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Goddard Space Flight Center

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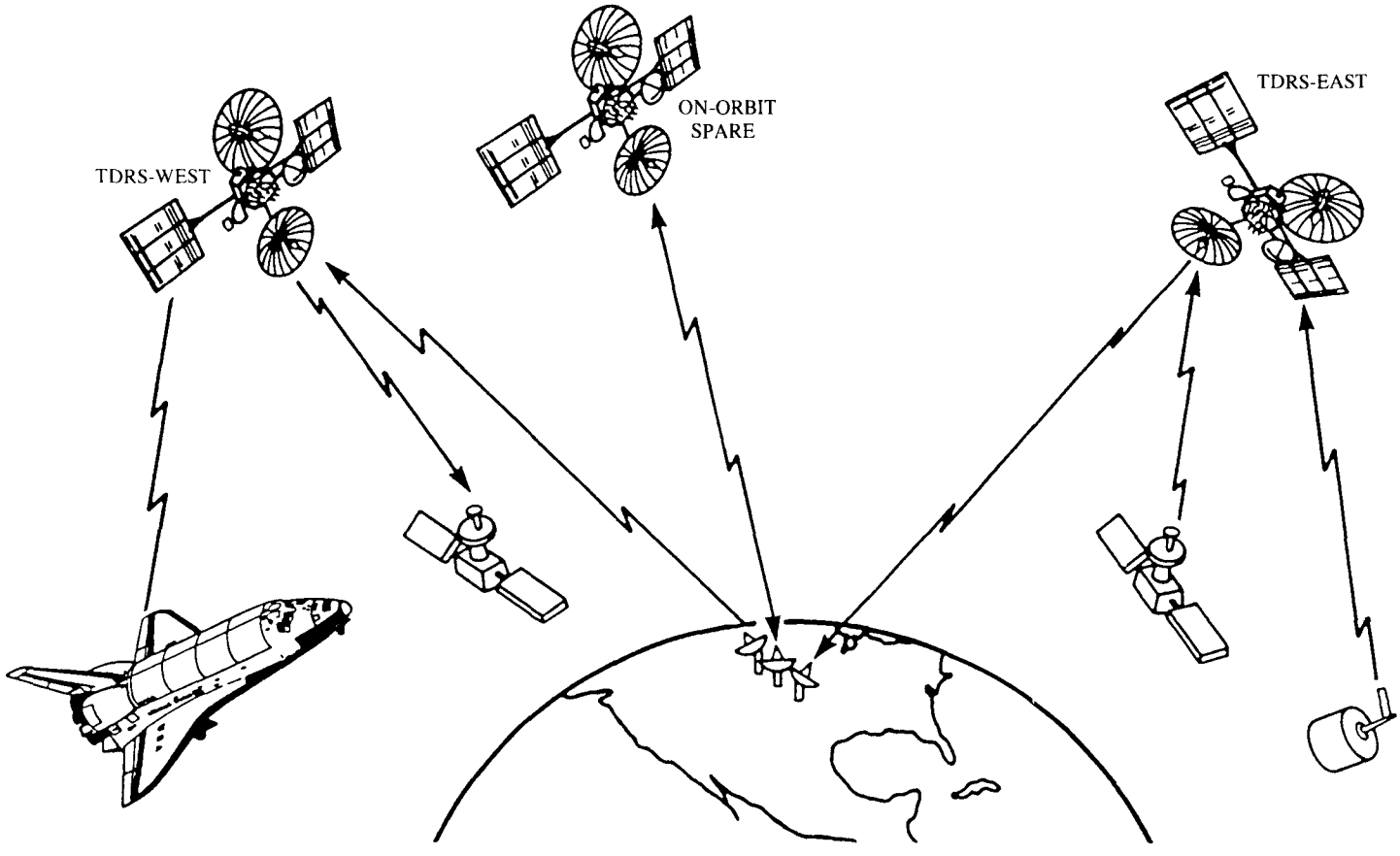
Constellation Communications Satellites Completed as TDRS-1 and TDRS-4 Reach Stations



CONSTELLATION COMPLETED—With the moving of TDRS-4 to its on-orbit position, the three-spacecraft Tracking and Data Relay Satellite System (including TDRS-1, the on-orbit spare) will be complete on July 13.

Tracking and Data Relay Satellite-1 (TDRS-1) was scheduled to reach its on-orbit spare position of 79 degrees west longitude by mid-July, completing the positioning of three communications satellites.

