NASA National Aeronautics and Space Administration

GODDARD NEWS

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GOES-6 spacecraft launched

NASA launched the third in a series of three improved Geostationary Operational Environmental Satellites (GOES) last month in Florida for the National Oceanic and Atmospheric Administration (NOAA).

GOES-6 is in geostationary orbit, positioned at 135 degrees west longitude replacing an older GOES satellite. The older GOES has been placed in a higher orbit and GOES-6 now monitors the western half of the United States, Canada, and the eastern Pacific.

GOES-6 joined a similar satellite, GOES-5, which monitors the eastern half of the United States. Together, these two satellites allow NOAA's National Weather Service to maintain a day-night vigil of severe weather developing over the United States and its adjoining waters. The satellites also are highly valuable to the NOAA forecasters in their preparation of day to day forecasts, particularly in describing short range weather changes.

GOES-5 is of special service in detecting and monitoring hurricanes that develop in the Atlantic and Gulf of Mexico waters, and for locating Gulf Stream system currents for marine interests. Information from this satellite also is used in warning Florida citrus growers of approaching crop-killing frosts.

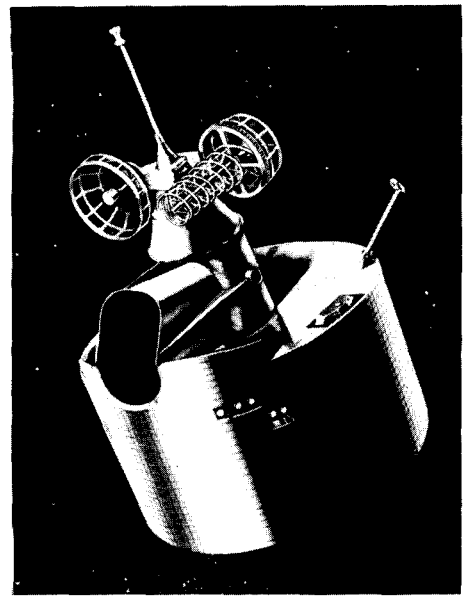
GOES-6 provides similar monitoring services for the Pacific Ocean and the Gulf of California hurricanes. Information provided by this satellite also is useful for monitoring sea surface temperature variations caused by upwelling of colder bottom waters which carry nutrients attractive to some species of fish. Knowing where these nutrient-rich areas are located is important to commercial fishermen.

Imagery from these satellites is used by commercial weather-casters, including television, to explain and display short range forecasts across the country.

NOAA has maintained operational geostationary spacecraft at the 75 W and 135 W longitude locations for the past seven years as part of its responsibility to observe and monitor the earth's weather as well as some solar activity.

GOES-6 was launched from NASA's launch complex 17-A at the Cape Canaveral Air Force Station. The major instrument aboard the spacecraft is the Visible Infrared Spin-Scan Radiometer and Atmospheric Sounder (VAS). This instrument, first carried into space on GOES-4 on Sept. 9, 1980, not only provides the traditional visual and infrared imagery of the earth's surface and cloud cover familiar to most television weather program viewers, but also can record atmospheric temperatures and the amount, distribution, and movement of water vapor at various levels. These latter functions, known as atmospheric sounding, are being researched by NASA, and will

Continued on page 8



GOES spacecraft

Sounding rocket probes area above Earth's outer atmosphere

NASA launched a three-stage Black Brant X sounding rocket from the Goddard/Wallops Flight Facility last month to probe the interstellar gas above the Earth's outer atmosphere.

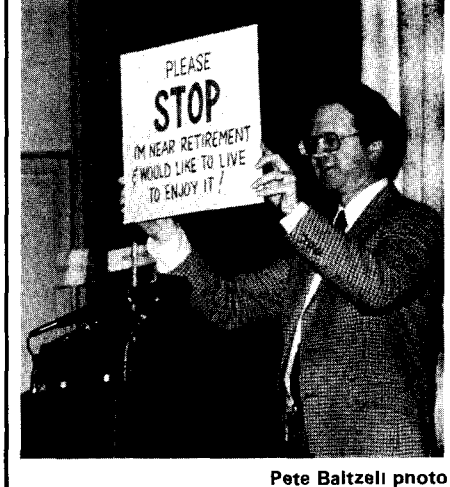
Some scientists believe our solar system is immersed in a cloud of matter which originated in the "big bang." They say the solar system evolved from gas and dust which condensed from residue known as the interstellar medium. The properties of the interstellar medium reflect the history of the universe extending back to its beginning.

