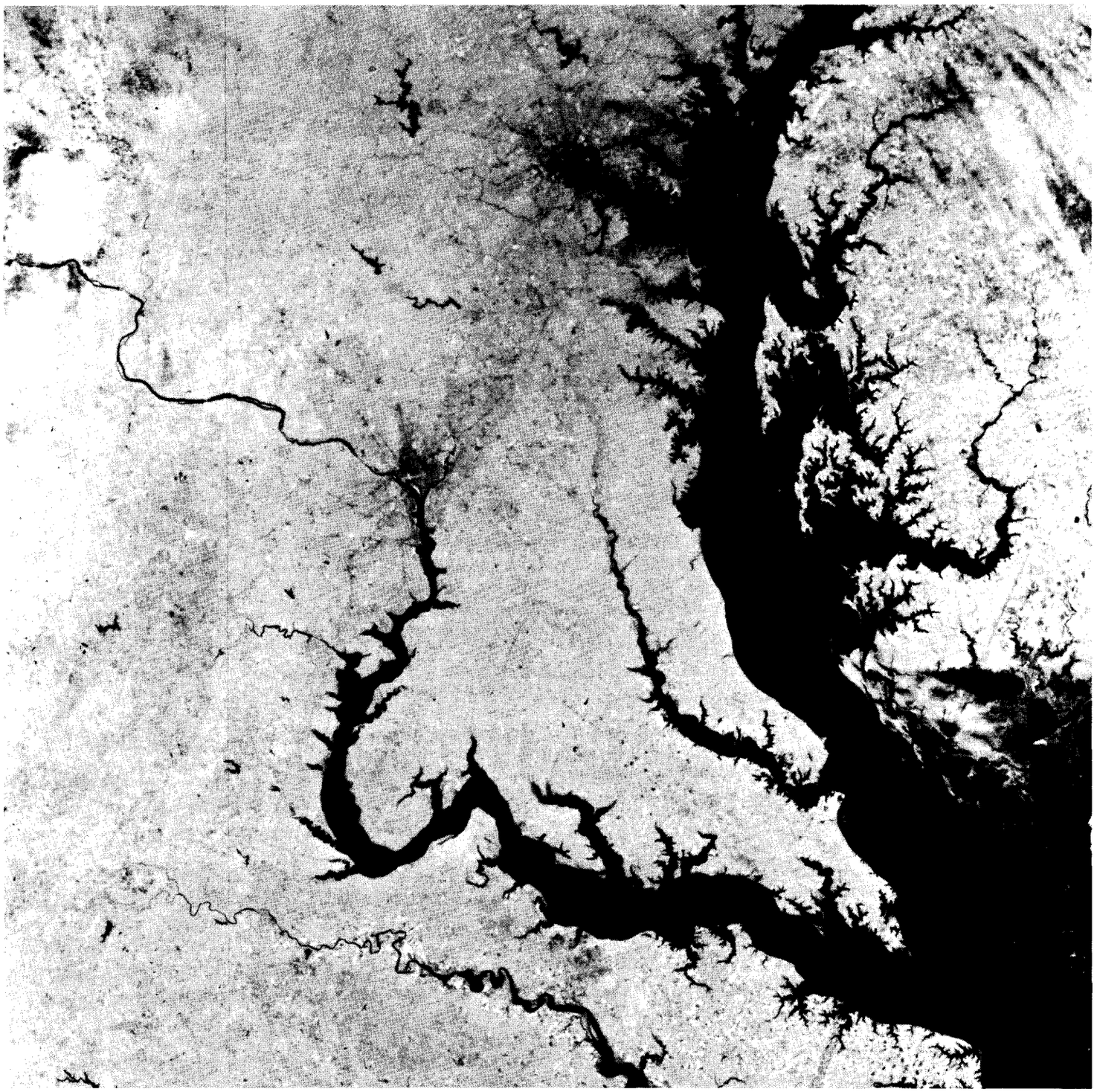
GODDARD NEWS November, 1972 Vol. 20, No. 8



AN ERTS-EYE VIEW OF HOME. This picture of the Washington area was taken by the Earth Resources Technology Satellite from an altitude of 915 kilometers at about 11:00 a.m. on September 23. Taken in an infrared spectral band at 0.7 to 0.8 micrometers, it shows water as black and vegetation as bright gray or white. The Chesapeake Bay stretches from top to bottom. Rivers starting at the bottom of the picture are the Rappahannock and Potomac. Washington, D.C., is at a fork in the Potomac where the river narrows down. Baltimore is north of Washington off the Bay, and roads such as the Baltimore Washington Parkway can be faintly seen. Annapolis is south of Baltimore on the Bay. Cambridge, Maryland, is east of the Bay at lower right. The infrared is one of three bands—others are green and red—used to make ERTS color composite photographs. In other bands such features as the Bay Bridge, a jet contrail and silt and pollutants in the Potomac can be seen.

THIS NOAA 2 visible VHIR image of the southwestern United States was recorded on October 29, 1972. The southern California coast is in the extreme left center. The Salton Sea, Imperial Valley and the Gulf of California are in the lower left quadrant. White Sands, New Mexico (round, bright area) and the Rio Grande River (long, black line) are in the right center.

