GALE Project Studies Cause of East Coast Storms

By Charles Recknagel

Scientists at Goddard and from 25 other Federal and private laboratories have mounted among the largest field experiment ever to try to better understand the winter storms that annually wreak more than a billion dollars worth of havoc along the East Coast.

The experiment, named GALE (Genesis of Atlantic Lows Experiment) and funded at about $10 million, is led by the National Science Foundation. It was conducted over a two-month period that ended March 15.

The scientists are concentrating their efforts on the coastal regions of North and South Carolina where winter storms, commonly known as cyclones, develop rapidly and move northward. To date, the storms often have been hard to predict because of many reasons, including inadequate understanding of their processes and poor observations, expecially over the ocean.

"The goal is to obtain observations of these storms and ultimately develop a numerical storm model for the region that will enable researchers to predict the birth of storms, their subsequent movement and their intensities," said Goddard's lead GALE investigator Dr. Louis Uccellini of the Severe Storms

Continued on page 5

NASA
National Aeronautics and Space Administration
Goddard Space Flight Center

Goddard News

Vol. 32 No. 2 March 1986

I.U.E. Supports Satellites' Encounter With Halley

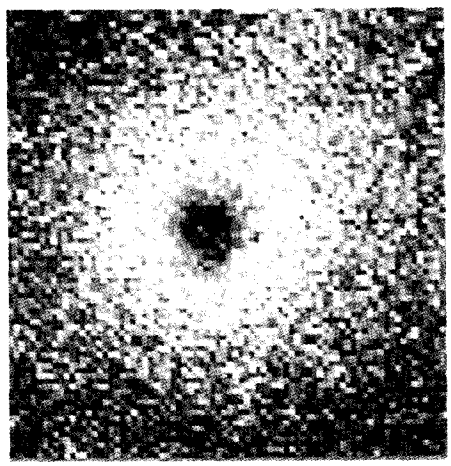
NASA's International Ultraviolet Explorer (IUE) orbiting telescope observed Comet Halley during the closest aproaches of Soviet, European, and Japanese satellites to the Comet this month.

The orbiting observatory watched Halley on March 9 while the Soviet Vega 2 spacecraft approached to within 3,000 km (1,864 miles) of the Comet. (The previous day, the Japanese Suisei probe encountered Halley at 150,000 km (93,205 miles) from the nucleus.) On March 12, 13 and 14, the IUE observed the Comet while the European Giotto spacecraft made its pass, coming as close as 500 km (310 miles) on March 13.

The orbiting ultraviolet telescope observed the encounters as part of a year-long study of the comet by IUE astronomers which began September 1985, and ends next month.

"From the year of Halley observations by the IUE and many ground observatories, we hope to be able to fit the in situ information from this month's Halley encounters into the larger context of the comet's long term behavior," said Goddard's IUR Project Scientist Dr. Yoji Kondo.

The IUE is observing Comet Halley



***COMET HALLEY*—The famous comet as observed by NASA's International Ultraviolet Explorer (IUE) in December 1985.**

to gather an extended record of such phenomena as ejection of substances from the Comet and their quantities. Orbiting high above the absorbing and obscuring the effects of the Earth's atmosphere, the ultraviolet telescope is capable of observing molecules and atoms such as hydroxyl and hydrogen which indicate the comet's water ejection rate, or carbon sulfide and ionized carbon dioxide which reveal the comet's carbon, sulphur, and oxygen content.

The telescope also is making periodic measurements of the visual brightness of the Comet which, surprised astronomers learned last year, can very widely. The IUE has shown Halley's brightness can as much as double in a few days.

"The benefit of observing the comet from the IUE or ground observatories over a long period of time is that you get a 'movie' idea of how the comet changes, often from day to day," said George Sonneborn, telescope operations manager for Computer Science Corporation. "Earth and orbiting telescopes also provide a much wider angle view of the comet at a given moment than do spacecraft passing the comet. Both these features should complement the 'snapshot' work of the probes by helping describe the state of the comet's life that the probes see."

NASA originally had intended to provide orbiting observatory support to the international cometary probes through the Spartan-Halley and Astro-1 missions, both to have been telescope payloads operating from the Shuttle cargo bay. However, the missions were compromised by the Shuttle Challenger

Continued on page 2

Center to Reenact Dr. Goddard's 1926 Launch

A reenactment of the first successful flight of a liquid-fueled rocket by Dr. Robert H. Goddard was conducted at Goddard's Visitor Center on March 16.

