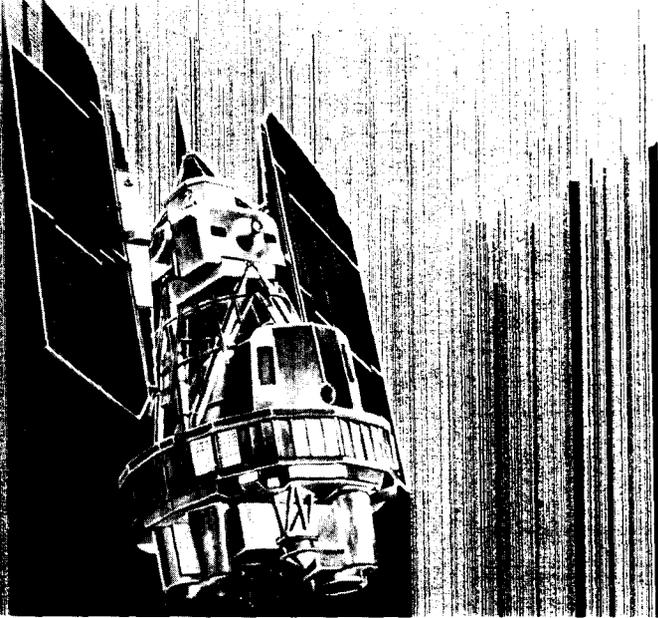


LANDSAT-2 began returning excellent images just four days after it was launched aboard a Delta rocket from California on January 22. Here Massachusetts is seen through band 7 of the MultiSpectral Scanner aboard the spacecraft on Sunday, January 26. The entire metropolitan area of Boston (right of center) stands out in darker tones in this infrared image. Up the coast from Boston Harbor are the well known historical towns of Salem, Gloucester. The Merrimac River (center top) lies just below the New Hampshire Border. The southern shore of Massachusetts, the west end of Cape Cod and the Elizabeth Islands outline Buzzards Bay (lower right). Part of Martha's Vineyard appears just below. Almost all of the state of Rhode Island falls within this image. Providence shows up as a dark area immediately above the head of Narragansett Bay (Just right of Center). For a related story, see Page 2.



## LANDSAT-2 Ready to Start Useful Life

Officials here at Goddard announced on January 29 that the LANDSAT-2 Earth-survey spacecraft (formerly called ERTS-B) launched January 22 from the Western Test Range, Lompoc, California, is now fully checked out. All systems are operating normally.

The satellite now appears ready to begin a long and fruitful life. It will extend the life and coverage of LANDSAT-1, launched July 23, 1972, and still transmitting. LANDSAT-1's imagery and data have clearly demonstrated their usefulness to investigators and users throughout the world in such fields as agriculture, mineralogy, water management, map making and forestry. In fact, two other nations have built ground stations to receive and use LANDSAT output, a third has one under construction and a fourth has committed to do so; several others have this step under serious consideration.

Jack Sargent, ERTS/Nimbus Project Manager at Goddard said that "LANDSAT-2 will permit several hundred investigators to continue their research in areas never before explored. Understanding the Earth's resources so that more careful planning and control can be exercised will maximize the benefits to mankind."

