

SMS-1 Is A-OK, Beaming Excellent Pictures

The world's first Synchronous Meteorological Satellite (SMS-1), launched by Goddard's Delta 102 from the Kennedy Space Center on May 17, is performing well in spite of initial problems in achieving the proper orbit. First pictures from the spacecraft have been of excellent quality.

Don V. Fordyce, Project Manager from Goddard, says "This is the first time we've ever seen one-half mile resolution from synchronous orbit. Really, it's everything—even better—than we had hoped for."

A harried week for Goddard ground controllers began shortly after launch when it was found that the launch vehicle had placed the satellite in an orbit that was a little lower than planned. To achieve a synchronous orbit, the apogee kick motor was fired in a series of maneuvers that raised the orbit and slowed the eastward drift of the spacecraft. At this writing, SMS-1 is expected to achieve a synchronous/circular orbit at 45° west longitude by early this June.

Two weeks after the launch, Mr. Fordyce commented that "The spacecraft is functioning very well and we should have no problem meeting the mission requirements."

The Synchronous Meteorological Satellite weighs in at 527 kilograms and is capable of transmitting electronic data to produce day and night pictures of the Western Hemisphere every 30 minutes; receive and transmit environmental information from up to 10,000 manned and unmanned data collection platforms; transmit and relay weather data and pictures to hundreds of small receiving stations; and monitor solar flare activity for future manned spacecraft and supersonic aircraft flights.

An onboard telescope produces nine-tenth-kilometer (1/2-mile) resolution images in visible light, and a nine-kilometer (5-mile) resolution images



ONE OF THE FIRST, 9-kilometer resolution pictures received on May 26 from the first Synchronous Meteorological Satellite clearly shows much of North and South America. Taken at 5:30 P.M. EDT while the spacecraft was located at 86° west longitude, picture details of interest include the solar terminator line that darkens the eastern edge of South America, almost three-dimensional clouds over Brazil which show intense thunderstorm activity, an intertropical convergence zone with heavy showers moving into Mexico from the Pacific, a squall line moving along the Gulf Coast, and heavy cloud cover over the eastern part of the United States.

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ATS-6 Achieves Near-Perfect Orbit

The launch of the most complex Applications Technology Satellite (ATS-6) 'went by the book.' Lift-off aboard a Titan III-C launch vehicle took place right on schedule at 8:59 from Cape Canaveral on May 30, and the huge, 9 meter (30 feet) in diameter, reflector antenna for the powerful communication satellite was fully deployed by late that afternoon.

Shortly after launch, Project Manager John M. Thole reported that "thanks to the ride we got on the Titan III-C, we got such a good orbit and the drift rate is so slow that we can expect an extra year's life from the spacecraft."

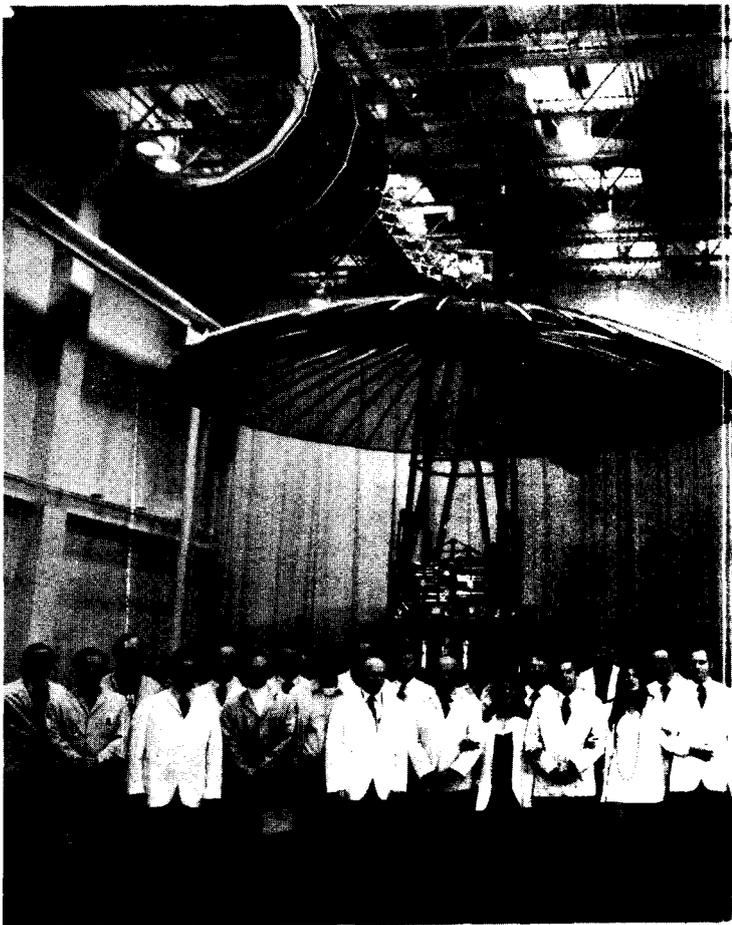
Now, as the *Goddard News* goes to press, Goddard's ATS team is busy with turn-on operations for spacecraft systems and the many communications and technological experiments on board the ATS.