ITOS-D Becomes NOAA-2

ITOS-D, launched aboard Delta 91 from the Western Test Range on October 15, was turned over to the National Oceanic and Atmospheric Administration early this month and renamed NOAA-2. The satellite, designed and developed by RCA under GSFC management for NOAA, will be the primary spacecraft in the operational environmental satellite system operated by NOAA's National Environmental Satellite Service. It will provide global coverage of the Earth's atmosphere and oceans twice each day.

A second satellite, OSCAR-6, was launched piggyback with ITOS-D and is doing well report Goddard amateur radio operators. OSCAR, short for Orbital Satellite Carrying Amateur Radio, was launched for the Radio Amateur Satellite Corporation as part of a three-year effort by American, Australian and German amateur groups. It is an amateur space applications satellite designed to conduct an experimental program of multiple-access communications using ham radio stations for relatively low-powered earth terminals.

NOAA-2, although similar in appearance to previous ITOS satellites, is the first in the series to fly with no cameras aboard and to rely entirely on scanning radiometers for imagery. It is also the first operational satellite to carry a sensor to obtain vertical temperature profile soundings of the atmosphere routinely on a near-global basis.

The 40x40x49-inch box, with three-panel solar cell array attached, contains a two-channel Scanning Radiometer and Solar Proton Monitor flown on earlier ITOS, plus a Vertical Temperature Profile Radiometer and a Very High Resolution Radiometer flying for the first time on the operational satellites.

The Scanning Radiometer system, similar to that on NOAA-1 is gathering data in both visible and infrared channels. The visible channel observes only the sunlit portions of the Earth, while the infrared

(See Page 5)

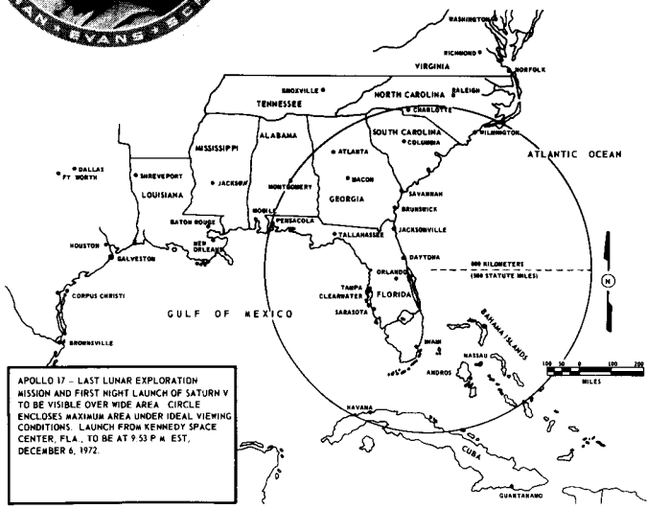
WILLIAM W. JONES, ITOS Project Manager until after the launch of ITOS-D (NOAA-2), has joined the staff of the Goddard Meteorology Program Office.

GODDARD'S ITOS TEAM members are (from left, seated) James Gatton, Gerald Burdett, Donna Barker, Jack sargent, Eileen DePietro, Ralph Shapiro, Joe Schulman. Standing are Russ Smith, Mike Berzonsky, Bill Browne, Jr., George Gemunder, Ed Mosier, Bob Weitzel, Tom Eddy, Ali Arman, John Shawhan, Bill Peacock, Jack O'Brien, Tony Rossi, John Lindstrom, Rick Pinamonti, Bernie Kwoka, Dick Ormsby, Ed Chewning, Harold Oseroff. Not shown are Ray Westcott, Seymour Leibowitz, Joe Ryan, Bob Golden, Bill Manuel, Bill Torres, Mike Prokopchak.

ARTISTS CONCEPT of the Apollo 17 LRV traverses at the landing site designated Taurus-Littrow on the southeastern rim of Mare Serenitatis (Sea of Serenity). During the 75-hour lunar surface staytime, three seven-hour EVA's are planned. EVA-1 is largely occupied with the deployment of the LRV, ALSEP and other experiments, with about two hours available for a traverse. EVA's 2 and 3 are largely devoted to the traverses. Astronauts for the mission are Eugene A. Cernan, Ronald E. Evans, and Harrison H. Schmitt.

Apollo 17 Preliminary Timeline

Event	*December Date*	*EST*
Launch	6	9:53 pm
Translunar Injection	7	1:14 am
Lunar Orbit Insertion	10	2:49 pm
Descent Orbit Insertion #1	10	7:06 pm
Descent Orbit Insertion #2	11	1:54 pm
Lunar Landing	11	2:55 pm
Start EVA-1	11	6:33 pm
Start EVA-2	12	5:13 pm
Start EVA-3	13	4:33 pm
Lunar Liftoff	14	5:56 pm
Transearth Injection	16	6:33 pm
Transearth Coast EVA	17	About 2:33 pm
Splashdown	19	2:24 pm



APOLLO 17 – LAST LUNAR EXPLORATION MISSION AND FIRST NIGHT LAUNCH OF SATURN V TO BE VISIBLE OVER WIDE AREA. CIRCLE ENCLOSES MAXIMUM AREA UNDER IDEAL VIEWING CONDITIONS. LAUNCH FROM KENNEDY SPACE CENTER, FLA., TO BE AT 9:53 P.M. EST, DECEMBER 6, 1972.