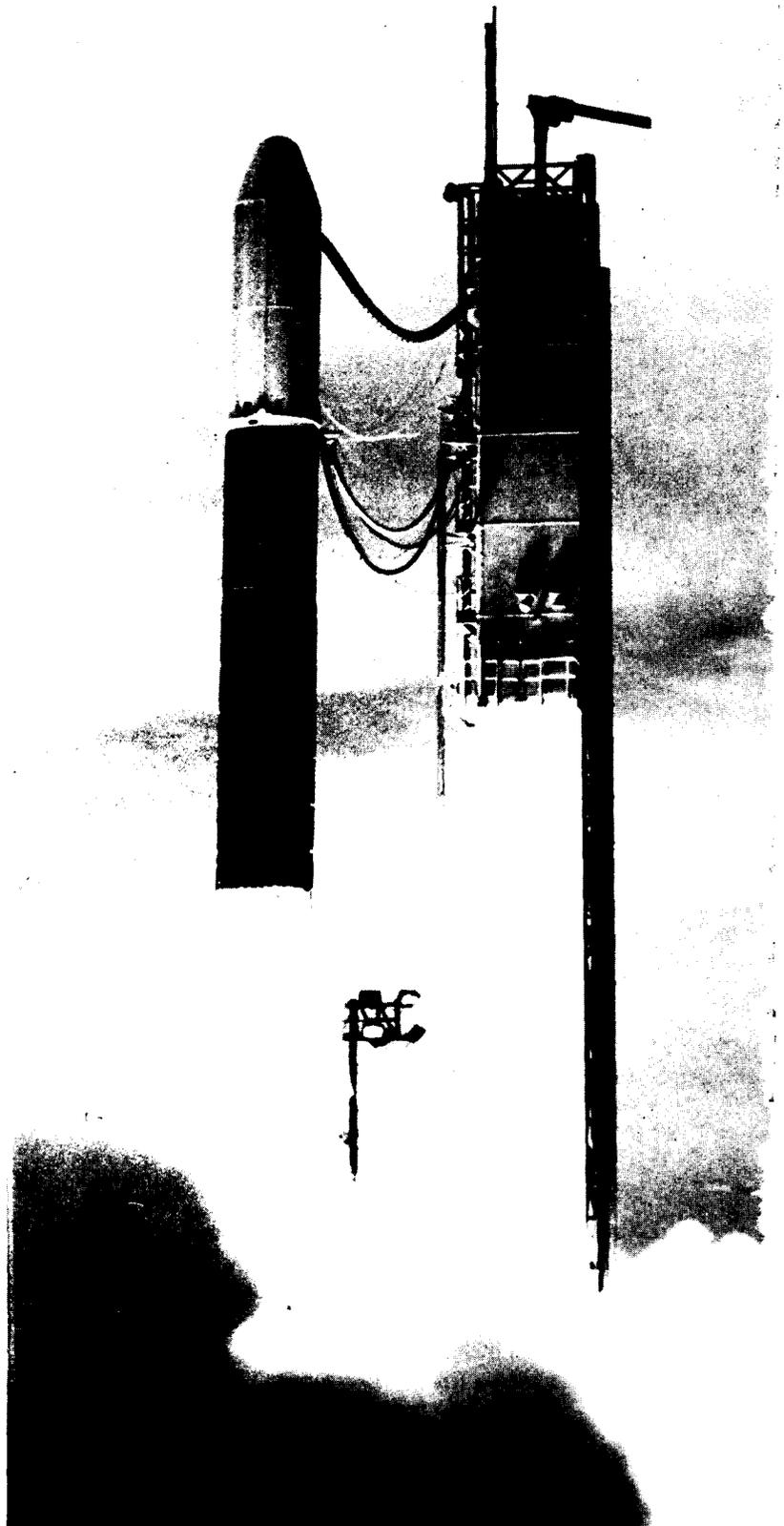
For example, one of the experiments planned is a Large Crop Inventory Experiment (LACIE), a joint investigation by the U.S. Department of Agriculture, the National Oceanic and Atmospheric Administration (NOAA), and NASA to test whether the use of data gathered by multispectral remote sensing from space and analyzed with the aid of computers can improve the timeliness and accuracy of major crop forecasts. Faster, earlier and more accurate crop forecasts can assist in more effective use of the world's critically short food production lands.

Flight controllers began an "orbit adjust" maneuver with LANDSAT-2 January 27. After the flawless performance of the Delta launch vehicle, the spacecraft was in approximately the same orbit as LANDSAT-1, as planned.

However, it was planned that the two spacecraft would be 180 degrees apart in this orbit (exactly opposite each other around the globe) so as to halve LANDSAT-1's time of covering each place on Earth every 18 days. Because of the postponed launch date, the two satellites were 135 degrees apart in their nearest angle. An orbital adjustment maneuver was started by flight controllers January 27 (using the hydrazine-fueled Orbit Adjust System aboard the satellite). As we go to press, this maneuver is expected to be completed about February 7. With this completion, the two spacecraft would follow each other, covering the same spot on Earth every nine days.

Meanwhile, LANDSAT-2 is now regularly acquiring, recording and transmitting imagery. It is planned that these systems will continue to operate even during the orbit adjustment period, except for the few hours surrounding actual thruster firings.

LANDSAT-2 (shown in artist's concept at left) was placed in orbit from the Western Test Range aboard Delta 107 (below) on January 22 during the first NASA launch of 1975. LANDSAT-2 is the second of the Earth-survey spacecraft formerly called Earth Resources Technology Satellites or ERTS. The launch marked the beginning of a very busy year for Goddard's Delta launch vehicle (see box on Page 3).



