GODDARD NEWS
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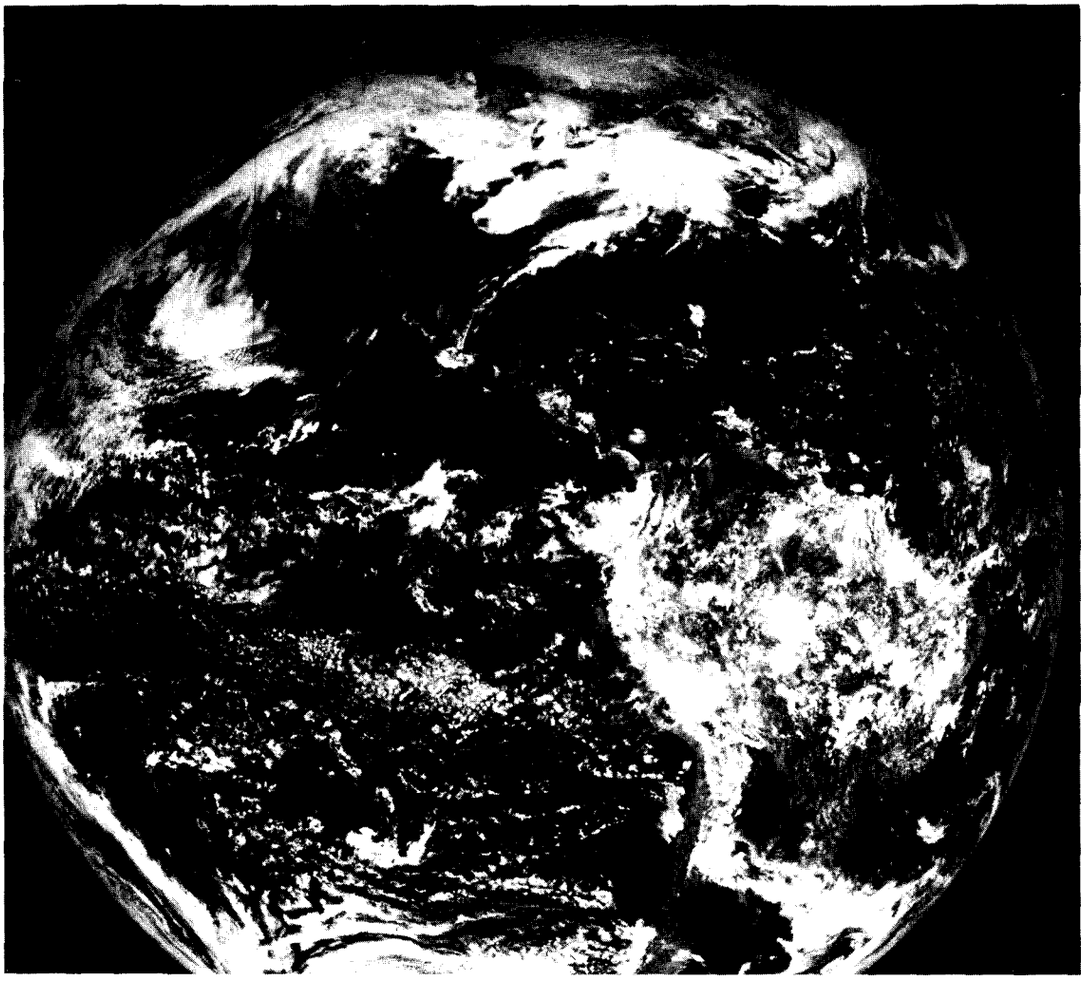


SMS-2 IS OK. This picture was taken by Goddard's second Synchronous Meteorological Satellite (SMS-2) just six days after it was launched aboard a Delta rocket from Cape Canaveral, Fla. on February 6. On February 12, from its perch over the equator above the Galapagos Islands in the Pacific, SMS-2 "saw" thunderstorm activity across northern Florida as the weather system comes in from the Gulf of Mexico, low pressure systems which produce rain and snow in the Atlantic Ocean off the East Coast and in the western U.S. and Canada, snow in the Rocky Mountains, and typical weather in South America with numerous thunderstorms. SMS-2 is now on its final station at 115 degrees W. where it will team up with its sister satellite, SMS-1, launched last May to observe weather over the entire United States and South America.

Goddard and Greenbelt Join in Conservation Research

The 1600-home community of Greenbelt, Md., and its neighbor, NASA's Goddard Space Flight Center, have undertaken a joint project to demonstrate how solar heat can help conserve fuel in residential homes.

The project was initiated with an agreement signed this month by Dr. James W. Smith, President of Greenbelt Homes Inc., (GHI), and Dr. John F. Clark, Goddard's Director.

For the first phase of the pilot project, two brick and two masonary multi-family units in Greenbelt will be instrumented to measure heat loss and fuel consumption characteristics. Two of these units will be fully insulated, including storm doors and windows.

Based on the cost effectiveness demonstrated during the first phase, the two insulated buildings would be equipped with solar heating units designed to augment the existing hot water radiator systems. The remaining two buildings would serve as the control units for comparison with the solar heat augmented homes. Each of the four buildings houses four families.

The second phase of the project, which would constitute the installation of the solar units, will require the execution of a separate agreement between GHI and Goddard.

Design of the solar heating units will be done at Goddard. They are scheduled to be in place in time for the 1975-76 heating season.