ATS-6 will be used to test a variety of new space communications concepts requiring the use of a geosynchronous-orbit spacecraft. These include broadcast of health and education television programs to small, low-cost ground receiving units in remote regions; aeronautical and maritime communications, position-location, and traffic control techniques; and spacecraft tracking and data relay.

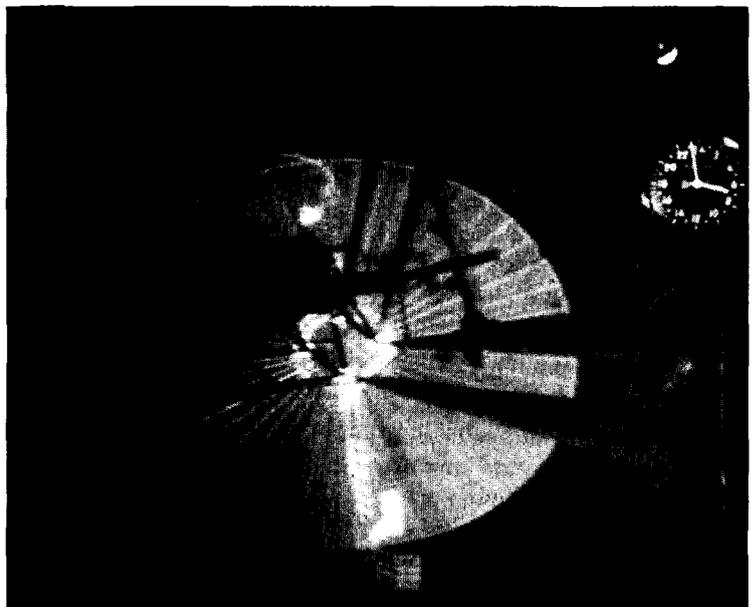
All totalled, ATS-6 carries more than 20 technological and scientific experiments, many of them international in scope.



SENATOR MATHIAS VISITS GODDARD. Goddard Deputy Director Donald P. Hearth (left) and U.S. Senator Charles McC. Mathias (R. Md.) discuss the Applications Technology Satellite (background photo) which was launched from Cape Canaveral at 8:59 on May 30. Senator Mathias was one of many distinguished visitors at Goddard mission control facilities to witness the launch via closed circuit TV as well as observe activities of ATS-6 project management officials.



KEY ATS PROJECT PEOPLE pose with the actual spacecraft while it was at Fairchild Industries. From left are: Joseph R. Rotehnburg; Peter Fosher; Ronald R. Gunton; Roy L. Courtney; Richard A. Austin; Thomas A. LaVigna; Dr. James P. Brown; John B. Webb; Michael J. Coyle; Donald L. Miller; Edward A. Alvord; Roger A. Mattson, Launch Vehicle Manager; Aldo A. Merollini, Assistant Project Manager; Paul A. Villone, Deputy Project Manager-Resources; Jacklyn V. Crocker; Richard P. Puffenberger; Anthony H. Sabelhaus, Spacecraft Manager; Charles F. Fueschel; Susan Elliott; Harry J. Doyle, Reliability Manager; and John M. Thole, Project Manager. Not shown are J. Patrick Corrigan, Experiments Manager; Kenneth I. Kissin, Operations Manager; and Dale H. Scott, Deputy Project Manager.



ATS-6 PHOTOGRAPHS SELF. The nine-meter (30 feet) diameter deployable antenna carried by NASA's Applications Technology Satellite-6 is displayed in this photograph taken by an onboard TV camera. Recorded by Goddard, the photograph reveals that the lightweight mesh antenna is in good condition for the telecommunications experiments to be conducted with it. The spacecraft's two solar panels can be seen projecting from behind the top and bottom of the antenna.

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David, Iuliano and Pashby Receive NASA Awards

Gerard R. David, Henry Iuliano, and Paul J. Pashby of Goddard's Networks Directorate have received NASA Exceptional Service Medals for their contributions to the Skylab missions. The Exceptional Service Medal is the space agency's second highest award.

Mr. Iuliano and Mr. Pashby received their awards during a recent ceremony at NASA Headquarters for technical contributions to the Skylab program.

Mr. David, who was out of the country at the time of the NASA ceremony, received his award at Goddard from Dr. John F. Clark, Goddard Director, for his outstanding service in the management of the Skylab program.

All three awards were for contributions to the "Skylab program which successfully culminated in the world's first operational space station missions and opened up a new era in the uses of space for the study of the sun, the earth, and man himself, and for many other scientific and practical purposes."