# Loss Prevention Graduates



**LOSS PREVENTION.** The Network Test and Training Facility (NTTF) and the Goddard Health and Safety Engineering Office (H&SEO) recently conducted the third Loss Prevention training program for representatives from stations in the Spaceflight Tracking and Data Network (STDN). Participants in the program are (from left, front row) Howard Mathieson, Goldstone; Jack Macomber, Bermuda; Larry Bullock, Network Support Group; Charles Merrill, Rosman, William Richie, Guam; William Ellacott, Hawaii; William Boyling, Tananarive; A. Ramaholison, Tananarive; Roberto Prieto, Santiago; (middle row) A. Andriansasy, Tananarive, Bruce Hursey, NTTF; Norm Park, Vanguard; Jaime Endara, Quito; Jose Castan, Madrid, Norris Kvasager, Alaska, Tom Ruark, Bendix, and Nat Way, Merrit Island. In the top row are George Karras, NTTF; Ruben Pritchard, NASA Headquarters; Leven B. Gray, H&SEO Chief; Clarence Neumann, Ascension; John Lyle, Canary Island; George Morgan, NASA Headquarters; and Gene Sober and Don Nellis, H&SEO. The Level II course of Goddard's Network Loss Prevention training program is a follow-on of the courses offered in 1970 and 1972. Graduates are certified to teach Safety, Fire Prevention, CPR, and First Aid to other employees at their stations. Instructors were from the Goddard NTTF and H&SEO, and the Maryland Chapter of the National Safety Council, the University of Maryland, the American Red Cross and the Maryland Heart Association.

## Dr. Low Speaks on 'What's Ahead for NASA'



**DR. GEORGE M. LOW,** NASA Deputy Administrator, speaks on "What's Ahead for NASA" during the Engineering Colloquium here on January 27. The lecture in the Building 3 Auditorium was carried live to closed circuit TV terminals throughout the Center. During his address, Dr. Low commented that 1975 promises to be an active year for NASA with many launches in both the fields of applications and science and exploration. This establishes the theme for NASA's future: explore and apply. Explore the unknown to gain a better understanding of the past, present and future of the universe. Apply what we learn in space, and what we can do from space, to improve the quality of life on earth.

### Delta Launches Planned for 1975

Goddard's "work horse" Delta rocket will launch 15 of the NASA launches scheduled for 1975. The following Delta launches (with the exception of SMS-B) are listed as scheduled on February 1:

LANDSAT-2	Jan. 22	Second Earth Resources Technology Satellite (now named LANDSAT) launched from WTR.
SMS-B	Feb. 6	Second Synchronous Meteorology Satellite. ETR. Launch countdown in progress as <i>Goddard News</i> goes to press.
TELESAT-C	March 6	Canadian Telecommunications Satellite. ETR.
GEOS-C	March 20	Geodynamic Experimental Ocean Satellite. WTR.
MARISAT-A	April 10	Maritime Communications Satellite for COMSAT. ETR.
OSO-I	May 16	Orbiting Solar Observatory. ETR.
Nimbus-F	May 22	Experimental meteorological spacecraft. WTR.
GOES-A	June 19	Geostationary Operational Environmental Satellite. ETR.
COS-B	July 17	Celestial Observation Satellite, a European scientific satellite. WTR.
MARISAT-B	July 24	Maritime Communications Satellite for COMSAT. ETR.
Symphonie-B	Aug. 21	French-German communications satellite. ETR.
AE-D	Aug. 28	Atmosphere Explorer. WTR.
AE-E	Nov. 13	Atmosphere Explorer. WTR.
ITOS-E2	Dec. 4	Improved TIROS Operational Satellite. WTR.
RCA SATCOM-A	Dec. 11	Commercial communications satellite. ETR.

Non-Delta NASA launches for 1975 include the International Telecommunications Satellite-IV for Comsat, ETR, in February; the Small Astronomy Satellite-C, from San Marco, possibly in May; International Telecommunications Satellite-IV-A, ETR, July; Apollo Soyuz Test Project, KSC, July 15; Viking-A and Viking-B, ETR, about ten days apart in August; International Telecommunications Satellite-IV-B, ETR, about October; and Helios-B, ETR, late 1975.

All future launch dates are subject to change.

# Metric Measurement Natural for NASA

by Don Witten  
Public Affairs Office

The United States is the only remaining industrialized nation which has not adopted the metric system generally.

But whether we like it or not, this country is slowly "inching" (centimetering?) its way towards total use of the metric system. Centimeters, kilograms, and liters will pervade every facet of our daily lives eventually to replace most measurements which have become second nature to us.

The effect of a general conversion to metrics in this country will have no large effect on the average person. What little he will need to know about the new measurement units can be learned readily and will not upset his daily routine.

A car trip from Washington, D.C. to New York City will still take the same amount of time but will cover a distance of 402 kilometers instead of 250 miles. The housewife will buy about three kilograms of meat to feed her family which now enjoys a seven-pound roast for Sunday dinner. A liter of milk will contain slightly more than a quart. Waist sizes will more than double in number alone when measured in centimeters instead of inches.

For people at Goddard, the move to metrics is a natural one; many of them have always used metric values in their work. Metric calculations have been employed to a large degree, for example, in most areas of space science, with the notable exception of theoretical physics. And satellites as well as their research instruments are primarily packages of electronics, an area of engineering where metric measurements prevail.