TDRS-1, launched in April, 1983 from the Space Shuttle Challenger, was scheduled to arrive on station July 13, according to Roger Flaherty, Goddard's TDRS Network Director. It has been drifting toward that position since early June, when TDRS-4, launched in March, 1989 from Discovery (STS-29), assumed the operational role at 41 degrees west longitude that had been held by TDRS-1. The satellite at that location over the Atlantic just east of Brazil also is known as TDRS East.

TDRS-3, known as TDRS West, is located at 171 degrees west longitude, over the Pacific south of Hawaii. TDRS-3 was launched in September, 1988, also from Discovery (STS-26).

In its role as on-orbit spare, TDRS-1 will be located over the Pacific Ocean, off the west coast of South America.

The satellites are built by TRW, Redondo Beach, CA, and are operated under a lease arrangement with NASA by Contel Federal Systems, Fairfax, VA.

The satellites receive their commands from and send their scientific and other data to a ground terminal at White Sands, New Mexico. A second ground terminal, due to become operational in 1993, also is being built there.

The operational ground terminal at White Sands has three 60-foot antennas for maintaining round-the-clock communications with the TDRS constellation.

The TDRS system will support up to 23 user spacecraft simultaneously and provide both multiple-access service that relays data from as many as 19 low-data-rate user spacecraft at the same time and a single-access service that provides two high-data-rate communications relays from each satellite.

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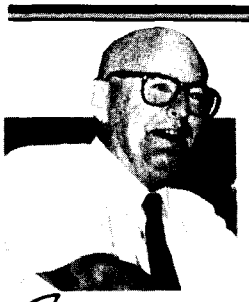
Dr. Michael Lauriente In His Natural EnviroNET Page 6



Talk from the Top

John W. Townsend Jr.

Q: In light of recent news reports that water from some Halsey-Tailor fountains may be contaminated with lead, we're concerned about the quality of water in our fountains. Does Goddard have a regular testing schedule for its drinking water?

A: Recently GSA issued a data sheet identifying water coolers from several manufacturers as containing components that cause excessively high levels of lead in the drinking water. The Health and Safety Branch is on distribution for such alerts and was screening fountains before the information even hit the news. The original alert has been updated and modified with more manufacturers and detailed information on model members. We have identified several coolers at the action level but still within present standards. In this case, the recommended action level is at 40% of the present standard. Because we take a very protective approach to the welfare of the Center employees, these coolers have been removed from service and are being replaced. We will continue to monitor water quality and replace water coolers as needed. As for overall water quality, our water is the same as the rest of Greenbelt and is tested and chlorinated by the local supplier. Health and Safety also makes routine spot checks of the water quality on Center throughout the year.

Q: There's a great deal of talk about the personnel crisis and the "missing generation" of employees of NASA. Is anything being done to encourage senior employees to postpone retirement to allow the younger staff time to gain experience and receive some guidance?

A: As much as we can — the two most serious problems are the pay situation, and most recently new "conflict of interest" rules that make entering and leaving government service a sporty course. In the final analysis, only Congress can solve these problems, if it becomes motivated to do so.

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

Manned Flight Honorees Visit KSC

***HONORED GUESTS*—As part of the Manned Flight Awareness Program, seventeen Goddard Space Flight Center representatives were recently honored with a trip to the Kennedy Space Center (KSC) to view the launch of STS-30 (Magellan). Manned Flight Awareness Honorees, left to right: Kevin Parker, Computer Sciences Corp. (CSC); James Langston, CSC; Larry Thomas, Code 740; Charles Teleki, Swales and Associates, Inc.; Richard Nguyen, Ford Aerospace Corp.; George Bishop, Code 833; Sally Godfrey, Code 552; Dennis Krogman, Bendix Field Engineering Corp. (BFEC); John Amick, BFEC; John Brown, CSC; Sergio Jara, University of Chile; Kent Potter, Code 271; David Deal, BFEC; Leslie Brimer, CSC/Wallops; and John McAdory, BFEC. Not pictured: John Firmin, Code 261, and Seaton Norman, Code 542.**

Goddard Presents Safety Awards

by Gail K. Regan

Goddard held its annual safety award ceremony on May 11 to recognize those individuals—contractor and civil servant—who contribute to the safe environment that is an important part of Goddard.

Associate Director for Programs Bill Keathley served as Master of Ceremonies, with Center Director Dr. John W. Townsend, Jr., presenting each award. The annual ceremony is coordinated by the Health and Safety Branch, headed by Judith Fortier (Code 205.2), and Pat Greco (Code 224).

Certificates of Honorable Mention were presented to: Raymond G. Davis (Code 530); Bendix Field Engineering Corporation's (BFEC) Fred Bams, Jr., James Keeter, Bernie Ochmann, Robert Whitfield, and Productivity Enhancement Team; and Raytheon Service Company's Logistics Support Depot.