JOAN M. STOCKWELL has recently been appointed Head of the Project Computation Section in the Telemetry Computation Branch. In this post, she supervises the work of nine mathematicians and physicists who provide analysis and programming support for telemetry data processing to the major Goddard space projects. A Goddard employee since 1963, Mrs. Stockwell has been Data Processing Engineer on the RAE and IUE projects; Software Systems Analyst on the AE-B project; and programmer on the early OGO and OSO satellites. Before coming here, she had worked at the Naval Air Test Center, the U.S. Patent Office, and the U.S. Coast and Geodetic Survey. Mrs. Stockwell was born in Mannington, West Virginia, and received her B.S. degree in mathematics from Fairmont State College in Fairmont, West Virginia. She has continued her studies at the University of Maryland and at the University of Southern California. Her husband, Ephraim J. Stockwell, is Associate Program Manager for Network Operations in the Office of Tracking and Data Acquisition at NASA Headquarters. They have three children and two grandchildren.



EXCEPTIONAL SERVICE MEDALS. Dr. John F. Clark congratulates Gerard R. David (left) and Henry Iuliano for receiving the NASA Exceptional Service Medal. Not shown is Paul J. Pashby who also received NASA's second highest award.

Golden Named Consultant to Baltimore on Urban Problems



AGREEMENT SIGNED. Goddard and the City of Baltimore have begun a unique two-year test project designed to bring space technology to bear on urban problems. Above, Mayor William D. Schaefer (left), of Baltimore, and Dr. John F. Clark, Goddard Director, sign the Memorandum of Understanding in Baltimore on April 26. NASA has assigned Thomas S. Golden, Senior Engineer from Goddard, to work directly with the Mayor's office in Baltimore to test the feasibility and measure the effects of utilizing technology in the solutions of problems that affect the urban environment, generally, and that challenge the public administrators of Baltimore, specifically. The project will be conducted under the direction and coordination of individuals designated by the Office of the Mayor; Office of the Director at Goddard; and the Technology Utilization Office, NASA Headquarters.

Payroll Section Honored for Excellent Service

Some members of the Goddard Payroll Unit have received Special Achievement Awards for their outstanding performance on the job. They are Gloria Goodman, Payroll Supervisor; Ruth Riley, Payroll Accounting Assistant; and Louise Hysan, Virginia Estes, Jane Frye, Richard Austin, and Deloris Finch, Payroll Clerks.

The Payroll Unit has not missed a payday since Goddard's inception. To meet the bi-weekly deadlines, members of the unit have developed an in-depth understanding of every facet of payroll processing, and have maintained the ability to work efficiently under pressure.

Congratulations to Payroll for a job well done.



PAYROLL AWARD. Samuel W. Keller (left), Director of Administration and Management, presents Special Achievement Awards to (from second left) Louise Hysan, Virginia Estes, Gloria Goodman, Ruth Riley, and Jane Frye. Not shown are Richard Austin and Deloris Finch. Lee Murphy, Head of the Accounting Branch, looks on.

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during day and night time using infrared sensors. These electronically devised images are received at the National Oceanic and Atmospheric Administration (NOAA) Command Data Acquisition Station at Wallops Island and from there transmitted to the National Environmental Satellite Service (NESS) at Suitland, Maryland, for national and worldwide distribution.

SMS-1 is the first of three planned spacecraft for a future Geostationary Operational Environmental Satellite System (GEOS) that is being developed by NASA and NOAA. SMS-1 and a second SMS set for launch in about four months are prototypes for future satellites in the system. A third spacecraft, to be launched early next year, will be funded by NOAA which will name it GEOS-1 in orbit.



KEY MEMBERS of Goddard's SMS team are (from left) Peter T. Burr, Spacecraft Manager; C. Curtis Johnson, Deputy Project Manager; Don V. Fordyce, Project Manager; and Richard J. Wirth, Mission Operations Director. Mr. Fordyce holds a small model of the first Synchronous Meteorological Satellite.

Mosaic Presentation



DR. JOHN F. CLARK (left), Goddard Director, was one of many government officials present at the recent unveiling of the first complete satellite photo mosaic of the United States. With him are Dr. James C. Fletcher (right), NASA Administrator; and (from second left) Jerome Gockowski, Department of Agriculture; Robert W. Long, Department of Agriculture; Charles Mathews, NASA Associate Administrator of Applications; and William A. Rodlinski, Department of Interior. The mosaic is made up of 595 images taken by the first Earth Resources Technology Satellite. See the May issue of the *Goddard News* for more information and a reproduction of the mosaic itself.

IMP Data Workshop Held

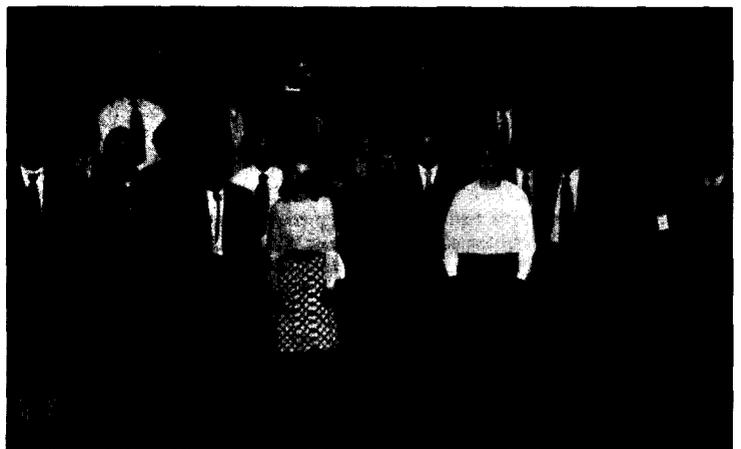
On May 13 and 14, an IMP 6, 7, and 8 Data Workshop was held here at Goddard and attended by all 19 principal investigators and their co-investigators on these three spacecraft missions. Experiments on the three Interplanetary Monitoring Platforms continue to provide impressive new scientific results.