Much of the effort at Goddard is international in scope, requiring a number of the Center's people to work closely with counterparts from metric countries as U.S. project managers, scientists, or coordinators. Many other Goddard people responsible for the operation and maintenance of NASA's worldwide Spaceflight Tracking and Data Network daily work with numerous metric countries where tracking stations or communications centers are located.

Quality assurance, testing, systems specifications and design, and orbital computations are other areas at the Center where metric values are in use.

In 1970, NASA declared its policy to express measurement values metrically in all of its formal documentation. This required all of its scientists and engineers publishing research and engineering results to start "thinking" in metric. Within the agency, the use of metric values has spread to all informal scientific papers presented overseas and all public materials released here and abroad.

The Metric System was endorsed as the internationally preferred system of weights and measurements by the major nations of the world in the Treaty of the Meter (1875). Despite this, metric was "spoken" in various "dialects" and there were subtle differences in the use of the system. It was not until 1960 that a General Conference of Weights and Measures ironed out these differences by agreeing on a standard metric system called the International System of Units (SI).

At the direction of the U.S. Congress, the National Bureau of Standards conducted a three-year inquiry on the impact of increasing worldwide use of the metric system on the United States. Dated July, 1971, the final report of this study recommended that the United States commit itself to a goal of changing to the metric system through a coordinated national program. Responsibility for coordinating the effort was to be by a central body responsive to all sectors of the society, but that detailed plans and timetables for conversion were to be worked out by the individual sectors within the national plan framework.

The use of metric units has already made considerable headway in the United States. In a few fields — notably the physical sciences,

pharmacy, and medicine — people have converted much of their thinking, talking, and writing to metric units. Other areas are using the metric system in tandem with our customary system due to world trends. These include schools, food and beverage labeling, clothing, mechanics' tools, and highway markers. The printing industry, rock collectors, and the fastener industry are other areas where metrics are used.

No other system of measurement that has been actually used can match the inherent simplicity of the Metric System. It was designed deliberately to fill all of the needs of scientists and engineers, although laymen need only know and use a few simple parts of it.

The primary intrinsic advantage of the Metric System is that it is based on the decimal system. Multiples and submultiples of any given unit are always related by powers of 10. For instance, there are 10 millimeters in one centimeter; 100 centimeters in one meter; and 1,000 meters in one kilometer. This greatly simplifies converting larger to smaller measurements. For example, in order to calculate the number of meters in 3.794 kilometers, you need multiply only by 1,000 (move the decimal point three places to the right) and the answer is 3,794. For comparison, in order to find the number of inches in 3.794 miles, it is necessary to multiply first by 5,280 and then by 12.

Moreover, multiples and submultiples of all of the metric units follow a consistent naming scheme, which consists of attaching a prefix to the unit, whatever it may be. For example, kilo stands for 1,000: one kilometer equals 1,000 meters, and one kilogram equals 1,000 grams. Micro is the prefix for one millionth: one meter equals one million micrometers, and one gram equals one million micrograms.



EDUCATORS CONFERENCE. Dr. Stanley C. Freden (left), LANDSAT-2 Project Scientist, and Leonard Jaffee, NASA Deputy Associate Administrator, discuss the LANDSAT Project during the Earth Resources Technology Satellite-B Educators Conference held on January 18 at the NASA Western Launch Operations, Lompoc, California. Mr. Jaffee spoke on the "NASA Applications Satellite Program," and Dr. Freden spoke on "The ERTS-B Program" before some 135 college and high school educators who attended the conference. Other speakers included Dr. John M. DeNoyer, U.S. Geological Survey; and Dr. Robert N. Colewell, University of California/Berkley. The conference was coordinated by the Educational Programs Offices at the Ames Research Center and here at Goddard.

# Progress in Equal Opportunity

Goddard made progress in 1974 in its efforts to increase the number of minority individuals and women employed on Center. 1974 also marked the first year that both Goddard and NASA have included goals and timetables in their equal employment opportunity program.

Since the issuance of the most recent presidential pronouncement on equal opportunity, Executive Order 11478, the Civil Service Commission has approved the use of goals. Currently most agencies are including them in their affirmative action plans. Unlike a quota, a goal is a realistic objective which an organization endeavors to achieve on a timely basis within the context of the merit system. A quota, on the other hand, would restrict employment and opportunities for upward mobility to members of particular groups by establishing a required number or proportionate representation which managers and supervisors would be obligated to attain without regard to requirements of the merit system. Goals established for calendar year 1974 and the results of the Center's efforts to achieve them are reflected in the following chart.

