desktop computer, monitor and printer. Pictured: Bernie Gonciarz, General Electric/RCA Government Services (seated); Dick Stephenson, General Electric/RCA Government Services (left); Mike Forman, Nimbus-7 Operations Manager (right).



Equal Opportunity Prize Winners Announced

by Randee Exler

"Cash awards... will be granted to individuals who submit the best technical proposals and provide solutions to everyday problems facing handicapped employees in the workplace."

The challenge was made. The challenge was met.

When Goddard became the 1986 recipient of NASA's Equal Opportunity (EO) award, the Center received prize money in addition to a trophy. The Office of EO decided to sponsor a Center-wide competition with cash awards, which would enable Civil Service employees to make positive contributions toward the elimination of barriers which impact disabled individuals. The deadline for technical proposals was May 22, 1987.

The Employee Suggestion Committee, consisting of representatives from each directorate, reviewed the proposals and based its selections on the following criteria: originality, technical merit, scope of impact, ease of production, commercial potential and verbal presentation.

First Prize

First prize (\$2,000 each) went to three Code 713 engineers: Scott Glubke, Glenn Lightsey and David Lindauer.

Their joint proposal would enable visually impaired people to know their exact location on Center and regain their bearings, if lost. The general navigation system they propose, uses a coordinate grid to determine exact locations on Center.

The General Positioning System (GEPS), consists of 2 radio emitter stations and an inexpensive hand-held receiver. The suggested technology is based on an existing airplane navigation system.

"At the press of a button, the hand-held receiver measures the angles of the strongest reception of signal from each emitter with the use of an electronic compass," according to the GEPS proposal.

"A simple algorithm on the micro-processor determines the position of the pedestrian in coordinates, which is then announced to the visually impaired user by the software speech synthesizer."

A system such as this would allow visually impaired people greater freedom to walk around the Center on their own, without special assistance. If a person becomes disoriented or lost, he need only press a button to determine his location.



AWARD WINNERS—Pictured behind NASA's Equal Opportunity (EO) Award, awarded to Goddard for 1986, are the winners of a competition to help eliminate barriers which impact disabled individuals on Center. Left to right: Deputy Director John Quann, John P. Krehbiel (third-prize winner), David Lindauer (first-prize winner), Bruce Milam (second-prize winner), and Equal Opportunity Specialist Chris Rodriguez. NOT PICTURED: First-prize winners Scott Glubke and Glenn Lightsey.

"A minor modification to the portable receiver could provide an option to relay the position coordinates to Security if the individual needs help or assistance," according to the proposal.

Second Prize

The second prize (\$1,500) went to M. Bruce Milam, Code 716, for his Optical Filters for the Color Blind suggestion. "Some people who are color blind can not see electronic displays," according to Milam. "These electronic displays are used at Goddard on the ROLM phones," he added. "The worker cannot determine which mode the ROLM phone is in."

Milam's solution to the problem is a simple one. He suggests taking a transparent strip with a colored tint and taping it over the electronic display indicators on the ROLM phone. "You have to experiment with the colors to find the right combination to make the electronic display visible to the individual," he explained.

"According to statistics, approximately seven percent of all males are color blind," Milam added. "That means there may be more than 300 Goddard employees affected by this problem."

Third Prize

Third prize (\$1,000) went to John P. Krehbiel, Code 732.2, for his suggestion that would enable verbally disabled per-

sons to leave voice messages on the GSFC telephone network.

"Since the ROLM phone system already has the ability to generate computer voice messages, it would be a simple matter to arrange for the computer to generate a particular series of message groups which would be combined into a single voice message," Krehbiel explained.

The system would use a dictionary of phrases identified by numbers. The user would string phrases together by entering a series of numbers into the ROLM system. The messages could be delivered via the existing phone mail segment of the ROLM system.

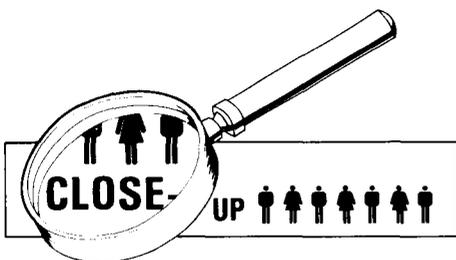
"One of the benefits of this system is that it can be used from any pushbutton telephone," Krehbiel explained.

The Equal Opportunity Prize winners will be recognized during a special ceremony on October 8 to kick-off "Hire the Handicapped Week."



DIAL 286-NEWS

Feeling out of touch? Out of the news mainstream? Dial 286-NEWS. This is the new number for the Office of Public Affairs code-a-phone. Dial in for up-to-the-minute information on Goddard and related events.



STROUD

BILL STROUD is back. Following a six-year tour of duty with the Scientific Affairs Division of the North Atlantic Treaty Organization (NATO) Headquar-

ters, Brussels, Belgium, Stroud returned to Goddard recently as Special Assistant, Flight Projects Directorate.

As Programs Director of NATO's Science for Stability Program, which was initiated in 1981, Stroud organized and directed a special civil program with Greece, Portugal and Turkey. The purpose of the program is to give scientists and engineers in these three countries experience in the management of applied research and development projects that require collaboration between government, university and industry laboratories.

Oops . . .

Our apologies to John T. Dukes, Code 293, Wallops. The last issue of the Goddard News incorrectly featured Dukes in the retiree box. Dukes completed 55 years of federal service on August 23, but he has no plans to retire now . . . or in the near future.

