

## Center hosts Space 'Scope update

A 2-day "Space Telescope Science Festival" aimed at evaluating the program status of NASA's 20,000 pound astronomical observatory (Space Telescope) was conducted at Goddard Space Flight Center, March 26 and 27.

Highlighting the 2-day event were detailed systems presentations by a merit-selected team of scientists. The ten-man team of speakers, all recognized authorities in their fields, addressed issues concerning "Performance Objectives" and "Scientific Expectations."

California Tech's Professor James A. Westphal gave a visual presentation, "The Universe As Viewed by the Space Telescope." Professor Westphal, an internationally-known expert on astronomical instrumentations and planetary science, made his presentation on the second day of the festival.

The second day proceedings started with "Space Telescope-The Observatory" by E. J. Groth and were followed

by an in-depth projection on "Implementation of the ST Scientific Program," presented by members of the Association of Universities for Research and Astronomy (AURA).

AURA has been selected to operate the Space Telescope Science Institute, which will be located on the campus of the Johns Hopkins University, Baltimore, Maryland.

Scheduled for launch into a 310-mile-long orbit by NASA's Space Shuttle in January, 1985, the telescope's large 2.4 meter (8 feet) aperture will permit the observation of stars and galaxies 1/50th as bright as can now be observed by the largest ground-based telescopes. Designed for a lifetime of more than 15 years, Space Telescope consists of three major modules: the Optical Telescope Assembly; the Scientific Instruments; and the Support Systems Module,

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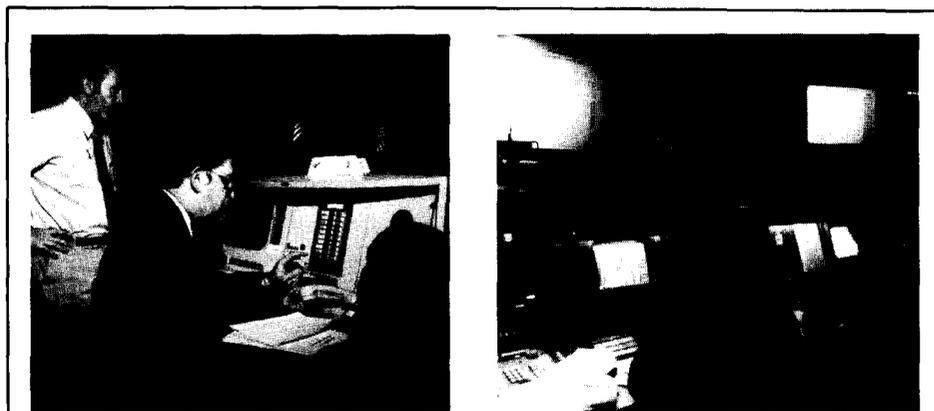
## Code 100 notes:

### *Goddard receives first NASA EEO award*

The following statement by Center Director, A. Thomas Young, was excerpted from the Equal Employment Opportunity Awards Ceremony at which Dr. Alan M. Lovelace, Acting Administrator NASA Headquarters, presented the first NASA Equal Opportunity Trophy to Goddard Space Flight Center. This is a new award and will be presented annually to the NASA Center which demonstrates the best managerial strategies for achieving affirmative action goals. Dr. Lovelace and Dr. Harriet G. Jenkins, Director of Equal Opportunity Programs NASA Headquarters, addressed awards program attendees. Individual and group awards were also presented at the ceremony.

"We can all be proud that our Center has been selected as the first recipient of the NASA Equal Opportunity Trophy. This award, which recognizes achievements in all aspects of the Federal Equal Opportunity Program, does not suggest that we have met all equal opportunity

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### *OPSCON simulates Shuttle flight*

Left: Networks Director Dick Sade (left), Center Deputy Director, Dr. John H. McElroy (center), and Bendix contract employee, Lee Haislip (right) monitor the network activities at Kennedy Space Center during a simulated Space Shuttle flight readiness test conducted in OPSCON, March 24, 1981.

Right: Networks Operations personnel monitor activities during simulation of Space Shuttle flight readiness testing in OPSCON.



