NAS
National Aerona
Space Administi
Goddard Space

ard News

Greenbelt, Maryland and Wallops Island, Virginia

Vol. 31 No. 4-April 1985

STS-51 D To Carry Two GAS Payloads

The next flight of Space Shuttle, STS 51-D currently scheduled for early April, will carry two Get Away Special (GAS) payloads, including one developed by Goddard's Spacecraft Component Development and Analysis Section.

The Discovery will carry the Get Away Specials in addition to two commercial satellites, Canada's Anik-C (Telesat 1) and Hughes Syncom IV, two student experiments, a McDonnell Douglas Continuous Flow Electrophoresis Experiment (CFES) and an astronaut experiment for teaching physics to students by using toys in space.

Goddard's GAS package aboard STS 51-D will be a Capillary Pump Loop Priming Experiment designed to provide a zero G test for a heat transport system developed by Roy McIntosh and Stan Ollendorf of Code 732.2. The system, which uses the capillary action of its tubing to naturally pump its heat-transporting fluids, could be a forerunner of highly reliable and inexpensive systems for equalizing temperatures experienced by scientific experiments exposed to space aboard space platforms or the Space Station.

McIntosh and Ollendorf are interested in determining the influence of gravity on the relatively weak forces of capillary action which must pump its heat-transferring liquids from evaporators to condensers. "Tests on the ground have simulated zero gravity," says McIntosh, "but the Get Away Special will give us our first laboratory in space to characterize the system completely and accurately." The payload is the first in a series supporting advanced development programs for the Space Station.

The second GAS aboard STS 51-D is sponsored by Japan's Asahi Television Company and includes two experi-

Continued on page two

Goddard and G.E. Sign Declaration of Mutual Commitment to UARS

In a "double-pen" ceremony, GSFC and General Electric Company officials signed a $145.8 million declaration of mutual commitment for development of the Upper Atmosphere Research Satellite (UARS) at the Pennsylvania facility March 6.

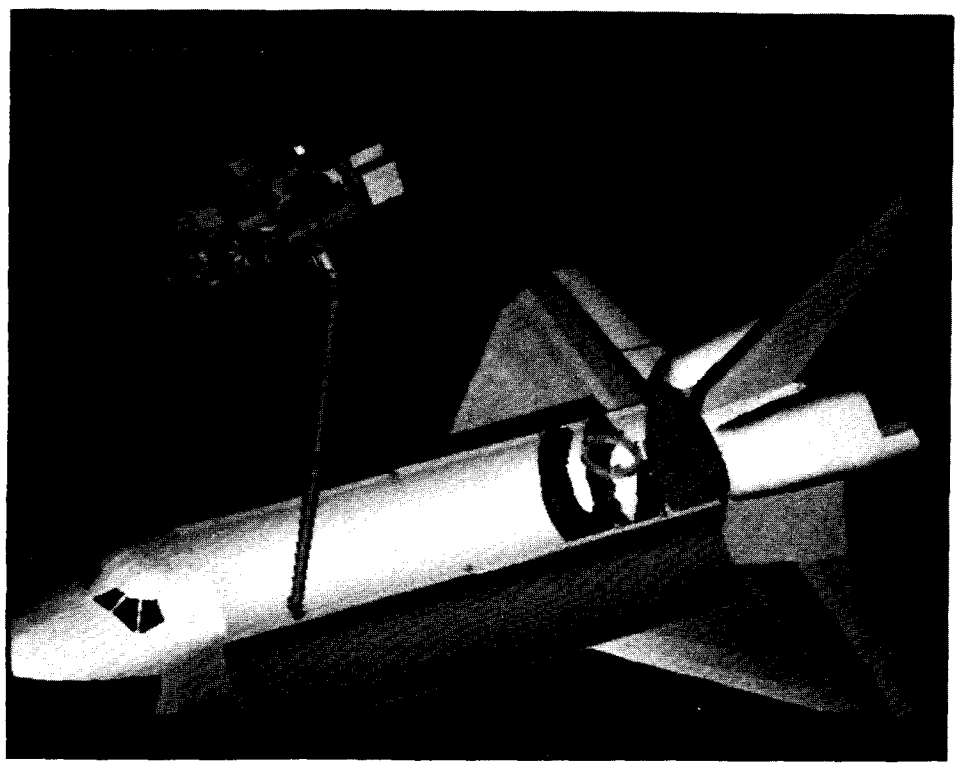
The UARS, managed for NASA by Goddard, will carry 10 scientific instruments into a 600km (373 mi) circular orbit after deployment from the Space Shuttle—an event set for October 1989.

