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Goddard Space Flight Center

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Goddard POCC experts save Solar Maximum Observatory

GREENBELT, Md.—In a small room on the second floor of Building 14 at Goddard, experts crowded around William N. (Bill) Stewart, operations manager for the repair of the Solar Maximum satellite.

Through months of training, these experts had negotiated procedures in one simulated emergency after another. But a simulated emergency is different from a real one. There are no smiles during the real thing.

As the SMM repair had been planned, Astronaut George Nelson was to fly out to the satellite, lock onto it with a device known as a Trunion Pin Attachment Device (T-PAD), stop it from spinning, and hold it still until the Shuttle's remote manipulator arm could pick it up and lift it into the Challenger's payload bay.

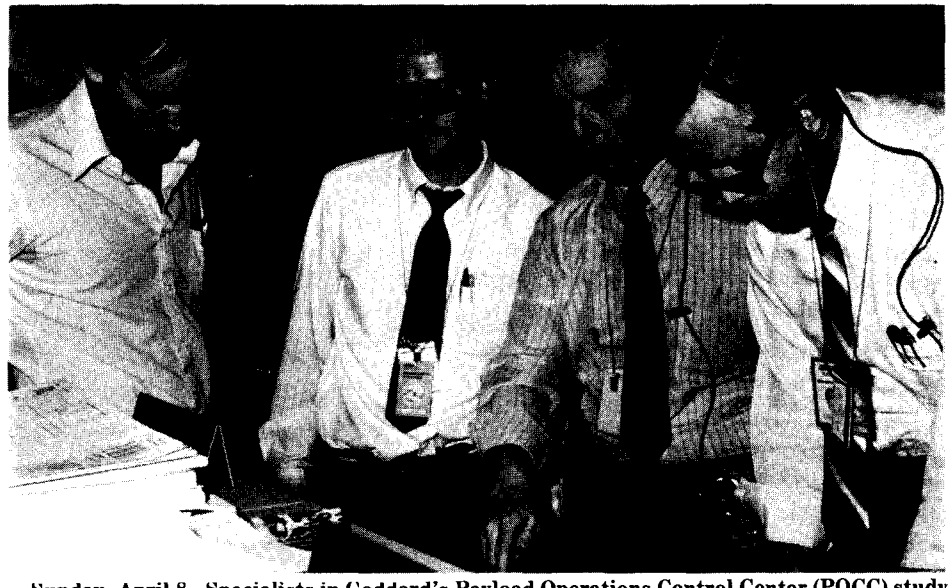
For reasons still unknown, the T-PAD was not able to lock onto Solar Max. Attempts to stabilize the spacecraft by holding one of its solar panels were unsuccessful, also. As a result, the satellite that had been spinning in the roll axis at a speed of one degree per second, was suddenly tumbling in all three axes—roll, pitch and yaw—and all of them at rates greater than one degree per second.

All plans were cast aside. Operating procedures that had been Bible just a few minutes earlier suddenly became useless. Solar Max was in deep trouble! As it tumbled, the engineers from Goddard, the OAO Corporation, the McDonnell Douglas Corporation, and Computer Tech Associates tried desperately to find some means of containment.

For the first few minutes, everything was a mystery. Flight dynamics experts received telemetry indicating that Solar Max was doing one thing, but when they tried to correct it, nothing happened.

Desperate, they rushed through one procedure after another before determining that the spacecraft's gyros had become overburdened and were giving out erroneous readings.

Power experts poured into the room with telemetry readings in one hand and pencilled calculations in the other.



Sunday, April 8 - Specialists in Goddard's Payload Operations Control Center (POCC) study data on the health of Solar Max during a period of uncertainty on the spacecraft. The experts were looking at battery voltage and current; the spacecraft's battery power load had been turned down to the lowest point possible, 225 watts, and all non-essential power systems had been turned off. From left to right: Wes Ousley, Thermal Systems Manager; Kevin Grady, Attitude Control Engineer; Bill Stewart, Mission Operations Manager; and Dave Douds (Grumman Aerospace), POCC Director. Identification for man in background was unavailable. As a result of the POCC flight controllers' efforts, Solar Max was saved, repaired successfully, and redeployed back into a 310-mile-high orbit. This mission marks the first time ever a spacecraft has been retrieved, repaired, and redeployed in space.

With Solar Max out of control, the solar panels which provide electrical power to the spacecraft were rotating so fast that they were providing very little energy to the satellite.

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Goddard engineers praised for Solar Max rescue

Congratulations to all Goddard personnel, especially to those in the Satellite Servicing Project Office headed by Frank Cepollina and to Bill Stewart and his operations crew, who contributed so much to NASA's latest milestone in space achievements—the repair of the Solar Maximum Observatory. The eleventh flight of the Space Shuttle was a spectacular mission, highlighted by the Solar Max repair, with Goddard providing its technical expertise in saving what was once thought to be a lost satellite. With the Solar Max and the Tracking and Data Relay Satellite saves under our belts, you can say we're in the satellite saving business to stay.