Much has been learned about large scale properties of the interstellar medium with astronomical techniques. However, two problems limit our knowledge of the local properties: the interstellar medium is very diffuse–just a few particles in a cubic meter; and most of these particles are ionized by solar radiation and swept away by magnetic fields.

Fortunately, however, helium atoms are a part of the interstellar medium, and these atoms can approach the Earth without being ionized by sunlight. During spring, the Earth is moving away from the interstellar gas, and scientists reasoned

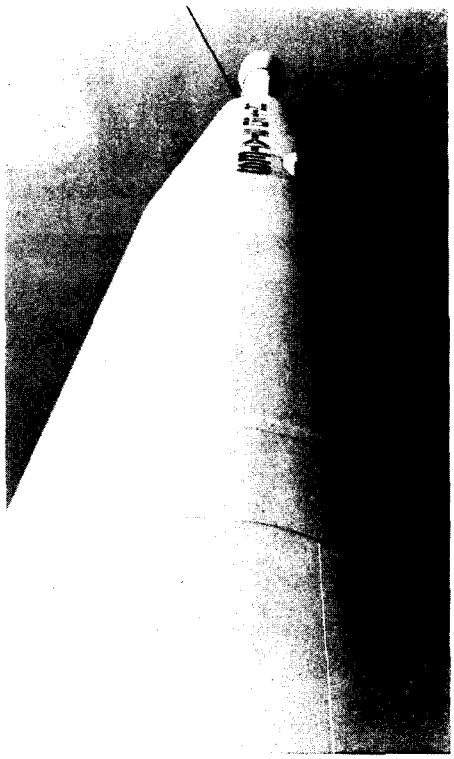
Continued on page 8

Safety Awards



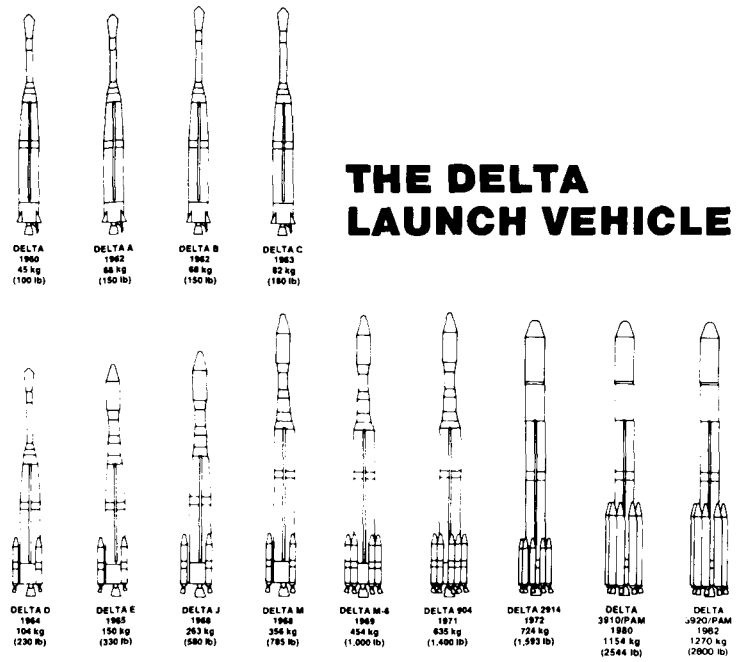
Pete Baltzell photo

See SAFETY AWARDS, page 8



Rick Berry photo

A skyward view of the model Delta rocket on display at the Visitors Center. The 82-foot model is of the Delta A series of launch vehicles and was obtained from the 1964 World's Fair Delta exhibit.