In his remarks before approximately 300 NASA/Goddard and GE project officials, employees and guests, Goddard Director Noel W. Hinners, who signed the agreement for NASA, recalled the past spacecraft program successes of the NASA-GE team. Allan J. Rosenberg, GE vice president and general manager of the Space Systems Division at the Valley Forge, (PA) Space Center, signed for GE.

Comparing the mutual declaration to a wedding ceremony, Hinners said, "All marriages have a consummation. We'll have a four-and-a-half year gestation period and will hatch a 15,000-pound baby out of it".

The UARS will provide a heretofore unavailable insight into the nature of the natural and human effects on ozone, a gaseous form of oxygen which protects us from the harmful ultraviolet rays of

Continued on page two



UPPER ATMOSPHERE RESEARCH SATELLITE (UARS)—To be developed by the General Electric Company's Space Systems Division for NASA under contract to Goddard Space Flight Center—is depicted in this computer-generated image as the satellite is about to be left in space by the Space Shuttle in October 1989. (Photo: GE).

STS-51 D

Continued from page one

ments. The first will test the strength of water surface tension in zero gravity. As a mechanism generates balls of water, small metal pellets will be shot at varying speeds into the droplets and either penetrate or bounce off the water surface. The process will be recorded with 16 millimeter film and videotape.

The second experiment in the Japanese package will attempt to produce five new alloys in a metal furnace as part of the ongoing global interest in materials processing in zero gravity. Both experiments flew previously aboard Shuttle flight STS 41-G. However, the water tension experiment failed to produce water balls, requiring it to be reflown. The materials experiment will continue the alloy investigations of the payload's previous flight.

Except for the two GAS packages, the payloads and experiments of STS 51-D are largely those of last month's scheduled STS 51-E mission, which was postponed following problems with its principal payload, Goddard's Tracking and Data Relay Satellite (TDRS-B). For STS 51-D, however, Syncom IV has replaced the TDRS-B payload, and the CFES has been substituted for the originally scheduled French middeck (Echocardiograph and Postural) experiments. Additionally, the STS 51-D mission will not retrieve the Long Duration Exposure Facility (LDEF) from orbit, as originally planned for STS 51-E.

STS 51-D will be flown by the STS 51-E crew which has been reassigned largely intact to the new mission. The crew includes Commander Karol Bobko and Pilot Donald Williams; Mission Specialists Rhea Seddon, Jeffrey Hoffman and S. David Griggs; and Payload Specialists Senator Jake Garn of Utah and Charles Walker. Charles Walker (McDonnell Douglas) is substituting for STS 51-E Payload Specialist Patrick Baudry of France.

1985 Launch Schedule

1985 Launch Schedule

Vehicle	Crew	Duration	Date	Payload
STS-51 D Discovery	7	5	April 12	Syncom IV-3 Telesat-1
Ariane			April 24	Telecom-1B G Star-1
STS-51 B Challenger	7	7	April 29	Spacelab-3 NUSAT 1
Atlas Centaur 63			May 30	Intelsat VA F-11
STS-51 G Discovery	5	7	June 4	Spartan-1 MORELOS-A Telestar-3D
Atlas Centaur 64			July 1	Intelsat VA F-12
STS-51 F	7	7	July 9	Spacelab-2

COMMITMENT—Dr. Noel W. Hinners, Center Director [left] is shown with Allan J. Rosenberg, Vice President-General Electric Company and General Manager of the Company's Space Systems Division, signing a declaration of their mutual commitment to UARS.

UARS Commitment—

Continued from page one

the Sun. Ozone is found in the stratosphere, a delicate layer of the atmosphere surrounding the Earth at a distance of from 15 to 50 km (9 to 31 mi).

Peter T. Burr, Code 430, Goddard project manager for UARS, joined with Hinners at the podium to chronicle the UARS history—beginning with the early stages of planning in 1976 to Congressional approval last October—and then joined with him along with GE officials in responding to media inquiries.

With many of its remote sensing instruments providing essentially global coverage, the UARS—for the first time—will provide the data necessary for understanding the composition and dynamics of the upper atmosphere.