NASA Acting Administrator Dr. Alan Lovelace presents Equal Opportunity Trophy to Goddard Center Director A. Thomas Young

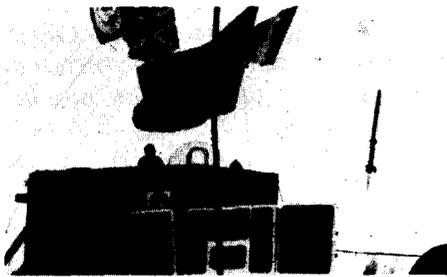
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## Antarctic sounding rocket team probes ionosphere

The launching of three Nike Tomahawk rockets from Siple Station, Antarctica, has given the Sounding Rocket Division the distinction of having launched rockets from all seven continents. The Rocket Research Program at Siple Station operated from November 27 through January 12 and was a complete success, according to Gary Cooper, Mission Chief of the Program.

Scientists from the University of Maryland, Cornell University, the University of Oslo, Norway, and the University of Southampton, England, provided scientific packages designed to measure triggered events in the ionosphere associated with plasmopause electron precipitation. Specifically, the experiments measured the distribution



Pictured above is Antarctica's Siple Station, equipped with a unique VLF transmitter, and capable of triggering events in the earth's magnetosphere. In the background, a sounding rocket is skybound.

in energy, the pitch angle of electron, and the full vector characterization of waves in the ionosphere.

Ground based, balloon, and Super Arcas Rocket observations have been taking place at Siple since 1973, however, these techniques gave only limited information because of design limitations.

This prompted Dr. David Matthews, Project Scientist from the University of Maryland, to provide instruments for three Nike Tomahawk payloads designed to conduct observations beyond the range of earlier methods.

Siple station was chosen as the launch site because of its unique high-powered VLF transmitter, specifically designed to produce wave-particle interactions in the magnetosphere. Because of the success of the project, scientists may be able to better understand the natural interactions of plasmas in geospace.

According to Dr. Matthews, the occurrence of the natural interaction of plasmas is proposed to have an adverse effect on the performance of communication satellites and ground based communications.

Therefore, a careful study of geospace and the plasma processes that control its behavior applies not only to an understanding of solar terrestrial relations and their effects on Earth's surface, but also to basic scientific questions about plasmas.

### Code 500 report:

## Image Processing facility evolves fully digital service

After seven years of evolution following its birth as a sophisticated data processing facility with a photo lab for representing data from Landsat 1, Goddard's Image Processing Facility (I.P.F.) in building 23 is now able to provide remote sensing experimenters and natural resource planners with 100 percent of their satellite imagery in digital form. For many users, this capability marks an end to traditional eyeball photointerpretation of satellite pictures and the beginning of the routine use of their laboratory computers for manipulating, enhancing and analyzing ground weather images.

The evolution, anticipated since the facility's origin but postponed until microprocessors reduced the high expense of going digital, makes the I.P.F. one of the very few start-of-the-art laboratories in the world for satellite imagery data processing. It also is by far the busiest, turning out some 1,000 Earth scenes a week for users.

To become digital, the I.P.F. has gradually acquired a high speed Master Data Processor, a high resolution (20,000 elements per line) laser film recorder, and high density magnetic tape recorders for large volume data storage. Out of this chain of hardware, user-ready data are produced on magnetic tapes that are quality controlled and widely useable. At the same time,

Furthermore, experiments of this type could possible develop the physical basis required for understanding and monitoring space radiation environment, for the exploration of geophysics systems, and conceivably, for some aspects of weather and climate.

The program was funded by NASA and the National Science Foundation and managed by Mr. Albert D. Blunt of the Sounding Rocket Division. Support services were provided by personnel from Thiokol Corporation, the Physical Science Laboratory at New Mexico State University, and General Electric/Management Technical Services Corporation.

by maintaining its high quality Photo Lab, the I.P.F. is keeping some of its ties to its earlier days when it was principally a hybrid system combining analog, digital and optical capabilities and distributing photographs.

Through the years, the I.P.F. also has been improving its software capabilities, among these geometrically correcting images to compensate for such variables as altitude and attitude changes in a satellite's perspective of scenes below. Essential has been expansion of the number of ground reference points that computer based correction models can recognize in images. Now there are 25 to 50 ground points available to each scene in the U.S. (and some abroad) for making realignments when necessary, whereas in the past such points characteristically were available for only ten percent of the images.

At present, Goddard's Image Processing Facility simultaneously supports three satellites, two primarily for investigators on Center and one in a virtually operational mode for land use planners nation and worldwide. These are Nimbus-7 (with support for its Coastal Zone Scanner and Temperature Humidity Infrared Radiometer), the Heat Capacity Mapping Mission (day/night ground temperature data and archival data), and Landsat-3 (Multi-Spectral Scanner and Return Beam Vidicon).