MRS. MARJORIE TOWNSEND, Goddard Project Manager for the Small Astronomy Satellites, receives the decoration of the Knight of the Italian Republic from Professor Luigi Broglio, head of the Italian space program. The award, presented in October during a ceremony at the Academic Senate Hall of the University of Rome, was for her contributions to joint U.S.-Italian space efforts. Mrs. Townsend is presently at the Italian-operated San Marco launch site in the Republic of Kenya for the upcoming launch of the second Small Astronomy Satellite (SAS-B). SAS-B will carry a Goddard-built digitized spark chamber gamma-ray telescope, making it the first spacecraft since Explorer 11 in 1961 to be devoted exclusively to the study of gamma rays. The highly successful SAS-1, launched from San Marco in 1970 and renamed Uhuru in honor of Kenya's independence day, was designed to detect X-ray sources in the universe and has produced results that are considered highly significant to high energy astronomy.

DR. GEORGE F. PIEPER (left), Director of Space and Earth Sciences, presents cash awards to Winfield H. Farthing (center) and Herbert F. Frisbie for their invention and flight demonstration of a low cost, high resolution solar aspect detector. The device utilizes a commercially available position sensitive photodetector in a pinhole camera configuration, with automatic dark current balance and analog signal processing to obtain measurements of solar aspect accurate to 1.5 minutes of arc rms in an 18 degree field of view. The instrument was flown on two sounding rockets during the 1971 DEW Line Expedition.

Goddard Mourns . . .

Ruby A. Boyles died at the Washington Sanitarium on October 10 after a long illness. Mrs. Boyles, a Federal employee for 25 years, joined the Goddard Accounting Branch in June 1968 after 12 years with the Treasury Department. At Goddard, she was noted for her outstanding work in the area of cost accounting and financial reporting.

Memorial contributions can be made in her name to the American Cancer Society.

IMP-H DATA PROCESSING TEAM. Fredreda Akers is seated at left. Other team members with TRW investigators are (from left) John Thompson, Glenn Pearson, Herman Hines, Ronald Durachka, Dr. Ira Green of TRW, Richard Burgess of TRW, Richard Bunevitch and Christopher Daly. Not shown is Stephen McCarron.

Experimenter Support for IMP-H

By Fredreda Akers
Telemetry Computation Branch

The latest Interplanetary Monitoring Platform (IMP-H) was launched on September 22. Post-launch support for IMP-H by the Data Reduction Laboratory (DRL) of the Information Processing Division started September 26 with experiment turn-on and continued for a period of four weeks. Dr. F. L. Scarf of TRW Systems Group and Dr. G. Gloeckler of the University of Maryland were the principal investigators who used the DRL facilities for quick-look support and data analysis.

Telemetry data was transmitted to Goddard from the Rosman, North Carolina tracking station. The Rosman station recorded data when in range of the satellite and it also received data from other tracking stations for transmission to Goddard. During the first week of post-launch support eight hours of telemetry data was processed daily. This was reduced to four hours per day of data during the last three weeks of support.

Within an hour after the data was received at Goddard it was processed on the UNIVAC 1108 computer to produce formatted printouts and data display files. The data display files were catalogued for viewing on on-line CRT vector displays. The capability existed for paging through display files. Where interesting events occurred the image displayed on the CRT's could be selected for reproduction on IPD's 4060 microfilm facility by depressing the associated function key.

Eighty-four different plot displays were required for the University of Maryland Ion and Electron Experiment. Related plots were grouped together for comparison making a total of forty-eight CRT displays. The types of graphs provided were plots of counts vs. time, rate frequency distribution histograms, sector summary histograms, and energy distribution plots. Similar types of plots were generated for analyzing data from the TRW Plasma Wave Experiment. Plots of field magnitude vs. time for both electric and magnetic sensors, histograms of number of magnetic readings in various windows, polar plots of magnitude vs. sun angle, and summary plots were provided.

The DRL aided the experimenters in the analysis of their data by generating graphic displays on the CRT's and tabular printouts within a short time span after the telemetry data was transmitted from the satellite.

FREDREDA AKERS, an AST Data Analyst in mathematics, came to Goddard in 1964 as a member of the Data Processing Branch and later transferred to the Telemetry Computation Branch when it was first organized. She is a graduate of North Carolina College at Durham, North Carolina.

TOM TAYLOR and Ann Merwarth have worked on the OAO on-board processor since 1968 and 1969 respectively. Mr. Taylor came to Goddard in 1962 after receiving his B.S. in electrical engineering from the University of Florida in 1961. He earned his M.S. in engineering from George Washington University in 1966. Mrs. Merwarth received her B.S. in mathematics from Emory University in 1963 and joined the Goddard staff that year.