	Hiring Goal CY '74	Accessions CY '74
Minority Professionals	17	31
Minority Nonprofessionals	33	31
Professional Women	28	37
<b>TOTAL</b>	<b>78</b>	<b>99</b>

Minorities constituted 20.8 percent of all new hires during calendar year 1974. In professional positions their number increased from 131 (5.5 percent of total professionals) to 150 (6.2 percent). Fifty-five percent of minority employees are currently in professional positions. The Center's minority strength on December 31, 1974, was 272 (7.2 percent of total employment), up from 249 (6.5 percent) on December 31, 1973. The following chart reflects minority strength by grade groupings on December 31, 1973 and December 31, 1974.

	Dec. '73	Dec. '74	Change
GS 1-4	34	43	+9
GS 5-8	33	41	+8
GS 9-11	44	52	+8
GS 12-13	76	75	-1
GS 14-15	29	30	+1
GS 16 & above			
Wage Grade	30	27	-3
Wage Leader	2	2	
Wage Supervisor	1	2	+1

Women constituted 22 percent of all professional hires during calendar year 1974. Their number in professional positions increased from 144 (5.7 percent of total professionals) to 177 (7.3 percent). The total number of women in the workforce increased from 694 (18.3 percent) to 714 (18.7 percent) during the year. Female strength by grade grouping on December 31, 1973, and December 31, 1974, is shown on the following chart.

	Dec. '73	Dec. '74	Change
GS 1-4	236	232	- 4
GS 5-8	348	363	+15
GS 9-11	57	65	+ 8
GS 12-13	47	52	+ 5
GS 14-15	3	5	+ 2
GS 16 & above	1	1	
Wage Grade	2	2	

The progress achieved during calendar year 1974 is attributed to a vigorous recruiting program which included visits to 29 minority and women's colleges and universities and to a high level of commitment by managers and supervisors. Similar action during 1975 is necessary if the Center is to continue its progress in assuring equal opportunity.



**NEW EMPLOYEE** Lurie Shima joined the Goddard staff in March 1974 and is a Botanist assigned to the Earth Resources Branch. She received her undergraduate degree from George Washington University and her MS degree from American University. She is currently involved in vegetation analysis, a project being conducted in conjunction with a geological survey. Lurie is currently earning credits towards her Ph.D.



**VICKY SHULL**, a mathematician assigned to the Network Computing Branch, is involved in the testing of systems programs written for support of satellites. Vicky is a graduate of Hood College in Frederick, Maryland, and joined Goddard in June 1974. She enjoys her work at Goddard, the atmosphere and the excellent working relationship with other members of her branch.



**PERSONNEL MANAGEMENT SPECIALIST** Pernell Caple came to Goddard in May 1974 to work in the Manpower Utilization Division. He is in charge of Goddard's college recruiting program. He is a graduate of Virginia State College and a former participant in the Co-operative Education Program at the Department of Transportation.



**MICHAEL GUTIRREZ** came to Goddard in May 1974 and is a Project Support Assistant assigned to the Functional Support Office, a post that involves him in procurement activities for the Applications Directorate. Prior to coming here he worked in the Procurement field with the Department of Defense. He is a graduate of the University of Maryland where he received his degree in Business Management.

## INTERESTING PEOPLE



### Dr. Jacob Trombka: Scientist and Teacher

For Dr. Jacob I. Trombka of the Spectroscopy Branch, a well-rounded life includes total emersion in science and such "outside" activities as teaching law at the Georgetown Law School. A Goddard employee since 1966, Dr. Trombka is well-known on Center as a scientist, lecturer, and author of numerous technical publications.

His most recent scientific assignment came in September 1974 when he was named Principal Investigator for the Apollo-Soyuz Crystal Activation Experiment, a follow-on to similar experiments conducted during the Apollo missions. The experiment team from Goddard also includes Clive Dyer, Richard L. Schmadebeck, and Evan Eller who is acting as Project Manager.

For the Apollo-Soyuz Crystal Activation Experiment, says Dr. Trombka, a number of gamma-ray detectors and foils will be flown aboard the Apollo-Soyuz spacecraft to study the effects of cosmic-ray primary and secondary radiation on such materials. The astronauts will return these materials to Earth and measurements of the induced radioactivity will be carried out as soon after splashdown as possible. These measurements will be made at the Goddard Space Flight Center, the Lawrence Berkley Laboratory, the Los Alamos Scientific Laboratory, the Johnson Space Center, and the Jet Propulsion Laboratory.

The importance of this effect came to light during the Apollo 15, 16 and 17 missions. During the Apollo-Soyuz flight a rather detailed study will be carried out to determine the magnitude and spectral shape of the large background or interference produced by irradiation in the space environment. This determination will greatly effect both the analysis of the Apollo astrophysical and geochemical measurements and the design of gamma-ray detectors to be flown on future space flights.