Emil Hymowitz, Goddard's project manager for the Greenbelt effort, estimates that solar heating systems used to augment the existing heating units could save as much as 50 percent of the home fuel costs. This estimate is based on a preliminary analysis of the existing structures.

"In addition to showing a community the way to conserve heating fuel and cut down on costs, this project also will benefit NASA by giving us vital experience and data in energy conservation research," Hymowitz added.

Greenbelt is one of three "Green Towns" built by the U.S. Government in the 1930's as an experiment in new towns founded upon sound environment concepts. The plan for the community provided for a broad girdle of woodland surrounding the town, hence the name Greenbelt. Its design has for years attracted the attention and praise of community planning experts from around the world.

In 1953, the federal government sold the dwellings, facilities and 700 acres of land to GHI a nonprofit, cooperative corporation. Today, approximately 30 percent of the total number of families live on a retired fixed income. (see Page 2)

SOLAR HEATING . . . From Page 1

DR. JOHN F. CLARK (right), Goddard Director; and Dr. James Smith, President of Greenbelt Homes, Inc., sign the cooperative agreement initiating the solar heating experimental project.

According to GHI's Dr. Smith, "the cost of fuel oil has tripled in Greenbelt. This has caused a major problem with the operating budget since these costs are a part of each member's monthly fees.

"This has caused a serious hardship for many of the members who are on fixed incomes. In our search for a solution to this problem, we suggested the use of the community as a research project to NASA as a mutually beneficial effort," Dr. Smith added.

Greenbelt is considered ideal for this project because so many of its buildings are identical in design. This factor will simplify the design of a solar heat system.

Additionally, no single home would benefit from any windfall savings. These would be evenly distributed throughout the cooperative community since each member pays an equitable portion of the total heating bill for the community.

The Greenbelt-Goddard research project was developed over the past year through a series of meetings. Hugh O'Donnell chaired the GHI Planning Committee for this effort. GHI's staff engineer, George Craft, gathered much of the needed data. Goddard's Edward P. Greene chaired the GSFC subcommittee of the Ad Hoc Committee on Energy R&D which prepared the basic project proposal and plan.

PRESENT AT THE SIGNING of a cooperative agreement between Goddard and Greenbelt Homes, Inc. were (from left) Edward Greene, a Greenbelt resident and Goddard originator of the project; Chesley Looney, Goddard; Charles Dan, Goddard; Hugh O'Donnell, Greenbelt official and Goddard employee; Emil Hymowitz, Goddard Project Manager; Royal Breashears, GHI General Manager; Jack Peake, Goddard National Needs Office; Saul Cohen, Goddard legal counsel; Genevieve Wiseman, Goddard; Dr. James Smith, GHI President; and Dr. John F. Clark, Goddard Director.

PARTICIPANTS in the Greenbelt Solar Power project look over plans. From left are Emil Hymowitz, Goddard Project Manager; George Craft, GHI Staff Engineer; Royal Breashears, GHI General Manager; Mrs. Pat Martone, of 15-D Ridge Road, one of the homes featured in the project; Dr. James Smith, GHI President; and Hugh O'Donnell, member of the GHI Engineering and Maintenance Committee. Some of the houses being used in the experiment are shown below.

Samuel Keller in Headquarters Post

Samuel W. Keller

Samuel W. Keller, Goddard Director of Administration and Management, has moved to a new post at NASA Headquarters. Effective March 3, he became the Assistant Administrator for Personnel Programs, directly under Elmer S. Groo, Associate Administrator for Center Operations.

Mr. Keller graduated from the University of Maryland with a BSEE degree in 1955 and earned his LLB degree from George Washington University in 1962.

He joined the Goddard Patent Staff in 1960, after having worked on the legal and patent staffs of the Naval Weapons Plant, Navy Department Bureau of Weapons, and RCA. He was appointed GSFC Industrial Applications Officer and Congressional Relations Officer simultaneously in June 1962 and subsequently head of the Resources Utilization Office. In August 1965, he was appointed Acting Deputy Assistant Director for Administration and in August 1966 was named Deputy Assistant Director for Administration. In July 1967, Mr. Keller was named Deputy Assistant Director for Administration and Management. He became A&M Director in 1972.

Mr. Keller served as a pilot and captain in the USAF 55th Air Transport Squadron from 1955 to 1958. He is a member of the District of Columbia Bar and the American Bar Association.

In-house Engineering Pays Off for LANDSAT ECAM

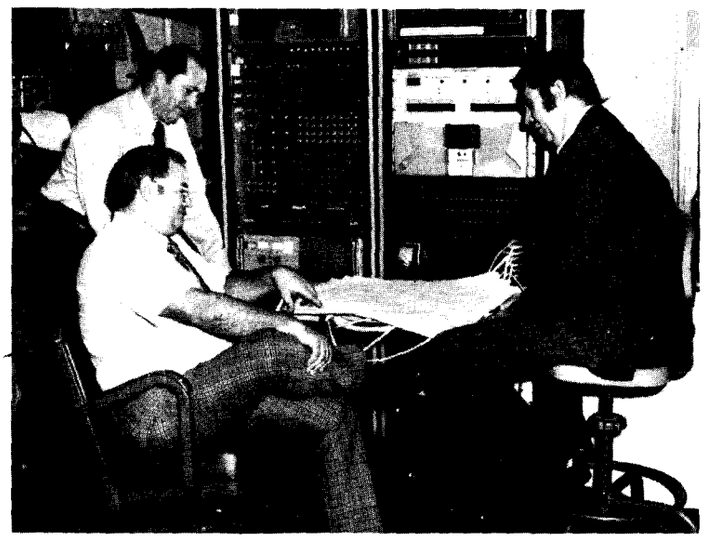
About two years before the launch of LANDSAT-2 (formerly ERTS-B) on January 22, electronics engineer John Lesko and technician Bill McDonald were assigned the task of greatly increasing the stored command capability of the spacecraft. The result of their teamwork was the ERTS Command Auxiliary Memory (ECAM) that has now been fully checked out in orbit and has been committed to on-line command storage aboard LANDSAT-2.