The Computer on Copernicus

By Tom Taylor and Ann Merwarth
OAO Project

The highly successful Copernicus (OAO-C) is using an onboard computer both to ease ground operations and also to enhance observatory performance. The computer is government furnished equipment supplied by the Spacecraft Data Management Branch. The design of the computer or on-board processor (OBP) was aimed specifically at satellite use with a fast, potent CPU, and the memory and input/output units sized for each particular application. The Copernicus computer has 16,384 words (18 bits each) of memory and ten I/O channels, four of which time-share two cycle-steal memory channels. The OBP has 50 instructions, a ten microsecond add time, and sufficient hardware to permit loading and dumping without program execution. Originally, the OBP was approved for use on the OAO as an engineering experiment. To minimize installation costs and schedule effects, the rules of installation required the computer to connect only to signals already available on connectors. The interface which was adopted permits serial ground commands and spacecraft telemetry as input. OAO commands, memory dumps, an analog control signal to the power regulator unit, and an analog control signal to each of the three fine inertial wheels are output from the computer. This powerful interface of spacecraft data in and commands and analog signals out allows a diverse set of OBP functions to be implemented using time-shared software.

In the area of data processing, a 320 word block of memory is dumped once an orbit and contains a synopsis of the spacecraft's condition during the back orbit. This quicklook reduces the need for an analysis of spacecraft data played back from the onboard tape recorder. Various parameters in this quicklook, such as maximum inertia wheel speeds and power subsystem data at dark/light/dark transitions, have proved useful in indicating long term subsystem trends. Also, changes in the stabilization and control mode are reported which provides a quick validation of spacecraft response to programmed operation. For command applications, the OBP

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NOAA-2...From Page 2

channel is furnishing cloud pictures during night and day. The Scanning Radiometer replaces the two types of camera systems formerly carried on operational satellites by providing for the first time world-wide stored pictures of the Earth's weather. Direct transmission of cloud cover photographs from the satellite to local receiving stations around the world is also provided by the Scanning Radiometer.

The new Very High Resolution Radiometer (VHRR) obtains observations similar to those taken by the Scanning Radiometer, but with a resolution of one-half mile in contrast to the two-to-four mile resolution of the Scanning Radiometer observations. In addition to providing images of cloud cover, the Scanning Radiometer and the VHRR obtain data on sea surface temperatures in cloud-free areas.

The Vertical Temperature Profile Radiometer (VTPR) is an instrument that measures infrared energy radiated at six levels of the atmosphere and at the Earth's surface or cloud tops. These measurements are used to calculate the vertical temperature distribution or profile of the atmosphere beneath the satellite. The radiometer also provides information on the total moisture content of the atmospheric column observed.

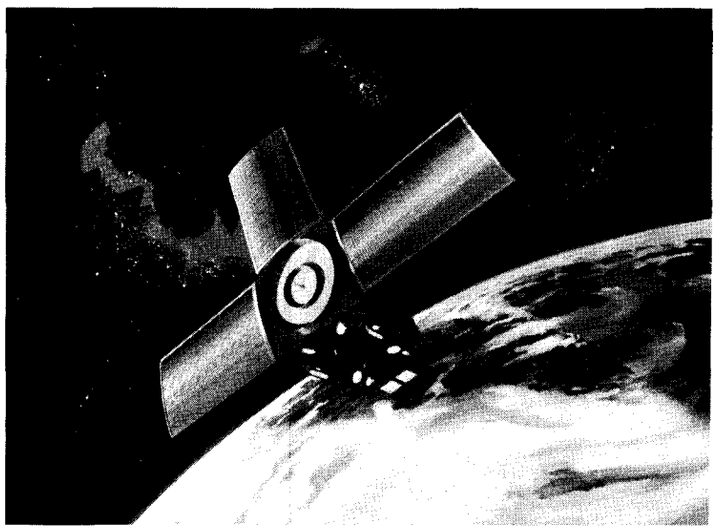
The VTPR evolved from the Satellite Infrared Spectrometer (SIRS) successfully flown on Nimbus-3 in 1969 and Nimbus-4 in 1970. The SIRS experiments were hailed as a major breakthrough in meteorology, the beginning of a new era in the application of satellites. They demonstrated that satellites can sound the atmosphere, as well as photograph its cloud systems, and provide observational data comparable to that gathered by conventional instruments.

A fourth sensor on the spacecraft is the Solar Proton Monitor which detects the arrival of energetic solar protons in the vicinity of the Earth. Solar proton data will be acquired by the NESS and transmitted to NOAA's Space Environment Laboratory at Boulder, Colorado, for use in issuing warnings of solar storms.

Goddard's ITOS team is headed up by Jack Sargent who was appointed Acting Project Manager, following the launch of ITOS-D, replacing William Jones who has joined the staff of Goddard's Meteorology Program Office. Other key team members are Spacecraft Managers Gerald Burdett and Bob Golden, and Sensor Managers Jack O'Brien for the VHRR, Rick Pinamonti for the VTPR and George Gemunder for the Scanning Radiometer. Joseph Schulman is the Instrument Manager and Ralph Shapiro is the NASA Operations Manager. William Schindler is Delta Project Manager.

Funds for this satellite were supplied by NOAA and represents a major step forward in the continuing meteorological satellite operational program.

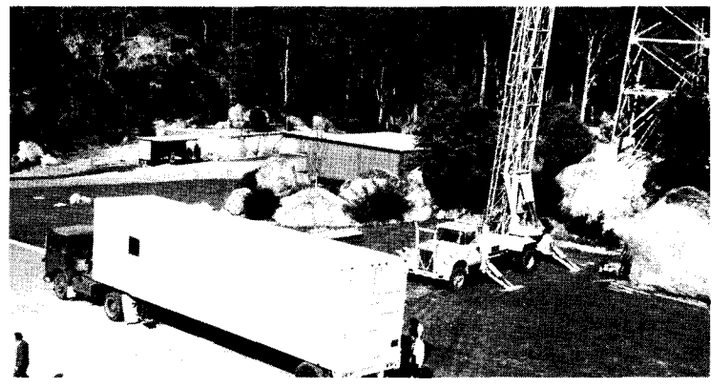
The NOAA team at GSFC is headed by Edward G. Albert.