# NASA Acting Administrator, Center Director present EEO awards

*Continued from page 1*

objectives, but rather recognizes that during the past 3-year period we have implemented effective management approaches and achieved positive affirmative action results. To win such recognition in competition with the other centers of NASA is indeed a high honor.

"During the past several years, Goddard has made significant progress in

reducing the degree of underrepresentation of minorities and women in its work force, in promoting the women-owned and Minority Business Enterprise Program, and in its conduct of an effective outreach program with junior and senior high schools, colleges, and universities. This progress is the result of a Centerwide effort to increase the pool of candidates with the requisite

skills and to assure maximum utilization of all available talent in pursuit of the Agency mission.

"For those who have been selected for special recognition we extend our gratitude for their contributions to the Center's Equal Opportunity Program."

Pictured below are all award recipients except Kathleen Hipkins, former Goddard Co-op director.



Valerie L. Thomas (563)



NASA Acting Administrator Dr. Alan Lovelace presents Equal Opportunity Trophy to Goddard Equal Employment Programs Officer James Mundy.



Anthony Walch, Jr. (751)



Elva Bailey (202.3)



Charles T. Martino (225)



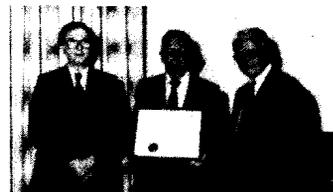
Waddell Longus (100)



Bonnie M. Kaiser (224)



John C. Lyons (724)



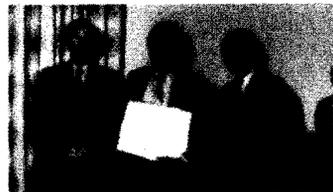
Donald A. Parker (564)



Sandra A. Buffalano (200)



William A. Mecca (100)



William N. Weston (581)



Edward E. Mayo (742)



David M. Gayle (140)



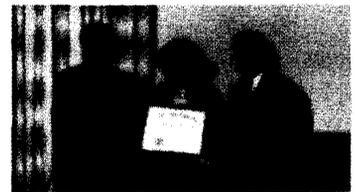
Bettie L. White (120)



V. Sue Prevost (220)



Arthur Wolter (247)



Dorothy H. Reid (120)



James W. Chapman (120)



Kenneth Jacobs (220)



Jerome Barsky (870)



Genevieve E. Wiseman (100)

## DELTA LAUNCHES SBS

Big Business's Big Bird

### New breed of satellite in orbit

**SBS** ... The new breed of satellite in orbit is the SBS (Small Business Satellite). It is the first satellite designed specifically for small business use. The satellite is being launched by the Delta rocket on April 13, 1981. The satellite will provide a variety of services to small businesses, including data processing, communications, and remote sensing. The satellite is being developed by the Small Business Satellite Corporation (SBS-C) in partnership with NASA. The satellite is expected to be in orbit for a period of 18 months.



Delta liftoff perfect

TODAY  
National Space Age Newspaper



## Boney assigned as Director's Exec. Ass't.

James E. Boney has been assigned to the position of Executive Assistant to the Center Director and is responsible for monitoring and coordinating the day-to-day activities of the Director's office and providing support to the Center Director and Deputy Director by maintaining an overall view of problems, issues, policies, and program developments of concern to them. He will provide assistance to the Director in carrying out his responsibilities within NASA and in relationship to other Federal agencies, the Executive Office of the President, the Congress, and various public organizations. Boney will further assist the Director by coordinating and expediting reports and related data; developing and coordinating policy statements, directives, and management instructions issued by the Director's office; reviewing and interpreting new and revised policies, practices, and procedures, and answering inquiries pertaining to Goddard activities. He will participate in and lead staff studies on Center policies and programs to develop plans of action, speeches, and directives. Boney was formerly assigned to Network/TDRS Systems Management Office, Networks Directorate.

## Reorganization & Key Appointments

Effective March 8, 1981, George Hinshelwood, formerly Chief, Systems Review Office, is appointed Deputy Director of Flight Assurance (Code 300, building 6, room C8, 344-8632). Hinshelwood will also lead the Systems Review Office in an acting capacity.