The ECAM provides two functions for the LANDSAT-2 Narrowband Telemetry and Command Subsystem. First, ECAM provides command storage for 512 commands with delay times up to one day. Second, ECAM is programmed to monitor housekeeping telemetry data for out of limit conditions, and when found to issue commands from a predetermined list, inhibit further execution of command from a second list, and to provide a record of actions and times.

Consisting of Goddard's Advanced On-board Processor (AOP) computer, a 4096 by 18 bit plated wire memory, plus an interface electronics package, the ECAM gives LANDSAT-2 512 command storage locations as compared to 30 command storage locations for LANDSAT-1. A similar command auxiliary memory unit is now being planned for LANDSAT-C (ERTS-C).

Speaking of the performance of the ECAM in orbit and plans for the future, ERTS/Nimbus Project Manager, Jack Sargent, says, "the flexibility provided by ECAM to store commands which will permit the spacecraft to be programmed over a 24-hour period, and the computer capability for diagnosing on-board problems and issuing commands to compensate for anomalous behavior makes this device an important adjunct to spacecraft operation. As a result, it is now being considered for use on board the Nimbus-G satellite."

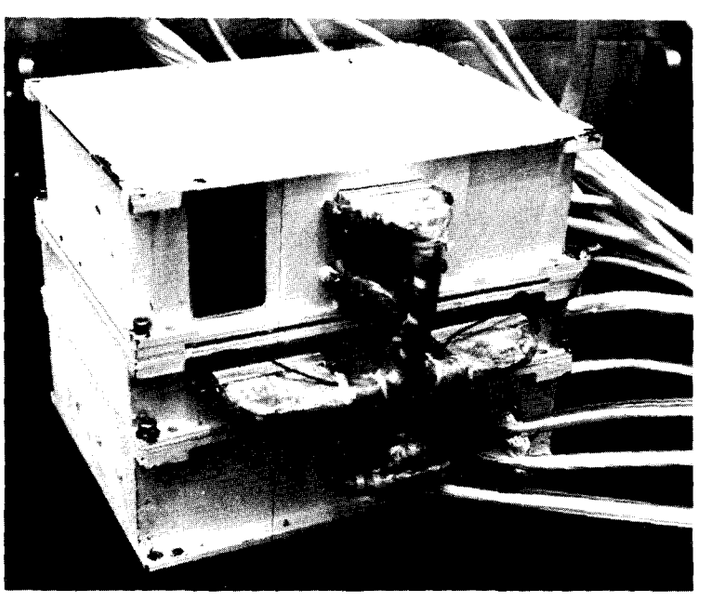
The development of the ECAM began in April 1973 when John Lesko was given the go-ahead to build an interface electronics package that would adapt the AOP computer to increase the spacecraft command memory capability. Mr. Lesko and Bill McDonald, working as a skilled engineer/technician team, accomplished their task in record time and delivered the proto/flight unit a year later, one day ahead of schedule. Their interface hardware, which takes full advantage of the AOP computer without changing the existing LANDSAT subsystems or clock, was designed, fabricated and tested completely in-house here at Goddard.



ECAM TEAM MEMBERS check plans for the next unit that will probably be flown on LANDSAT-C. From left are Bill McDonald, John Lesko (seated) and Charlie Kilgore.

When they began work on the ECAM, John Lesko and Bill McDonald were working with Raymond Hartenstein, AOP Development Engineer, in the Spacecraft Data Management Branch. They completed the project after reorganization in the Instrument Data Management Branch under the direction of Roland Van Allen.

Other Goddard people who contributed significantly are Al Gillis, Joe Novello, Bill Stewart, Ann Merwarth, Tom Clemons, and Charlie Kilgore.



THE LANDSAT-2 ECAM consists of a memory unit (top), the AOP computer (center) and the interface electronics package (bottom) that was designed, fabricated and tested completely in-house by the Instrument Data Management Branch.

