

## NASA Issues New Mixed Fleet Manifest Goddard Actively Involved in 22 ELV Missions

NASA recently issued a new, mixed fleet manifest reflecting primary payloads for Space Shuttle missions and expendable launch vehicles (ELVs) through Fiscal Year 1993. Goddard will be actively involved in 22 of the 28 ELV launches (see charts pages 4 and 5).

### Weather Satellites

Following the launch of the National Oceanic and Atmospheric Administration (NOAA)-H this fall (as early as September 1988), Goddard will manage four more environmental satellites for NOAA (NOAA-D, May 1989; NOAA-I, August 1990; NOAA-J, December 1991; NOAA-K, April 1993) from construction through orbital verification and evaluation. Goddard also will manage the launch of three weather satellites for NOAA: Geostationary Operational Environmental Satellite (GOES)-I, July 1990; GOES-J, November 1991; and GOES-K, May 1992.

The Cosmic Background Explorer (COBE), Goddard's current in-house project designed to study the origins of the Universe, is scheduled for a May 1989 launch aboard a Goddard-managed Delta launch vehicle.

The Roentgen Satellite (ROSAT), a joint Goddard/Italian/United Kingdom project, now scheduled for a February 1990 Delta launch, will perform the first all-sky survey of X-ray sources.

### Plasma Experiments

Two Combined Release and Radiation Effects Satellites (CRRES) are scheduled for launch in June 1990 and October 1991.

The CRRES mission involves active plasma experiments and the study of radiation effects of various spacecraft components.