The IMP series was begun in the early 1960's following the earlier success of Explorers 10 and 12 in exploring the earth's magnetosphere, magnetic tail and interplanetary medium. A consecutive sequence of successful missions has provided definitive measurements of the entire geomagnetosphere and magnetic tail, solar wind interaction with the earth's magnetic field creating a bow shock and the magnetic tail itself and comprehensive studies of the chemical composition of cosmic rays in the interplanetary medium coming from the sun and outside our solar system. In addition, Explorer 35 was the first spacecraft to provide the definitive measurements of the nature of the lunar magnetic environment and the solar wind interaction process.

The two latest IMPs have been placed into circular orbits at distances half way to the moon and on opposite sides of the earth so that they provide continuous monitoring of the interplanetary medium upstream from the earth's magnetosphere and the magnetosphere and tail region itself. Important new scientific findings from IMPs 6, 7, and 8 presented at the Data Workshop include confirmation and extension of studies of cosmic gamma ray bursts, mapping of the outer magnetosphere, comprehensive new measurements of low energy galactic and solar cosmic rays, and detailed studies of the solar plasma. These latter missions with their long antenna systems have provided new studies of plasma-waves and the first study of the earth's radio emission in the kilometric region as well as extensive solar radio emission down to the 20 kilohertz region.



IMP ENERGETIC PARTICLE EXPERIMENTERS



IMP PLASMA FIELDS AND RADIO SCIENCE EXPERIMENTERS

Goddard's DRGS Goes to Africa In Time for GATE

A ground station designed by NASA to receive high-resolution weather photos directly from orbiting satellites left Goddard Friday, May 17, for Dakar, Senegal, where it will play a key role in an international study of tropical weather patterns.

Part of the Global Atmospheric Research Program (GARP), the GARP Atlantic Tropical Experiment (GATE) will make significant use of the new NASA equipment both to plan daily operations and to provide data for later scientific analysis.

The project will begin in mid-June. It is under the co-sponsorship of the World Meteorological Organization and the International Council of Scientific Unions with the National Oceanic and Atmospheric Administration playing the leading role for the United States.

Using the satellite photographs received by the Direct Readout Ground Station planners can quickly advise scientists aboard ships to focus their attention on specific weather conditions and can route aircraft into regions where cloud development, including storm activity, is detected.

When the data collection phase is completed, the high-resolution photographs will provide scientists with essential information for use in analyzing the developing weather patterns of the tropics.

Without the DRGS prototype, there would be no ground station in this region capable of receiving high-resolution imagery from orbiting satellites. Because current weather satellites have a very limited capacity for storing information, data from the test area would be lost without the DRGS. At present, fixed ground stations are located so they provide data primarily on weather conditions in and near the United States.

The prototype DRGS unit was developed by Goddard. It weighs about 26,000 pounds. Later units weighing about 600 pounds will give direct readout of weather satellite data to allow compilation of cloud cover maps and heat maps for areas as large as 8,000 miles long and 2,000 miles wide from data received at a single station.

The system produces real-time images as large negatives or positive transparencies. The cloud-cover photos show clouds superimposed over land or ocean areas.

The infrared heat detection photos measure temperatures extending from cloud tops to the Earth's surface, showing colder areas as lighter shades and warm areas as darker portions of the pictures.

The signal is transmitted from the spacecraft and is transformed to a visual photo by a laser which is modulated by the video signal.

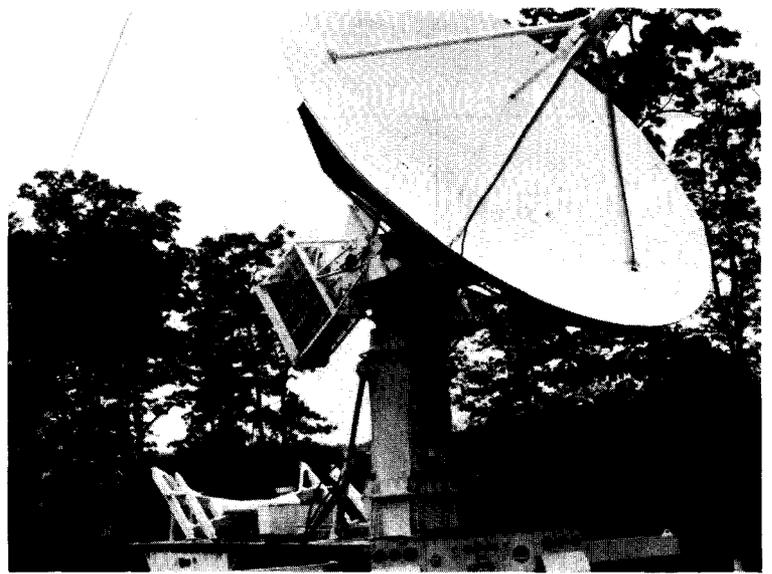
The film is a unique dry silver type, developed by heat instead of the usual liquid. The photos have a resolution of about 1/2 nautical mile, contrasted with about two to four miles for the Automatic Picture Transmission units now in use throughout the world.