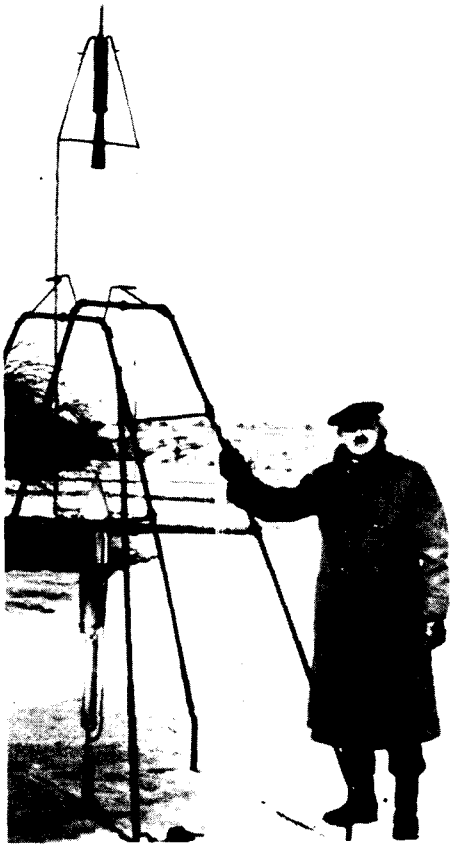
The reenactment was conducted in observance of the 60th anniversary of that historic experiment on March 16, 1926 that has led the Nation and the world in the exploration of space.

This milestone event in rocketry in 1926 was simple compared to today's complex launches.

On a farm in Worcester, Massachusetts, the late Dr. Goddard launched his 10-foot high rocket from a light, portable metal frame. There was no countdown. Dr. Goddard simply opened the propellant valves and signaled to Henry Sachs, his assistant to apply the blowtorch.

The rocket leaped out of the launcher and flew for three seconds, speeding to more than 60 miles an hour. It yawed and fell to Earth 184 feet away. His rocket was the first prototype to the gigantic rockets to be launched at what is now the NASA Kennedy Space Center, and other launch sites throughout the world.

Dr. Goddard; Sachs, a machinist and instrument-maker at Clark University; Dr. P.M. Roope, a Clark physics instructor, and Esther Goddard, Dr. Goddard's wife, comprised the launch team. Esther took the famous picture of her husband standing beside the rocket.



HISTORIC LAUNCH—Dr. Robert H. Goddard poses with his liquid-fueled rocket.

After the reenactment, by a full-scale replica of Dr. Goddard's rocket, area youth following in the footsteps of "The Father of American Rocketry" launched model rockets. Following the model rocket launches, Donald E. Carson, a Goddard aerospace engineer, spoke in the Visitor Center auditorium on how model rocketry has influenced his engineering career.

Admiral Truly Named Head of Space Flight

Rear Admiral Richard H. Truly, USN, Commander of the Naval Space Command, has been appointed Associate Administrator for Space Flight, NASA Headquarters, effective immediately.

Truly will head NASA's Space Shuttle program and will assume direction of the agency's Design and Data Analysis Task Force which is reviewing the Shuttle Challenger accident of January 28, 1986. In both roles, he succeeds Jesse W. Moore.

Moore will assume the post of Johnson Space Center Director, an appointment that was announced on January 23.

Truly was designated a naval aviator in 1960. From 1963 to 1965, he was first a student and later an instructor at the U.S. Air Force Aerospace Research Pilot School, Edwards Air Force Base, CA. He became a NASA astronaut in 1969 and spent 14 years with NASA.

Truly became the first commander of the Naval Space Command upon its commissioning on October 1, 1983. The Command is responsible for management and operational control of all Navy satellites in use.

After attending schools in Fayette and Meridian, Miss., Truly enrolled as an NROTC midshipman at the Georgia Institute of Technology in 1955. He received a bachelor of aeronautical engineering degree and was commissioned an Ensign in the U.S. Navy in 1959.

I.U.E. Support

Continued from page 1

accident January 28.

When it became apparent substitutes would have to be found, Sonneborn and Michael Myslinski, IUE Control Center Manager from Bendix, developed a new viewing schedule to provide particularly heavy IUE coverage during the encounter days.

"We scheduled seven and a half shifts in March, or about 60 hours of viewing time," said Sonneborn. All observations were performed by Dr. Paul Feldman of The Johns Hopkins University and Dr. Michael Ahearn of the University of Maryland in collaboration with a European team of astronomers headed by Michel Festu of France's National Center for Space Research. The observations were supported by the staff of the IUE control room at Goddard.

Throughout the year-long IUE observations of Halley, the telescope has devoted some 256 hours to watching the Comet, more than it has to any previous target in one year. The data will be shared with the European, Japanese and Soviet investigators as part of the International Halley Watch program which is coordinating comet observations worldwide during the Comet's once in every 76 years' appearance.