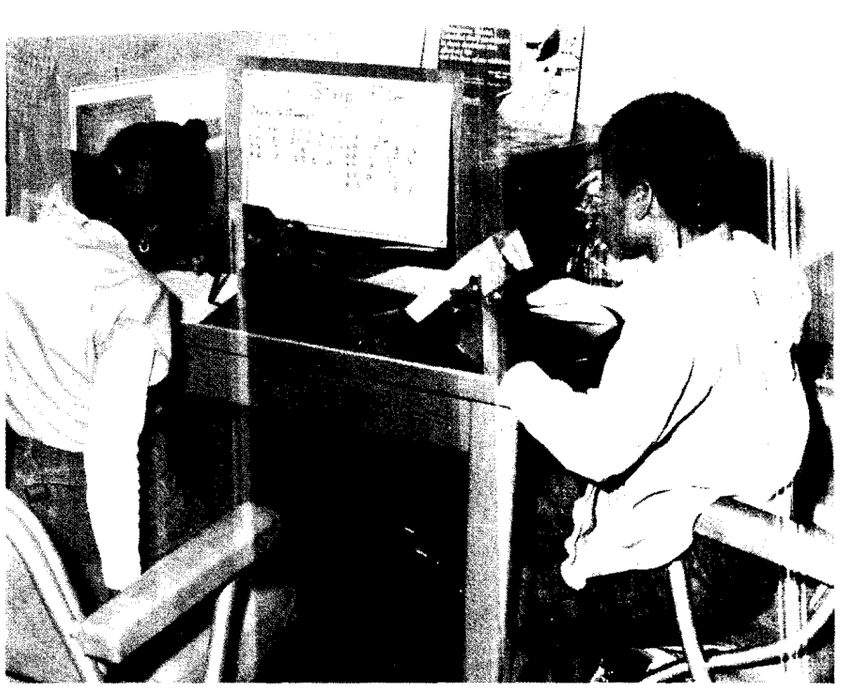
Goddard Mourns . . .

Paul J. Janneche, Jr., ISEE-C Experiment Manager, died February 17 of complications following a heart attack. Mr. Janneche first came to Goddard in June 1962. For almost ten years he worked on cosmic ray experiments, many of which were flown on the Interplanetary Monitoring Platforms. He later worked on the HEAO Project.

He is survived by his wife Marion and three children.

Everett Besse, a contract specialist at Goddard since 1962, died February 26 in Montgomery General Hospital after a heart attack while golfing. He was a member of Goddard's Tracking and Data Support Office.

Mr. Besse is survived by his wife Marcelle and four daughters.



Goddard Observes Black History Week

In observance of Black History Week, Goddard presented an exhibit on February 11-13 on the History and Culture of Minorities along with the film, "Heritage in Black." This extensive display was developed by Mr. Carlton Funn, a research consultant in human relations. The exhibit included quizmasters, books, pamphlets, portraits and multi-media kits. Black History Week was launched in 1926 by Dr. Carter G. Woodson, Historian and former Dean of the Schools of Liberal Arts at Howard University and West Virginia State College in order to increase an awareness of achievements and contributions that have long been obscured.

NASA to Study Ocean Features From Space

Sea Satellite (SEASAT), a new program for monitoring of the oceans to provide continuously updated reports on weather and sea conditions, was recently announced by NASA.

Responsibility for managing the 954-kilogram (2,100-pound) spacecraft which will circle Earth 14 times a day in a north-south orbit, has been assigned by NASA's Office of Applications to the Jet Propulsion Laboratory (JPL), Pasadena, Calif.

The launch in 1978 of SEASAT-A will be a proof-of-concept mission, which could lead to operational missions in later years. The concept of such a satellite has been carefully evolved since 1973 in cooperation with other government agencies and private institutions interested in and knowledgeable about the oceans.

Instrumentation in a sensor module, which forms a part of the satellite, will provide data from which wave heights, current directions, surface wind direction and surface temperatures can be determined. These data will allow for the recognition of storm, sea state, currents, ice fields and specific weather conditions.

The sensor module is the responsibility of Wallops Flight Center, Wallops Island, Va., with support by the Applied Physics Laboratory of Johns Hopkins University, Silver Spring, Md.

As currently planned the module would consist of four primary sensors: a compressed pulse radar altimeter, a coherent synthetic aperture imaging radar, a microwave wind scatterometer, and an infrared radiometer.

Each of the four sensors will be managed by a NASA research center. The radar altimeter will be the responsibility of Wallops; the microwave wind field scatterometer will be managed by the Langley Research Center, Hampton, Va.; and the synthetic aperture imaging radar will be directed by JPL. The visible and infrared scanning radiometer is an existing instrument, and Goddard Space Flight Center will be the technical monitor for it. Goddard will also be responsible for data acquisition and satellite tracking support.

The objective of the initial mission will be to demonstrate the capability of continuously acquiring a wide variety of accurate oceanic data and rapidly disseminating the information to users concerned about weather predictions, routing of shipping to avoid storms, adverse currents and ice fields, and coastal disaster warnings.

An operational network of satellites could provide individual ships at sea with twice-daily detailed maps of their specific route, noting weather conditions, sea state and hazards. Long-range use of satellite data could influence ship design, port development and selection of sites for such off-shore facilities as power plants.

In addition to immediate applications of satellite data to such uses as hazard and storm warnings, SEASAT will also accumulate scientific data on the curvature of the oceans; ocean circulation; transport of mass, heat and nutrients by surface currents; and the interaction between air and sea.

The approximately one-ton satellite, to be supported by aircraft, ships and buoys to verify measurements reported from space, will orbit Earth in an 800-kilometer (480-mile) orbit inclined 108 degrees.

In establishing the requirements of the satellite system and to carefully define the types of information that would be of practical use, NASA was supported by a SEASAT User Working Group composed of representatives from the Departments of Commerce, Defense and Transportation; the National Academy of Sciences; the National Science Foundation; the Smithsonian Institution's Astrophysical Observatory; the Woods Hole Oceanographic Institute, Mass.; Scripps Institute of Oceanography, Calif.; City University of New York; and several commercial users.

The program will use an off-the-shelf NASA or Air Force spacecraft, to which the sensor module will be attached. Existing NASA tracking facilities and support hardware will allow for the forming of a complex program without new technology. Cost of the SEASAT-A mission, as currently planned, is $58.2 million.