Over the years, the Delta Launch Vehicle has been improved in its performance and launch-to-orbit capabilities to meet the needs of more sophisticated spacecraft systems destined for space. Since 1960, there have been 14 major configuration changes to the launch vehicle.

Today, the Delta can place over 2,400 pounds into geosynchronous transfer orbit, over 20 times its original capability. And with the Delta, spacecraft can be placed into a variety of orbits. These range from the low earth orbit to the geosynchronous orbit at an altitude of 22,300 miles where the spacecraft matches pace with the rotating earth to remain "on station" over the same point above the equator.

The workhorse rocket

Looking up to Delta

Delta has launched more meteorological, communications and scientific satellites, as well as numerous international satellites, than any other free world launch system.

Delta has placed payloads into low, circular Earth orbits, into synchronous transfer orbits, into elliptical Earth orbits extending 170,000 miles into space, and into orbit about the sun. Payloads have varied in size from the 100-foot diameter Echo I to the 28-inch diameter Syncom B; and in weight from the 80-pound Explorer X to the 5,062-pound Solar Maximum Mission.

Delta was the first launch vehicle program in which new developments to upgrade performance have been undertaken on a commercial basis.

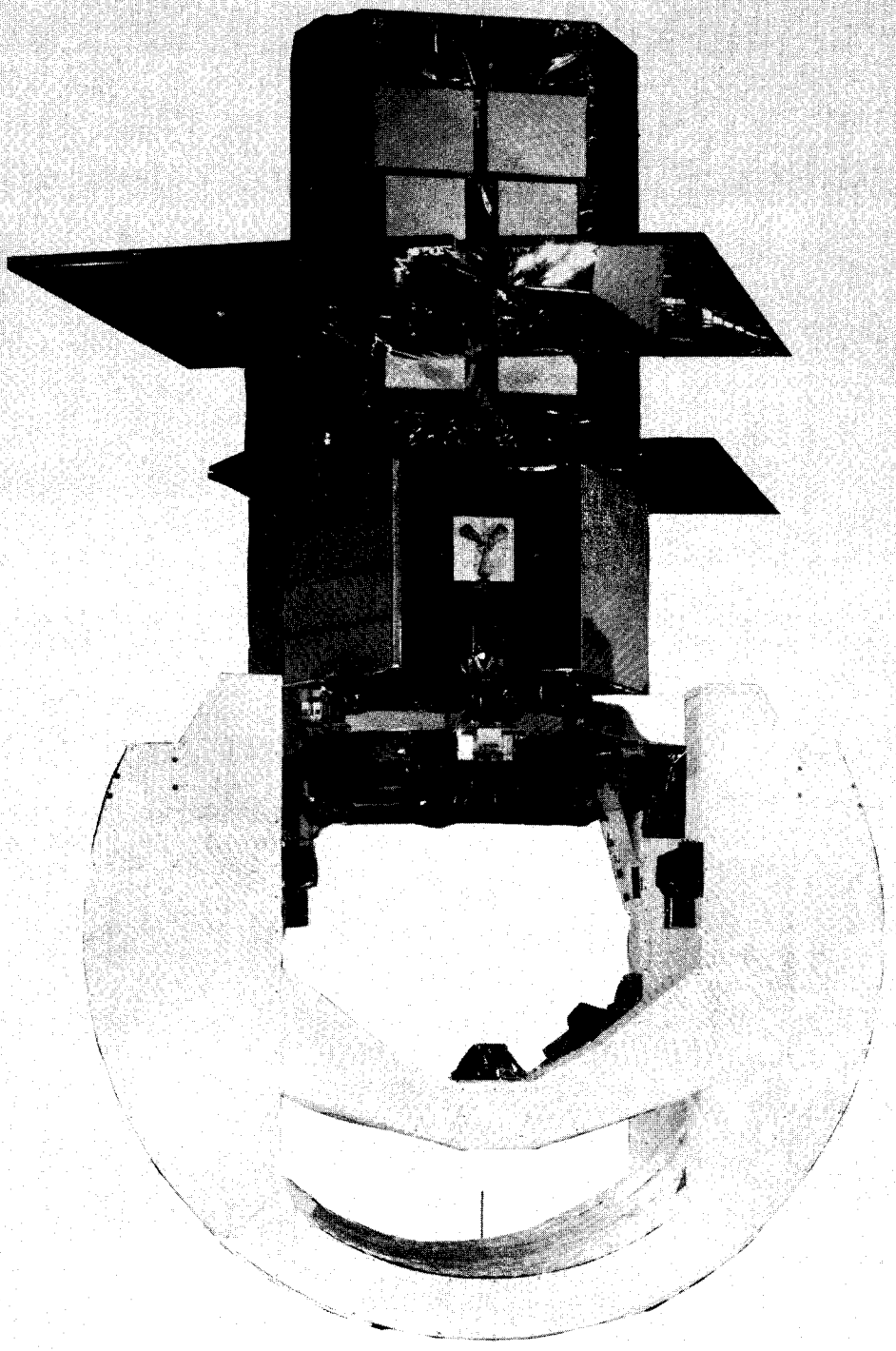
Since the first Delta flight in 1960, the Delta rocket has gotten taller, fatter, and in general received "structural plastic surgery." The design changes were necessary so the booster could accommodate larger, heavier and more sophisticated spacecraft. One of the significant changes which helped to improve the rocket's power was the addition of solid motors around the base of the first stage Thor.