The Contractor Safety Award was presented to five BFEC employees: Suzanne Goodfellow, Donna Stinchcomb, Steven L. Toal, and Robert LaLonde; and to Keith Koehler, of Omniplan Corporation.

The Safety Humanitarian Award was presented to Otero V. Tinker, (Code 230). Edward M. Ashelford (Code 291.3), Kenneth R. Kirks (Code 674), and James E. Thomas, of Raytheon Services Corporation, received Honorable Mentions.

Five Goddard employees received the Safety Award of Merit: Francis E. Drury, III (Code 291.2), Phillip Holloway (Code 291), Ralph D. Miner, Jr. (Code 291), Dorothy J. Pennington (Code 151.2), and James M. Ryan (Code 716.3).

The Management Operations Directorate Safety Committee (Code 200) was cited as a group for the Safety Award of Merit. On the committee are William A. Hatchl (Chairman), Susan R. Capretti, William W. Cooper, Hettie S. Courtney, Billy Holliday, Linda Jester, Joseph A. Langdon, Lynn A. Lewis, Michael A. McNeill, and Robert J. Reynolds.

Also cited as a group was the Plant Operations and Management Division's (POMD) Console Team (Code 290), consisting of Joseph Carafelli, Patrick L. Hinkson, Robert W. Langley, John M. Parker, James Phillips, Michael L. Pleffner, Edward Powell, James P. Shea, Jr., Ralph J. Strand, Sr., George Washington, Jr., Harlan L. Whitten, and Anthony G. Williams.

The highest safety award given by the center, the Safety Award of Honor, was presented to Merritt W. Pharo, III (Code 614), and to Hartwell F. Taylor, Jr. (Code 823.2).

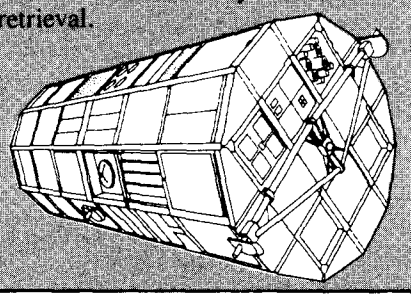
Continued on page 3

Launch Update: LDEF Retrieval

NASA is planning Space Shuttle mission STS-32 in December 1989, using the orbiter Columbia, to retrieve the Long Duration Exposure Facility (LDEF). This free-flying satellite, carrying 57 science, technology and applications experiments sponsored by NASA, the Department of Defense, private industry, universities and foreign governments, was launched and deployed into orbit in April 1984 on STS-41C.

After more than five years in space, LDEF is considered a valuable repository of information on space environmental effects. LDEF also has valuable science and applications data on board. The data will have critical design implications for spacecraft that have requirements for long-duration flight in low-Earth orbit. However, before scientists can study this data, LDEF must be retrieved. Otherwise, the spacecraft and its experiments will be destroyed during reentry.

NASA has been monitoring the spacecraft's orbital altitude and making every effort to ensure a timely and successful retrieval.



NASA Pipeline

AMES RESEARCH CENTER, Mountain View, CA—Ames Research Center and the Defense Advanced Research Projects Agency (DARPA), Washington, DC, recently announced the successful demonstration of a low-cost parallel-processing computer with the potential of producing capabilities equivalent to today's most advanced supercomputers. This demonstration opens the possibility of vastly improving the cost effectiveness of computers applicable for a host of aerospace applications. With this technology, engineers can have supercomputer power on easily-afforded computers. Simulation could be the immediate beneficiary of this advance in computer technology. Other disciplines with potential applications from this fallout of NASA/DARPA research include: simulation of multiple aircraft, flight control computers, computational fluid dynamics, structural analysis, computational electro-mechanics, artificial intelligence, data acquisition and process monitoring.