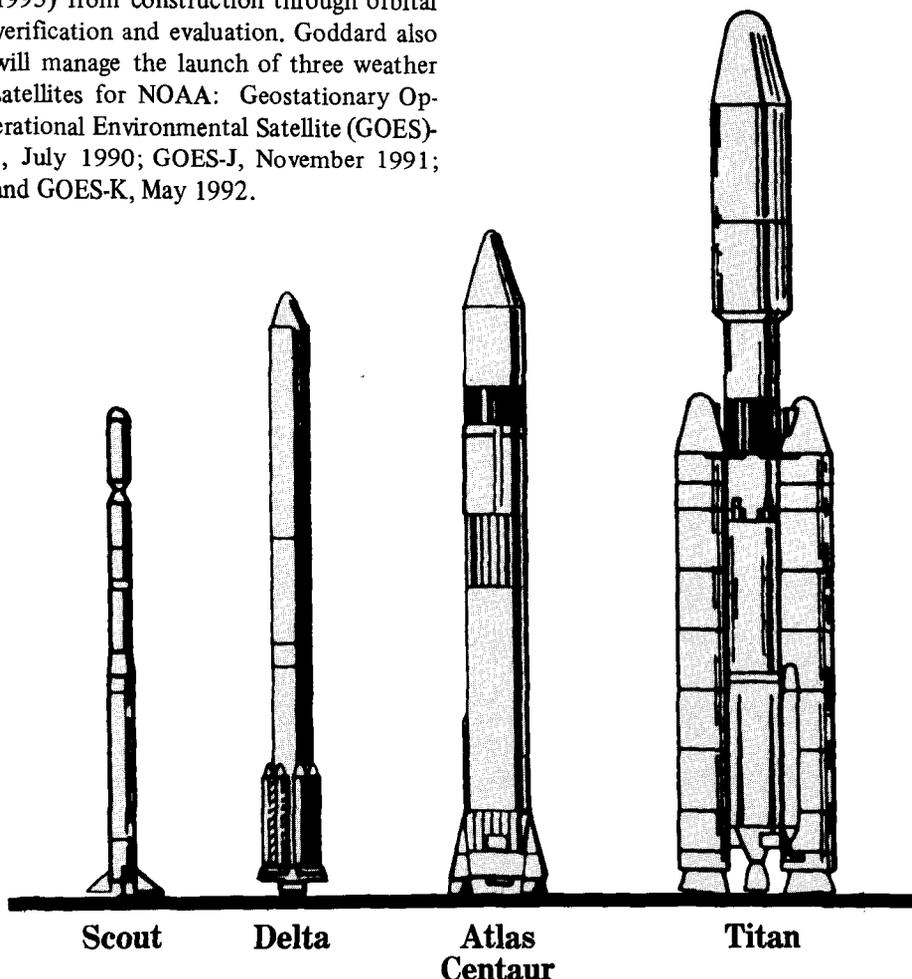
### Reusable Platform

The first payload to be attached to the new reusable Explorer Platform, the Extreme Ultraviolet Explorer (EUVE), will produce the first definitive sky map and catalog in the extreme ultraviolet range of the electromagnetic range. The EUVE payload is scheduled for an August 1991 launch on a Delta rocket and will be retrieved by the Shuttle at a later date.

Geotail (July 1992), Wind (December 1992) and Polar (June 1993) are three components of the multi-spacecraft International Solar-Terrestrial Physics (ISTP) project which will study various aspects of the cause and effect relationship between the Sun and the Earth.

### Six Small Explorers

Six Small Explorers, managed by Goddard's Explorer and Attached Payloads Project, have been incorporated into the manifest for planning purposes only. These payloads are being designed for a Small Class ELV and will conduct scientific research in the space science disciplines; astrophysics; space physics; and upper atmosphere science. Their launch dates follow: Small Explorer-1, June 1991; Small Explorer-2, August 1991; Small Explorer-3, January 1992; Small Explorer-4, Small Explorer-5, January 1993, and Small Explorer-6, June 1993.



Keeping  
Goddard  
"Ship Shape"  
Safe

**INSIDE**

Page 6



## Talk from the Top

*John W. Townsend Jr.*

*Q: A couple of weeks ago there was a gang of escaped murderers running loose on the Center—well, that's what the rumors said. . . Eventually, a calmer set of rumors prevailed, but isn't this a hell of a way to communicate within the Center? . . . does the Center have a working emergency communications system? . . . I called 286-NEWS that day; it prattled on about something or other . . . I checked GSFCEMAIL/PAO; it was apparently waiting for something to appear in the Washington Post. What's a body to do?*

*A: The incident mentioned was strictly a local police effort in which Goddard Security was not actively involved. I believe that if a dangerous situation develops on Center, Security would make attempts to advise all employees of the danger. In that case, Public Affairs would be notified and certainly would do its part to protect our fellow workers. In this instance, the local police set a blockade on the employees' road and told Public Affairs only that two youngsters had stolen a car, not that they were criminals. We learned this later from local newscasts. Armed with this information, we did not think the incident was of sufficient importance to warrant a "special" announcement which would have unnecessarily alarmed our employees.*

*Q: There are rumors that new buildings are going to be built over the next few years. This will certainly relieve the overcrowding of Goddard employees and contractors. My concern lies with another facet of Goddard life. One of the most enjoyable things about working here is the abundance of trees, deer, geese, etc. Is there a way to minimize the impact of expansion and preserve our wildlife?*

*A: We do indeed plan a few major new buildings over the next several years, but we have a "master plan" for the site that*

## Center Director Presents Excellence Award

The first Goddard Excellence Award for Quality and Productivity has been presented to the Bendix Field Engineering Corporation (BFEC). Center Director Dr. John W. Townsend, Jr., presented the award at a special ceremony held at GSFC.

"Bendix was among six finalist contractor firms selected for consideration of the award," Dr. Townsend explained.

The award program was established at NASA Headquarters on an agency level three years ago to recognize prime contractors, subcontractors, and suppliers for outstanding achievement and as a means of motivating contractors to higher levels of performance. This is the first year GSFC has given the award.

A 10-person team, representing all the directorates at GSFC, evaluated the performance of the candidate companies in the selection process.

Bendix employs 2,100 people in its Space Operations programs supporting GSFC. Currently, the company supports five programs at Goddard, including the Network and Mission Operations Support program, the Goddard Laser Tracking Network, Goddard Facilities Support, Goddard Facilities Architectural and Engineer-

ing Support, and Goddard Very-Long-Baseline-Interferometer Support.