NOAA-2 in orbit, an artist's concept.

GODDARD AROUND THE WORLD

HONEYSUCKLE CREEK, AUSTRALIA. The station prepares for the 1973 launch of the Skylab Orbital Workshop with the installation of special Skylab equipment. Above, men work on part of the new acquisition aid tower. Below is the emplacement of the command van with the command tower at right. Jim Kirkpatrick is the station facilities engineer in charge of the installation.



DATA TOPICS...From Page 4

provides both auxiliary command storage as well as auxiliary command execution. Up to 1024 commands may be stored in the OBP and transferred upon request to the command handler in blocks of 128. The auxiliary command executor or scratch pad command memory processes up to 16 stored commands in a manner similar to the command handler, i.e. the OBP compares spacecraft time with the execute time of a stored command and transfers the command to the command handler to be immediately executed when a time equality exists. Both of these command functions are used in normal operations—the auxiliary command storage allows a spacecraft command load around once a day rather than once every couple of orbits. The scratch pad command memory is a fine little feature that allows the interleaving of commands with those in command storage—a frequent requirement.

In addition to the data processing and commanding functions in the OBP, there are worker programs of two varieties: performance enhancement and failure work-around. There are three programs in the first category. A heat pipe control program cycles heaters on and off at a rate and duty cycle dependent on the voltage to the heaters. This action maintains a constant average power to the heaters. This program has been successfully operated in flight. Another program maximizes the power transfer from the array to the batteries by controlling the power regulator unit, and provides an increase of up to 40 watts averaged over an orbit. This program has not yet been pressed into service. The third performance enhancer controls the temperature of the telescope's spectrometer to within 1°C by sending heater on/off commands. There are several hardware failure work-around programs which would be used if necessary. Also, early operations have pointed to several additional functions which the OBP could provide and they are currently under consideration preparatory to an OBP reprogramming effort.

Minority Enterprise at Goddard

In 1969, the President established a program designed to increase the involvement of minority group contractors in Federal procurement. Within this framework, the national Office of Minority Business Enterprise is using Section 8a of the Small Business Act to direct government business to qualified minority firms. Under Section 8a, Goddard may contract directly with the Small Business Administration which in turn subcontracts with selected minority firms for required supplies and services.

It is Goddard policy that minority business enterprises and minority group members shall have the maximum practicable opportunity to participate in the performance of GSFC contracts. Qualified minority groups include Negroes, Puerto Ricans, American Indians, Spanish-Americans, Asians, Eskimos and Aleuts. Any business of which 50% is owned by minority group members is eligible to take part.

At Goddard, the Minority Business Enterprise Program is conducted by the Industry Assistance Section of the Procurement Division under the direction of Bob Warren, Goddard's Small Business Specialist. His goal is maximum participation of all directorates in the program.

The capabilities of minority firms on file at Goddard cover a wide range of services including construction, data processing, electronics, keypunch, machine shop, microcircuits, management system evaluation, printed circuits, research and development, and technical writing. To date, such firms have provided Goddard with valuable services in computer program maintenance, machine shop equipment maintenance, lawn care and off-site duplicating.

Doris Ann Fleming, of the Industry Assistance Section, is acting as Goddard's liaison and coordinator for minority business opportunities. She will be contacting Goddard technical offices to locate areas where minority firms might be of service to the Center under the provisions of Section 8a of the Small Business Act. For further information, she may be reached on extension 6871.

ELIZABETH CASTALDO (from left) and Robert Warren of the Industry Assistance Section review the capabilities of a small business company with Jim Hollis and Bob Walsh of the Small Business Administration.

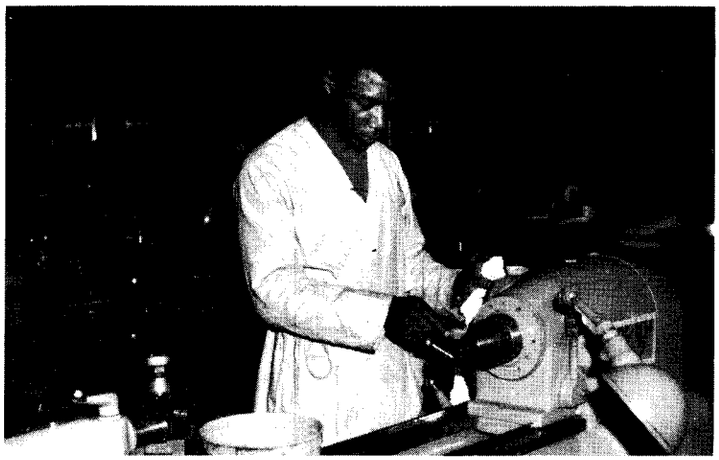
DORIS FLEMING of Procurement and (from left) Robert Wolfe, Wayne Howard, Paul Martin and Chief James Mills of the Facilities Engineering Division, provide counseling to R. Locklear, President of the Cherokee Construction Company, an 8a certified firm.