The measurements in gamma-ray astrophysics may have a major importance with respect to problems concerning the nature of the origin of the universe. The diffuse gamma-ray spectrum measured during Apollo 15 and Apollo 16 may be of cosmological origin and thus contain a signature which could be 20 billion years or more old.

The gamma-ray measurements made over the Moon during the Apollo missions contain detailed information on the chemical composition of the Moon. This information will be used in studying the origin and formation processes on the Moon. The information derived from the Apollo-Soyuz crystal Activation Experiment will give direct information on the problem on detector produced interference needed to correct the Apollo experiment results.

Since joining the Goddard staff, Dr. Trombka has worked on a wide range of spectroscopy experiments. He was Project Scientist and co-investigator on the Apollo X-ray Spectrometer Experiment and co-investigator on a Gamma-Ray and Alpha Particle Spectrometer, also for the Apollo Project. He has also worked on developing a neutron gamma and x-ray fluorescence elemental analysis system. This instrument will be used for underwater exploration for mineralogical and environmental research.

In 1973 Dr. Trombka received a NASA Exceptional Scientific Achievement Medal for his work in remote sensing experiments on Apollos 15, 16, and 17. A year earlier, in June of 1972, he was co-winner of the GSFC John C. Lindsay Memorial Award for most significant Scientific Achievement.

A native of Detroit, Michigan, Dr. Trombka received his M.S. Degree in 1954 from Wayne State University and his Ph.D. in 1961 from the University of Michigan.

His scientific career began as a research associate at Wayne State University. He has been a Research Physicist at the Oak Ridge Institute of Nuclear Studies and a scientist at the Oak Ridge National Laboratories. Before coming to Goddard, he was a senior scientist at the Jet Propulsion Laboratory and an AST in Program Management at NASA Headquarters.

Since February 1968, Dr. Trombka has been an Adjunct Professor of Law at the Georgetown Law School in Washington, D.C., a post in which he acts as a scientific advisor for the students. He says, "I am there to teach them the language of science and what it will be like to question scientific experts in court. Sometimes we set up a courtroom scene (moot court) in which I play an expert witness and the future lawyers cross examine me. I am becoming an expert fraud."

Dr. Trombka and his wife Elsie have three children—Barbara, David and Aaron. The family lives in Rockville, Maryland where Dr. Trombka is Chairman of the Board of Directors of Midrasha Hebrew High School of Washington, a member of the Board of Education of the Hebrew Academy of Greater Washington, and a member of the Board of Directors of the Ohr Rodesh congregation in Chevy Chase.

### Dr. Fletcher's Statement on International Women's Year

NASA Administrator James C. Fletcher has made the following statement regarding the observance of International Women's Year:

"I am pleased to endorse the observance of International Women's Year, 1975. The theme, 'Equality, Development and Peace,' points up the need for a determined effort to achieve all three.

"And, it is of particular interest to use here at NASA that the first month of Women's Year has been designated as Air and Space Month.

"The continuing and growing contribution of women in our own agency and in the aerospace industry is a source of pride to us who are involved in aeronautics and space exploration.

"The first two goals of the theme go hand in hand. Equality will be a natural result when more and new avenues of development are provided for women. Despite progress already made in eliminating discrimination against women, much must yet be done to promote full equality.

"In attaining that most elusive of all goals — world peace — women can and will play a vital role.

"Women must participate on every level in the solution of the world's problems.

"As Administrator of NASA, I ask that all of us recognize the accomplishments of women and join in the effort to continue and expand this progress, not only this month but throughout the year."

## Goddard Team Wins Honors in COGS Golf Tournament

After several years of playing excellent golf, a team from Goddard placed high enough in a recent Communications Golf Society (COGS) annual tournament to win a silver tray for each team member. The COGS tournament, a highlight of the golf season, is played at the Indian Springs Country Club and includes entries from both industry and government. Some 50 teams take part, and competition is very keen.

The NASA team that placed ahead of all other government teams in the tournament was comprised of Vern Stelter, Joe Sobala, Dale Sollars, and Walt Frazier, all of Goddard's NASA Communications Division, and Wally Smith, President of the Instant Whip Corporation in the near-by Beltsville Industrial Center. Wally was anchor man for the team. Each man received his silver tray during an awards banquet which followed the tournament play.

This year's tournament was hosted by the General Telephone and Electronics Corporation. The next tournament is scheduled for Fall 1975 and will also be played at the Indian Springs Country Club. Goddard expects to enter a team again.



NASCOM'S WINNING golf team members are (from left) Joe Sobala, Walt Frazier, Wally Smith, and Dale Sollars. Not shown is Vern Stelter.