Solar Max Mission Observes Comet Halley

By Carter Dove

Goddard's Solar Maximum Mission (SMM) spacecraft has produced images of Comet Halley which show clearly a bright cometary head (coma) about 80,000 km (50,000 miles) in diameter and a tail more than 1,600,000 km (one million miles) in apparent length.

There is a suggestion also of a dual tail structure due to the presence of both cometary dust and ions.

The images were taken by the SMM's coronograph polarimeter (CP), an instrument designed to produce artificial eclipses of the Sun, thereby revealing its faint outer atmosphere, the solar corona.

Dr. R. M. MacQueen, principal investigator for the instrument at the High Altitude Observatory, Boulder, CO, noted that the complex baffling of the coronagraph allowed the photography at times when Earth-based or most spaceborne visible light experiments would be overwhelmed by the Sun's light.

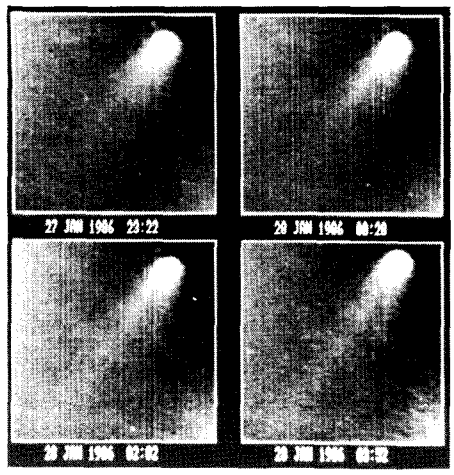
The SMM, managed by Goddard, was repaired by the crew of STS 41-C in April, 1984. It was the first satellite ever repaired in orbit.

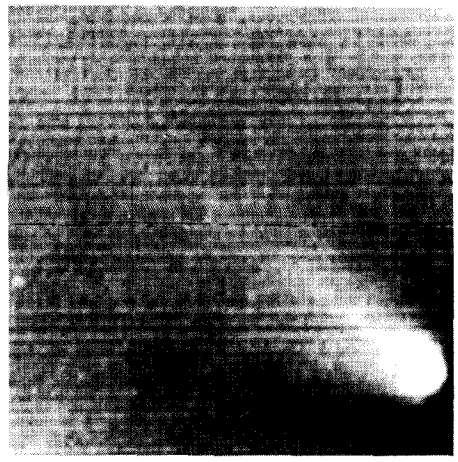
At the times of the images, January 27-28, Comet Halley was about 14° from the Sun—nearing perihelion passage (closest approach to the Sun)—and about 96 million km (60 million miles) away from the Sun.

Memory Fails

Dr. Chris St. Cyr, the High Altitude Observatory team leader for the coronagraph at Goddard, noted that the SMM suffered an onboard computer memory failure on January 8 which some thought would disable the spacecraft for some time and undermine the plan to observe Comet Halley just prior to perihelion.

However, the goddard project group, led by Pat Corrigan and Paul Pashby (Code 602), rejuvenated the SMM's computer memory by compression and repacking of the spacecraft and experiment memory contents.





COMET HALLEY—**The four-image composite of Comet Halley was taken by the Goddard-managed Solar Maximum Mission (SMM) spacecraft January 27-28. The single image is an enlarged version of the comet appearance on January 27 at approx. 8 p.m. (EST). The images shown were taken by the SMM's coronagraph polarimeter—designed by the High Altitude Observatory (HAO), Boulder, CO—and the computer processed by HAO.**

Cometary images from the coronagraph enable scientists to "fill in" the more unusual observation of the comet made when the comet is farther from the Sun, and thus, in the night sky. They will allow scientists to better estimate the "boiling off" of material from the object as it becomes more intensely heated close to the Sun.

Sequences Examined

And, long-time sequences of the appearance of the cometary tail will be examined closely to determine if they indicate the passage of solar particles and magnetic fields outward from the Sun as a result of solar eruptions.

In addition to St. Cyr, the members of the High Altitude Observatory team at Goddard are: Robert H. Lee, David L. Kobe, Kathleen C. Walsh and Stacey Rosenberg.

Expert assistance has been provided by Dr. Malcolm Niedner, a cometary scientist at Goddard and a guest investigator on the coronagraph polarimeter for cometary observations.

U. of Md. Honors Judy Resnik

By Randee Exler

Dr. Noel W. Hinners joined University of Maryland (UM) officials mourning the loss of Challenger Astronaut and UM alumna Dr. Judith A. Resnik in a memorial service for the Challenger crew at the university's Memorial Chapel on Monday, February 10.