The present system consists of four vans including a JP-4 fueled jet engine power unit, an 18-foot dish antenna and an instrument van unit to produce the film. The fourth van is an administrative unit and also serves as crew quarters. The system was flown to Senegal aboard a U.S. Air Force C5A, the world's largest aircraft.

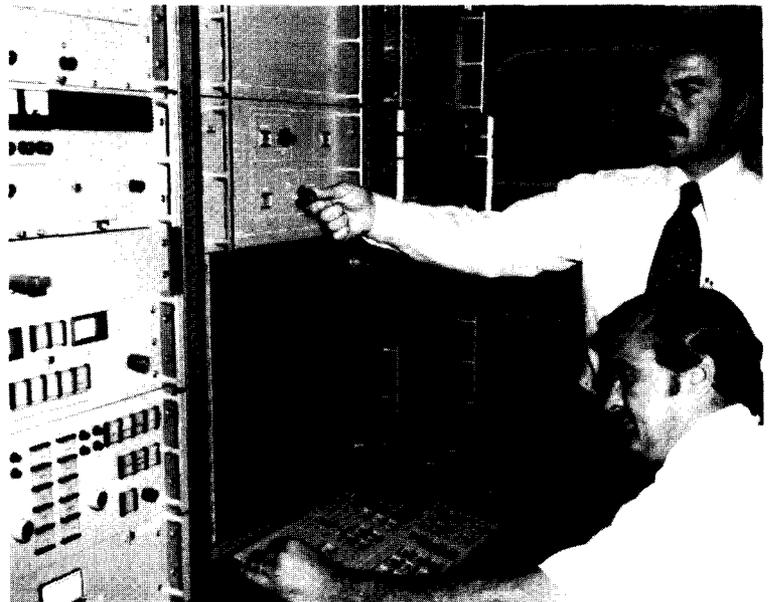
In the future, lighter and more compact units will be mounted on racks rather than wheels. They will be portable and can be built at a modest cost by other countries. The prototype unit requires a crew of six for continuous, 24 hour, seven-day week operation.

Goddard personnel accompanying the shipment include Charles Vermillion, technical director; Charles Casto, transportation specialist; and Robert Schools, logistics director. Vermillion will be in Africa for about one month to set up, calibrate the station and train a Westinghouse crew in its operation.

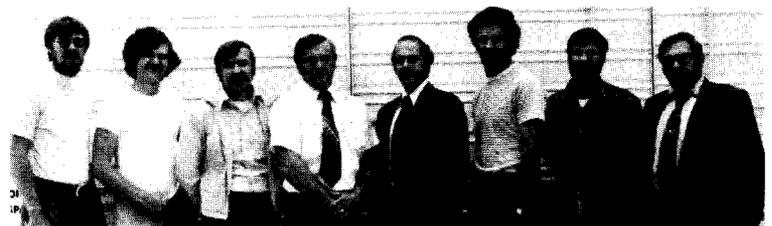
The equipment will stay for about four months for local demonstrations and for use by NOAA in the GATE exercise. DRGS is the only system capable of locally reading out both synchronous and low earth-orbiting satellites.



THIS 18-FOOT PARABOLIC ANTENNA is an important part of the DRGS station now set up in Africa. The station consists of the antenna, a DRGS instrumentation van, a JP-4 fueled jet engine power unit, and an administration van that serves as crew quarters. In operation, signals in the infrared and visible light bands from the NOAA-2 and 3, and SMS-1 spacecraft are received by the antenna and converted in the instrumentation van to photographic prints using a system that uses a modulated laser beam and a special dry silver film that is developed by heat. This system, and lighter, cheaper units to be developed in the future, can give high quality meteorological pictures for predicting the weather.



CHUCK H. VERMILLION (right), of Goddard's Electronic Systems Branch; and Robert de Beradinis, of the Westinghouse Corporation; check out Goddard's Direct Readout Ground System (DRGS) before it was shipped to Dakar, Senegal in Africa on May 17 for a project sponsored jointly by the World Meteorological Organization and the International Council of Scientific Unions. Mr. Vermillion will be in Africa for about one month to train Mr. de Beradinis' six-man Westinghouse crew in the operation of the station. The DRGS operation will last about five months, with the system seeing use the last four months as part of the core of the GARP Atlantic Tropical Experiment (GATE—GARP stands for Global Atmospheric Research Project.)



DRGS CREW MEMBERS shown with the instrumentation van are (from left) Steven Kennedy, Jock Gutenkunst, and Joe Fanning, Field Technicians; Chuck Vermillion, NASA Technical Director; Robert De Beradinis, Westinghouse Chief Engineer; George Koskavich and Phil Burkholder, Westinghouse Field Engineers; and Robert Schools, NASA Logistics Director. Not shown are Dick Mills and Les Ruffner, Westinghouse Administrators; and Edward Land, Bendix Field Engineer.