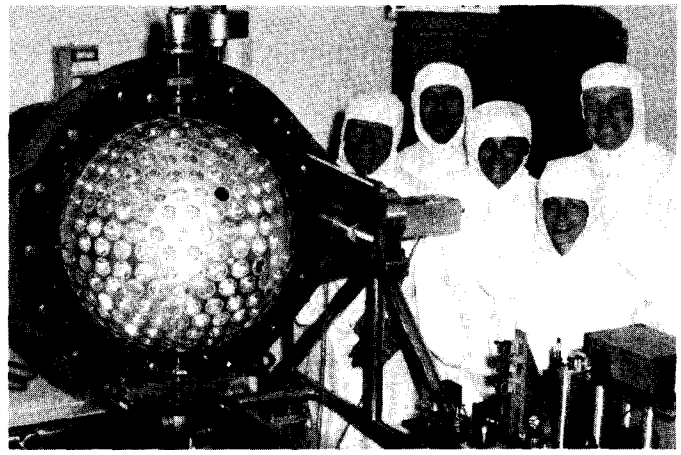
NASA HEADQUARTERS, Washington, DC—NASA's Life Sciences Division recently announced that the Telemedicine Spacebridge project with Armenia, USSR, will be extended to Moscow and Ufa to assist the victims of a recent accident involving two trains destroyed by a gas explosion outside the Soviet city of Ufa in the Ural Mountains. Spacebridge currently links medical facilities and doctors in Yerevan, Armenia, with U.S. doctors in Bethesda and Baltimore, MD; Houston, TX; and Salt Lake City, UT. Since May 1, dozens of physicians have been meeting from 9 a.m. to 1 p.m. EDT (6 p.m. to 10 p.m. Armenian time), Monday through Friday, to discuss difficult medical cases resulting from the Armenian earthquake disaster. Each case presented is representative of many people suffering the same medical problems. These daily Spacebridge sessions will continue through June 29. The new link with Moscow and Ufa will extend the U.S. medical expertise being used particularly in the area of burn treatment. The new communications capabilities will be patched into the existing Spacebridge network. This program serves future space exploration by providing Spacebridge participants with knowledge of how to conduct a complicated telemedicine consultation such as might occur on a space station.

MARSHALL SPACE FLIGHT CENTER, Huntsville, AL—Scientists at Marshall Space Flight Center have identified the plasma structure of a human plasma protein, thus solving a mystery that may help in the design of new or improved disease-fighting drugs. Compiling the images of hundreds of individual X-ray diffraction experiments, Marshall scientists identified the plasma protein as a large, ellipsoidal molecule of six bundles of intertwining spirals of amino acids. Knowing the molecule's structure may allow pharmaceutical companies to design new drugs or alter existing drugs to allow them to be carried more efficiently by the protein molecule through the body.

Safety Awards

Continued from page 2

The Contractor Accident Prevention Award is presented annually to on-site contractors that achieve a perfect accident-free record during the fiscal year. This year's recipients are: Atlis Federal Services, Inc.; Bendix Field Engineering Corporation's Crustal Dynamics Satellite Laser Ranging Mission Support group; City Wide Security Services, Inc.; Computer Based Systems, Inc.; Computer Sciences Corporation's International Ultraviolet Explorer (IUE) Science Operations Support group; Lockheed Missiles & Space Co., Inc.; National Health Services, Inc.; and OAO Corporation's Explorer Platform Flight Software Development Group and Mission Operations Support for the Dynamics Explorer (DE) and Solar Maximum Mission (SMM) Spacecraft Group.



***CLEANROOM TESTS*— Code 404 (ROSAT/ LAGEOS 2) personnel pose with the LAGEOS-2 spacecraft in a cleanroom at Goddard during optical tests on the spacecraft. From left to right are Deputy Project Manager Charles E. White; Project Scientist Ronald Kolenkiewicz (Code 621); Code 404 secretary Joyce Buswell; Deputy Project Manager for Resources Suzanne Gallagher; and Acting Deputy Project Manager for the LAGEOS 2 spacecraft James Murphy. The round objects on the surface of the satellite are equally-spaced laser cube corner retro-reflectors. There are 426 reflectors on the satellite; 422 are made of fused silica, four of germanium. The 892-pound (405 kg) satellite was at Goddard for testing, prior to being shipped to the spacecraft contractor, Aeritalia, in Turin, Italy, on June 8, where it will be stored until shipment to Kennedy Space Center, FL. LAGEOS-2 is scheduled for launch aboard the Space Shuttle Atlantis (STS-49) in 1991. A cooperative project betwen NASA and the Italian space agency (Agenzia Spaziale Italiana), LAGEOS-2 will join the now-orbiting LAGEOS-1 satellite in reflecting back laser pulses fired from several laser ranging stations around the world.**