S. W. McCandless, Jr., is the program manager for NASA. W. E. Giberson is project manager for JPL.

LCMS/Shuttle Demonstration Attracts Many

FRANK CEPOLLINA, Head of Goddard's Shuttle Office and Associate Chief of the Systems Division, speaks at the recent demonstration of the Low Cost Modular Spacecraft as a Space Shuttle payload held at the Shuttle prime contractor, Rockwell International, Downey, California. Some 45 news media representatives were present including all major TV networks and wire services as well as most area newspapers. Rockwell public information people said this was the biggest media turnout they ever had, including news conferences during the Apollo flights.

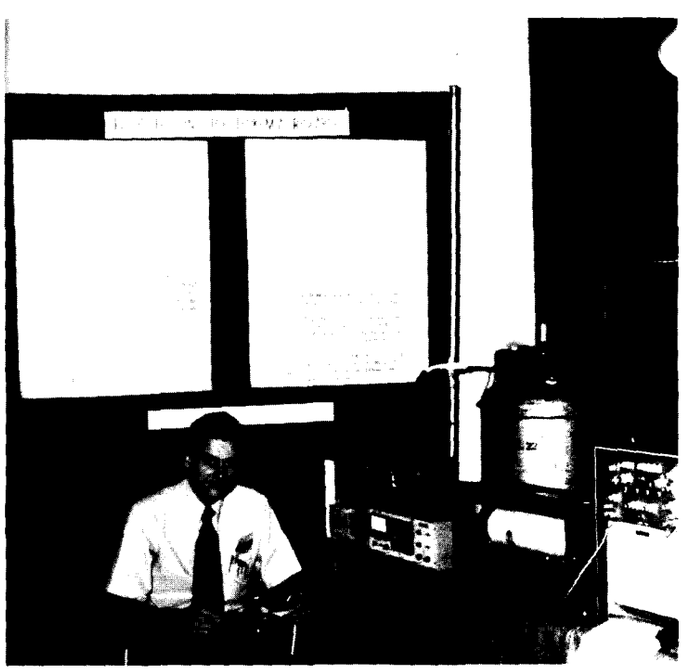
NASA 'Spin-offs

Some of the most beneficial "spin-offs" of the nation's space program are the result of technology that has been applied to fields that are far removed from the projects for which it was originally developed. For example, batteries developed for satellites now power cardiac pacemakers, and analytical techniques used to study LANDSAT (ERTS) imagery are being developed to aid burn victims. Here at Goddard, the wealth of information gained in the development of life detection systems has been developed, on the one hand, into a technique for the rapid detection of bacteria and, on the other hand, may lead to more visible markings for rain-soaked highways at night.

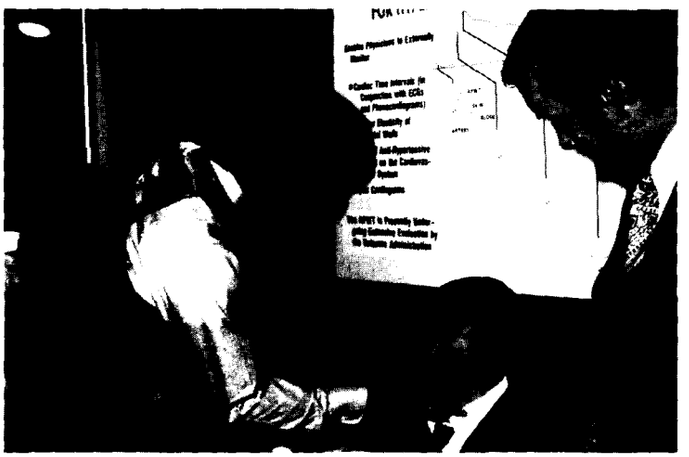
These and the other Goddard-related developments listed below are all outgrowths of NASA's Technology Utilization Program that is responsible for finding and making available new technology that may be useful in the public sector. We all benefit from this program that publishes some 500 Tech Briefs yearly to add to the more than 6,000 innovations from the space program that are now available to private industry.

The small, rechargeable cardiac pacemaker was made available in 1973 after six years of development by the Johns Hopkins Applied Physics Laboratory. Goddard is supporting an improved version of the pacemaker which incorporates hybrid circuitry. The device is smaller than a cigarette pack (about half the size of early pacemakers) and is implanted under the skin in the usual manner. Its nickel-cadmium batteries, originally developed for spacecraft power systems, can be recharged by the patient using a portable recharging unit the size of a briefcase. Each rechargeable unit should last for ten to twenty years without having to be replaced as opposed to conventional pacemakers that must be replaced every two years.

A new technique for freezing white blood cells to preserve them for use in treating leukemia is being implemented by the National Cancer Institute in collaboration with Goddard. Leukemia therapy involves the destruction of cancerous white blood cells in the bone marrow where they are formed, a process that often destroys the bone marrow that might produce healthy white cells a patient needs to fight infection. New cells must be resupplied from a storage facility which was not possible in the past since old methods of freezing cells for storage destroyed the white cells. In the new system, white cells held in a teflon bladder are surrounded by liquid nitrogen tubes for cooling and electrical heating elements to control the rate of freezing so as not to kill the cells. The original solution to this problem was proposed by the Jet Propulsion Laboratory and modified by Goddard engineers.



TOMAS WILLIAMS demonstrated the new method for freezing white blood cells for storage at the annual ASTRE exhibit this Winter.