Under the terms of the March 6 contract, the Valley Forge Space Center will be responsible for:

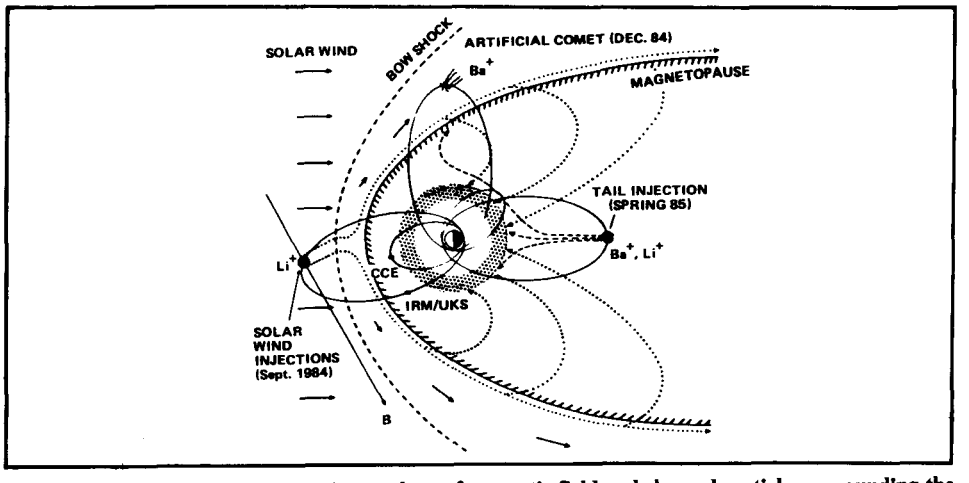
- Design of the observatory system
- Design of the fabrication of an instrument module compatible with the NASA Standard Multimission Modular Spacecraft (MMS)
- Integration of the instrument module with the MMS and the flight instruments
- Overall environmental testing of the observatory system
- Integration of the observatory into the Space Shuttle
- Post-launch flight operations support

The UARS project scientist at Goddard is Carl A. Reber, Code 430.

AMPTE To Release More Barium, Lithium Clouds in Current Tests

Two satellites—now orbiting Earth as far away as 113,000 km (70,000 mi)—began the third phase of the world's first active deep space probe March 21, according to officials of AMPTE, the Active Magnetospheric Particle Tracer Explorers program at Goddard.

The AMPTE probe—an international scientific experiment—is a joint effort of the U.S., W. Germany and the United Kingdom to determine how the solar wind interacts with the Earth's magnetosphere.



EARTH'S MAGNETOSPHERE—An envelope of magnetic field and charged particles surrounding the Earth—extends at least 6 million km (4 million mi) away from the Earth on the night side. The extreme end of this envelope is the magnetotail, a region of volatile, unpredictable magnetic fields. This is the region for the "tail injections" of both barium and lithium in the third phase of AMPTE—Active Magnetospheric Particle Tracer Explorers program—beginning no earlier than March 21. (The CCE is the Charge Composition Explorer of the U.S.; IRM (Ion Release Module) is the W. German satellite; and the UKS, (United Kingdom Subsatellite) is the now-inoperative British spacecraft.)

In the current phase—ending April 28—the West German satellite (one of three original "Explorers") will make two releases of barium and two of lithium (the "Tracers") into the Earth's magnetotail. As in previous experiments, the U.S. satellite then will analyze the charged particle space environment around it to determine the effects of the environment on the injected elements. (The United Kingdom subsatellite, active in previous AMPTE experiments, became inoperative on Jan. 16, 1984 because of apparent malfunctions in the power system and will not take part in future experiments).

Faint Phenomena

Dr. Mario Acuna, AMPTE project scientist at GSFC, reports that the March-April releases "will be very faint phenomena—actually diffuse, luminous clouds—which are not expected to develop extended tails" like the world's first artificial comet created in an AMPTE experiment Dec. 27, 1984.

"However", Acuna added, "because alomost all of the windows (periods of possible launch) are at times of darkness in the U.S., many residents of the U.S.—even those in the eastern half—will be able to view the releases but only faintly under ideal observing conditions: local darkness and clear skies".

March-April Releases

The criteria for the March-April releases are that the AMPTE spacecraft must be in the correct position for release and analysis inside the plasma sheet, an undulating region of the magnetotail; and one of the two observation aircraft must be on station; and one of the ground observation sites (Kitt Peak, AZ; White Sands, NM; Mauna Kea, HAW) must have good enough visibility to provide acceptable imaging (low light level television coverage) of the experiment.

The first phase of the AMPTE project consisted of lithium releases into the solar wind outside the Earth's magnetosphere on September 11 and 20, 1984. Preliminary results from those experiments indicate that less than 1% of the solar wind gains access to the magnetosphere under the conditions in which the releases took place.