During the award evaluation period which ended in 1987, Bendix was involved in contracts dealing with the Tracking and Data Relay Satellite System and with a contract for Mission Operations Support Services.

For the award evaluation period, Bendix maintained yearly operations and maintenance proficiency ratings of above 99 percent each year for each of the contracts.

As a world leader in spacecraft mission operations, Bendix has provided services and support to NASA/GSFC since 1958. The company's support includes tracking, communications, data acquisition, information processing and command and control. Bendix has supported every NASA scientific and manned spacecraft mission from Project Vanguard to the present day Space Shuttle.

BFEC, located in Columbia, MD, is a technical services unit of Allied-Signal Aerospace Company. Allied-Signal is an advanced technology company with businesses in aerospace, automotive products, and engineered materials.



**AWARD WINNING CONTRACTOR**—Goddard Director Dr. John W. Townsend, Jr. (right) presents the first Goddard Excellence Award for Quality and Productivity to Murray Weingarten (center), President, Bendix Field Engineering Corporation (BFEC), and Philip H. Johnson (left), BFEC Vice President for Space Operations.

I hope will allow us to keep the environment at Goddard much as it is today.

*Q: Can we prevent an imminent accident on Conservation Road? Last week at 7:51 a.m. there were three bicyclists—two com-*

*ing and one leaving GSFC simultaneously during inclement weather. If they soon do not get hurt, they will be proximate cause for others to get hurt. . .*

*A: We are looking into the possibility of a traffic light at that gate.*

## Launch Update: HST Launch Delayed Until February 1990

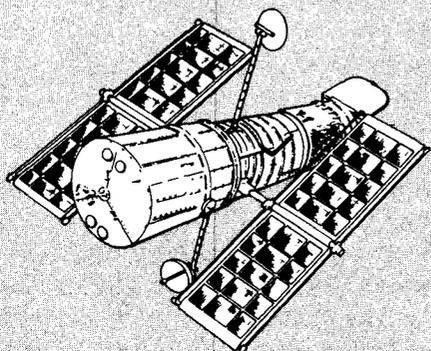
NASA revised its mixed-fleet manifest recently delaying the launch of the Hubble Space Telescope (HST) until February 1990 to accommodate Department of Defense (DOD) priority missions and planetary missions. HST was last scheduled to fly in June 1989.

The HST can only be flown on the high performance Orbiters Discovery and Atlantis. These orbiters are also the only ones capable of flying the 1989 planetary missions (Magellan and Galileo) and three higher priority DOD missions. Because planetary launch windows are infrequent, NASA officials decided to fly the HST mission as soon as possible on Discovery or Atlantis after Magellan and Galileo.

Shipment of the HST flight hardware, currently at the Lockheed Missile and Space Company, Sunnyvale, CA, probably will be delayed until next spring, according to NASA officials. The plan had been to ship the hardware to the Kennedy Space Center, FL, this coming November.

Being grounded until 1990 should not endanger the health of the HST. With necessary precautions taken to keep the spacecraft—especially the primary mirror—contamination free, a nine-month delay would still keep the spacecraft within the required specifications for overall cleanliness of the optical system.

This most recent delay will not lead to the loss of any critical science but is a disappointment to the world community of astronomers who are anxiously awaiting the HST launch.



## USA Pipeline

**HEADQUARTERS, Washington, DC**—In a step to encourage the growth of a strong U.S. commercial space industry, NASA has agreed to provide six, shared Space Shuttle flights for a privately-developed and financed middeck augmentation module. SPACEHAB, Inc., based in Washington, DC, has initiated final design and construction of a pressurized module that will augment the existing pressurized volume of the Space Shuttle middeck. The company is marketing access to the module and its support facilities on a commercial basis.

**MARSHALL SPACE FLIGHT CENTER, Huntsville, AL**—NASA announced recently that TRW, Inc., has been selected for final negotiations leading to the award of contracts for extended definition and development of the space-based Advanced X-ray Astrophysics Facility (AXAF). The development contract will include a mirror development and completion of the observatory. The major subcontractor is Kodak Federal Systems Division, Rochester, NY. The proposed cost of the contract is approximately \$508 million.