## New Transportation Center Equipment Aids Goddard Safety

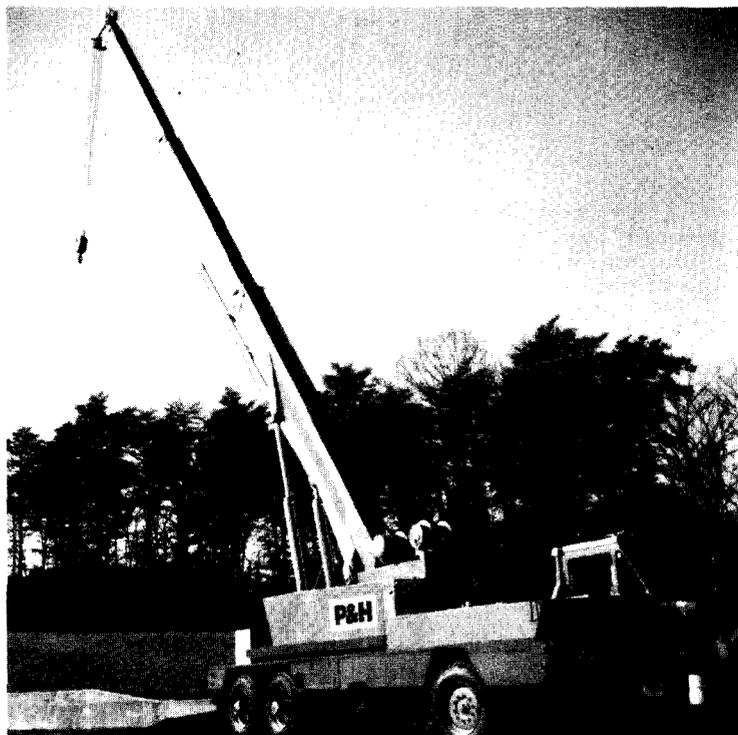
By Daniel M. Pendleton, Head  
Transportation Branch

Goddard has received several new pieces of equipment recently which will provide for easier, safer and more effective operations, much to the pleasure of Transportation Center personnel.

Three new snow plows with quick-connect capability will greatly enhance snow removal operations. They can be hooked up and operating in seconds, and speed is often a critical factor in successfully coping with heavy snow. Two new salt spreaders have an improved auger conveyor system, together with agitator bars which constantly break up material which has been hardened by moisture.

After several years of planning, our new crane is in service, replacing the 23-year-old crane we obtained 14 years ago from excess property. Completely hydraulic, it has a 20-ton capacity and a reach, with the auxillary jib, of nearly 100 feet—enough to handle virtually any requirement. The outriggers completely lift the vehicle from the ground and provide a stable and rigid base. Hydraulically operated, they make leveling and stabilization effortless. Since the crane is only eight feet wide and nine feet tall when in the traveling mode, highway operation is also safer and easier.

**THIS NEW CRANE**, shown with boom and outriggers extended, is part of the equipment recently received by Goddard's Transportation Center. Other equipment includes snow plows and salt spreaders to make Goddard a safer place to drive in icy weather.



## The Building Engineers and Conservation

By David G. Lewoc  
Assistant Chief  
Plant Operation & Maintenance Division

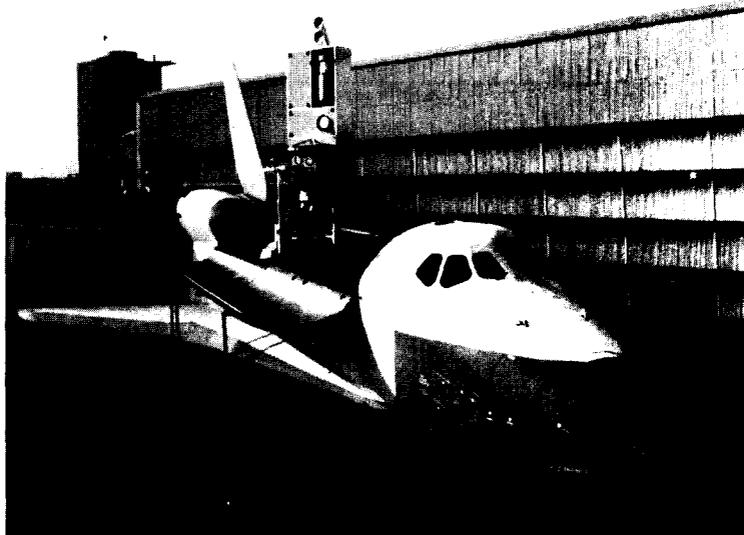
The Building Engineers, headed by Sufferin Sam Tarlton and H. K. Lee are doing a fantastic job in Conservation. They go about securing pumps and air handling units in an attempt to both provide comfort and keep the temperature within the Presidents recommended temperature range.