Then, on Dec. 27 the W. German satellite created a barium cloud, the Holiday Comet, on the flank of the Earth's magnetosphere 113,000 km (70,000 mi) above the Pacific Ocean off the coast of Lima, Peru. Results from that experiment indicate that the artificial comet was "eroded" by the solar wind much faster than previously anticipated.

The only scheduled AMPTE experiment remaining, beyond the March-April releases, is the formation of another artificial comet—this one on the opposite flank of the magnetosphere from the December experiment—July 13 or 14, 1985. As for viewing, Acuna suggested, "As in December, the comet release should be visible for a few minutes to observers enjoying clear skies and total local darkness."

Solar Wind

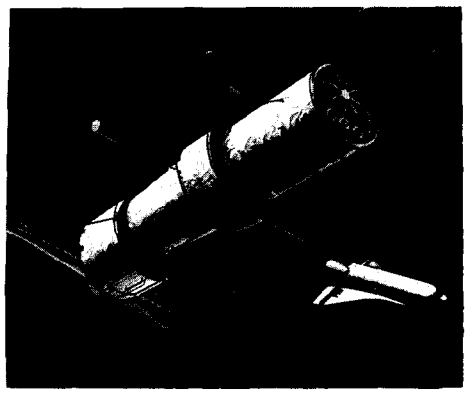
The solar wind is a stream of hot ionized gas expanding outward from the Sun in all directions at a speed of about 1.6 million km (1 million mi) an hour; the Earth's magnetosphere is an envelope of magnetic field and charged particles surrounding the Earth, extending approximately 64,000 km (40,000 mi) toward the Sun and at least 6 million km (4 million mi) away from the Earth on the night side; the magnetotail, as the name suggests, is the extreme end of the magnetosphere on the night side. It is a region of volatile, unpredictable magnetic fields, stretched out in the antisolar direction.

The U.S. portion of AMPTE is managed by Goddard Space Flight Center. The Goddard project manager is Gilbert Ousley.

Bloodmobile Visit

Spring is Here!
Let Your Heart Sing!
Give Blood This Spring!

Please make a date with the American Red Cross. The next day of donation is May 22, 1985 from 8:30 a.m. to 2:30 p.m. in the building 8 auditorium.



AXAF—An artist's concept of the Advanced X-Ray Astrophysics Facility in orbit.

Goddard Joins AXAF Definition Phase

Eight Goddard Space Flight Center scientists have been named by NASA headquarters to participate in the definition phase of the Advanced X-Ray Astrophysics Facility (AXAF), a long-lived orbital observatory for study of X-ray emissions from a variety of astronomical objects.

The Goddard scientists, all from Code 660, and their roles, are: Dr. Steven S. Holt, Chief, Laboratory for High Energy Astrophysics, principal investigator; Elihu Boldt, Frank Marshall, Harvey Moseley, Peter Serlemitsos and Jean Swank, co-investigators; and Richard Mushotsky, co-investigator and interdisciplinary scientist on the AXAF Science Working Group.

Designed for Space Shuttle deployment, the AXAF will orbit Earth at an altitude of about 463 km (288 mi). The approximate 14 m (45ft) long, 9100 kg (10 ton) spacecraft will carry four in-instruments, including the X-Ray Quantum Calorimeter, on which Goddard's definition task will center.

The AXAF, a 1.2-meter X-ray telescope, is meant to be semi-permanent—15 years or so—with the capability for detecting objects such as quasars out to the edge of the known universe.

Holt said that the Goddard team will have at least 18 months in the project definition phase to "demonstrate what we can do."

NASA/Marshall Space Flight Center will manage the AXAF program for NASA's Office of Space Science and Applications.

Goddard Begins Negotiations For Space Station Contract Elements

Goddard began negotiations with two industry teams March 21 leading toward fixed price contracts for definition and preliminary design (Phase B) of Goddard-managed elements of the Space Station.

The negotiations, which will extend 21 months, involve RCA Astro Electronics, Princeton, N.J.; and General Electric Co., Space Systems Division, Philadelphia.

Although the value of contracts to be managed by Goddard is to be negotiated, NASA's Request for Proposal issued September 14, 1984, indicated that the approximate values of the contracts to be managed by Goddard is $10 million.

The negotiations are part of a NASA-wide Space Station initiative that includes a total of three NASA centers negotiating with six industry teams regarding most of the preliminary design work for the permanently manned Space Station.