**JOHNSON SPACE CENTER, Houston, TX**—JSC has signed a definitive contract with Boeing Military Airplanes, Wichita, KS, to modify a Boeing 747-100 aircraft for use as a second Shuttle Carrier Aircraft (SCA). The additional SCA will provide backup ferrying capability and eliminate a potential single-point failure in the National Space Transportation System. The cost-plus-fixed fee contract is valued at \$55 million.

**SPACE SCIENCE TELESCOPE INSTITUTE, Baltimore, MD**—Astronomers at STScI and the University of California at Berkeley have uncovered the most distant galaxy yet seen. Called 4C41.17, the newly-discovered galaxy is located at an estimated distance of 15 billion light years—more than 90 percent of the distance to the visible limits of the universe.

## Goddard Sponsors GAS Symposium



More than 300 people are expected to attend the Fifth Annual Get Away Special (GAS) Symposium, to be held September 26-30, 1988 in Cocoa Beach, FL, according to Larry Thomas, Technical Liaison Officer for the GAS Program.

NASA's GAS Program, managed by Goddard, allows individuals, groups and organizations to buy space on a Shuttle to conduct scientific experiments.

Approximately 25 experimenters who have flown or who are slated to fly GAS

payloads aboard the Space Shuttle will present papers during the five sessions of the symposium. A sixth session will include a workshop discussion with NASA personnel.

The symposium provides a forum for exchanging information within the GAS community on experimental results and plans, as well as on engineering and safety lessons learned during the early years of payload operations and flight.

GAS experiments are housed in small, self-contained canisters and placed in the Shuttle's cargo bay. The canisters, available in two-and-a-half and five cubic-foot sizes, hold 60, 100, and 200 pound payloads. Fifty-three GAS canisters have flown to date.

A new sister program to the Get Away Special—the Complex Self-Contained Payloads Project (CSCP)—will be presented during the symposium. This project allows for experiments too complicated or hazardous for the GAS Program.

# Mixed Fleet MANIFEST Through 1990

## Space Shuttle

Flight	Date/ Orbiter	Primary Payload	Flight	Date/ Orbiter	Primary Payload
26	9/88 <i>Discovery</i>	TDRS-C	51	9/26/91 <i>Discovery</i>	UARS
27	11/17/88 <i>Atlantis</i>	DOD	52	12/2/91 <i>Columbia</i>	S/L-D2
29	2/18/89 <i>Discovery</i>	TDRS-D	53	12/23/91 <i>Discovery</i>	ASTRO-2 EURECA-1R
30	4/28/89 <i>Atlantis</i>	MAGELLAN	54	2/27/92 <i>Orbiter Vehicle (OV) 105</i>	SRL-1
28	7/1/89 <i>Columbia</i>	DOD	55	3/30/92 <i>Columbia</i>	USML-1
33	8/10/89 <i>Discovery</i>	DOD	56	4/23/92 <i>Atlantis</i>	SHEAL-2 GEOSTAR-1 ORFEUS
34	10/12/89 <i>Atlantis</i>	GALILEO	57	5/14/92 <i>Discovery</i>	ACTS USMP-1
32	11/13/89 <i>Columbia</i>	SYNCOM IV-5 LDEF-1R	58	6/11/92 <i>OV105</i>	ATLAS-2 SATCOM
36	12/11/89 <i>Discovery</i>	DOD	59	7/2/92 <i>Columbia</i>	SLS-2
31	2/1/90 <i>Atlantis</i>	HST	60	7/30/92 <i>Atlantis</i>	ISF-1
35	3/1/90 <i>Columbia</i>	ASTRO-1 BBXRT	61	8/20/92 <i>Discovery</i>	DOD
37	4/5/90 <i>Discovery</i>	GRO	62	9/17/92 <i>OV105</i>	DOD
38	5/10/90 <i>Atlantis</i>	DOD	63	10/8/92 <i>Columbia</i>	IML-2
40	6/7/90 <i>Columbia</i>	SLS-1	64	10/29/92 <i>Atlantis</i>	SPACEHAB-2 GEOSTAR-2
39	7/17/90 <i>Discovery</i>	CIRRIS (DOD) IBSS (DOD) TEAL RUBY (DOD)	65	11/19/92 <i>Discovery</i>	TDRS-F
41	9/10/90 <i>Columbia</i>	STARLAB (DOD)	66	12/17/92 <i>OV105</i>	DOD
42	10/5/90 <i>Atlantis</i>	ULYSSES	67	1/14/93 <i>Columbia</i>	ATLAS-3 CRISTA
43	11/8/90 <i>Discovery</i>	TDRS-E	68	2/11/93 <i>Atlantis</i>	ISF-2
44	12/20/90 <i>Columbia</i>	ATLAS-1	69	3/18/93 <i>Discovery</i>	SRL-2
45	1/31/91 <i>Atlantis</i>	TSS-1 GPS-1	70	4/8/93 <i>OV105</i>	EUREKA-2L USMP-2
46	2/28/91 <i>Discovery</i>	DOD	71	5/13/93 <i>Atlantis</i>	DOD
47	4/11/91 <i>Columbia</i>	IML-1	72	6/17/93 <i>Discovery</i>	SFU-RETR GEOSTAR-3
48	5/2/91 <i>Atlantis</i>	WAMDII GPS-2 EURECA-1L	73	7/15/93 <i>Columbia</i>	USML-2
49	7/11/91 <i>Columbia</i>	S/L-J	74	8/5/93 <i>OV105</i>	SPACEHAB-3 AAFE
50	8/15/91 <i>Atlantis</i>	SPACEHAB-1 LAGEOS-1 INMARSAT-1	75	9/9/93 <i>Atlantis</i>	INMARSAT-2 GP-B1