## Spotlight

### meet Delta Project's quickest draw, Maceo Leatherwood

If you don't believe that the hand is quicker than the eye, keep your eyes on this man's hands. He is neither a master of deceptive hocus-pocus nor a purveyor of prestidigitation. In fact, his art is more "now you don't see it, now you do." He's the "state of the art" on-the-spot quick sketch illustrator, Maceo Leatherwood.

Maceo recently created a masterpiece composite poster of the Delta-SBS launch. As an observer at the launch, Maceo quickly sketched the movements and events almost as they happened, yet captured the spirit of the event. Using direct, immediate line drawing, a style somewhat akin to tachygraphy (the ancient art of rapid sketching), he's able to transfer his "feelings" for the mood and tone of the event onto his sketchbook.

He became interested in quick sketching while studying under Paul Hoffman, a pen and ink artist, at the Corcoran gallery. Maceo's adoption of the art of on-the-spot quick sketching also has its roots in his early exposure to Chinese and Japanese artists. Their influence reflects in

Maceo's willingness to "go with the flow," using quick, immediate, natural strokes rather than planned drawings. By trusting his hand in sketching, he is better able to capture the essence of the moment.

During his career at Goddard, Maceo has used his talents in not only quick sketching but in designing publications, too. Goddard has given him a conducive atmosphere for creativity and positive accomplishment, he says.

Maceo's achievements go far beyond his work as a visual information specialist in the Presentations Section. As an accomplished, versatile, artist, he has worked as a Navy cartoonist, set designer for WTOP (now WDVM, channel 9), apprentice glass engraver, and has held one-man exhibits and given lectures.

In the future, Maceo looks forward to establishing his own shop. He is in the process of converting an old barn into a studio in which he can seriously dedicate himself to his work in sketching, sculpting and painting.

## Center Exchange

### Dryden Prepared for First Landing from Space

During the last several months, Dryden personnel have been preparing for the landing of the Orbiter Columbia, on the dry lakebed at Edwards Air Force Base. The scope of this preparation is considerable. For the landing of the Orbiter, Dryden will serve as the local nerve center for Johnson in Houston. From Dryden's "gold room" control facility, all landing support operations will be coordinated, including the critical work of the Recovery Convoy. The Convoy is responsible for the safe egress of the astronauts and the initial post-flight prepping of the Orbiter.

### Device Developed From Toys Could Aid Space Construction

A soda straw and a toy balloon may lead to an unusual tool for handling large metallic structures in space.

These two unlikely items, costing a total of 11 cents, were used by an ingenious employee at Marshall Space Flight Center, Huntsville, Ala., in the initial demonstration of this concept for a device known officially as a "pneumatically inflatable end effector."

The device invented by Keith Clark, is designed primarily to serve as a mechanical hand to grasp and transport aluminum structural beams which would be fabricated in space by an automated beam-building machine carried in the Space Shuttle cargo bay.

### Contracts let for Atlas/Centaur projects

Lewis has awarded two contracts to General Dynamics Corporation, Convair Division, San Diego, California, in support of the Atlas Centaur launch vehicles program.

In 1981, Atlas Centaurs are scheduled to launch one FLTSATCOM (Fleet Satellite Communications Spacecraft) four Intelsat V commercial communications satellites for the International Telecommunications Satellite Organization, and one Comstar commercial communications satellite for COMSAT General Corporation.



Pictured above are participants in the NSTA-NASA Space Shuttle Involvement Project.

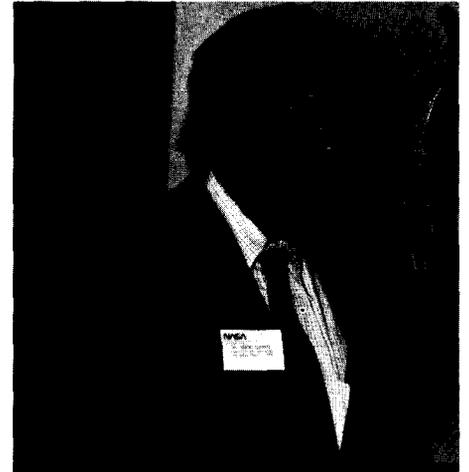
## Students vie for Shuttle space in new annual competition

*John E. Kurre, St. Francis Prep School, Fresh Meadows, N.Y. - "My experiment will deal with "Liquid Association" in space. I hope to determine how liquids will combine in a weightless environment by using water and oil. The event can be recorded by camera and astronaut observations."*