Flight	Date/ Orbiter	Primary Payload
28	7/31/89 *Columbia*	DOD
34	10/12/89 *Atlantis*	GALILEO
36	2/1/90 *Atlantis*	DOD
31	3/26/90 *Discovery*	HST
35	4/26/90 *Columbia*	ASTRO-1 BBXRT-1
37	6/4/90 *Atlantis*	GRO
38	7/9/90 *Discovery*	DOD
43	1/31/91 *Atlantis*	TDRS-E
44	3/4/91 *Discovery*	DOD
45	3/28/91 *Columbia*	ATLAS-1 (DOD)
46	5/16/91 *Atlantis*	TSS-1 (DOD) EURECA-1L
51	1/16/92 *Discovery*	SPACEHAB-1 EURECA-1R
52	2/6/92 *Endeavour*	SL-D2
53	3/5/92 *Columbia*	USML-1
54	4/6/92 *Atlantis*	ASTRO-2 BBXRT-2
55	5/18/92 *Endeavour*	PUR-1 USMP-1
56	6/15/92 *Columbia*	SRL-1
63	1/21/93 *Columbia*	IML-2
64	2/22/93 *Discovery*	USMP-2 GEOSTAR-3 (DOD)
65	3/15/93 *Atlantis*	Flight Opportunity
66	4/8/93 *Endeavour*	WAMDII
67	5/3/93 *Columbia*	ASTRO-3 BBXRT-3
68	5/28/93 *Discovery*	HST REV-1
33	11/19/89 *Discovery*	DOD
32	12/18/89 *Columbia*	SYNCOM IV-05 LDEF RETRIEVAL
40	8/16/90 *Columbia*	SLS-1
41	10/5/90 *Atlantis*	ULYSSES
39	11/1/90 *Discovery*	IBSS (DOD) STP-1 (DOD)
42	12/6/90 *Columbia*	IML-1(DOD)
47	6/17/91 *Discovery*	S/L-J (DOD)
48	8/22/91 *Atlantis*	STARLAB (DOD)
49	9/30/91 *Discovery*	LAGEOS II GEOSTAR-2 (DOD)
50	11/27/91 *Atlantis*	UARS
57	7/9/92 *Atlantis*	ATLAS-2
58	8/6/92 *Discovery*	Flight Opportunity
59	8/27/92 *Endeavour*	SPACEHAB-2 GEOSTAR-2 (DOD)
60	9/30/92 *Columbia*	SLS-2
61	11/12/92 *Discovery*	INMARSAT-1
62	12/10/92 *Endeavour*	TDRS-F
69	6/24/93 *Atlantis*	SPACEHAB-3 EURECA-2L SFU-RETR
70	7/15/93 *Endeavour*	ATLAS-3 SPAS-CRISTA
71	8/12/93 *Columbia*	SRL-2
72	9/9/93 *Discovery*	Flight Opportunity
73	9/30/93 *Atlantis*	USMP-3 INMARSAT-2 SATCOM

Flight	Date/ Orbiter	Primary Payload
74	10/21/93 *Endeavour*	OMV-1 WISP SPTN-T
75	11/18/93 *Columbia*	SL-D3
76	12/16/93 *Discovery*	DOD
77	21/13/94 *Atlantis*	SPACEHAB-4 EURECA-2R
78	2/7/94 *Endeavour*	ISF-1
79	3/3/94 *Columbia*	USML-2
80	3/24/94 *Discovery*	TDRS-G
81	4/21/94 *Atlantis*	ATLAS-4
82	5/12/94 *Endeavour*	AAFE
83	6/9/94 *Columbia*	SLS-3
84	7/10/94 *Discovery*	SPACEHAB-5 XTE
85	8/6/94 *Atlantis*	Flight Opportunity
86	9/8/94 *Endeavour*	PUR-2 USMP-4
87	10/13/94 *Discovery*	TDRS-H
88	11/20/94 *Atlantis*	ISF-2
89	12/13/94 *Endeavour*	SRL-3
90	1/12/95 *Columbia*	Flight Opportunity
91	2/3/95 *Discovery*	SPACEHAB-6
92	3/2/95 *Atlantis*	SSF-1
93	4/14/95 *Columbia*	IML-3
94	5/10/95 *Discovery*	ISF-3
95	6/6/95 *Atlantis*	SSF-2
96	6/27/95 *Endeavour*	Flight Opportunity
97	8/8/95 *Columbia*	SPACEHAB-7 EURECA-3L
98	9/7/95 *Atlantis*	SSF-3
99	9/30/95 *Endeavour*	ATLAS-5

Expendables

Date	Launch Vehicle	Payload
9/89	Atlas Centaur 68-R	FLTSATCOM-F8 (DOD)
9/89	Scout	MACSAT
11/89	Delta 186	COBE
1/90	Atlas 50E	NOAA-D
2/90	Delta II	ROSAT
3/90	Scout	SALT (DOD)
6/90	Atlas Centaur	CRRES
10/90	Atlas I	GOES-I
3/91	Scout	USAF-1 (DOD)
5/91	Atlas 34E	NOAA-I
8/91	Delta II	EUVE
11/91	Atlas I	GOES-J
5/92	Atlas I	GOES-K
6/92	Scout	SAMPE
7/92	TBD	GEOTAIL
9/92	Atlas 11E	NOAA-J
9/92	Titan III	MARS OBSERVER
12/92	TBD	WIND
1/93	Scout	TOMS
3/93	TBD	MSAT
6/93	TBD	POLAR
6/93	Scout	SWAS
11/93	Titan II	NOAA-K
12/93	TBD	FASE
6/94	TBD	RADARSAT
9/94	TBD	SMEX-04
3/95	TBD	SOHO
4/95	Titan II	NOAA-L
6/95	TBD	SMEX-05
7/95	Atlas I	GOES-L