## Expendables

Date	Launch Vehicle	Payload	Date	Launch Vehicle	Payload
9/88	Atlas 63E	NOAA-H	10/91	Scout S-215C	CRRES
5/89	Delta 184	COBE	11/91	Atlas Centaur	GOES-J
5/89	Atlas 50E	NOAA-D	12/91	Atlas 11E	NOAA-J
9/89	Atlas Centaur 68	FLTSATCOM-F8	*1/92	TBD	SMALL EXPLORER-03
2/90	Delta	ROSAT	5/92	Atlas Centaur	GOES-K
2/90	Scout S-218C	TRANSIT-27	*6/92	TBD	SMALL EXPLORER-04
6/90	Atlas Centaur	CRRES	7/92	TBD	GEOTAIL
7/90	Atlas Centaur	GOES-I	9/92	Titan III	MARS OBSERVER
8/90	Scout S-210C	TRANSIT-28	12/92	TBD	WIND
9/90	Atlas 34E	NOAA-I	*1/93	TBD	SMALL EXPLORER-05
5/91	Titan IV	PLANETARY ALT.	*3/93	TBD	MSAT
*6/91	To be determined (TBD)	SMALL EXPLORER-01	*4/93	Titan II	NOAA-K
8/91	Delta	EUVE	6/93	TBD	POLAR
*9/91	TBD	SMALL EXPLORER-02	*6/93	TBD	SMALL EXPLORER-06

\*For planning purposes.