I share the feelings of those who say we've ended the era of throwaway satellites—we played an integral role in proving that astronauts can venture into outer space to rescue and save satellites.

While no approved plans yet exist, if and when NASA decides to "save" other satellites, Goddard will no doubt be in the forefront of that effort. We are in the midst of looking at the options to repair Landsat 4. I am proud of Goddard's contribution to the very successful Shuttle mission, and look forward with anticipation to even greater accomplishments in the future.

Noel W. Hinners DIRECTOR

TDRS save among top ten engineering achievements in 1983

The Tracking and Data Relay Satellite (TDRS-A) save was cited as one of the ten top engineering achievements of 1983 in the National Society of Professional Engineers' (NSPE) 18th Annual Outstanding Engineering Achievements competition.

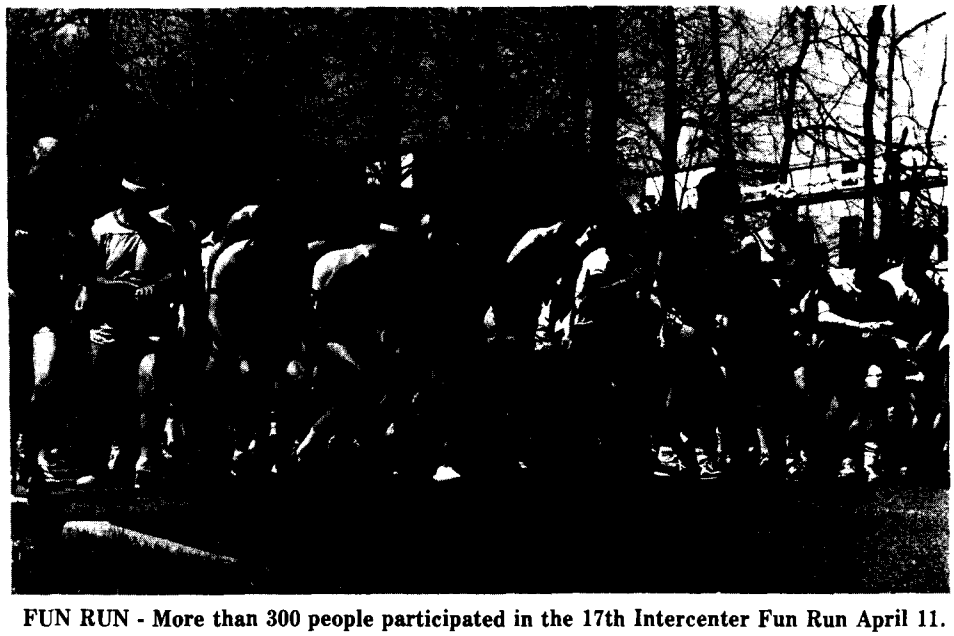
NSPE President Louis Bacon last month visited Goddard and presented Center Director Noel W. Hinners and TDRSS Project Manager Ronald K. Browning with a commemorative plaque for Goddard's role in the satellite rescue.

The $100 million communications satellite was deployed from the Space Shuttle Challenger April 4, 1983, but failed to reach proper orbit because of an equipment malfunction. After 58 days of delicate maneuvers, a NASA-industry team of engineers succeeded in placing TDRS-A into geosynchronous orbit.

By using tiny one-pound thrusters, the engineers boosted the 5,000-pound spacecraft 8,662 miles farther into space. Since becoming operational, TDRS-A has successfully supported Landsat and Space Shuttle operations.

The other nine achievements range from a modernized weather forecasting system to a device which helps paralyzed people walk. The projects honored were: Automated Field Operations and Services, a national weather communications network; the production of industrial chemicals from coal; a co-disposal energy recovery facility; a system using microprocessors to move paralyzed muscles; a new cystic fibrosis detection device; the Energy Independence, a coal-carrying, coal-fired ship; the Foothills Water Treatment Project; the Four Allen Center Office Tower; and a steam and electric co-generation facility.

TDRSS AWARD—From left to right: Center Director Noel W. Hinners, TDRSS Project Manager at Goddard Ronald K. Browning, and National Society of Professional Engineers President Louis Bacon display plaque awarded to Goddard for its role in saving the Tracking and Data Relay Satellite. Bacon made the presentation on center last month.



FUN RUN - More than 300 people participated in the 17th Intercenter Fun Run April 11. Finishing in the top three positions in the two-mile run were: Ed Boggess, 9:54; David Hershier, 10:28; and Bill Conroy, 10:38. Barbie Beckford placed 32nd at 12:35 as the first woman to finish. Center Director Hinners and Deputy Director Quann finished at 16:58 and 15:01 respectively.