WAYNE CHEN demonstrates the operation of the Arterial Pulse Wave Transducer. His "patient" is Dr. Leslie H. Meredith. At the left is Max Alexandrow who was responsible for much of the APWT development.

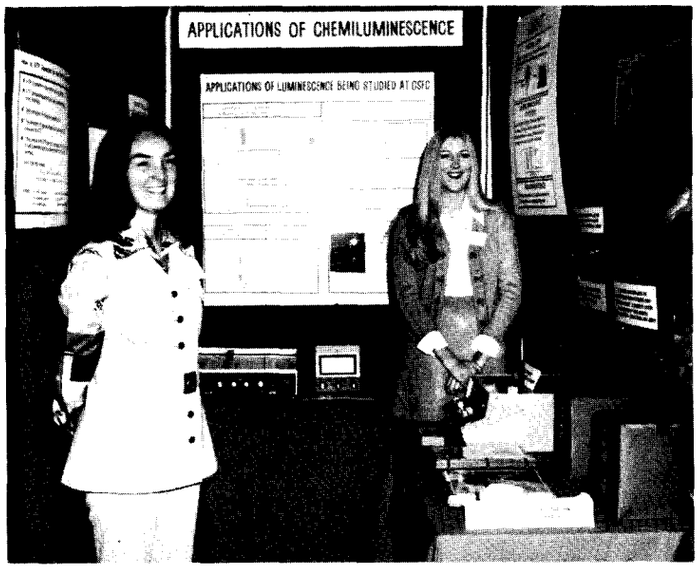
Computer aided analysis techniques for extracting data from LANDSAT MSS imagery are now being developed by researchers at the University of Southern California Medical Center and JPL for use in the treatment of burn victims. When a patient is brought to the hospital with severe burns, it is often impossible to tell immediately which tissue has been destroyed completely and which tissue will heal with time. Computer enhanced infrared profiles of thermal burns can be studied by this technique to determine which tissues have been completely destroyed and should be removed by surgery. If dead tissue is allowed to remain in the wound, it can cause infection; the removal of viable tissue retards the healing process.

Students in Goddard's Summer Institute for Biomedical Research have helped develop a pressure-sensitive transducer system that is being used in hypertension research. Called an Arterial Pulse Wave Transducer, the device is being developed by Goddard and the Hypertension Research Group at the Washington, D.C., Veterans Administration Hospital. The output of this relatively small-sized and inexpensive device can be recorded by either an electrocardiogram recorder or on magnetic tape.

Goddard research into planetary life-detection systems has resulted in a way of detecting the presence and amount of bacteria in fluids in just 15 to 60 minutes as apposed to 72 hours for conventional culture methods. The Goddard system makes use of the light emitted by the reaction between adenosine triphosphate (ATP, found in all living matter) and luciferase, an enzyme derived from fireflies. The technique may soon benefit hospitals, clinics, and physicians, as well as a host of food, beverage, and other industries requiring sterile manufacturing conditions.

A second outgrowth of Goddard's life detection studies may make driving on water-soaked highways at night far safer in the future. The Federal Highway Administration has asked Goddard to help determine the feasibility of using bioluminescent or chemiluminescent materials as self-illuminating highway markers. The materials to be considered must be water activated, compatible with a solid matrix such as asphalt, and must also be cost effective. Chemiluminescent materials have been recognized as most promising, and several candidate substances are being investigated in current research.

Benefit Everyone



CAROL CURTIS (left) and Ann Knust demonstrated the many applications that have grown out of Goddard's life detection studies. Applications range from the quick detection of bacteria in fluids to improved highway markers.

Goddard scientists have identified a substance that fogs the special optics of unmanned spacecraft as a plasticizer that "gasses off" and settles on the lenses. This research and other studies have indicated that some plasticizers used to keep vinyl pliable can "migrate" to other substances (such as food in food bags) that come in contact with the vinyl. As a result, Goddard and the Johns Hopkins School of Hygiene and Public Health have been conducting research into the potentially harmful effects of one specific plasticizer, DEHP. When intravenously administered to rats, DEHP was found to cause death through the development of pulmonary exema and hemorrage. DEHP used as a plasticizer for plastic food bags is considered harmless if it enters the food because it appears to be completely metabolized in the gastrointestinal tract. However, DEHP used to plasticize the vinyl bags used to store blood and plasma at bloodbanks may pose a serious hazard. Further research is underway on this problem.

A Goddard-developed potassium silicate zinc dust coating used for corrosion protection of launch structures is being developed for use in protecting bridges in coastal areas where currently available zinc coatings last only two years. The Alaska Department of Highways and the California Department of Transportation have tested the new coating and find that steel plates coated with it and then exposed to salt spray for 5,308 hours suffered no damage.

Fire fighters may soon have a lightweight, inexpensive and reliable hand-held radio device for short-range communications. The device will use an inductorless electric circuit design developed here at Goddard and will be especially helpful under hazardous, noisy and smoke-filled conditions when normal voice communication is impossible but when good communications are crucial to coordinating a fire fighting effort. It will be field tested in 1975 by Public Technology, Inc.

For further information on the Technology Information Program and on how you may report NASA technology that may be useful in the private and public sector, contact Donald S. Friedman, Head of Goddard's TU Office, on extension 6242.