It became apparent very early in the Delta history that man's creative ideas would require much bigger machines (spacecraft) to learn more about what's happening in the Cosmos, so mankind could live better here on Earth.

Goddard bears prime responsibility for the Delta launch vehicle, the most frequently used NASA rocket. Project manager is Robert C. Baumann. The powerful rocket has accounted for nearly half of all orbital attempts by NASA. Of these, 93 percent have succeeded. To date there have been 157 successful Delta launches.

STS-13

SMM repair mission



Joe Walters photo

The Flight Support System (FSS), the cradle fixture, for the STS-13 Solar Maximum Mission (SMM) spacecraft repair mission is shown here with a structural prototype of SMM joined to its positioning platform. STS-13 calls for astronauts to rendezvous with SMM, pull it into the orbiter's cargo bay, make the necessary repairs, and deploy it again. The FSS will be located in the aft section of the cargo bay. Goddard has responsibility for the operation and repair of SMM. The FSS now sits in the clean room, undergoing tests and evaluation.

Debora McCallum photo

Top: Two Hundred and fifty-nine runners begin the 15th annual Intercenter Fun Run. Bottom l-r: Danalee Green, NASA HQ; Center Director Noel W. Hinners announces the opening of the new physical fitness lab in building five; first place winner Tim Minor; Delores Cartier, Jeanette Hines, Patricia Higgs; mystery runner.

FUN RUN

Two hundred and fifty-nine runners and walkers braved unseasonably cold weather and falling snow to complete the 15th Intercenter Fun Run April 20. Tim Minor, code 900, finished first in the two-mile run with a time of 9:36. Former Goddard contractor Nelda Casper captured the number one spot for women at 12:54.

Also finishing in the top 10 were Tom Nolan, code 600, 11:08; Michael Markus, code 900, 11:35; Glenn Stewart, code 200, 11:39; Mark L. Stauffer, code 900, 11:53; Eric Nielsen, code 900, 11:57; Kenneth G. Walton, code 800, 12:01; Tony Mostek, code 900, 12:02; Jon Busse, code 700, 12:07; and Edgar Hemminger, 12:14.

The top ten women were: Claire Parkinson, code 900, 13:08; Mary Callan, 13:10; Danalee Green of headquarters, 13:45; B. J. King, code 100, 14:20; Christina Sante, code 400, 14:31; Arlene Bigel, 14:47; Linda Brennan, code 400, 15:28; Barbara Beckford, CSC, 15:30; Mary Ann Esfandiari, code 600, 15:38; and Sharon Anderson, code 900, 15:55.