STS-5 ASTRONAUT - Bill Lenoir (unshirted), mission specialist on STS-5, provided support to Goddard Public Affairs during STS-41-C. While here, Lenoir participated in the FUN RUN, placing 19th at 12 minutes flat.

Three-spacecraft program to study Earth's magnetosphere

Three countries, each providing a satellite, are participating in an international effort to unravel new knowledge about the magnetosphere in the Active Magnetospheric Particle Tracer Explorers (AMPTE) Program. NASA will launch the three spacecraft simultaneously on a Delta launch vehicle August, 1984, from the Kennedy Space Center, Florida. The U.S., the Federal Republic of Germany (FRG), and the United Kingdom (UK) are involved in the program.

Essentially, the mission entails using one spacecraft to inject lithium and barium ions inside and outside of the magnetosphere, while the other two spacecraft monitor and measure the ensuing activities. The spacecraft are: the Ion Release Module (IRM), FRG; the United Kingdom Subsatellite (UKS), UK; and the Charge Composition Explorer (CCE), U.S.

The magnetosphere separates near-earth space from interplanetary space and contains a variety of features, such as the aurorae, the Van Allen radiation belts, and the ionsphere, that are controlled by the interaction of charged particles with the Earth's magnetic field.

One of the most outstanding problems in magnetospheric physics is the transmission of energy and mass from the solar wind into the magnetosphere. This is a particularly difficult question, according to Gilbert W. Ousley, AMPTE Project Manager at Goddard, "because the magnetosphere is surrounded by a 'shock front' in a manner similar to that around a solid sphere immersed in a fluid moving at supersonic speed."

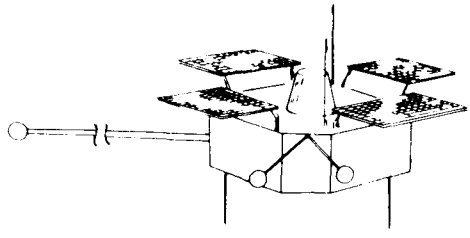
How do the various ionic species cross this shock and how do they find their way into the magnetosphere? How are the energies of these particles increased by factors of a thousand or even a million as they make their journey? Are these solar wind particles really the source of the Van Allen radiation belts? These are some of the questions that scientists hope AMPTE will answer by injecting a 'dye' marker into the invisible plasma environment of the Earth.

Although scientists agree that the solar wind enters the magnetosphere, circulates through the system and becomes energized, many aspects of this process are still unknown. AMPTE will attempt to determine how much solar wind penetrates the magnetosphere, how it circulates and how it energizes. AMPTE also will provide insight into possible entry locations of the solar wind.

In addition to learning more about the terrestrial environment, another reason to study the magnetosphere is that it is the most easily accessible cosmic plasma, according to Ousley. "AMPTE not only will study it as previous satellites did, but will use it as a cosmic laboratory. This mission is dedicated to a deeper understanding of the basic physical processes which are common in the universe," Ousley said.

Charge Composition Explorer

The Charge Composition Explorer is instrumented optimally for the detection of minute quantities of tracer ions in the presence of a large ambient proton population over a broad energy range. A magnetometer and plasma wave spectrometer complement the particle measurements.

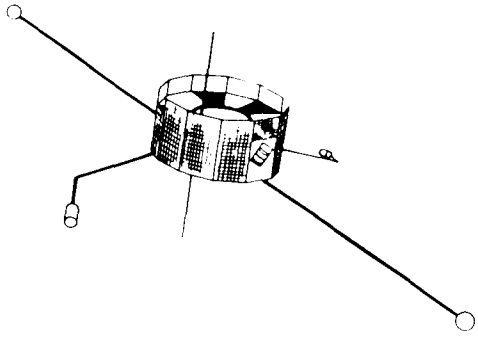


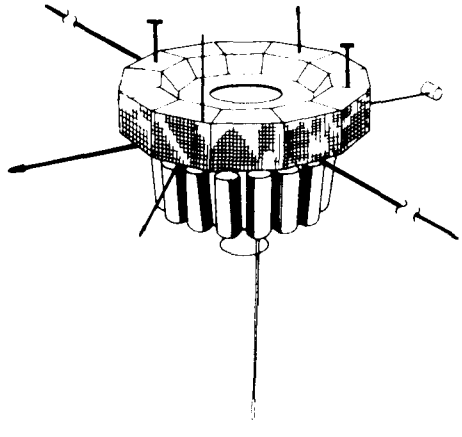
United Kingdom Subsatellite

The United Kingdom Subsatellite is kept at close distance to the IRM. A complement of UKS charged particle and field instruments similar to that on the IRM will help the IRM to distinguish between spatial and temporal variations in the injected plasma clouds as well as in naturally occurring structures.

Ion Release Module

The main task of the IRM is to release substantial amounts of tracer elements in the solar wind, the magnetosheath and the magnetotail. The IRM is equipped with instruments well suited not only to study the interaction of artificial ion clouds, but also to investigate the magnetospheric boundary regions and the natural plasma composition.