Following pastoral greetings and prayers by members of the University Chaplains, Dr. Hinners reflected on the Challenger Seven. He told an audience of Goddard and University employees and students that Goddard felt particularly close to this group of astronauts because of the time spent together preparing for this mission. Goddard had two payloads aboard Challenger: The Tracking and Data Relay Satellite (TDRS) and Spartan-Halley.

Dr. Robert Newcomb, UM Department of Engineering recalled the day he recruited Resnik to UM's graduate program about 15 years ago. In honor of Resnik, the University is establishing a graduate fellowship in engineering and considering an endowed chair in biomedical engineering, Resnik's specialty while studying there.

Uranus Flyby Yields New Scientific Results

By Carter Dove

Scientists at Goddard are continuing to collect and analyze data from NASA's Voyager 2 spacecraft encounter with the planet Uranus in an unparalleled probe of the mysterious giant.

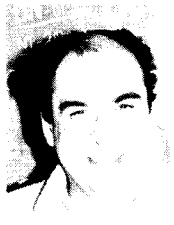
As in the case of most scientific ventures, the uranian data—all of which is tentative at this point—are confirming some scientific assumptions, changing others and unraveling some of the mystery about our distant neighbor.

One of the new findings is that the rotation period of the planet and its magnetic field is 17.24 hours (plus or minus 1 min). Goddard's Michael L. Kaiser, a co-investigator on the Planetary Radio Astronomy instrument, reported that "The Uranian radio signals received about 8 days before and 21 days after closest approach (Jan. 24 at 1 p.m., EST) provided the basis for our preliminary determination on the rotation rate."

A similar rotation rate was derived from magnetic field data collected by Goddard's Dr. John E. P. Connerney.

The Voyager 2's closest approach occurred when it was 2.8 billion km (1.8 billion miles) from Earth and flying 81,400 km (50,600 miles), above the cloud tops of the planet. The spacecraft's radio signals took 2 hrs., 45 min. to reach Earth.

Tilt Surprises



Dr. Mario Acuna

In another finding, Dr. Mario Acuna—a co-investigator for key Voyager 2 magnetic fields scientist, Dr. Norman Ness of Goddard—says that the "mag" team has discovered that the Uranian magnetic field is "tilted at the surprisingly large angle of 60° with respect to the rotation axis of the planet." Acuna added that the magnetosphere (an envelope of charged particles) in front of Uranus is about 1/15th the volume of Saturn's for typical solar wind conditions at each planet.

Ness' team also has concluded for now that the magnetic fields strength on the Uranian surface is greater than Saturn's but less than Earth's.

In a related discovery, members of the Cosmic Ray Subsystem (CRS) team at Goddard found a large Uranian magnetosphere filled mostly with energetic electrons, and—in that respect—different from the known radiation belts of Earth, Jupiter and Saturn. Voyager 2 provided observations of both Jupiter and Saturn prior to its Uranus encounter.

Dr. Jim Trainor, Goddard co-investigator on the CRS experiment, reported that, "Many of the unexpected phenomena we see in the data were recognized early on by members of our team to be due to the moons and ring particles (of Uranus) moving through the gyrating magnetic field on complicated paths—all due to the large tilt of the magnetic field with respect to the spin axis."

Additionally, Drs Keith Ogilvie and Edward Sittler—both Goddard co-investigators on the Voyager 2's Plasma Science (PLS) experiment—found temperatures within Uranus' inner magnetic field hotter than 10 million degrees Kelvin.

Ogilvie reported: "The plasma is too hot to be understood as coming from internal sources within the magnetosphere, such as the planet's upper atmosphere and its inner satellites (Miranda, Ariel, Umbriel and Oberon) . . .," as is the case with Jupiter and Saturn. He reasoned that the temperature variance between the planets may be due to the alignment of Uranus' spin axis along the planet-Sun line.

In still another finding, Goddard's Infrared Interferometer and Spectrometer (IRIS) instrument has produced spectra which indicate that the Uranian atmosphere is composed of 10 — 15% helium by volume.

Dr. Rudy Hanel, of Goddard, principal investigator for the IRIS experiment, reported also, ". . . the (Uranian) temperatures on the winter pole, which has been in the dard for about 40 years, are as high as on the summer pole."