## Glossary

AAFE	Aeroassist Flight Experiment	INMARSAT	International Maritime Satellite Organization
ACTS	Advanced Communications Technology Satellite	ISF	Industrial Space Facility
ASTRO	Astronomy	LAGEOS	Laser Geodynamics Satellite
ATLAS	Atmospheric Laboratory for Applications and Science	LDEF	Long Duration Exposure Facility
BBXRT	Broad Band X-ray Telescope	MSAT	Mobile Satellite
CIRRIS	Cryogenic Infrared Radiance Instrument for Shuttle	NOAA	National Oceanic and Atmospheric Administration
COBE	Cosmic Background Explorer	ORFEUS	Orbiting and Retrievable Far and Extreme Ultraviolet Spectrometer
CRRES	Combined Release and Radiation Effects Satellite	SFU-RET	Space Flyer Unit-Retrieval
CRISTA	Cryogenic Infrared Spectrometer Telescope for Atmosphere	SHEAL-2	Shuttle High Energy Astrophysics Laboratory
DOD	Department of Defense	S/L	Spacelab
EURECA	European Retrievable Carrier	SLS	Space Life Sciences Laboratory
FLTSATCOM	Fleet Communication Satellite	SRL	Space Radar Laboratory
GOES	Geostationary Operational Environmental Satellite	SYNCOM	Hughes Geosynchronous Communication Satellite
GP-B1	Gravity Probe-B1	TDRS	Tracking and Data Relay Satellite
GPS	Global Positioning System	TSS	Tethered Satellite System
GRO	Gamma Ray Observatory	UARS	Upper Atmosphere Research Satellite
HST	Hubble Space Telescope	ULYSSES	Formerly ISPM (International Solar Polar Mission)
IBSS	Infrared Background Signature Survey	USML	United States Microgravity Laboratory
IML	International Microgravity Laboratory	WAMDII	Wide Angle Michelson Doppler Imaging Interferometer

INSIDE

# Making Goddard "Ship Shape" Safe

by Charles Boyle

"See the dawn and see life anew."

The poet's prescription may explain the optimism, humor and vitality of Judith Fortier. For her, sunrise is a daily event on the 62-mile commute to Goddard from the top of the Chesapeake Bay.

"When you've got a great place to work, plus a great place to live, the trek is incidental," she says.

Luring Fortier from the banks of the Bush River at 5:00 a.m. is her job as head of Goddard's Health and Safety Branch. She's new to the job, having joined Goddard in June. She's also new to long distance commuting—she came to us from Aberdeen Proving Ground, just a skip from home.

Another impressive route is her career path to Goddard. It led a farm girl to the University of Minnesota. When the money ran out, the Women's Army Corps beckoned. Fortier seized its opportunities, triggering a career of kudos and awards. At eighteen, Private Fortier entered the Kirk Army Hospital for duty. Within three years, Staff Sergeant Fortier was the non-commissioned officer in charge of the Internal Medicine Ward.

Devoted to the Army, she stayed on at Aberdeen as a civilian medical technologist, member of the Cardiac Rescue team, and technical advisor to the Cardiac Care Unit, while rising to become Chief of the Cardio-Pulmonary Laboratory. Then, diversifying into safety functions, she rose to her final position, the installation Safety Director.

Comparisons are inevitable between her old and new work sites. "Aberdeen is huge and sprawling," she says. "It hosts 56 major tenant organizations and serves a diverse clientele of 70,000 people." She goes on, "In contrast, the Greenbelt site is compact. I have to go to Wallops to recapture that big-sky feeling. Down there, I get what Yogi Berra called, 'Deja vu, all over again.'"

In another comparison, Fortier sees NASA acronyms as odder, funnier and more diverse, numerous and impenetrable than Army's. Says Fortier, wryly, "If you put some with others, the result can be



JUDITH FORTIER

PHOTO: R. EXLER

---

*"... being careful is a personal investment, protecting our jobs or an ability to earn a living."*

---

corny (ISEE, ESTAR) bad grammar (ERBE, BATSE) or worse (IMP, SMEX, UARS)!"

But this newcomer, who laughs so readily, has a serious side. "Why," she asks, "don't we see that being careful is a personal investment, protecting our jobs or our ability to earn a living?"

"Why don't we view safety as a 'loss prevention' effort? Why lose body parts or functions, key facilities or equipment?"

She sees the boss's role in safety activities as a "risk management" venture in which supervisors plan their management of people and events to cut the risk of harm or damage. Fortier sees her role in "risk management" as a consultant/partner, available to anyone by a quick phone call.