Blake Heart Run For Life

TEAMS ON THE RUN – Members of the Goddard Running & Orienteering running team display the plaques they earned for winning first place in the Masters and Female divisions of the "Teams On The Run" competition during the Blake Heart Run For Life 10 kilometer race on Saturday, April 23 at West Potomac Park in Washington, D.C. More than $60,000 was raised to help the American Heart Association in metropolitan Washington fight heart attack and stroke.

Nimbus-5 operations terminated

Operations of the Nimbus-5 earth observation satellite have been terminated. The satellite became expendable when its last on-board tape recorder ceased operation in November 1982. Nimbus-5 was launched in December 1972, and there have been many notable achievements with the instrument data obtained during the 10-year operating lifetime.

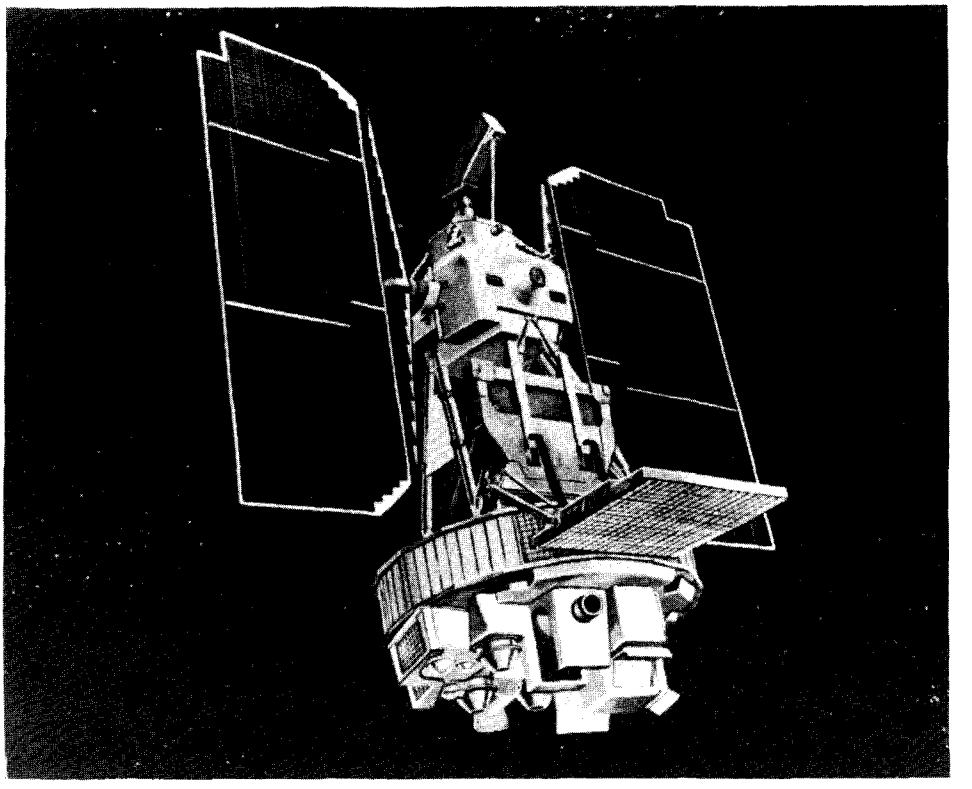
The Electrically Scanning Microwave Radiometer (ESMR) has been a source of all weather information regarding polar ice boundaries. Until the recent failure of the remaining spacecraft tape recorder, the data was used operationally by the U.S. Navy for polar resupply planning and as an input to the Joint NOAA/Navy Ice Center weekly polar ice maps available to the world community. It was also the source of the multi-year ice atlas generated by Goddard. Data of the Nimbus-5 type is now being supplied to the U.S. Navy by the Nimbus-7 Satellite.