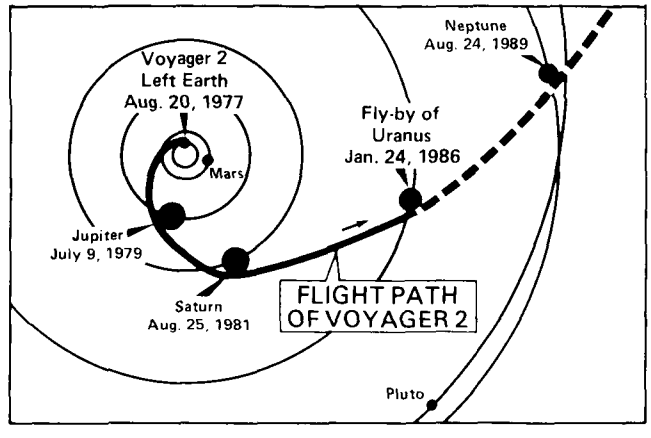
Dr. Rudy Hanel

Hanel and Dr. Barney J. Conrath, a key Goddard scientist on the IRIS investigation, disclosed that the helium abundance is slightly larger than that inferred for Jupiter's atmosphere, and that it is consistent with solar composition.

Moons Discovered

In previously reported findings, NASA scientists discovered ten additional satellites and at least two more dark rings circling uranus, for a total of at least fifteen moons and eleven rings.

In all, twenty-two scientists from Goddard conducted observations of uranus with five instruments aboard the Voyager 2 spacecraft.



The Voyager 2 encounter began November 4, 1985 and continued through February 25, 1986. The spacecraft concludes its tour of deep space on August 25, 1989 when it encounters the planet Neptune.

Voyager 2 was launched in August, 1977 aboard a Titan-Centaur rocket from Cape Canaveral Air Force Station, FL.

Mail your story to the Goddard News (Code 130), or call the Editor at 344-5565

GALE Project

Continued from page 1

Branch of the Laboratory for Atmospheres. The Branch along with scientists from Goddard's laboratory for Oceans is studying specific storm phenomena as part of a national team of research groups trying to piece together a total picture of cyclone behavior. The national team includes some 200 scientists, engineers and technicians.

The Goddard scientists are tackling two areas of storm behavior which traditionally have been simulated by numerical models rather than by eyewitness accounts or direct measurements: phenomena that take place in the upper layers of the atmosphere and phenomena at sea level.

Conditions Analyzed

Uccellini's group is analyzing upper atmosphere conditions using temperature, moisture and wind sounding balloons launched every three hours from 40 sites administered by the National Oceanic and Atmospheric Administration (NOAA) throughout the eastern third of the U.S. At the same time, the group is collecting data from NOAA's Nimbus 7 satellite, which carries a Goddard-built observing instrument called the Total Ozone Mapping System (TOMS).

Dr. Louis Uccellini

"The data shows us how air masses are drawn into the troposphere from the stratosphere, possibly contributing to the development of cyclones," explained Uccellini. When the stratosphere descends in local spots, he noted, the fast moving stratospheric air can rapidly tumble downward, setting up a circulation pattern that has great potential for developing a spin.

"But just how and when that happens is hard to predict," said Uccellini, "and its interaction with lower tropospheric air waves over the ocean is difficult to observe."

At the other end of cyclone formation, the Goddard Laboratory for Oceans group is studying how conditions at sea level influence storm development. Led by Dr. S. Harvey Melfi, the Laboratory's Associate Chief for Programs, the group already has flown two of up to five scheduled airplane flights to chart how moisture rises into the atmosphere from the ocean between storms.

Moisture Release

"During the lulls between storms," Melfi explained, "very cold air from the arctic sweeps in behind outgoing the pressure zones off the Carolinas and comes into contact with the warm coastal water. At those times, a tremendous amount of heat and moisture is released into the lowest layer of the atmosphere, setting the stage for rapid development of another storm."

Dr. S. Harvey Melfi

"We want to know how the moisture transfer takes place, then why some cyclones suddenly develop very quickly and begin dumping snow while others fizzle out," said Melfi.

Understanding that process, he noted, would help in predicting upcoming storm patterns and their intensity.

To study the moisture transfer into the atmosphere, Melfi's group flies over the ocean storm region in a four-engined Electra from Wallops Flight Facility on Virginia's Eastern Shore. Aboard the Electra is a combined laser/telescope called a Lidar which detects salt spray and aerosols rising from the ocean into the air.

Data on moisture in the atmosphere also is being collected by NASA's high-altitude ER-2 aircraft carrying microwave radiometers able to detect water vapor in clouds. The ER-2 airplane is managed by NASA's Ames Research Center California.

Data on moisture in the atmosphere also is being collected by NASA's high-altitude ER-2 aircraft carrying microwave radiometers able to detect water vapor in clouds. The ER-2 airplace is managed by NASA's Ames Research Center in California.

Bolster, Marcotte Win $5,000 Suggestion Award

Two Goddard employees probably have saved NASA millions of dollars by suggesting an alternate site for testing solid rocket motors. The two engineers split a $5,000 award for their recommendation, as part of the agency's Employee Suggestion Program.