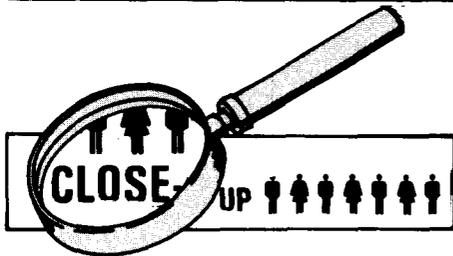
Fortier's watery hobbies contrast with her Army image. This avid sailor will hoist the sheets at the drop of a hint. More se-

date is her penchant for making "tall ship" models. She says, "I get a lot of satisfaction from making the hull; that's basic. But I get frustrated with the filigree of rigging." This seems compatible with her professional approach: an emphasis on fundamentals. Witness her question: "can you explain to me your system for identifying buildings?"

The newcomer continued her formal education at Harford Community College and the University of Maryland, taking additional courses at Johns Hopkins, James Madison and North Carolina Universities. Her professional training includes radiation, biological and environmental hazards, plus chemical and systems safety. Supervisory/management training occurred while a member of the Army's Executive Development Group. Fortier, in turn, taught. She was a guest lecturer for the American Heart Association, and has instructed the Army's use of her system of safety matrix management in courses for safety managers.

Fortier's numerous recognitions include the Department of Army Commander's award for civilian service, Test and Evaluation Commands Commander's Award for Meritorious Performance and Exceptional Performance Awards.

In health protection, her message is clear and simple, "Without health, very little else is possible."



The former Head of the Space Telescope Ground Support Systems Office **CARROLL G. DUDLEY** has been named Associate Chief of the Mission Operations Division, Code 510. His new duties include coordinating the various branches of Code 510 to provide integrated support for the Customer Data and Operations System for the Space Station and its Platform Control Centers. His new position, says Dudley, allows him to "work towards the future," and "plan for the evolution of the control centers"



**DUDLEY**

**CHRIS RODRIGUEZ** has been named one of four recipients of the prestigious Hispanic Improvement Program Achievement Award for 1988. This award is presented annually by the Office of Personnel Management to persons who have distinguished themselves in promoting the goals of the Hispanic Employment Program in the Washington Metropolitan Area. During his brief tenure at Goddard (since October 1986) Rodriguez has helped increase the percentage of GSFC Hispanic employees to its highest since 1973.



**RODRIGUEZ**

## In Memoriam

**WANDA KORWIN**, a library staff member since 1974, died on August 23 at Holy Cross Hospital. Korwin was 77 years old. Her co-workers described her as "loving and generous." The Russian translator will be remembered for her "enormous enthusiasm" and "basic faith in humanity." Donations in remembrance may be sent to the Goddard Library to defray the costs of flowers sent on behalf of the Goddard Family; contributions also will be sent to one of the many charitable organizations that Korwin supported.



**KORWIN**

**CHARLES EHRMANN**, 48, Head, Digital Systems Section, Laboratory for High Energy Astrophysics, died on August 28 at George Washington Hospital. Ehrmann joined GSFC in 1962 and remained with the Fields and Particles Branch and its successor organizations for his entire professional career. He provided flight instrument and designs for 16 spacecraft over 26 years and numerous sounding rockets and balloons launched from four continents. Ehrmann was widely recognized as an energetic and versatile engineer who helped define the early GSFC hands-on, can-do spirit. Among his friends, he inspired admiration and affection.



**EHRMANN**

## Retirees

Best wishes to the following Goddard employees who retired recently!

	CODE	YEARS		CODE	YEARS
John W. Adolphsen	311	42	Richard F. Schmidt	531.2	36
Bettye Bloxom	151.2	28	John Sites	692	20
Ruby L. Cunningham	662	28	Thomas F. Vallee	235.1	39
Eugene C. Humphrey	403	33	Albert Yetman	713	30
Matthew A. Opeka	750	32	Jacob Weaver	271.3	28
John F. Rogers	720.1	30	Forrest E. Williams, Jr.	833.1	37
Irving Ross	311.2	45	Gary F. Wilson	292.2	23
William A. Russell, Jr.	470	32			



**GODDARD-SPONSORED EXCELLENCE**—Goddard sponsored two new scholars through the Women in Science and Engineering Scholars Program this year in addition to two alumni from last year. Pictured are Dillard Menchan, Chief of Goddard's Equal Opportunity Program Office; Monica Briggs, a sophomore math major and returning scholar; Racquelle Homes, a new scholar in physics; Renee Jones, a returning sophomore chemistry major; and Dr. John W. Townsend, Jr., Center Director. (Not pictured, Karen King, a dual-degree freshman in computer science and electrical engineering.)