HARRY BICKFORD (center) of the Experimental Fabrication and Engineering Division reviews the day's requirements with Richard Larrydale (right) President of the United Machine Company and Hodges Curtis, supervisor for Goddard's machine shop contract with United.

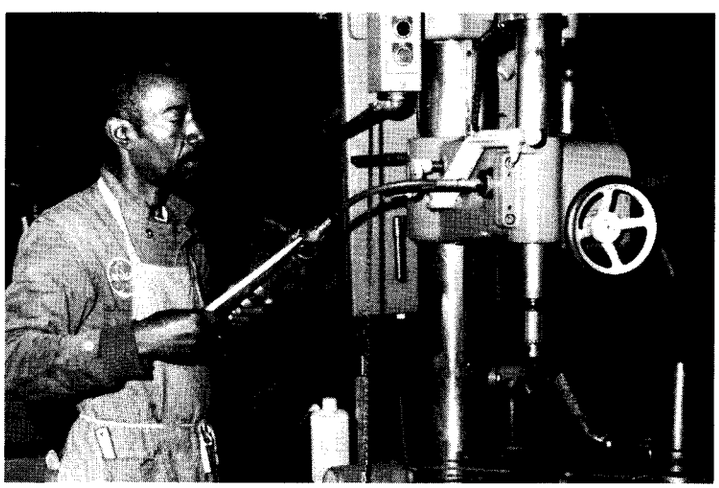
SAMUEL KELLER (third from right), Director of Administration and Management, meets with officials of PRIDE Enterprises, Jacques Knox (second from right), Chief of the Plant Operations and Maintenance Division, and Frank Heber (right), of Procurement. Goddard has contracted with PRIDE for lawn care services.

WAYNE HOWARD (from left), Robert Wolfe, Paul Martin and Doris Fleming examine the plans for a potential construction project with William Taylor and Jim Willoughby of the Plus Construction Company.

A TYPICAL DAY in the maintenance of the Machine Shop performed by 8a contractor United Machine (three pictures below) . . .

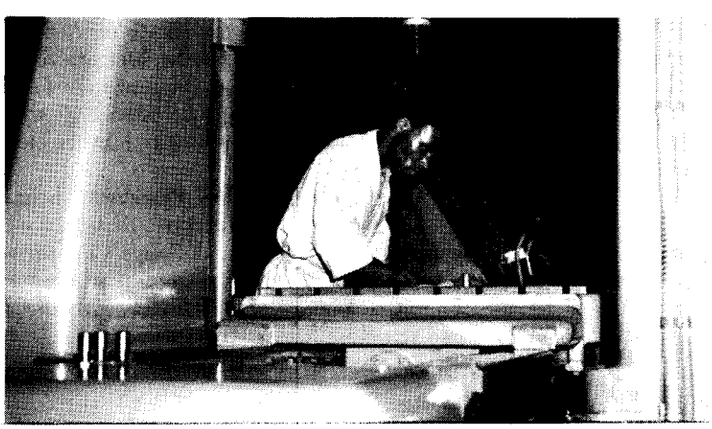


DE ESTES KEMP paints a lathe . . .



TED SEWELL oils the drill press . . .

. . . RAYMOND SMITH cleans.



ERTS Abstracts Now Available

Abstracts of technical reports on imagery received from the first Earth Resources Satellite (ERTS-1) are being published in a new weekly bulletin funded by NASA. This bulletin is prepared and distributed by the National Technical Information Service of the Department of Commerce.

Entitled "NASA Earth Resources Survey Program Weekly Abstracts," the bulletin contains titles of one to five page reports on the status of ERTS-1 investigations as of July and August. Future issues will list separately the reports which investigators identify as significant such as new findings in a particular discipline as a result of ERTS-1 data.

ERTS-1, launched by NASA from the Western Test Range, Lompoc, Calif., on July 23, is providing data for distribution to specialists of the United States and many countries in numerous disciplines in the use of agricultural, mineral, marine and other resources. This publication will make findings of these investigators promptly and widely available. ERTS-1 imagery is available to anyone from sales outlets established by the Departments of Interior, Agriculture and Commerce (National Oceanic and Atmospheric Administration).

The new publications, as well as the individual reports, may be ordered from the U.S. Department of Commerce, National Technical Information Service, Springfield, Va. 22151.

SCIENTIFIC COLLOQUIA

Nov. 17 – William Nordberg
Chief, Laboratory for Meteorology and Earth Sciences
Goddard Space Flight Center
RESULTS FROM THE EARTH RESOURCES TECHNOLOGY SATELLITE

Nov. 24 – No Colloquium scheduled because of the Thanksgiving holiday

Dec. 1 – Lewis E. Snyder
Department of Astronomy
University of Virginia
Charlottesville, Virgniia
INTERSTELLAR MOLECULES

Dec. 8 – Ichtiaque Rasool
Deputy Director, Planetary Programs
Office of Space Sciences
NASA Headquarters
Washington, D. C.
HISTORY OF PLANETARY ATMOSPHERES

Dec. 15 – Bernard L. Strehler
Director of Biology and
Director of Biological Research and Training at the Gerontology Center
University of Southern California
Los Angeles, California
TOWARD THE CONTROL OF HUMAN AGING

OPEN SEASON—HEALTH BENEFITS

November 15-30

The Civil Service Commission is providing its annual open season for health benefits from November 15 through November 30. During this period, any employee who is eligible to participate in the program may enroll. Employees already enrolled may change plans, options or type of enrollment. Effective date of hospitalization is January 6, 1973. For further information and assistance please contact Mrs. Gertrude Law, Code 224, extension 4757.