William Bolster and Paul Marcotte proposed that the site be changed from Arnold Engineering Development Center (AEDC) Arnold Air Force Station, TN, to a White Sands Facility (WSTF) in New Mexico. The WSTF regularly performs liquid motor altitude testing. After extensive studies by Bolster, Marcotte and WSTF officials, however, they determined that facility modifications could be made to perform solid rocket testing.

For more than 20 years, Goddard has tested solid rocket motors at AEDC. But in June 1984, the AEDC changed it pricing policy for NASA tests from government rates to non-government rates. This increased one particular series of tests from $234,000 to $389,000, according to Marcotte.

"If we continued to test at AEDC," Marcotte said, "by FY89 a single motor test would cost $529,000. After just three years of operation at the modified WSTF, we project government and commercial savings of more than $3 million,"

According to Bolster, the capability to test solid rocket motors at WSTF will benefit the NASA and commercial community by achieving higher reliability "kick" motors. Because of planned budget constraints, the move also would reduce risks to NASA and commercial programs, while substantially lowering costs per tests.

Bolster said WSTF modifications to accommodate solid rocket motor testing will cost $1.1 million. He added that the facility would be paid for after the third test. The first test and completed modifications are scheduled for May 1986.

"ENVIRONET" Profiles Shuttle Environment

By Violeta Vera

Try to take a picture from a canoe while your friend rocks the boat, and you can imagine the difficulty of keeping a telescope precisely aimed aboard the Space Shuttle while the crew moves around in the Shuttle.

That is just one problem that experiments may face when they operate in the orbiting shuttle's environment. To help experimenters cope, a team at Goddard is developing a new database describing what to expect in space and how to prepare for the trip. The new service, called "ENVIRONET" for Shuttle Environmental Database, is an on-line information system and is funded as a NASA-wide effort by the Office of Space Sciences and Applications at NASA Headquarters.

Changes Described

"We are trying to simplify the process of designing an experiment that will withstand the rigors of space flight," said Project Manager Michael Lauriente. "We do this by gathering data describing the changes in the Shuttle payload bay during all phases of a mission."

Aside from the disturbances caused by the movement of the crew in the shuttle, he noted, experimenters must deal with noise and vibrations from rocket thrusters, temperature changes and a largely unexplained phenomenon called "glow," which affects sensitive optical instruments such as cameras or telescopes.

Other areas covered in the database are particulate contamination during ground and flight operations, humidity changes before a flight, outgassing and venting of payloads during flight, cabin pressure leaks, induced electric fields and postflight data. The data of ENVIRONET are gathered by technical panels made up of scientists and engineers within NASA, industry, the military and universities and reviewed by representatives from several NASA centers before being released to the public.

The Office of Space Science and Applications at NASA Headquarters has sponsored two workshops about the Shuttle environment, inviting scientists from around the world to exchange their results and contribute information to ENVIRONET.

ENVIRONET—Dr. Michael Lauriente (right) and Violeta Vera review some computer data that helped provide valuable information about the Shuttle environment.

Lauriente helped edit the proceedings from the week-long Shuttle Environment Workshop held in New Hampshire in 1984, which have been released recently. The resulting book discusses Shuttle environmental information that has been acquired so far and recommends new measurements that would help experimenters. The book was compiled by two University of Maryland students, Bonnie Rich and Debra Friedrick, under the direction of co-editor Thomas D. Wilkerson, professor at the University of Maryland.

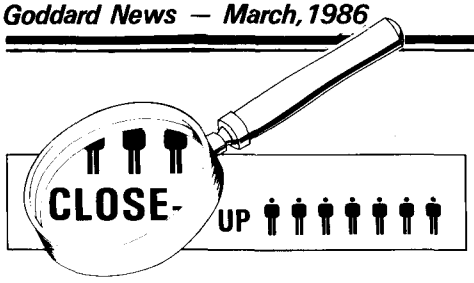
Easy to Use

ENVIRONET is housed on a VAX computer made by Digital Equipment Corporation, and it is designed to be easy for novices to use. The data stored in ENVIRONET is textual and numerical, but Lauriente says graphics will soon be integrated into the system. Aside from the actual database, the ENVIRONET system allows users to run computational models, communicate with one another using electronic mail, and access a bulletin board.