Former GFSC engineer dies

Herbert J. Honecker, a retired aerospace engineer with Goddard, died February 1 after a long illness. He was 62.

Honecker joined Goddard in 1963 in what is now the Special Payloads Division and served as project manager on the Astrobee 1500, Astrobee F, and Aires sounding rockets. He was the Goddard manager on the Space Processing Application Rocket joint program with Marshall Flight Center, when he retired in 1980.

He leaves his wife Sherry, daughters Karen and Leigh, and his son Steven.

Wallops supports FAA study

The Wallops Flight Facility at Wallops Island, Virginia, provided support to the Federal Aviation Administration (FAA) for several weeks in Colorado recently studying whether commercial jets and other aircraft could safely fly with closer vertical spacing at high altitudes.

A Wallops mobile C-band radar van and a trailer containing the antenna and mount was transported to the Longmont, Colorado, Municipal Airport to track overflying aircraft and collect data for the study. This high-precision tracking radar was used to assist the FAA specialists and atmospheric scientists in their three-week study to determine whether commercial jets and other aircraft could safely fly with only 1,000 feet vertical separation at higher altitudes. According to these scientists, a positive finding from the overall study could save U.S. airlines alone as much as $100 million a year in fuel costs.

FAA REGULATIONS

FAA regulations now require aircraft flying above 29,000 feet to be vertically separated by at least 2,000 feet of airspace. Below the 29,000-foot altitude, aircraft are allowed to be as close as 1,000 feet apart. The FAA as well as the airlines would like to use the smaller spacing at all altitudes up to 40,000 feet, primarily because it would save fuel.

However, because of deviations in air pressure over mountainous areas like the Rockies, the FAA is unsure of how safe the smaller vertical distances would be. The agency needs to know how closely pilots can stick to their assigned altitudes.

Aircraft altimeters—instruments measuring altitudes—use air pressure to determine altitude. Raymond D. Atkins, NASA Project Manager for the FAA Vertical Separation Program, said results from previous tests indicate that deviations in air pressure can cause aircraft to be off as much as 600 feet. The eastern slope of the Rockies was selected for this part of the study because of the deviations in air pressure over the mountains.

During this recent project the scientists focused upon a 50 by 80-mile rectangle of airspace bracketing the Continental Divide. Daily during the three-week period NASA personnel tracked all types of aircraft recording their altitudes.

OTHERS SUPPORT STUDY

In addition to NASA, two other organizations supported the Colorado study: the Boulder-based National Center for Atmospheric Research (NCAR) and the National Oceanic and Atmospheric Administration (NOAA) environmental research laboratories also located in Colorado. Throughout the study, the FAA's Denver Air Route Traffic Control Center at Longmont coordinated airspace activity.

A NCAR twin-engine Sabreliner research aircraft flying daily through the rectangle at altitudes from 29,000 to 38,000 feet recorded its pressure altimeter readings. During these flights, the plane was observed by the NASA precision tracking radar and the aircraft's geometric—or real—altitude was recorded for correlation with the aircraft readings. Simultaneously, scientists from NOAA's Environmental Research Laboratory monitored atmospheric activity such as winds, mountain airflow, gravity waves and other events believed to affect the accuracy of pressure-altimeters.

Returning to Virginia with the other three Wallops personnel and the equipment the second week in February, Ray Atkins said, "All indications are that the FAA considers this a highly successful project."

Dickens interviewed as astronaut candidate, awaits selection decision from review board

Patsy Dickens

One of Goddard's own was among 128 final applicants chosen from the approximately 12 open slots as Space Shuttle Astronaut candidates.

Patsy Dickens, a chemist in the Electro-Optics Branch (code 723), was in the sixth and final group of applicants to be interviewed and undergo rigorous medical tests recently at the Johnson Space Center (JSC) Houston, Texas.

"I think I have a very good chance of being selected," Dickens said, "because I'm equally as qualified as any of the other 127 applicants. At the same time, though, I feel it's an honor to have been selected out of the nearly 5,000 other people."

Dickens, a native of Lafayette, Louisiana, is married and has four children. She has a B.S. degree in Chemistry from Southern University, New Orleans, La., and a Ph.D. in Physical Chemistry from Howard University, Washington, D.C. She joined Goddard in 1980.

NASA will select two categories of astronaut candidates — pilot and mission specialist. Selected candidates will begin a year of training and evaluation at JSC in July, 1984 and will be selected as astronauts after satisfactory completion of the evaluation.

NEW GUAM LOGO—Facilities personnel at the Guam Tracking Station have made a new sign for their station. Those responsible for painting and erecting the new NASA/GUAM sign are, from left to right backrow: Bill Komiyama, Roman Mantonona, Larry Cavin, Ramon Tedtaotao, and Juan Duenas; on front row from left to right: Eugenia San Nicolas, Margaret Santos, and Benny Ablao.