*Alain-Marc Werner, Bloomfield High School, Bloomfield, CT. - "In trying to find out how human beings would act or react under a given situation, mice are used for experimentation because they have similar characteristics. Therefore, my project will test 'the Effect of Spacelight Induced Stresses on Mouse Immunity Capabilities.'"*

*Richard J. Timpone, Commack High School South, Commack, N.Y. - "Reproduction of Drosophila Melanogaster or fruitfly is what my project is concerned with. In this experiment, I hope to monitor the effect of cosmic radiation and zero gravity on gene linkages with the fruitfly. This might ultimately determine if cells in astronauts go through mutation while in space."*

Kurre, Werner and Timpone were just three of 40 secondary school students who had space research to propose this month as they met for two days at Goddard to review their entries in a nationwide competition for experiment space aboard the Shuttle.



Dr. Robert D. Chapman, Associate Chief of the Laboratory for Astronomy and Solar Physics, introduces the guest speaker at a banquet held for the NSTA/NASA Shuttle student involvement project.

The students came to Goddard from nine north-eastern and mid-Atlantic states as part of a new, annual National Science Teachers Association/NASA Space Shuttle Student Involvement Project which each year will select 10 secondary school experiments from across the country for space flight.

Nationwide, a total of 200 students are engaging in similar review meetings at other NASA centers and in San Diego. Selected by regional educational directors from among thousands of interested students, they are presenting their proposals before panels of NASA scientists and non-scientists and pairing

*Continued to page 6*



*The Dynamics Explorer-A (DE-A) is shown here undergoing preflight evaluation testing in the Magnetic Test Facility at Goddard. With its sister spacecraft DE-B, it will be stacked in tandem atop a conventional (nine strap-on thrust assist solid propellant motors) Delta 3913 and placed into coplanar polar orbits from the Western Test Range, Lompoc, California, on July 31, 1981. Their mission will be to explore a boundary region between earth and space that affects the atmosphere, auroral displays, radio transmissions, climate and weather. Visible in foreground is one of DE-A's two 20 foot rigid support masts which will function in concert with two 13 foot-long tubular antennas and two 328-foot wire antennas for the scientific data acquisition instruments onboard.*

## Shuttle students

*Continued from page 5*

off with those in appropriate disciplines who can assist them in refining their proposals before they are sent to a final selection competition this spring.

At Goddard, regional students and their teacher sponsors received advice from Goddard staff including:

Dr. Jacob Trombka  
John Wolfgang  
Lawrence Cook  
Dr. Paul Lowman  
Dr. Herman Thomas  
David Whiteman

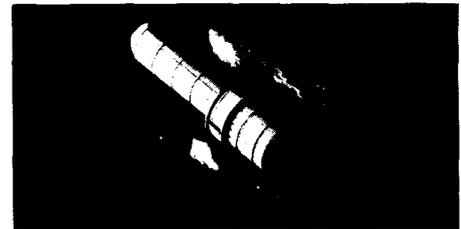
Richard Schmadebeck  
Dr. Robert Hobbs  
Fred Huegel  
Frank Volpe  
Dr. Lo I. Yin  
James Barrowman  
Dr. Robert Chapman  
Dr. Regina Cody  
Dr. Donald Kniffen  
Pedro Sarmiento  
David Suddeth  
Donald Wood  
Dr. James (Jan) Kalshoven  
Dr. William Webster  
John Bosworth  
Dr. Robert Hartman

## Space Telescope

*Continued from page 1*

which will house the Optical Telescope Assembly and the Scientific Instruments.

The Space Telescope will be controlled from Goddard's Space Telescope Control Center. Data acquired by the telescope will be sent electronically to the Goddard computers where it will be processed and provided to the astronomy community through the Space Telescope Science Institute. In the future, the Institute will be available to astronomers throughout the world who propose observations deemed by the Institute as having scientific merit.



Dr. Frank Jones  
Donald Stillwell  
Charles Sturgell

The project has many similarities to NASA's Youth Science Congress program of the late sixties/early seventies and also the Skylab Student Project. It is unique, however, in that NASA will seek industry sponsorship for each student's flight experiment, with one industry sponsor per student being the goal.



Dr. Loren W. Acton, Payload Specialist for Spacelab 11 from Lockheed Palo Alto Research Laboratory, as the guest speaker for the NSTA/NASA banquet, gives a personal view on "Science in Space."

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