GEWA Store Open for Christmas Shopping

MRS. ANNIE LEE WILSON, Manager of the Goddard Employee Welfare Association store, chats with Harold Levy as he inspects one of the many discount catalogues available for use by Goddard employees. The store has recently moved from the Lobby of Building 1 to one of the trailers in the parking lot on the cafeteria-side of Building 21. Everyone is invited to come out and take a look at the new store and expanded services.

AL COCHRAN picks up a box of Russell Stover candy, one of the many items available at the GEWA store. Goddard employees can also pick up Goddard commerative plates and discounts on photo processing. The store is open every Monday through Friday from 10:00 a.m. to 2:00 p.m.

PERSONALIZED CHRISTMAS CARDS are available for order through December 1. Here A. L. Cole checks the card catalogues at the store. Poinsettia plants will also be offered on order in December for the holiday season.

New Trap and Skeet Range Now Open

NEW TRAP RANGE at Fort Meade was built by members of Goddard's Trap and Skeet Club. It and the near-by skeet range are open to members of the Goddard club.

Goddard sharpshooters now have access to trap and skeet ranges located at Fort George G. Meade thanks to GEWA and the work and cooperation of personnel at Fort Meade and Goddard's new Trap and Skeet Club Members. The new club was approved March 22, 1972.

Skeet facilities in the general area of Goddard are limited with most of the clubs closed to new members. The same is true of trap shooting facilities.

The idea of building a Goddard trap and skeet range seemed impossible at first. Such a facility costs at least 12 to 15,000 dollars, not counting land development and assuming that electrical power is available near the site. Minimum safety precautions require at least 1000 feet safety area in the direction of shooting.

Building at Goddard was out, so a search was made of neighboring government agencies. Like a dream it was learned that the Fort Meade Rod and Gun Club had two skeet facilities, but no trap facilities. The Goddard Trap and Skeet Club developed an agreement with the Fort G. Meade Rod and Gun Club whereby Goddard would construct the trap facilities on Meade's Skeet Range; then the combined facilities would be available to the members of both clubs. These arrangements were made with the approval of the Post Commander at Fort Meade and Goddard's Director Dr. Clark. The new trap range became operational on October 14, and both facilities are open to members of the Fort Meade and Goddard clubs.

The new range was made possible through the support of the Goddard Employee Welfare Association, plus $1,000 and hard work from members of the Goddard Trap and Skeet Club.

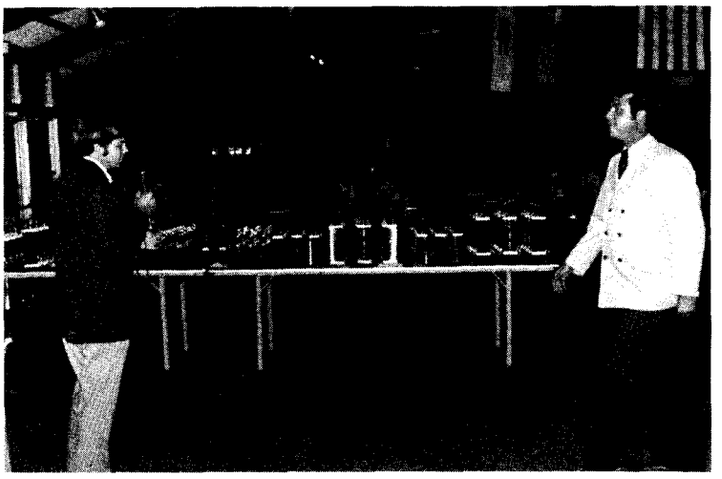
Trap and skeet shooting both involve moving targets. In trap, the clay pigeons are fired up and out at random by an automatic machine located at the center of the range in front of the shooter. In skeet, the same clay targets are fired from high and low "houses" located on both sides of the range. Skeet targets always follow the same high and low trajectories that cross at the center of the field. Trap targets are fired at various angles from the center of a 94 degree field.

The range at Fort Meade is open every Wednesday from 5:00 p.m. to dark, and Sunday from 1:00 to 5:00. Lights for night shooting will be installed on the trap range sometime next month.

The Goddard Trap and Skeet Club, open to all Goddard employees, has about 50 members at the present time. A $5.00 initiation fee is assessed new members and yearly dues are $7.50 which includes insurance. Fees for shooting at the range are $1.00 per round (25 targets), with club members providing their own guns and ammunition. For information on how to join the club, contact any of the officers listed below.

Trap and Skeet Club officers: Walter Carrion, President; Michael Feldman, Vice President; Gerald Tomaselli, Secretary; Richard King, Treasurer; and Paul Spadin, Range Officer and Range Committee Chairman who took charge of much of the construction of the trap range. Other Range Committee members are Thomas McGunigal, Wesley Willard and George Vaughan.