Productivity . . . What's in it for us

by Kenneth Jacobs

Chief, Technical Information and Administrative Support Division, Goddard

People tend to react negatively to the term "productivity." Undoubtedly, the reaction is caused by their experience with programs of the past which have dealt with time-and-motion type activity. Those programs seem to have been counter-productive and, consequently, an Orwellian-like atmosphere of threat and mistrust has prevailed. The insecure feelings of those being "watched" resulted in the manipulation of the data compiled. After all, people soon realized that improving the numbers was the name of the game.

However, as a matter of general response, people are reacting favorably to the radically different approach that NASA has taken in the development of the Productivity Improvement and Quality Enhancement (PIQE) Program. There is obvious relief when they find that the PIQE Program doesn't bear any resemblance to past productivity programs.

PIQE EMPHASIS

The PIQE Program emphasizes the application of good, sound management practices as the key to increasing our "profitability"—getting the most out of our budgeted dollar. Although it enjoys the support of upper management, its success depends on the commitment and support of employees at all levels.

That brings us to the crux of the matter: how do we get individual commitment to the program? One way is to demonstrate that upper management is supportive. Another is to educate people about the program, dissolving any negative misconceptions. But perhaps the most important method is to answer the question of "what's in it for us."

To be associated with an organization that is efficient, effective, purposeful, and evolutionary is important to each of us. Individuals derive dignity from associating with a cause larger than themselves and with an organization in which they can take pride.

When employees are invited by their supervisors to participate genuinely in the decision-making process of their organization, the process results in a sense of association and belonging. This leads to individual assumption of responsibility for the success of that decision and a commitment to assure success.

A manager is accountable to the boss to accomplish the organization's mission in the most economical way. The supervisor should create an atmosphere of honest participation. Supervisors should apply effective judgment and decision-

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OUTSTANDING PERFORMANCE AWARD—Employees at the Greenbelt (BLT) tracking station and Network Test and Training Facility (NTTF), received the third Outstanding Performance Award last month. Bendix President Murray Weingarten (center) presented the award here for the July-October 1983 performance period. From left to right: Donald E. Smith, Bendix vice president and program director for the Spaceflight Tracking and Data Network (STDN); Chet Shaddeau, Jr. NASA BLT/NTTF station director; Weingarten; John J. Jobes, Bendix senior station manager at Greenbelt; and John P. Gale, Bendix deputy program director, STDN.

Coming events

GRAA Homecoming

To climax Goddard's 25th Anniversary Celebration, the Goddard Retirees Alumni Association (GRAA) will hold another homecoming at the Goddard Rec Center Saturday, May 5, 1984. The festivities will feature country-western music and country-style beef and chicken barbecue. Activities are scheduled from 3 p.m. 'til midnight. Readers are asked to pass the word around to former Goddard employees who may not be on the Goddard News mailing list. For more information, call (301) 577-2119 or 577-7783.

Computer Fair

Goddard's Computer Club will hold its 4th Annual Computer Fair April 27-28 in the building 8 auditorium. Activities will begin at 10 a.m. both days. Goddard employees, contractors included, and their families and friends are invited to see demonstrations of the latest hardware and software in personal computers. There will be software demonstrations of spreadsheets, word processors, data bases, graphics, games, and education. More than 100 people are expected to attend. For more information, call Chuck Mason, 344-6609, or Dennis Evans, 262-4400.

Aerospace Symposium

Goddard will host the 18th Aerospace Mechanisms Symposium from May 2-4. The symposium is devoted to the problems of design, fabrication, test, and operational use of aerospace mechanisms. It provides a forum for technical communication between personnel active in the field of mechanisms technology, serves as a source of information for others with an interest in this area. Twenty papers will be presented: seven foreign, four NASA (three Goddard), and nine industry. For more information, call Frank Martin, 344-5195.

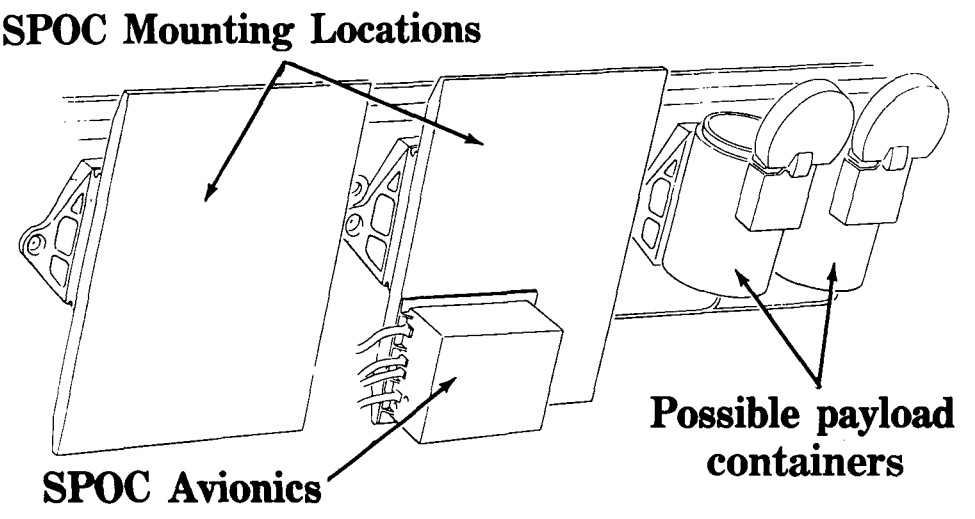
Goddard to build "hitchhiker" Shuttle payload carrier