The Nimbus-E Microwave Spectrometer (NEMS) was the first instrument to apply the microwave spectrum to sensing the atmospheric temperature structure on a global scale as well as determining atmospheric humidity and cloud water content over oceans. NEMS data, in conjunction with the three-dimensional temperature field provided by the Infrared Temperature Profile (ITPR) instrument, was the source of satellite data used in the Data System Test of the Global Atmospheric Research Program (GARP), demonstrating the utility of multispectral temperature sounding information in weather forecasting models.

The data from the Selective Chopper Radiometer (SCR) provided soundings of the stratosphere that were improved over those derived by the earlier Nimbus-4 and were for several years used in an operational mode by the world meteorological community.

The Surface Composition Mapping Radiometer (SCMR) demonstrated its capability to determine the composition of unvegetated terrain surfaces and became the basis for the Heat Capacity Mapping Mission (HCMM) program.

The data from the Temperature Humidity Infrared Radiometer (THIR) was the source of daily sea-surface temperature maps used in the Joint National Science Foundation/NCAR/NASA Upwelling Experiment off the West Coast of Africa. This activity was the first demonstration of international oceanographic research activity and of near real-time acquisition, distribution, and utilization of satellite data.



Art of Nimbus-5, whose operations have been terminated. Nimbus-5 was the first satellite capable of taking vertical readings from space through clouds.

Goddard mourns

Allen (Al) W. Niles died April 22, 1983, after a short illness in the Cape Canaveral Hospital. In the early 1950's Niles was with the Naval Research Laboratory (NRL), and was in White Sands, New Mexico on the Viking Program and participated in the historic Viking launch from the Norton Sound in the South Pacific. He came to the Cape in 1955 and was a member of the NRL Vanguard Team. He remained at the Cape and became a member of Goddard when it was established as part of NASA and worked in unmanned operations on the Delta, Atlas Centaur, and Atlas Agena Programs until his retirement from NASA in 1974.

Contributions can be made to the American Heart Association, Canaveral Chapter, 3435 South Hopkins Avenue, Titusville, Florida 32780.

Retiree announcement

Two former Goddard employees are forming a 'Goddard Alumni Club' for retired Goddard employees who would like to keep in touch with former co-workers. All interested persons should contact Roland Van Allen, (301) 577-2119 or Gesse Stern, (301) 422-9506.

Keep the Center in touch with what you are doing.

Mail your story to the Goddard News, Code 202, or call the Editor at

344-8102

Ten years of tutoring for tots

CDC celebrates tenth anniversary

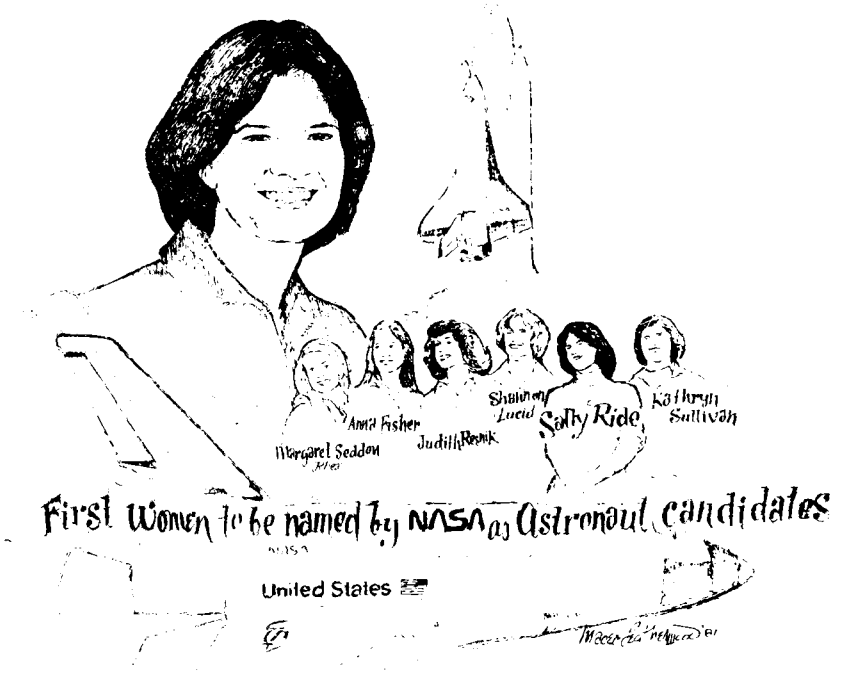
Debora McCallum photos

Goddard's Child Development Center (CDC) celebrates its tenth anniversary next month with an anniversary party June 12 at the rec center. The party begins at 1:00 PM and present as well as former families are invited.