Snoopy Awards

Astronaut Owen K. Garriott was at Goddard on May 23 to present Snoopy Awards to 177 members of the Apollo/Skylab team for "professionalism, dedication, and outstanding support that greatly enhanced flight safety and mission successes."

Dr. Garriott was Science-Pilot for Skylab-3 and is currently Deputy Director for Science at the Johnson Space Center. During the ceremony in the Building 8 Auditorium, he said to the award recipients: "I do quite sincerely want to thank you all for the very outstanding work you have accomplished and which is being rewarded today by the awards which you will receive. It has truly been outstanding. It's been a NASA-wide effort. You are obviously right at the focus of all NASA's activities in communications and in tracking and data . . . Never for our whole two month flight did we have one single difficulty with our S-Band operation. I can't remember a single occasion in which we expected an AOS from a station and it did not appear on schedule."

Recipients of Individual Awards

John P. Adams
Warren F. Adams
Francisco Alcaraz
Stanley L. Appel
Wilbur S. Brandenburg, Jr.
Thomas E. Butler
Samuel J. Consalvo
Edward J. Danko
J. Bentley Davis
Evelyn R. Eason
Nicholas E. Egan
Theodore A. Ferraro
Vernon C. Fleming
Gerald T. Foote
Allen D. Freedman
Julian Galvez
Robert W. Geissler
Jose-Andres Gisbert
William S. Guion
David S. Harman
Allen N. Harris
Robert C. Howatt
Henry Iuliano
Warren L. Jackson
Thomas M. Janoski
William Kelly, Jr.
William Kempees
Ormond W. McDaniel
James W. McDowell
William L. McLendon

Norman W. Murphy
Moses Nelson
John J. Newby
Larkin L. Niemyer, Jr.
Barry D. Nims
Seaton B. Norman
Miguel Pagan
Gary F. Parks
Ralph P. Pass
David E. Perreton
Samuel Raimond
Carl O. Roberts
Thomas L. Robertson
Ralph I. Roth
Fidel R. Rul, Jr.
Philip M. Scales
Paul B. Schou
Robert I. Seiders
Charles M. Shoemaker
Ernani R. Silva
John E. Spohr
Mark Stokrp
Henry Wade Stonesifer
Bernard C. Tokarski
Albert B. Washburn, Jr.
Roy T. Weaver
Victor Werbitzky
Ray S. Whitten
William E. Willis, Jr.

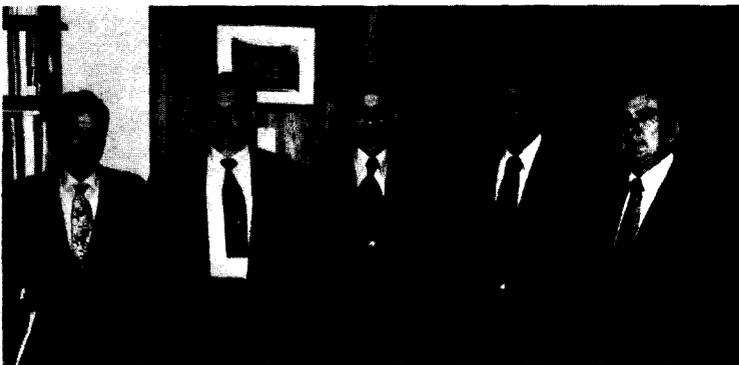


RADIO CLUB PRESENTATION. The Goddard Amateur Radio Club commemorated the Skylab missions by manning their station during key points in each flight. Here Club President Hugh Turnbull, W3ABC, presents Dr. Garriott with the original artwork used in the club's Skylab "QSL" card. Looking on are (from left) Club Secretary H. Wade Stonsifer, W3QND; visitor Juan Jaramillo, HC1JJ, President of the Quito, Ecuador Radio Club; Treasurer David Friedman, WA3MJV; Teodoro Jaramillo, WA3FUM; and Vice President Robley E. Sawyer, WA3PTO. The presentation was made on the day of the Snoopy Awards at Goddard.