Softball Winners Honored



GODDARD SOFTBALL PRESIDENT Jack Thompson returns the microphone to Alan Ritter, Master of Ceremonies at the Softball Annual Awards Night.

The Goddard Softball Association climaxed a successful season with its annual "Awards Night" on October 6 at the Goddard Recreation Center. The affair was attended by nearly 300 members of the men's and girls' leagues. Trophies were presented to each member of the first and second place teams in each league.

Alan Ritter, presiding as master of ceremonies, introduced each winning team manager who in turn presented the individual trophies to their players. Once again, the Thursday Night League winner, Ramada Inn, emerged as the overall Goddard champion.

The Goddard Softball Association consists of four men's leagues of ten teams each and a girls' league of seven teams. Highlights of the busy season included a "Family Day" on July 15 when the Goddard Allstars beat the visiting WWDC "Oneders" by 3 to 1. The Third Annual Invitational Tournament provided a big weekend at the end of July when 30 teams visited the Antenna Range. Goddard's Ramada Inn finished first in the tournament followed by N.S.A.'s Corsairs as runner-up. The big loss of the season came on August 12 when the Goddard Allstars lost to the N.S.A. Allstars by a 16-4 score.

Softball Trophy Winners

Thursday Night League

First Place	Ramada Inn managed by Bill Fahey
Second Place	CSC managed by Wayne Palmer

Wednesday Night League

First Place	Attaboys managed by Carlo Broglio
Second Place	Retreads managed by Burr Demaline

Tuesday Night League

First Place	Invaders managed by Bob Grigsby
Second Place	Trackers managed by Will Filkins

Monday Night League

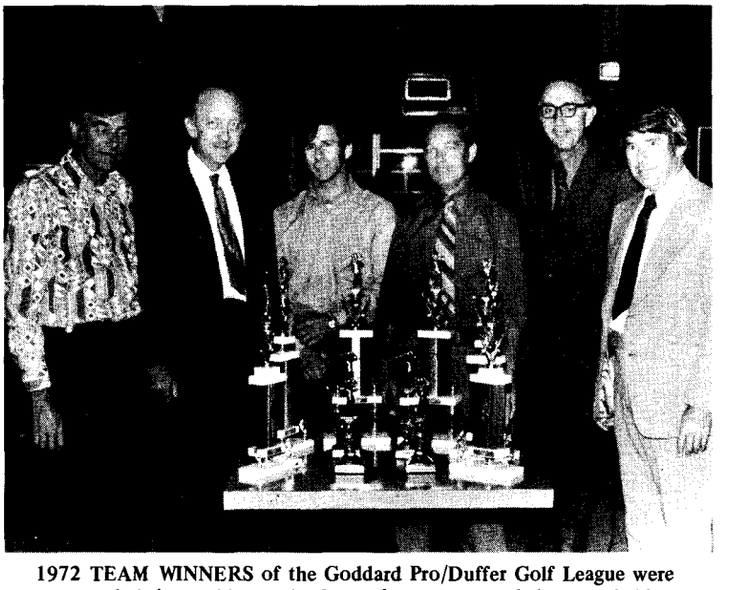
First Place	Clippers managed by Dale Fahnestock
Second Place	Sputniks managed by Joel Mashbaum

Girls League

First Place	No Bras managed by Chris Dunker
Second Place	Charley Browns managed by Dave Walden and Dennis Jorden

Goddard Golfers Take Trophies

FGA WINNERS. A team of Goddard men took first place in the Class D Division of the 1972 Federal Golf Association Inter-Agency Competition. The proud winners with their trophies are (from left) team captain Ron Surgen, Dick Stonesifer, John Donley, Chuck Trevathan, and Neil Zylich. Not shown is Donald Burrowbridge. This is the second Goddard team to win a FGA championship since Goddard joined the association several years ago.



1972 TEAM WINNERS of the Goddard Pro/Duffer Golf League were presented their trophies at the League's annual awards banquet held at the Recreation Center on October 13. Awards were given to the top three two-man teams. Winners are (from left) Harry Burke and Ralph Delzell, second place team; Mike Comberiate and Fred Leyh, first place team; and Bob Keefe and Bob Perry, third place team. The Pro/Duffer Golf League plays weekly from April through September. The league consists of 20 teams with two men per team and ten substitutes.

SANTA IS COMING. Don't forget Children's Christmas Parties on Sunday December 17.

Guys and Dolls

GUYS AND DOLLS, the Goddard Music and Drama Production's first dinner theatre, was a huge success with some 200 people attending each of the five performances in November. Special guests at the dress rehearsal on November 2 came from the Children's Home at D.C. Ceder Knoll, the Veterans Administration Hospital of Washington, D.C., and the Walter Reed Army Medical Center. Highlights of the play are shown above in pictures taken during rehearsals.

GODDARD'S NEW MEN'S CHORUS gives "My Wild Irish Rose" its due under the direction of Tom Butler. From left (standing) are Mr. Butler, Charles Miller, Donald Voelker, Herb Richard, Charles Young, Joe Deskevich, and Jack Libby. Chorus members not shown are Steve Brown, Jerry Hodge and Manny Karageorge. In the tub is Howard Galloway who claims he does his best singing in the bath and always wears a shirt and tie for formal pictures. If you enjoy singing the old favorites, join the group by calling Charles Miller, the chorus organizer, on extension 4856.

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