Goddard Innovators

Cardiac Pacemaker
Donald Friedman, Goddard
Robert Fischell, APL/Johns Hopkins

White Blood Cell Freezing
Thomas Williams, Goddard
Thomas Cygnarowicz, Goddard

Arterial Pulse Wave Transducer
Wayne Chen, Goddard

Life Detection and Luminescence
Dr. Grace Picciolo, Goddard
Emmett Chappelle, Goddard

Plasticizer Studies
Fred Gross, Goddard
Dr. Robert Rubin, Johns Hopkins

Zinc Dust Coating
John Schutt, Goddard

Short Range Communications
Len Kleinberg, Goddard
Roger Rowe, Public Technology, Inc.

Developers of NASTRAN Given NASA Awards

NASA has given 24 persons a total of $20,000 in awards for their work in helping to develop a cost-saving computer program that permits rapid design and stress analysis of a wide variety of structures.

Called NASTRAN (for NASA Structural Analysis), the program was originally proposed by NASA's Office of Aeronautics and Space Technology to help design more efficient space vehicles. It is now used extensively throughout industry and government to solve stress and structural design problems.

Award recipients include 12 current and former NASA employees and 12 contractor employees.

The largest award, $5,000, was made to Thomas G. Butler, now self-employed, who served as NASTRAN project manager at the Goddard Space Flight Center. Dr. Richard H. MacNeal of the MacNeal-Schwendler Corp., Los Angeles, Calif., received $3,500, the second highest individual award, for his leadership in development of the NASTRAN operational program.

Seven other NASA and contractor employees were awarded $1,000 each and 15 persons received $300 for their NASTRAN efforts.

NASTRAN is a remarkable structural design aid. It is being used extensively to solve a variety of structural engineering problems. For example, the automotive industry uses NASTRAN in the design of front suspension systems and steering linkages. NASTRAN is also used in the design of bridges, rail cars, power skyscrapers and aircraft and, within NASA, in the analysis of Space Shuttle structures.

Industry officials have stated that the use of the NASTRAN program results in a 60 per cent improvement in predicting the behavior of components under stress. In addition, they report that NASTRAN cuts calculation time by two-thirds.

Program management for NASTRAN was transferred from Goddard to the Langley Research Center, Hampton, Va., in 1970.

The NASTRAN awards were made on the recommendation of the NASA Inventions and Contributions Board. They are part of a NASA-wide program to recognize important contributions by NASA and contractor employee to the agency's space and aeronautics programs.

New Garden Club Begins First Season

GARDEN CLUB OFFICERS check compost at the site of their garden plots near the western perimeter of the Center. From left are John Pearl, Vice President; Ralph Mollerick, Treasurer; and Nancy Stevenson, Secretary. Not shown is Frank Shelton, President.

With the approach of spring, the thoughts of all good gardeners turn to seeds, plants, compost, fertilizer and the weather. This spring promises to be especially exciting for the 146 members of the newly formed GEWA Garden club.

Since the club was organized late last summer, it has acquired 67 garden plots along the power company's right-of-way at the western-most perimeter of Goddard. Each plot measures 20 by 70 feet and will be farmed by club members. Seventeen of the plots will be managed organically, and 50 will be farmed by non-organic methods. Primary crops will be vegetables of all kinds to help beat inflation and the high cost of food.

Because the soil in the area is the typically poor orange Maryland clay, the club has procured compost and lime that will be disced into the plots sometime this month. Each plot has also been soil-tested.

In addition to farming the Goddard plots, this GEWA club conducts a variety of activities that should be of interest to all Goddard employees who like plants and gardens. Monthly meetings are held on the first or second Monday of the month and include talks by garden experts. When possible, the club offers seeds, supplies and garden publications at wholesale prices. In the near future, the club hopes to organize improvement projects for Goddard's grounds that will include tree planting, nature walks and picnic grounds.

For further information or to join the club, please contact any of the following Garden Club Officers:

Officer	*Extension*
Frank Shelton, President	2512
John Pearl, Vice President	4409
Nancy Stevenson, Secretary	5579
Ralph Mollerick, Treasurer	4676

This new club is a separate organization from the Garden section of the Goddard Women's Club.

INTERESTING PEOPLE

John Bogert: Computer Programmer

JOHN BOGERT demonstrates the new Optacon that will allow him to read ordinary print although he is blind.

John Bogert of the Laboratory for Solar Physics and Astrophysics has mastered most of the tricks of the computer programmer's art and added a few of his own. Although he is blind, his programs deal with optical and radio emissions from distant galaxies. The final output of his programs is often visual images for the scientists of his branch.

For the most part, he operates like any sighted programmer except that his printouts are in Braille and he uses touch or a special slate and stylus to "read" the information on computer cards. His latest tool is an Optacon, a sophisticated electrical device that allows the blind to read ordinary printed pages.

The Optacon (**OP**tical to **TA**ctile **CON**verter) is manufactured by Telesensory Systems, Inc., and consists of a pen-sized camera and a separate unit containing a tactile screen. To read with the Optacon, a person places the camera on a page and moves it across a line of print with one hand while resting the index finger of the other hand on the tactile screen. The enlarged image is formed by the vibration of tiny reeds that make up the screen. The screen itself is about one inch long and one-half inch wide.

With practice, a good Optacon reader can hope to achieve a top reading speed of up to 85 words per minute. Mr. Bogert, who has taken the standard TSI Optacon nine-day training course, has learned to read at a speed of about 24 words per minute since the Optacon was delivered to Goddard on February 19. His speed will increase with practice, and the Optacon will give him access to a wealth of printed material that formerly had to be Brailled, recorded or read aloud. With the Optacon, he hopes to read technical reports and abstracts, computer printouts in their original form and, he says, notes from his boss.