Retirees

Best wishes to the following Goddard employees who retired recently!

	CODE	YEARS
Bolster, William	470	32
Bradley, Walter D.	705	32
Harbach, Thomas R.	754.3	37
Holland, Alfred C.	672	22
Keipert, Frank A.	500	31
Leatherwood, Maceo	253.3	34
Mead, Gilbert D.	601	25
Meredith, Leslie H.	100	34
Norton, Doris M.	400.6	33
Skolka, Edwin J.	713.2	25

Dr. James H. Trainor Named Director of Space and Earth Sciences



Dr. James H. Trainor has been named Director of Space and Earth Sciences, Code 600, Goddard officials announced recently.

Dr. Trainor, the former Deputy Director of Space and Earth Sciences succeeds Dr. Franklin D. Martin, who was appointed Deputy Associate Administrator

* * *

ROBERT D. "DENNIS" MARCHANT, who joined Code 204 in June as Deputy Patent Counsel, has been named Chief of Patent Counsel. He succeeds John Tresansky who retired recently. Before joining Goddard, Marchant was Director of Patent Licensing under the Associate General Counsel for Intellectual Property at NASA Headquarters.

* * *



PICNIC AREAS—The outside eating areas are for everyone's enjoyment. Please be sure to deposit all trash in the receptacles that are provided. Don't let your trash spoil someone else's lunch. Remember, a little litter hurts a lot!

for Space Station, NASA Headquarters in September 1986. Dr. Trainor has served as Acting Director since that time.

Since joining NASA in 1964 as a research physicist, Dr. Trainor has made significant contributions to the success of Goddard and NASA in a number of positions of increasing responsibility. He served as a Section Head, Branch Head, and Associate Chief of the Laboratory for High Energy Astrophysics, until becoming Deputy Director of the Sciences Directorate in 1982. In 1984, he became Deputy Director of the Space and Earth Sciences Directorate.

Dr. Trainor has been a NASA project scientist for the Orbiting Geophysical Observatory, Small Scientific Satellite, Interplanetary Monitoring Platform and Helios programs. He is currently the NASA project scientist for balloon and sounding rocket payloads, which are managed at the Wallops Flight Facility.

Mail your story to the Goddard News (Code 130), or call the Editor at 286-7277.

Former Center Director Dr. Noel W. Hinners sent the following thank you note to Center Director Dr. John W. Townsend, Jr. recently. Dr. Townsend wanted to share the note with all employees:

Dear Jack,
 My deepest appreciation and thanks go to the people of Goddard for the warm (sometimes hot!) send-off party. The Sony discman helps immeasurably in getting me in the mood to face each new Hq. day. And it is always sobering and instructive to see and hear what really impresses the troops over time (reserved parking, etc.). The evening at the Rec Center was a tough one emotionally — to see so many good people who are talented and dedicated the way Goddard folks are and to know one is breaking the tie creates a sense of ir retrievable loss.
 My best wishes go to all.
 Sincerely,
 Noel

Goddard's STOCC Conducts Joint Orbital Verification Test

by Michael Braukus



ORBITAL VERIFICATION TEST—Arnold I. Boone, working under the Lockheed missions operations contract for the Hubble Space Telescope, operates the Data Management System/Instrumentation and Communication console in the Space Telescope Operations Control Center, Building 3, during the joint orbital verification test. During the five-day test, Goddard's Space Telescope ground system was manned around-the-clock.

Goddard's Space Telescope Operations Control Center (STOCC) conducted a joint orbital verification test in preparation for the launch of the Hubble Space Telescope (HST) recently.

The test, which employed a computerized spacecraft simulator, began — Monday, August 31 and ended — September 4. During the five-day test, Goddard's Space Telescope ground system was manned around-the-clock.

The test marked the first time that all the HST's ground operational elements, which include Goddard, the Marshall Space Flight Center and the Space Telescope Science Institute, have participated together in such an exercise, according to Ron Felice, Goddard's HST operation manager. It also was the first time a special computer program which simulates the operation of HST had been used at Goddard, he said.

"The simulation provided us with a close replica of both the spacecraft and its environment so that the ground systems personnel could be exercised realistically," Felice explained.

Felice said that the simulator was an operational tool to train console operators and engineers. "When you have a spacecraft as complex and sophisticated as HST, it is essential to have something on the ground that allows the operators to practice," he said. "The simulator also permits us to evaluate not only the operators but the control center systems."

As part of the test, a bogus problem was included. "We put this into the system to force us to replan and examine how the system, as well as the personnel, respond to a change in our plans, and do it concurrently to ongoing operations," Felice said.

Developed by Marshall, the simulator allowed the operators to experience the presence of the spacecraft. Felice said, "The telemetry data the simulator transmitted gave the test some realism, but it was the simulator's reaction to commands from the STOCC that gave the console operators the sensation that they really were commanding the HST."

Felice stated that before the HST is launched by the shuttle Discovery in June, 1989, the HST ground system and its personnel will be exercised in other significant tests, some involving the actual spacecraft itself.

The telescope's operations are managed by Goddard. The Center also manages the Space Telescope Science Institute in Baltimore, the science facility from which the scientific observing program is conducted.

NASA
National Aeronautics and
Space Administration
Goddard Space Flight Center

Goddard News

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Carter Dove and
Joyce Milliner
(Wallops).



Combined
19 Federal 88
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*Remember,
Someone out there needs
Someone like you.*