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INSIDE

Dr. Michael Lauriente—In His Natural EnviroNET

by Ann M. Jenkins

If you ever need to find Dr. Michael Lauriente, don't look for him in his office. At least not his nice, quiet office with the view in Building 6. He's given it to his student staff.

Instead, you'll find him in the laboratory, a cramped room jam-packed with students, equipment, and reference materials. This is the main office of EnviroNET, a Goddard-managed computerized space environment information service. Dr. Lauriente would rather be part of the action here than isolated from it. Besides, all this "action" is not terribly conducive to the programming Dr. Lauriente's students do, and they appreciate the quiet of the office he has given up for them.

Known affectionately to his students as "Doc," Dr. Lauriente is the project manager of EnviroNET, a user-friendly, online service providing information on the space environment of the Shuttle, satellites, and the Space Station.

"It's an outgrowth of a desire to develop a corporate memory of all the past experiences that the space community has been involved in from day one," Lauriente said. "The emphasis is on the space environment as opposed to testing on the ground, using space-simulated environments. That's a very important distinction."

Started in 1984, the project is run now as it was then: on the talent and energy of a student staff.

"It's been a very successful venture," remarked Lauriente, who has been with EnviroNET since its beginning. "The students have been very productive, developing the whole concept of software, collecting the chapters, and editing."

"We started with three students, and within a month, we had the network operating. Within six months—an extraordinarily short period of time—they had published the proceedings of our first workshop."

Dr. Lauriente's students, whose services are supported by a cooperative agreement with the University of Maryland, come from a colorful variety of disciplines. The current staff's specialties include computer science, aerospace engineering, physics, finance and journalism.

"These people are much smarter in their disciplines than I am," Lauriente explained. "They have greater depth. I only have a knowledge of the direction that we want to move into, and we certainly have done that.

PHOTO: D. McALLUM

ANDRASCO, GATES, JENKINS, ROLINCIK LAURIENTE

"We started out as an archive database with our own retrieval system—developed in-house—and since then, as the hardware became available, we've become involved in interactive graphics and now expert systems and animated graphics."

In its four short years, EnviroNET has grown from an ambitious idea to a unique, global system serving approximately 800 users in the United States and 12 foreign countries. Because it is a node on the Space Physics Analysis Network (SPAN), which ties into other networks, it can be reached by approximately 6,000 computers around the world. The design is user-friendly, and the log on procedure so simple many users work from their homes.

Throughout EnviroNET's lifetime, Dr. Lauriente has been lending direction, guidance and a vision for the future to his student staff.

"I'm not a supervisor. I try to lay out our goals and objectives and the students work to achieve them."

Dr. Lauriente talks about his students like a proud father. Since the project began, approximately 25 students have passed through EnviroNET's doors. Many still stay in touch with the project. He notes "the caliber" of all the EnviroNET students, stressing the fact that the median grade point is "well above a 3.5."

The current group of UM students includes four programmers, a system manager, and a journalist. Two of the programmers are Ph. D. candidates: Bernard Collins in physics, and Mark Rolincik in computer science. The other two programmers, Michele Gates and Eugene Schwartzman, are studying aerospace engineering and computer science respectively. The system manager, Frank Andrasco, is a senior majoring in computer science and finance, and the staff writer, Ann Jenkins, is a Master's candidate in journalism.

With EnviroNET, the students gain experience they could never learn in the classroom.

"They write software for interactive models, graphics and other system features, travel to meet with world experts, interface with our users, and publish newsletters and brochures," he explained.

Dr. Lauriente's life and his work have taken him to exotic places such as North Africa, Sicily, the Soviet Union and Alaska. He earned B.S. and M.S. in metallurgy from Michigan Tech and his Ph. D. in metal physics from Johns Hopkins University. During his time at Hopkins, he was a consultant to the Ballistics Research Laboratory at the Aberdeen Proving Grounds. The work he did on shaped charges at Aberdeen would later be used in the study of orbital debris, one concern of EnviroNET.

But he'd much rather talk about his project and his students than himself. He is excited about proceeding with the newest phase of EnviroNET: the eventual addition of an expert system and chapter on spacecraft anomalies.