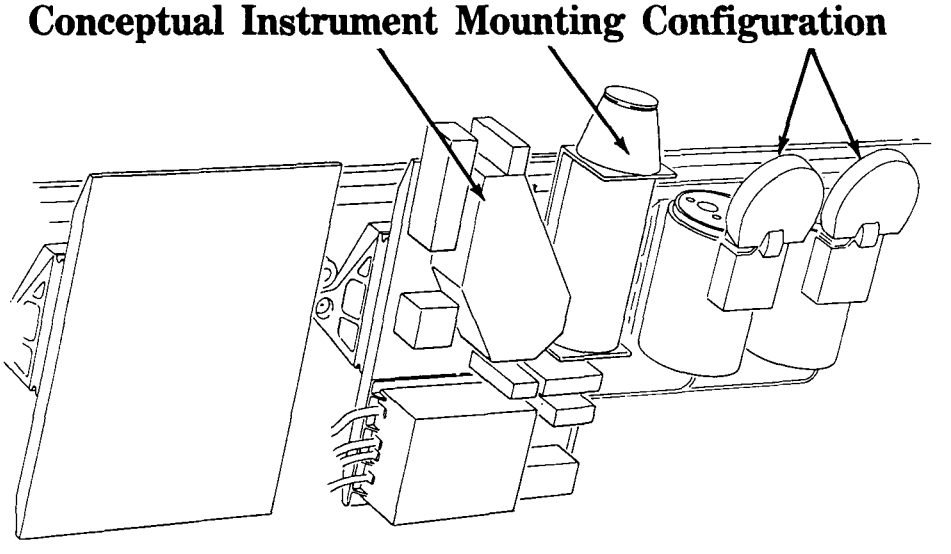
Goddard has received the go-ahead from Headquarters to build a "hitchhiker" capable of carrying packages aboard the Shuttle that are too small to pay their way as principal payloads but too big to fly as "Get-Away Specials."

The hitchhiker, properly known as Hitchhiker-G (for Goddard), is NASA's new Shuttle Payload of Opportunity Carrier (SPOC). It consists of a series of detachable mounting plates which can be fitted to the side of the Shuttle to carry scientific instruments of up to 750 pounds on short notice. The service will be available to NASA, and (on a reimbursable basis) to other agencies, private industry, and foreign governments.

The new carrier, says Ted Goldsmith, SPOC Mission Manager in the Attached Shuttle Payloads Project, should be ready to fly for the first time by March 1985. After that, it is expected to fly at least twice a year.

Hitchhiker uses room in the Shuttle's cargo bay that goes unfilled by principal payloads during many missions. Currently, the Orbiter is equipped to carry up to four full-sized payloads (each averaging some 13,000 pounds) for an average cost of $24 million apiece. Smaller payloads fly aboard the Shuttle in canisters through Goddard's Get Away Special Program (up to 200 pounds for $10,000), or on discipline-oriented scientific laboratories (which have long lead times).





Cost Savings

"The Hitchhiker will represent a tremendous savings in cost and lead time for users now caught in-between these capabilities," Goldsmith predicts. The price schedule, which will be higher than Get Away Specials, is now being developed by Headquarters.

Hitchhiker will carry enough avionics to support up to six user payloads. The avionics are attached to the system's key plate, which is 50'' wide and 60'' high. Other plates the same size can be added or subtracted as needed, tying into the first plate's avionics.

Up to 250 pounds of user hardware can be attached to the avionics plate. Each supplementary plate can carry an additional 500 pounds. If the full surface area of a plate is not needed, a user payload of up to 750 pounds can be mounted directly to the side of the Orbiter through an attach fitting.

Modified GAS canisters

For instruments that require pressurization or protection in the open cargo bay, Hitchhiker can provide modified canisters developed by the Get-Away Special (GAS) Project. The canisters carry 170 pounds each and have opening lids, allowing their interiors to be exposed to space if desired.

Hitchhiker provides electrical services for user payloads including up to 500 watts of 28 volt power and also has uplink and downlink communications capability. The communications can be routed directly to a user's ground support equipment for realtime command and data service. Higher data rates up to 50 megabits per second can be arranged as an optional service.