A group of parents started the CDC and felt then that day care at the work site would be effective. Indeed, it has proven effective as evidenced in the convenience of day care at the work site for working parents, as well as the comprehensive curriculum available for children ages 32 months to six years old. The CDC tends 45 children daily from 7:15 to 5:30.

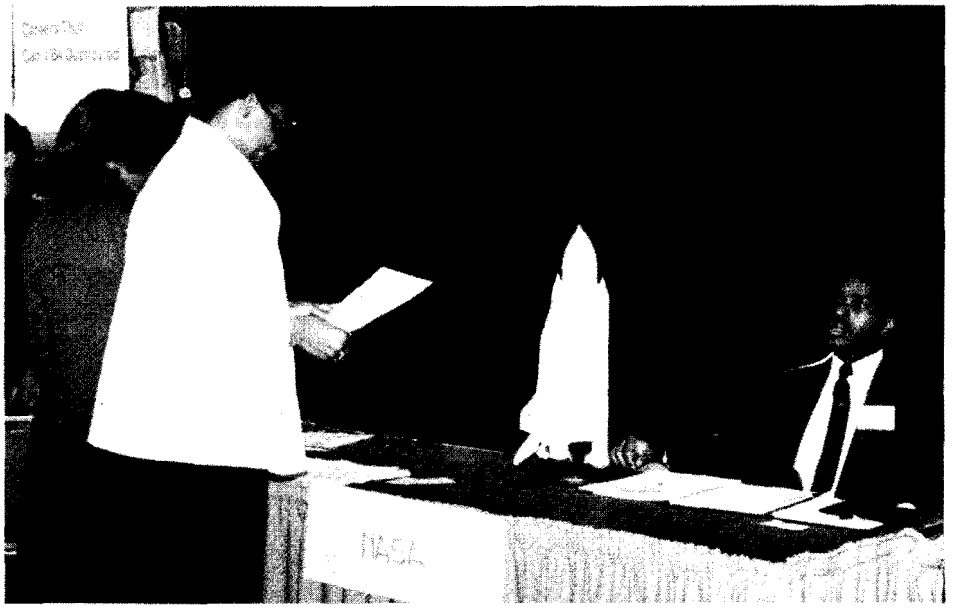
Children are encouraged to think for themselves at the CDC and thus make many decisions concerning themselves. For instance two kids bickering over something might be able to solve the problem themselves. "Often adults neglect to see if the kids involved have a solution to their problem, "said Barbara Karth, head, CDC. "Sometimes, when you ask them what should be done, their solution is more effective than an adults."

Karth feels that society needs to be responsible for the children. She said that the earlier we begin developing their minds and bodies, the better chances are of them becoming model citizens. The CDC provides much more than just day care, it operates on the premise that the children are our future and seeks to prepare them to preserve it.



The person highlighted is Sally K. Ride, the first woman scheduled to trek into space aboard the shuttle. Ride is a mission specialist for STS-7, scheduled for launch no earlier than June 18. She and four other crew members will make Challenger's second voyage on a planned six-day mission.

PEOPLE



Rick Berry photo

Michael Parrish (r) answers a student's questions about career opportunities at Goddard. Parrish, a Goddard personnel staffing specialist, was among nearly 60 private and government recruiters present at the University of the District of Columbia's annual Career Fair. Last Month's day-long fair attracted about 300 students.