Recipients of Group Awards

COMMUNICATIONS AND COMMAND EVALUATION, Bendix Field Engineering - DATA MANAGEMENT, Bendix Field Engineering - DECOMMUTATOR PROGRAMMING, Bendix Field Engineering - ENGINEERING SUPPORT, Univac - GOVERNMENT COMMUNICATIONS MARKETING SUPPORT, AT&T - GRTS ADVISORS, Computer Sciences - GOVERNMENT LEASED CHANNEL SECTION, RCA Global Communications - NEW YORK DATA, VOICE AND TELEVISION SERVICES, RCA Global Communications - SAN FRANCISCO DATA, VOICE AND TELEVISION SERVICES, RCA Global Communications - WASHINGTON, D.C. TECHNICAL OPERATIONS, RCA Global Communications - SOUTHWESTERN BELL COMMUNICATIONS SUPPORT GROUP, AT&T - NASCOM OPERATIONS, Goddard - NETWORK OPERATIONS MANAGERS, Goddard - NETWORK OPERATIONS STATUS, Goddard - NOCC MAINTENANCE AND OPERATIONS, Bendix Field Engineering - BERMUDA - FACILITIES MAINTENANCE, Bendix Field Engineering - TANANARIVE RANGE AND RANGE RATE, Bendix Field Engineering - EUROPEAN TECHNICAL, ITT Worldcom - GUAM TECHNICAL OPERATING, ITT Worldcom - HONOLULU TECHNICAL OPERATING, ITT Worldcom - NEW YORK TECHNICAL OPERATING, ITT Worldcom - SAN FRANCISCO TECHNICAL OPERATING, ITT Worldcom - SANTIAGO TECHNICAL, ITT Worldcom - WASHINGTON, D.C. TECHNICAL OPERATING, ITT Worldcom - and MADRID STDN STATION WING, INTA.

Welcome New Employees



ON THE DAY OF THE SNOOPY AWARDS Astronaut Owen K. Garriott toured the Network areas on Center and visited with Dr. John F. Clark, Goddard Director. From left in the Director's Office are Turner Wiley, Chairman of Goddard's Manned Flight Awareness Council; Director John Clark; Astronaut Garriott, Verne Stelter, Associate Director of Networks for Engineering; and Tec Roberts, Director of Networks.



SIXTEEN NEW EMPLOYEES entered on duty at Goddard during the month of May. They are (from left, first row) Anisceta Jackson, Darlene McNair, Sharon Walsh, Agnes Trudell, Deborah Bartley, Jane Lankford, Patti Stecko, Lucille Kestler, Barbara Wilmer, and George Meyerle. In back are Charles Rhodes, Mark Miller, Edward Brosnan, Mary Igal, Mary Wilson and Doris Hopkins.

INTERESTING PEOPLE

Fidel Rul Sixteen-Point Coordinator



FIDEL R. Rul, JR., an electronic engineer at Goddard is active in recruiting Spanish Americans for NASA.

Goddard electronic engineer Fidel R. Rul, Jr., began his career as a small boy shining shoes and picking cotton in a Mexican-American community located between Corpus Christi and Laredo, Texas. Today he devotes much of his time to helping young people from similar backgrounds find good positions in the Government Service.

Well-known on Center as Head of the Data Systems Section, Mr. Rul is also Coordinator for the Goddard Sixteen-Point Program that helps assure equal employment opportunities for Spanish Americans in NASA Jobs. As Sixteen-Point Coordinator, he plays a key role in NASA's affirmative action plan that requires that each NASA installation develop a program which provides for the President's Sixteen-Point Program for Spanish Americans.

He sees his task as one of increasing the Spanish American work force in NASA through recruitment. To accomplish this he speaks at colleges and universities attended by high concentrations of Spanish American students and maintains contacts with community and Spanish organizations. He advises young people in school to train for better positions and "not to be afraid of the science profession, mathematics or the electronic engineering fields."

Fidel Rul himself was born and raised about 100 miles from the Mexican border in Alice, Texas. He is a graduate of Texas A&M, and has been a member of the Goddard staff since 1963. As Head of Goddard's Data Systems Section, he leads a team of engineers and technical experts in the Network support of both manned space flight and scientific programs. He has published a variety of tech manuals used as basic handbooks in the Spaceflight Tracking and Data Network and has earned a number of certificates for achievement and excellence in his chosen field.

"The biggest problem for Spanish Americans seeking this type of position is that many of us come from a different type of environment," he says. "Our goals are extremely low, and we don't feel that we have the capacity to do the work. We often reject ourselves first. Once you jump the hurdle of applying yourself, and have confidence in yourself, the doors are open. My father and grandfather both fought on the side of Pancho Villa in the Mexican Revolution of 1916, and I'm now working with the space program that put men on the Moon."

Fidel and his wife Emilia live with their two children in Bowie, Maryland. His son Fidel Rul, III, is six years old and in the first grade. His five-year-old daughter, Monica Eva, is in kindergarten.



TWO GENERATIONS OF RULS fought with the armies of Pancho Villa. On the left is Fidel's father, Fidel Rul, Sr., at the age of fourteen. On the right is Fidel's grandfather Jesus Rull (Rull was the spelling of the name before the family came to the U.S.). The picture was taken in Atlisco de las Flores, Puebla, Mexico, in 1916.

John Steckel's Son Co-Authors Prize-Winning Paper

John K. Steckel, Jr., son of J. K. Steckel, Sr., of Goddard's Mission Technology Division, is co-author of a prize-winning paper titled "An Audio Frequency Divider."

The paper by John Steckel and Robert V. Byren, both seniors at Lehigh University, was judged the best among those entered in the annual student paper competition sponsored by Region Two of the Institute of Electrical and Electronics Engineers (IEEE).

Competing in the contest were students from institutions in eastern Pennsylvania, Maryland, Delaware, and the District of Columbia. The competition was held at the University of Pennsylvania recently.