According to Goldsmith, Goddard's current plans call for building the central mounting plate, an additional bare plate, and providing for two modified GAS canisters. The first payloads to use the hitchhiker have not yet been identified, but two future users will be Goddard's own OSS-2 payload (in two and-a-half years) and the Multilinear Array (in three years).

On most future Shuttle flights, there should be room for a Hitchhiker, accord-

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Satellite Save

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"How long can we last?", Stewart asked.

"If we're lucky six hours," came the response.

By now, Stewart's console was enveloped by people two and three deep. Through his headset he was talking with the Johnson Space Center in Houston, Texas. Constantly, he conferred with his two chief assistants, Dave Douds and Jim Harrison. In between, he'd read off telemetry data. The situation showed no signs of improving.

When they were certain the attitude readings were erroneous, Stewart ordered a new software program be sent to the spacecraft. Sending up 11 banks of data, each requiring 10 minutes to transmit, would take time—and there was precious little time available. But there was no other choice. The new program had to be fed to the onboard computers so the tumbling could be halted.

The difficulties began Sunday morning, April 8. By the time the erroneous readings were recognized, another hour or so had passed. And by the time 10 banks of software had been reloaded, the clock read 6 p.m.

If the prediction for a total loss of power was correct, Stewart had only one hour to save the spacecraft.

He decided not to send up the eleventh bank of data. Instead, he and his colleagues—reaching out for a miracle—set out to right the spacecraft using the magnetic influence in special attitude control bars on the spacecraft against the earth's magnetic field. If the control bars could offset the earth's influence, they felt the spacecraft might yet be saved.

The battery power continued to weaken, however. The solar panels still were not getting enough Sun. For awhile, around 9 p.m., things seemed to look better. The tumbling had slowed and the rotation rates were lowering. But the solar panels were still not getting enough life-giving sunshine.

By 11 p.m., Stewart announced solemnly that the spacecraft—now coming out of an eclipse behind the earth—"might not survive another eclipse." He estimates now that they might have been as little as five minutes away from losing Solar Max.

One last ditch maneuver was ordered. The transponder was commanded off through the eclipse to save a few precious watts of power.

As the spacecraft emerged from the eclipse, its solar panels were pointing directly toward the sun. There was power! And the spacecraft was saved.

Everyone in the POCC, throughout NASA and places beyond breathed a sigh of relief. For several more hours, Stewart and his colleagues kept vigil on their patient. Finally, by 3 or 4 Monday morning and after more than 36 straight hours of duty, they trudged off for a few winks of rest in the nearby bunkroom.

In a few hours, however, they were back to look after their spacecraft and to develop new plans for recovering and repairing something that was now much nearer and dearer to all their hearts.

Two days later, of course, Astronaut Terry Hart captured Solar Max with the manipulator arm. Astronauts Nelson and James van Hoften replaced the attitude control system module and the main electronics box on the coronagraph/polarimeter. The spacecraft was placed at the end of the arm and checks indicated the repairs had been successful.

On Thursday morning - April 12 - the spacecraft was redeployed in orbit and, after a lengthy checkout, will resume its scientific observations of the sun.

In many ways, the Solar Max repair mission was unique. It was the first to capture a satellite in space. It was the first to repair a satellite in space. It was the first to place one back in orbit. The list goes on and on.

The accomplishment of the present might be outweighed, however, by the opportunities of the future. In a way, as Project Manager Frank Cepollina has declared:

"This opens a new era in space. The days of the throwaway satellite are over."

The opportunities for other rescues, further savings, are obvious. What might be ahead for industry and commerce, as well as for scientific discovery is anyone's guess. Certainly, this mission opened many new avenues.

Goddard co-sponsors conference at Cape

Educators from 12 states culminated a four-day conference April 6 at the Kennedy Space Center, Fla., by watching the Orbiter Challenger blast off on the eleventh Space Shuttle mission. The Regional Aerospace Education Conference, held from April 3-6, was sponsored by the Goddard and Lewis Educational Program Offices, with assistance from the Pennsylvania State Department of Education's Intermediate Unit in Montgomery County, Pa.

The conference included presentations on the following: a tomato seed experiment, one of 57 experiments on the Long Duration Exposure Facility (LDEF), deployed by the Shuttle on 41-C; the Space Transportation System (STS) by astronaut Robert Gibson; NASA's Technology Transfer Program; the Space Shuttle Student Involvement Project; the Solar Max Repair Mission; the LDEF; and Life Science and Global Habitability.

Educators from Connecticut, Florida, Illinois, New York, Ohio, Pennsylvania, Wisconsin, New Jersey, Massachusetts, Maryland, Minnesota, and the District of Columbia attended the conference. Transportation and conference expenses were paid for by the participants.