One of the little extra duties placed upon the Building Engineers on the second and third shifts was turning out lights in offices. We have found out that many GSFC personnel don't want to turn out their lights; therefore, we ask the Building Engineers to go through the buildings on their rounds. This does conflict with their regular duties since they are trained in the heating, ventilating and air conditioning trades with a general knowledge of the electrical and

plumbing trades. Their primary purpose while on duty is to exercise this unique technical knowledge — not turning out lights.

However, a survey of the number of lights secured showed that this group will account for over 600,000 Kwh saved during the year. Not much compared to our total usage of over a 100 million Kwh, less than 1%, but at 3¢ per Kwh it amounts to \$18,000 in a year. This does mean something in our utility budget when the cost of electricity rose 100% in one year, the cost of oil rose 280% and natural gas rose 38%.

And how are we doing with conservation so far this fiscal year? Fairly well, total usage of electricity gas, and oil is down 16%. However, total costs are up 47% as compared with the same period last fiscal year.



**LCMS DEMONSTRATION.** A news conference and demonstration of Goddard's Low Cost Modular Spacecraft operational capability as part of the Space Shuttle payload was held at the Shuttle prime contractor, Rockwell International, Downey, California, on February 5. Frank Cepollina, Head of Goddard's Shuttle Office and Associate Chief of the Systems Division, was on hand to explain how the LCMS will work with the Shuttle and in orbit.

## Academic Degree Achievers—FY 74

Name	University	Major
<i>Doctorates</i>		
Mario H. Acuña	Catholic	Space Science
Rodger A. Cliff	Maryland	Electronic Engineering
Steven C. Cohen	Maryland	Physics
John J. McKenna	Maryland	Law
Charles J. Pellerin, Jr.	Catholic	Physics
Robert D. Price	Catholic	Science
R. F. Silverberg	Maryland	Physics
<i>Masters</i>		
Carl P. Ashcraft	Catholic	Engineering Science
Arnold P. Cephas	Johns Hopkins	Science
Charles I. Dickman	Maryland	Computer Science
C. Keith Fennell	Maryland	International Religions
James C. Gorman, Jr.	Maryland	Public Admin.
Gerald Halpert	Catholic	Chemistry
Jerre B. Hartman	George Washington	Eng. Admin.
James B. Heany	Catholic	Physics
Ellen L. Herring	Johns Hopkins	Science
Dennis R. Hewitt	Maryland	Engineering
Kenneth W. Iobst	Maryland	Electronic Engineering
Clifton E. Jackson, Jr.	Maryland	Mechanical Engineering
Harold B. Johnson, Jr.	Catholic	Acoustics
Michael L. Kaiser	Maryland	Astronomy
Ron Kinsley	Maryland	Aerospace Engineering
William Landymore	Syracuse	Public Admin.
David C. Langjahr	Maryland	Electronic Engineering
James C. Novaco	Maryland	Astronomy
Karen W. Posey	Maryland	Mathematics
Andrew J. Robinski	George Washington	Science
Randal Wagner	Maryland	Electronic Engineering
Harvey Walden	Maryland	Mathematics
William A. Watson	Maryland	Physics
Robert W. Wettingfield	Johns Hopkins	Mathematics
<i>Baccalaureates</i>		
William H. Coleman	Howard	Accounting
William Davis	Johns Hopkins	Electronic Engineering
John A. Glaab	Maryland	Electronic Engineering
Merlyn M. Greenwood	Maryland	English
Sewell R. Marsh, Jr.	Maryland	Electronics
Franklin W. Ottens	Maryland	Business

## Radio Hams Stick Together



**RADIO HAMS** Fred Laun (right) and Carlos Fenosi (seated) recently toured the Center as guests of the Goddard Amateur Radio Club. With them here in the club's radio shack are Ted Jaramillo (left) and Club President Hugh Turnbull.

Members of the Goddard Amateur Radio Club were hosts, January 30, to fellow hams Fred Laun, a career diplomat with the United States Information Service, and Carlos Fenosi of Argentina.

Back in the Spring of 1974 when Juan Peron was still president of Argentina, Mr. Fenosi helped Mr. Laun after he was attacked by political terrorists in Cordoba, an Argentine provincial capital. Alfred Laun had been kidnapped, shot and beaten, and then, incredibly, left him 15 hours on a city street wrapped in blankets with the contents of two plasma bottles dripping into his arms in an attempt to save his life. Carlos was one of the Cordoba radio hams who maintained a constant vigil by Mr. Laun's bedside while doctors worked to save his life.

Mr. Fenosi, a radio amateur for 13 years, is a fourth year engineering student at Cordoba National University. Mr. Laun, also a radio ham, is currently the media liaison officer of the USIS press and publicity service.

When Carlos Fenosi came to Washington for a visit, they were both invited by Hugh Turnbull to tour the Center as guests of the Goddard Radio Club.

### GODDARD

Public Affairs

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