Each year, NASA provides scholarships to scientifically-talented students through the Women in Science and Engineering Scholars Program, sponsored by Spelman College in Atlanta, GA. The students spend 10 weeks each summer engaged in a research experience at one of the NASA Centers. Designed to increase the number of minorities in science and engineering careers, the program focuses on groups underrepresented in these fields.

# Atmospheric Science Students Study Global Problems



**PRESENTING THEIR WORK**—Students in Goddard's Summer Institute for Atmospheric Science present their research at a seminar on August 16. Pictured are Anne Junkin, Rhodes College, Memphis, TN; Diana Goubeaud, Cook College, Rutgers University, New Brunswick, NJ; Derick Deleo, Clarkson University, Potsdam, NY; Rudy V. Valdez, University of Washington, Seattle, WA; Dr. Richard Hartle, Code 610, Assistant Chief Laboratory for Atmospheres; Paul R. Ohmann, College of St. Thomas, St. Paul, MN; Dr. Anne Thompson, Code 616; R. Shane Addleman, Eastern Oregon State College, La Grande, OR; Jerome A. Orosz, University of Northern Colorado, Greeley, CO; Bishwa V. Basnet, Colby College, Waterville, ME; Deborah S. Hin, Princeton University, Princeton, NJ; and Scott M. Williams, Miami University, Oxford, OH.

Summer in DC is many things to many people, but for the 10 students who participated in Goddard's Summer Institute on Atmospheric Science, this summer was 10 weeks of intensive research into atmospheric problems.

Sponsored by Goddard's Laboratory for Atmospheres, the institute was designed to introduce undergraduate students majoring in all areas of the physical sciences to graduate research opportunities in the atmospheric sciences, and, more specifically, the type of research performed at Goddard.

"There are really three main purposes of the program," said Dr. Marvin Geller,

Chief of the Laboratory for Atmospheres, who conceived the program. "We wanted to attract talented students trained in core disciplines such as physics and mathematics, as well as those with atmospheric science majors, to specialize in atmospheric science. We also wanted to encourage interaction between Goddard scientists and university faculty, specifically in the joint supervision of theses. And finally, our scientists, many of whom have university backgrounds and extensive teaching experience, really benefit from the stimulation of students learning from their work, and asking fresh questions."

After an introductory week of lectures given by Goddard scientists, the students—

chosen from more than 170 applicants nationwide—spent nine weeks on individual research projects. Their results were presented at a closing seminar on August 16.

"I was really impressed by the quality of the research," said Dr. Anne Thompson, Code 616, who helped coordinate the program. "We need bright young minds like these to focus on the pressing environmental problems facing our world today."

The program was designed to introduce the students to the rewards of "real life" research.

"This summer has shown me that NASA is not some far away unreachable technical wonderland but a team that is in need of motivated, hard-working, well-educated people who can make the magic happen and dreams become realities," said Shane Addleman, of Eastern Oregon State College, who did his summer research project on "Laser Remote Sensing of Atmospheric Temperature and Pressure Profiles."

Goddard scientists also benefit from the research assistance the students provide.

"Our researchers who got a bright, eager pair of hands for a summer consider themselves very lucky," said Dr. Thompson.

Thirteen lecturers from the university community participated in the program, coming from schools as far away as the University of California Los Angeles (UCLA) to present talks on topics in atmospheric science.

**NASA**  
National Aeronautics and  
Space Administration  
Goddard Space Flight Center

## Goddard News

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

Deadline for submitted material is the first of each month. For additional information, contact Code 130, 286-7277.  
The GODDARD NEWS staff is:

### Managing Editor

Randee Exler

### Assistant Managing Editor

Carolynne White

### Senior Editors

Michael Braukus, Carter Dove,

Jim Elliott and Joyce Milliner