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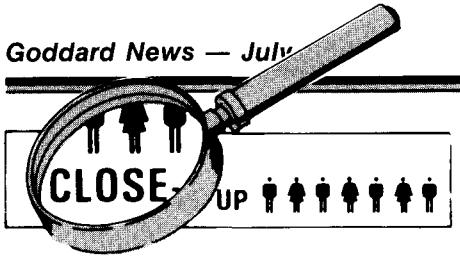

HAROLD P. FRISCH, Code 712.1, is the recipient of an award from the Federal Laboratory Consortium for technology transfer for leadership, creativity, an initiative in the transfer of aerospace and interdisciplinary engineering analysis tools and methodologies to industry and non-aerospace applications. This special award for excellence in technology transfer was established in 1984 to recognize individuals within Federal laboratories who have done outstanding work in transferring technology. The consortium, made up of 500 U.S. laboratories and research centers, presented a total of 61 awards to people from 26 different laboratories on May 3, during the consortium's annual meeting...Glaciologist **Dr. ROBERT BINDSCHADLER** has received the Baltimore Federal Executive Board's Outstanding Professional Employee Award for his accomplishments and broad experience in glaciology. The Board cited his "unique accomplishments in both theoretical and field research," and commended his work applying his expertise in ice dynamics to assessing the danger presented by glaciers in Switzerland and Alaska...


FRISCH


BINDSCHADLER

...the Medical Information Management System, a computer program written by **SIDNEY ALTERESCU,** Code 702, and **CARL A. FRIEDMAN** and **JAMES W. FRANKOWSKI,** who work with Goddard through a contract with Lincoln University, Lincoln, PA, was featured in the May Issue of *Tech Briefs* magazine. Their program is an interactive, general-purpose software system for storage and retrieval of information. Originally designed to be used in managing medical data such as patient records, the program also has applications in managing data on public safety in the public and private sectors, handling judicial information where speed and accuracy are high priorities, and analyzing the cost structure of organizations...Goddard's newly-designated Equal Opportunity (EO) counselors are **REX ELLIOTT,** Code 284.2, **WILLIAM JOHNSON,** Code 840, and **ROBERT LANE,** Code 253.

In Memoriam: Thomas A. Ramos

On June 15, 1989, Thomas A. Ramos, 56, a 22-year Goddard employee, passed away after a two-year battle against cancer. Tom will be remembered by his many friends at Goddard as a loyal and industrious co-worker, and a warm, gentle and good-humored friend.

Ramos began his career at Goddard in June 1967 after serving in the U.S. Navy and working at Melpar, Inc., in Virginia. At Goddard, he held increasingly responsible positions in several different directorates. His initial position assignment was as a Project Support Specialist in the old Administration and Management Operations Directorate (Code 200), and he served Goddard in various positions until his May 1985 appointment as Chief, New Projects Resources Office in the Flight Projects Directorate (Code 400).


RAMOS

A native Washingtonian, Ramos is survived by his wife Marge, and four children, who reside in Falls Church, VA. He will be deeply missed by his many friends and co-workers at Goddard.

GIVE

Following is a list of Goddard donors who were cited by the American Red Cross with gallon pins at the bloodmobile on June 7, 1989:

NAME	GALS.	NAME	GALS.	NAME	GALS.
Richard Barney	2	Mort Friedman	22	June Quackenbush	1
Sandra Biggs	2	Steve Young	1	Sherry Schmitz	3
Leonard Brown	3	Owen Kardatzke	6	Allan Strojny	2
Pamela Brown	2	Amy Kekeisen	1	John Tominovich	12
Charles Cosner	8	Ken Kittelberger	9	Brent Warner	1
Bill Daniels	6	Straton Laios	3	Ralph Welsh	1
Tom Delaney	4	Donald Lokerson	3	Kristin Wunderlich	2

The next bloodmobile visit will be on August 2, 1989, from 8:30 a.m. to 1:30 p.m. in the building 8 auditorium. Thank you, Goddard, for your continued support of this program.

Goddard Astronomer Receives Lindsay Award

Dr. S. Harvey Moseley, Code 685, is the 1989 recipient of the distinguished John C. Lindsay Memorial Award for Science.

The award is presented annually for an outstanding contribution to science or technology. Dr. Moseley received the award from Center Director Dr. John W. Townsend, Jr., at a scientific colloquium on June 9 in the Building 8 Auditorium. Dr. Allan R. Sandage, of the Mount Wilson and Las Campanas Observatories, Pasadena, CA, presented the memorial lecture, on "The Age of the Milky Way and the Age of the Universe."

Dr. Moseley is cited for his conception and development of advanced detectors for both infrared and X-ray astronomy, "opening entire new worlds of research in astrophysics to a very large community of scientists and for his scientific achievements in understanding the physics of SN1987A."