Goddard's negotiations will cover provisions for instruments and payloads to be attached externally to the Space Station and plans for equipping a module of the Station as a science module. Additionally, the negotiations will cover definition and preliminary design of the automated free-flying platforms, assembly, servicing, and refurbishment of platforms, and other free-flying spacecraft to be serviced by the Space Station.

NASA will retain responsibility for overall program definition and plans to retain responsibility for systems engineering and integration throughout the Space Station program. The overall Space Station program is managed at the Johnson Space Center.

NASA's plans call for a Space Station to be operational by the mid-1990s. It will be capable of accommodating technology advances and growth both in utilization and capability. The Space Station is intended to operate well into the 21st century.

The Space Station is to be placed in low Earth orbit at 480 kilometers (300 miles) altitude and at an inclination to the Equator of 28.5 degrees. It will include a number of pressurized modules for habitation, laboratory and logistic use, and a power supply of about 75 kilowatts, support a crew of six to eight people and have two or more free-flying platforms.

SPACE STATION CONCEPT—The "power tower" reference concept of the Space Station orbits the Earth in this artist's concept.

1945 - 1985 Wallops

NACA — NASA

Wallops To Celebrate 40th Anniversary

The NASA GSFC/Wallops Flight Facility is celebrating its 40th Anniversary this summer.

To commemorate the occasion, Wallops is planning special activities for Friday and Saturday, June 28 and 29, 1985.

Events planned for Friday, June 28th, will be mainly for Wallops employees and retirees. A program of personalities associated with the aeronautics and space programs will discuss Wallops history and science and research accomplishments.

Open House

On Saturday, June 29, an Open House of the Island as well as the Main Base is scheduled. Special exhibits in N-159 hangar bay area will be included and Range Control Center, wave tank area, and ACS lab will be open for tours. Aircraft from WFF and other facilities and the Wallops Crash and Rescue Equipment will be on display outside Building N-159. The sounding rocket fabrication facilities and environmental test and evaluation labs in F-10 also will be open.

In addition to a drive-by tour of the Island in private vehicles, Blockhouse 3 and FPQ-6 radar will be open to the public, including a drive-by of the Navy's Aegis facility. Other events planned are a radio-controlled model airplane show, model rocket launchings, and a Fire and Rescue Demonstration.

Historical films are being shown at the Visitor Center, and a series of special lectures will begin this month.

Major Contributor

The Wallops Facility has been a major contributor to aerospace research throughout its 40-year history. Wallops was involved with the X-1, the first manned vehicle to achieve supersonic flight and miltary supersonic fighters. Programs concerned with sounding rockets, advanced technology, projects and space vehicles from Mercury to the Space Shuttle also have been conducted here.

The facility continues to play an important role in aerospace activities through management of the NASA sounding rocket and balloon programs, tracking of space vehicles, aeronautics research and research in such areas as ocean and laser physics.

The Open House on June 29 will allow visitors to get a firsthand look at Wallops' unique facilities and its important role in aerospace research. All Goddard employees are cordially invited to attend.

Goddard Goals: Goal Three

The following is the third of six goals that the Center has developed as its framework for day-to-day decisions. The first goal was on space and Earth sciences; the second on space flight projects. The remaining goals will be published in successive issues of the GN.

Goal number three concerns Operational Support Systems and Facilities.

A major responsibility of the Goddard Space Flight Center is to provide NASA with communication, satellite tracking, and data acquisition capabilities for near-Earth missions, and a launch range and research airport for suborbital and aeronautical missions. Our goal is to be responsive to our customers, providing them with top quality, timely service. To fulfill this goal, we must:

- "operate and maintain our support systems and facilities in a reliable and efficient manner.
- "complete the development of the Tracking and Data Relay Satellite System and its integration into spaceflight support operations.
- "work closely with the spectrum of users to plan for and support future program requirements.
- "satisfy customers' needs in a cost-effective and operationally efficient manner using an appropriate mix of existing capabilities and newly developed or acquired technology."

Correction

The editor regrets we inadvertently overlooked the following project in our listing of Director Discretionary Fund activities in our last issue:

An Alternative Computer Operating System for IBM Mainframes at GSFC Dr. Jordan C. Alpert (616) Atmospheric Chemistry and Dynamics Branch with Clyde Freeman (562) Information Processing Division. Funded for $33,000.

Center Winter Olympics Keep Employees Fit Year Round

Remember the Winter Olympic event when competitors had to blow a ball through a winding, 60-foot obstacle course and into a box?

"Never heard of the ball-blowing competition," you might say.

But the hilarious event was the highlight of the activities at the 1985 Winter Olympics, at Goddard. Ordinarily, the games are held every four years; officially, the last were held in Sarajevo, Yugoslavia in 1984.