Entries were judged on both the written paper and a timed oral presentation of 20 minutes. In addition to the theoretical aspects of frequency division, Byren and Steckel augmented their work with experimental data and a live demonstration.

Their device takes an audio tone and lowers the pitch one octave. Thus a musical instrument can be played in perfect two-part harmony. To demonstrate application of their audio frequency divider, which is designed specifically for woodwinds, Byren played two-part harmony on a flute.

The paper earlier took second place in the W. B. Morton Prize Paper Contest sponsored by the Lehigh Valley Section of the IEEE, and which is open to entrants from Bucknell University, Lafayette College and Wilkes College, as well as Lehigh.

Their advisor for both competitions was Donald Tallhelm, of the University's electrical engineering department, counselor to the Lehigh student branch of the IEEE.

This is the second year in a row that Lehigh students have taken first place in the Region Two contest and the fourth time in the last five years.



JOHN K. STECKEL, JR. (left), and Robert W. Byren display their device that may be used to lower the pitch of a musical instrument such as the flute. The two Lehigh students recently won first prize in a student paper competition sponsored by Region Two of the IEEE. The prize was given for a written report and demonstration of the audio frequency divider which they built.

Fire Prevention Is A Serious Business

By Ben B. Pagac
Safety Training Coordinator

Last month, the spring phase of the Health and Safety Engineering Office's (H&SEO's) Fire Extinguisher Course was completed. More than 200 Goddard employees took advantage of the course, thus significantly enhancing the Center's continuing loss prevention program. The course was open to everyone who has a concern for his own safety, that of his family, and of his co-workers. If you were unable to attend one of the spring phase classes, be advised that twelve more classes will be held this fall, probably beginning in October. Nominees for the fall session will be accepted now by the Health and Safety Engineering Office. Firm schedules will be published in September.

It should be noted that these classes are definitely not restricted to men only. As can be seen in the pictures, you don't have to be a helmeted fireman to put out a blaze; a well-trained secretary can do it equally well, providing she uses the right extinguisher. Are you certain your secretary would know what to do if a fire broke out in your absence?

To those of us who think, "I'll never be called upon to fight a fire—so I don't need the course," a recent factual incident involving a Goddard employee may help change your mind.

It Can Happen to You

Just 30 hours after attending the H&SEO's Fire Extinguisher Course on April 26, 1974, Robert R. Stanley, Head of the Network Simulation Section, was loading his car at his home in Northwest Washington, D.C., when he suddenly noticed flames shooting up in a neighbor's backyard. Stanley rushed to the scene of the flames and found a large collection of trash burning under the neighbor's wooden, overhanging back porch. Close to the burning trash was a tank of home heating fuel oil. In addition to the obvious hazard of the nearby fuel tank, it was equally obvious to Stanley that if the flames were not soon brought under control, they would set fire to the wooden porch overhang and thence to the house itself.

Taking charge of the situation, Stanley quickly learned from the two or three people standing around looking at the fire that they had neither called the Fire Department, nor done anything positive to control the blaze. Stanley immediately instructed his wife to call the Fire Department and enlisting the aid of the house owner, he proceeded to separate the trash and put out the fire by application of water. Having recognized the fire to be clearly a "Class A" type, he knew that water was the best substance to use in this case. By the time the Fire Department arrived, Stanley and his co-firefighter had the fire completely out.

Commenting on his experience later in an interview with this writer, Mr. Stanley said: "In all probability, had I been faced with the same situation earlier—before I took the Fire Extinguisher Course—I would have taken essentially the same actions I actually did in this case. But you've no idea how much more self-confidence I felt in dealing with this emergency because I had just had the professional instruction on how to handle it. That is what your course gives a person—the knowledge of what to do and the self-confidence necessary to go ahead and do it."

Thanks, Bob. You have proved the point.



ROBERT R. STANLEY



GOOD FIRE FIGHTING FORM. Brenda Lueders displays excellent form in extinguishing an oil blaze with a powder-charged ABC type extinguisher. Brenda was one of over 200 Goddard employees who completed the Fire Extinguisher Course in May. Shown with Brenda in the lower picture is Frank S. Tremel of Maryland Consultants, one of the professional instructors teaching the course.



MILTON W. ROSEN (right), NASA Deputy Administrator for Space Science (Engineering) retired on April 13 and was feted with an open house at NASA Headquarters on April 26. A member of NASA since its beginning in 1958, Mr. Rosen was Technical Director of the Vanguard Vehicle Program. Here he receives a picture showing the progress from the Vanguard to the present-day Delta launch vehicle from Dr. Leslie H. Meredith (left), Goddard Assistant Director. With them during the presentation are Dr. John Naugle, NASA Deputy Associate Administrator; and Vincent L. Johnson, Deputy Associate Administrator, NASA Office of Space Science. The picture was presented to Mr. Rosen from Goddard "in recognition of his pioneering efforts in space research and technical direction of the Project Vanguard Vehicle Program. The Vanguard rocket was the foundation from which evolved the nation's most reliable and widely used satellite launching vehicle, the Delta."

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