As an infrared astronomer, Dr. Moseley received the NASA Exceptional Service Award in 1982, and he led the group receiving a Group Achievement Award in 1989 for supernova work.

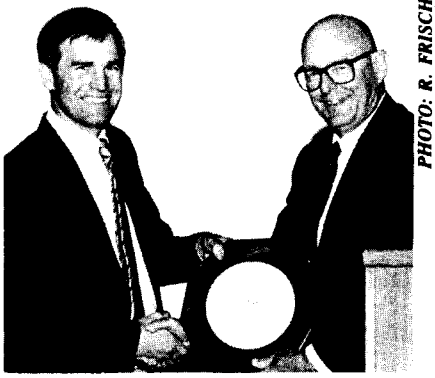
PHOTO: R. FRISCH

***OUTSTANDING ASTRONOMER*—Dr. S. Harvey Moseley, 1989 recipient of the John C. Lindsay Memorial Award for Science, receives his award from Center Director Dr. John W. Townsend, Jr.**

Mixed Fleet Manifest

Continued from page 5

Glossary

AAFE	Aeroassist Flight Experiment
ACTS	Advanced Communications Technology Satellite
ASTRO	Astronomy
ATLAS	Atmospheric Laboratory for Applications and Science
BBXRT	Broad Band X-ray Telescope
CIRRIS	Cryogenic Infrared Radiance Instrument for Shuttle
COBE	Cosmic Background Explorer
CRRES	Combined Release and Radiation Effects Satellite
CRISTA	Cryogenic Infrared Spectrometer Telescope for Atmosphere
DOD	Department of Defense
EURECA	European Retrievable Carrier
EUVE	Extreme Ultraviolet Explorer
FASE	Fast Auroral Snapshot Explorer
FLTSATCOM	Fleet Communications Satellite
GOES	Geostationary Operational Environmental Satellite
GP-B1	Gravity Probe-B1
GPS	Global Positioning System
GRO	Gamma Ray Observatory
HST	Hubble Space Telescope
HST-REV	HST Revisit
IBSS	Infrared Background Signature Survey
IML	International Microgravity Laboratory
INMARSAT	International Maritime Satellite Organization
ISF	Industrial Space Facility
LAGEOS	Laser Geodynamics Satellite
LDEF	Long Duration Exposure Facility
MACSAT	Multi-Access Communications Satellite
MSAT	Mobile Satellite
NOAA	National Oceanic and Atmospheric Administration
OMV	Orbital Maneuvering Vehicle
ORFEUS	Orbiting and Retrievable Far and Extreme Ultraviolet Spectrometer
PUR	Payload Under Review
RADARSAT	Radar Satellite
ROSAT	Roentgen Satellite
SALT	Special (Purpose Inexpensive Satellite) Altimeter
SAMPE	Solar Anomalous and Magnetospheric Particle Explorer
SFU-RET	Space Flyer Unit-Retrieval
SHEAL-2	Shuttle High Energy Astrophysics Laboratory
S/L	Spacelab
SLS	Space Life Sciences Laboratory
SMEX	Small Explorer
SPACEHAB	Commercial Module for Man-tended Experiments
SPAS	Space Pallet Satellite
SPTN-T	Spartan Target
SRL	Space Radar Laboratory
SSF	Space Station Freedom
STP	Space Test Program
SWAS	Submillimeter Wave Astronomy Satellite
SYNCOM	Hughes Geosynchronous Communications Satellite
TDRS	Tracking and Data Relay Satellite
TOMS	Total Ozone Mapping Spectrometer
TSS	Tethered-Satellite System
UARS	Upper Atmosphere Research Satellite
ULYSSES	Formerly ISPM (International Solar Polar Mission)
USAF	United States Air Force
USML	United States Microgravity Laboratory
USMP	United States Microgravity Payload
WAMDII	Wide Angle Michelson Doppler Imaging Interferometer
WISP	Waves in Space Plasma
XTE	X-ray Timing Explorer

NASA National Aeronautics and Space Administration
Goddard Space Flight Center

Goddard News

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Dr. Lauriente

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Dr. Lauriente has a right to be proud of his staff. They've spent more than four years developing the project into what it is today. And they're not about to stop now. Much of the success of EnviroNET may be attributed to Dr. Lauriente's philosophy.

"Instead of trying to make anybody fit my particular mold," he said, "I try to find out the students' natural ability and what they like to work in, and then try to organize the assignments that we have to fit. I find you get a much better output having a person work in the area he or she is really interested in, rather than try to take that talent and recast it into a different type of area."

Seems to be working so far.