Goddard employees, however, are developing a penchant for physical fitness—they held their second annual winter games in February.

When it's cold, people want to snuggle up to their fireplaces and forget about exercising, according to Goddard's fitness director, Gincy Stezar, "I started the games to keep people exercising during winter," she said. "Workout schedules slack off or stop when it's cold, but people should exercise year-round."

Promotes Fitness

The idea behind the games is participation and camaraderie, Stezar continued. Winning is fun, she said, but it's not the focus of the games. Stezar said she wanted to stimulate interest in fitness in the dead of winter and, simultaneously, show everyone a good time.

Indeed, competitors cheer each other on, driving everyone to do their best. The teams—this year, seven groups with ten members each—were selected randomly. Names were drawn from a hat to create a balance of talent and ability. If a team has an abundance of talent, "I shuffle people around even more," Stezar said.

Goddard's winter games consist of 13 events, only one of which was held outside—the two-mile relay race. All other events are held in the Fitness Lab: sit-ups; pull-ups; knee lifts; dips, an exercise for the upper torso; bicycling; vertical and standing broad jump; bench press (male/female); hand-ball; cross-country skiing, via ski machine; and, of course, the ball blow. Competition is based on weight and individual ability.

Some participants are so enthusiastic they even go into training.

Charlie Boyle, Code 200.7, for example, began weekly drills on the knee raise event right after the Center's 1984 olympics. Boyle placed first in the event this year. Says he:

"That sly Gincy uses the fun and competitive juices of the games to lure people into year-round conditioning."

Sartorial Weightlifter

Believe it or not, there was even a "best dressed" weight lifter. Because he was rushing to a meeting afterwards, Phil Tulkoff, 732.3, had no time to change clothes. He bench pressed 240 pounds in a shirt and tie to place second.

And then there's Scott Lambros, code 742.2, whose winning, standing broad jump measured eight and a half feet; and Mel Banks, 563.1, and Ed Boggess, 600, who reached 25 pull-ups and 85 sit-ups respectively, within a minute, to nab first place; and Vickie Pendergrass, 631, who won the women's bench press.

The ball blow, however, is considered the main event of the games. "It's become the spectator sport at Goddard," Stezar said.

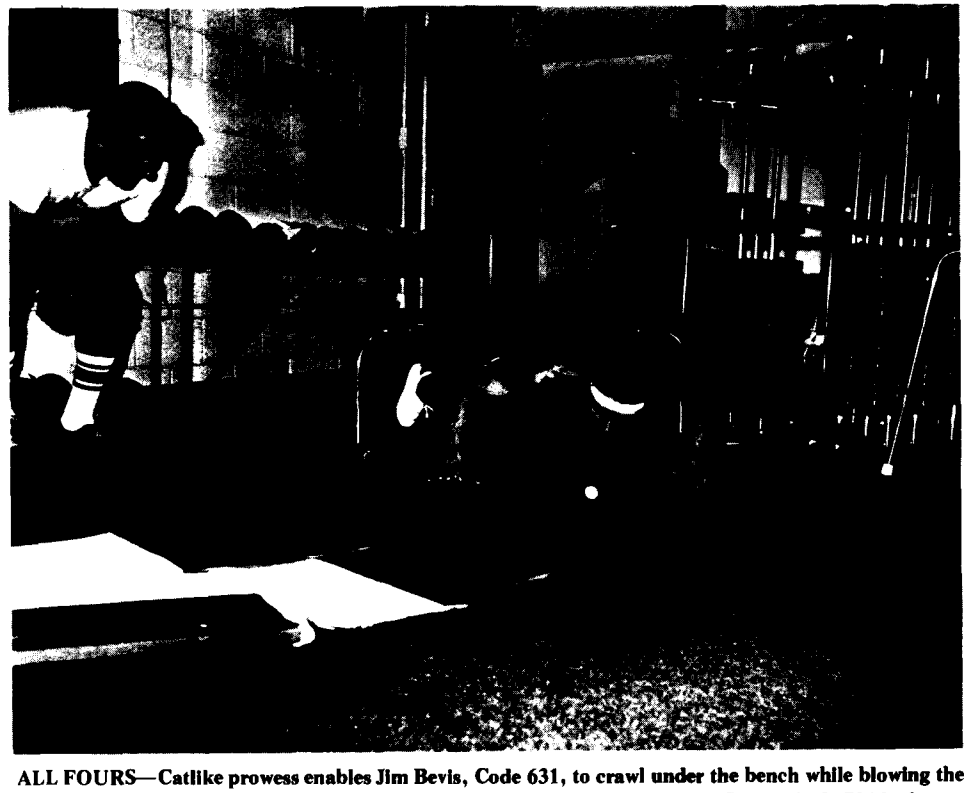
BALL BLOW—Phil Smith, Code 726, finishes the event with a final gust of hot air. At left is Goddard Fitness Director Gincy Stezar and Jim Bevis, Code 631.