CFC Awards

Deborah McCallum photo

The following received awards from the Director in recognition of their outstanding service to the 1982-83 Combined Federal Campaign (CFC) drive. L-r: Clayborne Magee, Bill Cooper, Sandy Morey, Susan Donnelly, Betty Gasch, Jan Tetrick, Center Director Noel W. Hinners, Marietta Sturgell, Kathy Bayer, Harry Montgomery and Dr. Fritz von Bun. Not pictured are Flo Boswell and Oscar Osvatics. Goddard collected $233,000, three percent over its $202,000 goal. Ninety percent of the directorates were over goal. Goddard will receive a presidential CFC award this month called the Exceptional Achievement Award.

GOES-6

Continued from page 1

eventually be used operationally by NOAA.

The VAS instrument detects and measures reflected sunlight and can sense infrared energy in 12 spectral bands, 11 more than the radiometer carried on earlier GOES satellites. This expanded capability gives the VAS its sounding ability. The spacecraft has a communications subsystem which includes the transponder for the Data Collection System and the telemetry and command subsystems.

The Data Collection System collects and relays environmental data back to earth from more than 1,500 existing remote platforms on land, at sea and carried aloft by balloons and aircraft, while the telemetry subsystem performs a variety of communications functions.

Also included in the spacecraft's instrumentation package is a Space Environment Monitor which obtains measurements of solar activity, detects solar flares and measures solar wind intensity and the strength and direction of the earth's magnetic field.

Once checked out by NASA, the new spacecraft will be under the control of NOAA's National Environmental Satellite Data and Information Service (NESDIS), Suitland, Md., which will make the imagery and digital data available to users world-wide through its existing distribution network.

Sounding rocket

Continued from page 1

that a sounding rocket, shot out well ahead of the Earth, would be in a position to intercept fast-moving helium atoms as they stream Earthward.

In last month's launch, Dr. John Moore, University of Maryland, and Drs. Chet Opal and Robert Meier, Naval Research Laboratory, used a slotted disk velocity selector which admits fast moving atoms to the exclusion of all other atoms. The fast atoms strike an electronic detector and are counted. The instrument scans back and forth across the sky, and, by recording the direction of the incoming helium atoms, determines the temperature and the source of the interstellar medium. Flight data is being analyzed to determine whether all mission requirements were met and scientific results are currently being published.

The Black Brant X sounding rocket sits poised for launch moments before liftoff from the Goddard/Wallops Flight Facility.

Safekeeping

On-the-job safety should be of prime importance to all of us. But our concern for safety shouldn't stop as we drive out the gate at the end of our workday. With warm weather arriving, there will be many things most of us will be doing around our homes. Many of our activities will be safe, while others can be dangerous.

Let's consider mowing the lawn. With a sharp, steel blade spinning around 3,000 times a minute, a lawnmower can hurl a stone or piece of glass with bullet-like speed, or sever toes or fingers instantly. Even the most safely-designed mower is only as safe as the person using it.

With these things in mind, here are some suggestions to make lawnmowing a safer task. Always wear shoes that will give you maximum toe protection and traction. Keep hands and feet clear of the blade area at all times when the mower is running. Where applicable, make sure bags or deflector shields are properly installed. When lifting the mower to clear away excess grass cuttings, disconnect the spark plug wire for extra protection against accidental starting. If you must move your mower up any steps to mow another portion of the yard, shut it off before moving.

This is a message from the Management Operations Safety Committee.

Safety Awards

Continued from page 1

No, Center Director Noel W. Hinners is not ready for retirement despite the sign he is holding. He used the sign during his recent talk at the annual Safety Awards Ceremony. Recent retiree Pat Kelly used the sign for crossing the streets on Center and, according to Hinners, the sign can be viewed as a preventive safety measure.

Hinners went on to say that "Goddard's policy is to establish and maintain an effective accident prevention program, that will ensure the utmost safety for employees on all levels." Hinners said the best evidence of a good safety program was the safety awards ceremony, an event set aside to acknowledge those that have made significant contributions to accident prevention, and thus make the Center a safer place to work.

NASA GODDARD NEWS

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