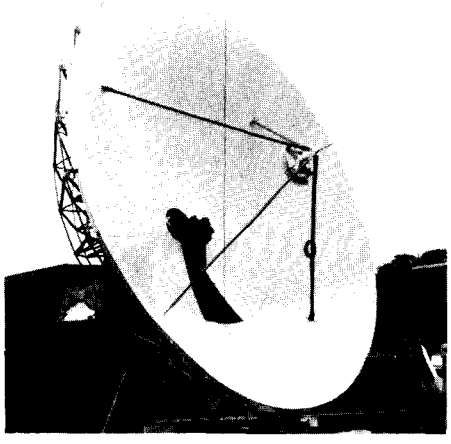
Retirees

Congratulations and best wishes to the following Goddard retirees.

January	Code	Years of Service
Arndt, Albert E.	727.3	26
Ashby, Abel T.	273.2	34
Banning, Ralph N.	534.1	20
Bender, Frederick W. Jr.	821.2	42
Benson, Rose A.	560	26
Burda, Bernard M.	717.3	25
Carey, Charles W.	543	41
Chapman, James W.	120	37
Cridlin, Maurice S.	731.4	28
Drummond, Robert R.	720.1	24
Feldman, Joseph G.	503	37
Gigerich, Enola W.	502	31
Green, Silvia R.	253.3	22
Hardesty, Charles V.	253.4	42
Hatakeyama,Lawrence F.	563	31
Heddinger, Frank L.	420	25
Henley, Paul E.	754.3	41
Hocking, William M.	531	32
Hui, Peter	712.4	35
Jennings, William F.	515.1	37
Kenny, Florence D.	535.1	35
King, Joseph C.	742	35
Kirchman, Edward J.	750	26
Lindner, Frederick J.	731	33
Logan, Francis J.	400.6	35
Madison, Charles P.	754.4	38
Marshall, Augusta O.	247.2	31
Mears, Ellouise B.	202.3	34
Mooney, Thomas H., Sr.	290.1	34
Moore, Arthur L.	834.1	36
Morris, Richard F.	710	36
O'Grady, Francis A.	271	26
Osvatics, Oswar W.	543	46
Poland, Woodrow W.	751.2	37
Prokopchak, Michael	513	42
Schade, Andrew C., Jr.	234.2	32
Schulman, Joseph R.	420	25
Scott, Thomas H.	833.1	34
Shaddeau, Chester H.,Jr.	530	39
Sing, Milton L.	430	28
Sugiura, Masahisa	696	22
Surgen, H. Ronald	535.2	39
Thomas, Charles W.	663.3	35
Thoreson, LeRoy F.	303	32
White, Richard A.	400.2	33
Wiggins, John W.	254.2	33
Winker, Arthur R.	764.4	32
Wright, William F.	200.3	35
February		
Burgess, Robert L.	553	37
Kouns, Charles W.	622	32
Maxwell, Marvin S.	620	36
Mills, Ralph H.	293	36
Rees, Donald R.	833.1	52
Witt, W. R.	404	38
March		
Finnblade, Richard C.	292.1	30
Owens, Walter L.	311	38



If you've been wondering about all the construction around building 1, here's the answer. That big antenna is part of an operations building and Earth station to support the Program Support Communications Network. The new network will link Goddard with NASA's new administrative communications network, overseen by Marshall Space Flight Center. The new network will allow rapid transmission between centers of facsimile, voice, video teleconferencing and project-related data. Activation date for the new complex is April 1.



CONSTRUCTION—**Worker puts some finishing touches on antenna being erected at Building 1.**

GREGORY SHIRAH, who works in the Mathematical Analysis Section (Code 552.2) of the Flight Dynamics Division as part of NASA's Cooperative Education Program has been selected as one of 80 top students in a national competition sponsored by Time Magazine. Greg, a student at the University of Georgia, has a double major—computer science and mathematics. He has completed two co-op terms at Goddard—one from June to August 1984 and the second from April to September 1985. Greg's name as a Time College Achievement Award winner is scheduled to appear in the April 7 issue of Time.

Word was received from the family of RALPH TAYLOR that he passed away on December 31, 1985 in Hickory N.C., where he and his wife had been living since his retirement in April 1982. Ralph joined Goddard in 1960. An electrical engineer, he had more than 40 years of government service. At Goddard, he had worked in the Networks Directorate, Communications and Navigation Division, Earth Observations System Division, and in the Instrument Systems Division.

Goddard's Building 306 suffered a minor explosion and fire on February 14. The building, located at the Magnetic Test Facility off Soil Conservation Road, suffered additional damage a week later when Army Ordnance troops from Fort Meade, MD purged the pipes of gases that had been trapped in the lines.

New ideas with potential for high payoff are being sought by a committee established by the Center Director. As a part of strategic planning, Dr. NOEL HINNERS formed a committee, headed by STEVE HOLT (Code 660), to generate new or unconventional ideas. Deadline for submissions was March 3. Other committee members are: JOHN DALTON (Code 520), JIM GRAY (Code 625), JAN KALSHOVEN (Code 625), BILL MEYER (Code 700) and RON MULLER (Code 402).