Circuitous Route

Participants begin and end the event on all fours. The course, an 18-inch wide path stretching approximately 60 feet, starts at the outside entrance to the Fitness Lab and winds its way through and around the weights, bicycles, benches and other exercising equipment in the lab.

Blowers have to keep the ping-pong ball within the path, blowing it under benches and around obstacles, through a 12-inch tube, up a six-foot ramp and into a box.

Continued on page seven



ALL FOURS—Catlike prowess enables Jim Bevis, Code 631, to crawl under the bench while blowing the ball toward the ramp on the last leg of the Ball Blow competition. At left Phil Smith, Code 726 looks on.

Goddard Award Goes To President Reagan

The National Space Club presented its annual Dr. Robert H. Goddard Memorial Trophy to President Ronald Reagan on March 29 at a luncheon at the Shoreham Hotel in Washington, D.C.

The award, a bronze bust of Dr. Robert H. Goddard, recognized President Reagan for "his inspirational leadership and vision in establishing new national goals assuring United States preeminence in the use of space for peace."

Policy Speech

Ordinarily, the Goddard Memorial Trophy is presented by the President of the United States for the Space Club in a ceremony at the White House. This year, however, National Space Club President Charles Tringali presented the award. President Reagan received the award in person and delivered a major speech on space policy to the Nation.

The National Space Club includes members in industry, government, and educational institutions, as well as private individuals. It was founded in 1957 to stimulate the exchange of ideas and information about rocketry and astronautics and to promote the recognition of U.S. achievements in space.

Center Olympics——

Continued from page six

The winner, based on his time, is affectionately dubbed "The Biggest Wind Bag." Blake Lorenz, 533, won the event at one minute, 40 seconds.

Actually, everyone wins because the objective is to get people exercising. Awards for these comrades in calisthenics consist of one through fourth-place medals—peppermint paddies wrapped in aluminum foil and pierced, with a colored ribbon drawn through the hole allowing the semi-jocks to display them around their necks.

Goddard's Fitness Lab is open Monday through Friday from 6 a.m. to 6:30 p.m. Now's the time to start training for next year's games," advises Stezar, There's no excuse if you're unprepared."

LEAVING WALLOPS—Marvin McGoogan, Deputy Director of Suborbital Projects and Operations, retired March 1 after more than 34 years of service.

Public Affairs Office Moves Temporarily

The Goddard Office of Public Affairs (Code 130) relocated most of its elements as its quarters in Building 8 Room 150 undergo renovation.

Public Affairs Office Deputy Jan Wolfe has moved to the Director's Office in Building 8, room 650C, extensions 6255 and 8955. Also located in the Director's Office are Public Affairs Secretary Pat Ratkewicz, sharing the same extensions, and Public Affairs Assistant Ellen Seufert, extension 8733.

The head of the Public Information Unit, James Elliott is in Building 8 room 445E, on extension 8343. The rest of the Public Information Unit has moved to the Goddard Visitors Center auditorium, telephone extensions 0639, 0640, and 0641. Staff members at the Visitors Center include Carter Dove, Charles Recknagel, David Thomas, Albert Matelis and Diane Davis.

The Public Services Unit is in Building 8 room 524. The staff, including William P. O'Leary, Greg Kennedy and Darlene Ahalt share extension 8101.

Only the Education Programs Unit remains in its current location in Building 8, room 150. The Education staff, which includes Elva Bailey, Richard Crone and Sharon Channer, will continue to use telephone extensions 7205, 7206, and 7207.

Marvin McGoogan Retires at Wallops

Marvin W. McGoogan, Deputy Director of Suborbital Projects and Operations, Wallops Flight Facility, retired March 1, 1985, with more than 34 years of service to the government.

"Mac" served in the U.S. Air Force during the latter part of World War II, mostly with the 8th Air Force in the South Pacific Theater.

After earning his Electrical Engineering degree from the Georgia Institute of Technology in 1950, he was employed by the Newport News Shipbuilding and Drydock Company.