SPOC

Continued from page 6

ing to Goldsmith. The limiting factor is whether the Shuttle's principal cargoes require the Orbiter's full electrical services or crew time. This is most likely to occur when the Shuttle is carrying its full complement of four payloads or is flying a particularly labor intensive mission such as Spacelab.

At the same time Goddard is preparing Hitchhiker-G, Marshall Space Flight Center in Huntsville, AL, is awaiting word from NASA Headquarters to build a similar but larger version of the same concept known as Hitchhiker-M (for Marshall). Marshall's Hitchhiker, which would fit across the cargo bay rather than along one side, has been proposed to carry still heavier payloads of opportunity associated with such tasks as materials processing or space manufacturing.

Congratulations

James G. March, code 921, has been awarded the silver medal of the Centre National d'Etudes Spatiales, the French Space Agency, for the studies he conducted by using the laser measures made with the French satellite Starlett. Dr. Marsh received the medal recently at the Toulouse Space Center, Toulouse, France.

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Dr. Anthony R. Kerr, Goddard Institute for Space Studies, has been elected a Fellow by the Board of Directors of the Institute of Electrical and Electronics Engineers (IEEE). This honor is bestowed upon a select few who have shown outstanding achievement in electrical, electronics or computer engineering. Dr. Kerr is being cited "for contributions to millimeter-wave receivers." Newly-elected Fellows will be honored at an IEEE Awards Ceremony in Boston, Mass., May 13.

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Goddard's Jon R. Busse, code 700, and Henry W. Price, Jr., 720, have received $10,000 presidential-rank awards for their outstanding government service in 1983. Busse, Deputy Director for Engineering, and Price, Chief, Instrument Division, were among the many federal workers honored recently at the State Department with the monetary Meritorious Executive Service Award for their government service last year.

New portable user interface

Goddard's Advanced Systems Development Branch has developed a new user interface called the Transportable Applications Executive (TAE) and will be demonstrating its capabilities during a TAE Users Conference May 1 and 2.

The portable TAE is designed for use on interactive analysis systems and provides executive services such as menu and command user interfaces, command procedures, program library management and asynchronous and batch processing. For more information, call 344-6034.

News media operations set firsts on STS-41-C

Newsmen covering the STS-41C mission at Goddard were able for the first time to ask questions of the astronauts as they soared through space.

Normally, only reporters at Johnson and Kennedy Space Centers are able to ask questions of the astronauts. However, on this mission, the Office of Public Affairs—with the assistance of NASCOM and Code 513—had a direct link with the astronauts in space as well as with JSC for all news conferences. Goddard also had the capability to generate TV from Goddard so the interviewees here would be seen by questioners at the other centers—another first. This was done several times during the mission for interviews with Bill Stewart, Mission Operations Manager. During the news conference with the astronauts aboard the Shuttle, held on April 12, reporters asking questions from Goddard were: Jim Slade, Mutual Radio; John Hollenhorst, Bonneville Broadcasting; Andy Chaikin, Sky and Telescope Magazine; and Blair Walker, Baltimore News American.

Public Affairs also provided commentary on Payload Operations Control Center activities throughout the mission for the first time. Commentators were Jim Elliott and Chuck Recknagel.

For the mission, Public Affairs had the assistance of astronauts Bob Parker, from the STS-9 Spacelab mission, and Bill Lenoir, from the STS-5 mission.

CORRECTION

The last issue of the Goddard News reported the Long Duration Exposure Facility's (LDEF) weight as 8,000 lbs. The LDEF deployed on STS-41-C weighs 21,400 lbs.

Software Catalog available

More than 1,300 computer programs developed by NASA staff and contractors are available for use on NASA projects. Descriptions of all these programs are included in the *COSMIC Software Catalog,* 1984 edition. The computer programs have applications for almost all areas of NASA projects, including engineering, data base management, system development, and remote sensing. The *Catalog* is published by COSMIC, NASA'a Computer Software Management and Information Center. For further information, contact the Technology Utilization Office. Phone: 344-8106.

PIQE

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making skills to get the most from the organization. Good supervision is not accomplished merely by promoting one who has demonstrated good technical skills. A management cadre which has matured and developed within the organization and reinforced the attitudes and culture so important to continuing organizational "good health" is certainly in the best interest of the executive managers.

TEN SEPARATE PROGRAMS

The PIQE Program, in reality, is ten separate programs, one at each NASA Center. Headquarters and each of the field Centers have established their separate program's content. Among the activities are: NASA Employee Teams (NETS), a revitalized Employee Suggestion Program, a program to emphasize the professionalism of secretaries, an emphasis on increasing achievement awards, emphasis of risk management and increased delegation, and the development of a productivity seminar—all suggesting a strong thrust in management and more participation throughout the agency.

Simply stated, programs are structured methods of accomplishing organizational objectives. If it is true that programs are successful when they are valued by those to whom they depend for implementation, NASA's PIQE Program has a bright future. There is certainly something in this for each of us.

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