Two NASA College Scholarships will be awarded to qualified dependents of NASA employees or former employees under a fund established by Pulitzer prize-winning author, James Michener.

The scholarships are for $1,500 each and for students in science and engineering fields. Selection will be based on academic achievement, community activity, written recommendations from instructors and other factors.

Applications are available from Elva Bailey in Building 8, Room 150. Applications must be received by the Scholarship Committee at the Johnson Space Center no later than March 28, 1986.

The Department of Interior has announced that the Magnetic Test Facility has been named as one of 22 properties in 8 states that had been declared national historic landmarks. The Department of Interior's National Park Service studied approximately 350 sites associated with early space exploration.

A "Man in space" theme considered resources relating to technical foundations before 1958, the effort to land a man on the Moon, the exploration of planets and the solar system and the role of scientific and communications satellites. The Historic Sites Act of 1935 authorizes the Secretary of Interior to designate as national historic properties those identified as having significance to the Nation.

BLOOD DONORS

Following is a list of Goddard donors who were cited by the American Red Cross with gallon pins at the Bloodmobile of February 5, 1986.

Name	No. of Gallons
Rose E. Acevedo	3
James R. Brown	1
John C. Di Bartolo	1
Charles R. Greet	2
Joseph B. Gurman	1
Stacey Hammer	2
Jo Anne Martin	1
Ted W. McVey	1
Steven Wadding	1

Thank you, Goddard, for your overwhelming support of the recent bloodmobile. We went over our goal!

The next mobile is scheduled for Wednesday, April 2, 1986, in Bldg. 8 auditorium from 8:30 - 2:30.

First Engineering Fair a Success

A fair isn't a fair without a weight-guessing contest. So, Goddard's first centerwide Engineering Fair last month was complete, indeed, because several employees guessed correctly that the Center Director would tip the scales at 800, newtons, that is.

In observation of National Engineers Week (NEW) the Center hosted a week of activities featuring noted speakers on engineering and 3 days of exhibits that highlighted Goddard's technical achievements. Estimating Director Noel W. Hinners' weight was one of nine guessing games in the engineering trivia contest.

According to engineering fair committee members, approximately 800 people showed up daily to see the 65 exhibits that ranged from computer software and microcircuit testers to satellite systems credited with saving lives and an unprecedented communications system with the South Pole.

NEW is held to bring visibility to the profession. Engineers in industry, government, construction, private practice and education promote public recognition of the profession. Thousands of students in junior and senior high schools and colleges are introduced to engineering during NEW. Engineers stage tours and exhibits in the nation's industrial and research facilities and award scholarships to deserving youngsters, among other activities.

The National Society of Professional Engineers first sponsored NEW in February 1951. It always is celebrated during the week of George Washington's birthday. America's first president was a military engineer and a land surveyor. Additionally, he was responsible for establishing the first U.S. engineering school, at Valley Forge, PA, which later became the U.S. Military Academy at West Point, New York.

ENGINEERS WEEK—**George Griffin (left) with Goddard's SARSAT project explains how the system works to some prospective engineers during the first annual Engineers Week celebration activities.**

Goddard Celebrates Black History

A one-woman concert, an art exhibit on people and an annual dinner marked Goddard's celebration of Black History last month.

Roz Ryan, a multi-talented entertainer, performed a one-hour tribute to black female singers. An established singer, actress and night club performer, Ryan's many credits include leading roles in "Dreamgirls" and "Ain't Misbehavin." She was accompanied by pianist Sheldon Becton. Robert Hahn, Deaf Pride, Inc., Washington, D.C. provided an energetic and syncopated sign language interpretation.

While Ryan expressed herself on stage, self-taught artist John Nelson displayed his collection of drawings entitled "People Are the Essence of Life." His portraits have been acclaimed for projecting with three-dimensional effect, the whole range of moods and emotions that reflect daily living.

IN CONCERT—**Entertainer Roz Ryan, accompanied by Sheldon Becton, performs a Billie Holiday number as part of her tribute to black female singers for Goddard's Black History celebrations.**

Nelson's works have been highly praised. Among his accolades: he was selected from thousands of candidates for a White House showing in 1983, and was awarded a MacDonalds Corporation contract to provide art for a nationwide promotion.

In addition to Ryan's performance and Nelson's exhibit, a Soul Food Buffet and Dance was held at the Rec Center. This year's theme for Black History month was "The Afro-American Experience: Inter-Connection."

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 Charles Recknagel 344-5565. The GODDARD NEWS staff is:

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