Joined NACA

On November 13, 1951, he went to work at the NACA Langley Aeronautical Laboratory in the Instrument Research Division and soon became involved in the instrumentation systems at Wallops.

When NACA became NASA in the fall of 1958, Mac was assigned to Wallops and played a major role in planning and development engineering while Wallops was growing and becoming independent from Langley. He progressed through the organization to the position of Director of Engineering at WFC. When WFC was consolidated with GSFC, he became Deputy Director of Suborbital Projects and Operations, the position he held until retirement.

Retirees

An employee need not cut strings with Goddard upon retirement. Retirees are welcome to become members of Goddard's Retirement Club. Both active and inactive members are welcome.

The latest group of employees to retire from Goddard are listed below with their names and codes.

Good health and much luck to all.

	Codes	Yrs in Serv.
Paul Ashby	034.1	41
Thomas Clements	831	15
Shirley Deremer	130	36
Edward Devine	716	34
Harvey Fleming	562.1	20
Richard Hultberg	253	31
George Karras	534	26

Two Students Honored In Space Shuttle Student Involvement Program

Officials from NASA Headquarters and Goddard Space Flight Center hosted a recognition ceremony and luncheon at Goddard on Wednesday, March 27 for two national winners of the Space Shuttle Student Involvement Program (SSIP).

STUDENTS—Steven D. Chang [left] of UCLA and Timothy D. Maclay [right] of Bucknell University posed with the awards they received at Goddard for their Space Shuttle experiment proposals.

The student scientists being recognized were Timothy D. Maclay of Bucknell University and Steven D. Chang of UCLA. Both students proposed experiments suitable for possible flight aboard the Space Shuttle and, where appropriate, for performance by the Shuttle astronauts.

The purpose of the SSIP is to stimulate interest in science and technology by directly involving secondary school students in a space research program.

During the ceremony, Michael Weeks, Deputy to Jesse W. Moore, Associate Administrator for the Office of Space Flight, NASA Headquarters presented certificates of recognition for SSIP support to Maclay and Chang—both 1982 winners—and to John Quann, Goddard's Deputy Director. Quann, in turn, presented a certificate of recognition to Murray Weingarten, President, Bendix Field Engineering Corporation, Columbia, MD, technical advisors on the experiments.

Opening remarks at the Goddard ceremony were made by Michael L. Bowie, Program Manager of the SSIP, NASA HQ.

Open to regularly enrolled individuals in grades 9-12 in all U.S. public, private, parochial and overseas schools, the SSIP is jointly sponsored by NASA and the National Science Teachers Association (NSTA).

Timothy's experiment concerned the "Quantitative Confirmation of Einstein's Theories of General and Special Relativity"; Steven's involved "Time Dilations Due to Motion and Gravity".

STUDENT INVOLVEMENT—Local semi-finalists in the Space Shuttle Student Involvement Project pose with teachers and advisors. Left to right are: Dr. Audry Brainard, National Science Teachers Association Regional Director for Region II; students Dina Justice and Amy O'Meara of Mount Saint Joseph Academy, Flourtown, PA, and their teacher Sister Mary Carroll McCaffrey.

Student Semi-finalists Refine Proposals

Since the Space Shuttle Student Involvement Project (SSIP) began in 1981, 16 of the 50 finalists have been selected from regions I and II, areas covered by Goddard, in the national contest that annually awards secondary school students a berth on the Shuttle for their experiments.

Thirty-seven region I and II semi-finalists convened at Goddard March 20-23 for a symposium, along with their teachers and Goddard-provided experts in science and technology, to receive tips on improving their proposals for the 1985 competition.

Region I includes: Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island and Vermont. Region II: New Jersey and Pennsylvania.

The 37 students are among some 200 entrants who propose experiments annually from ten geographical regions. Up to 20 proposals are selected from each region and 10 winners are chosen at the end of the contest.

Finalists for 1985 will be chosen in June. Five teams of experts—a mix of scientists and engineers—heard presentations from the students and advised them on how to better their projects.

NASA National Aeronautics and Space Administration
Goddard Space Flight Center
Goddard News
Greenbelt, Maryland and Wallops Island, Virginia

The GODDARD NEWS is published monthly by the Office of Public Affairs, Goddard Space Flight Center, Greenbelt, Md. 20771. Deadline for submitted material is two weeks before the date of publication. For additional information, contact Charles Recknagel 344-5565. The GODDARD NEWS staff is:

Executive Editor ..... James C. Elliott
Managing Editor ..... Charles Recknagel
Senior Editors ..... Carter Dove and Joyce Milliner (Wallops)