John Bogert holds a Bachelor's degree from the Virginia Polytechnic Institute. He first came to Goddard as a summer employee in 1969. He is currently working with Dr. Robert Hobbs on several programming projects. In one project his programs are used to "add together" data from many TV pictures of peculiar galaxies to produce improved images that are more accurate than the original. Another project deals with his laboratory's program for monitoring galactic radio sources.

If You Drive Why Not Rallye?

GODDARD RALLYE CLUB OFFICERS are Bob Vostreys (driver), Vice President; Gary Vincent (navigator), Secretary/Treasurer; Doug Sheatsley (standing, left), Activities Director; and Clyde Freeman, President.

If safe and logical driving techniques are your bag, you may want to join the Goddard Rallye Club (GRC). This newest of Goddard's clubs was officially voted a GEWA sponsored organization on February 26.

At present the GRC consists of over 30 members who are devoted to the pleasures of driving in organized rallyes.

A sports car rallye is not a "a bunch of people driving around all day to get to the nearest party" as it is sometimes described, nor is it limited strictly to sports cars. In most events, everything from foreign sports cars to family station wagons to pick up trucks may be entered.

A rallye is actually a contest of logic and common sense where rallyists, grouped according to experience and type of calculating equipment, follow a common course over rural back roads and attempt to drive and follow directions as accurately as possible.

The route instructions, for the most part, are similar to the instructions you would give someone trying to find your house. The main difference is that speeds are added for a rallye. If the instructions tell a rallyist to drive 32 miles per hour, he must drive 32 MPH. These speeds will always average below posted speed limits. A rallye is not a race — contestants are penalized just as much for being early as for being late.

Along the rallye route at locations unknown to the contestants until they arrive at them, are checkpoints. These checkpoints, managed by members of the sponsoring club, assign arrival times to all cars. The arrival time when compared to the departure time from the previous checkpoint gives the contestant's elapsed time for that leg. When compared to the official elapsed time for the leg, the contestant's score is determined. Usual scoring procedures assign one point for each second or each 1/100 th of a minute that the car is either early or late. A contestant's total score for all checkpoints is his rallye score, and the car with the lowest score wins. Trophies are usually awarded to the top 10 or 20 percent of the finalists in each class.

Coming events for the Goddard Rallye Club include:

April 6 — GRC Members only rallye. Rallye masters will be Theresa Arvidson and Warren Besore. Rallye title will be "The Rights of Spring." For more information contact Gary Vincent on extension 4500.

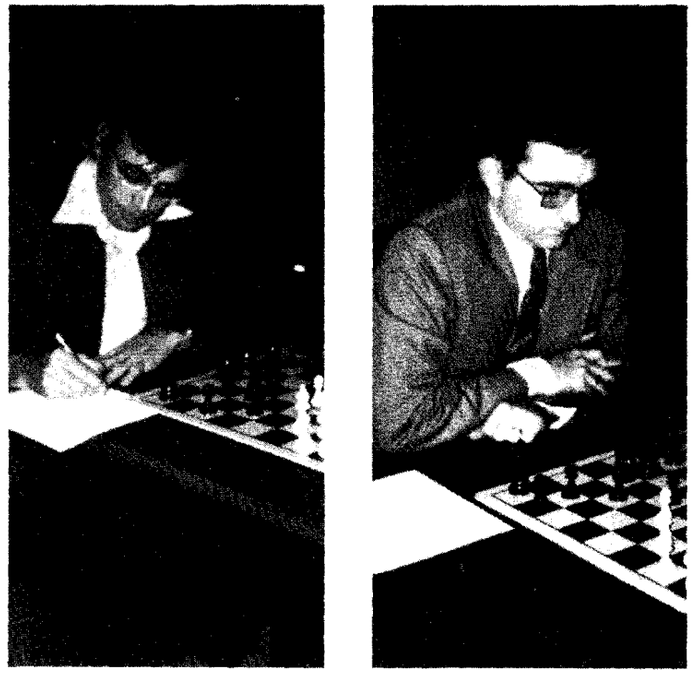
April 20 — First Metropolitan Washington Council of Sports Car Clubs (MWCSCC) championship rallye for the 1975 season.

August 24 (tentative date) — Open rallye put on by the GRC for all people in the Washington area.

For further information about the Goddard Rallye Club and to join, contact any of the officers listed below:

Officer	*Extension*
Clyde Freeman, President	6374
Bob Vostreys, Vice President	6695
Gary Vincent, Secretary/Treasurer	4500
Doug Sheatsley, Activities Director	4716

Rolinski Wins Winter Chess Tournament



ANDREW ROLINSKI (left) swept aside all opposition in the Goddard winter chess tournament with a perfect score of six wins out of six games. Frank Kelly (right) placed second and Dan Dembrow and J. Wilbur tied for third place. The tournament was directed by Sid Robertson.

NASA Graphic Profile Change

Under the Federal Graphics Improvement Program of the National Endowment for the Arts, initiated by the President in May, 1972, and participated in by NASA since early last year, a panel of graphic design experts has recommended a number of steps to improve the agency's ability to communicate internally and externally.

In accepting the recommendations, after he and Dr. George M. Low, NASA Deputy Administrator, had reviewed the findings, Dr. James C. Fletcher, Administrator, said:

"We at NASA believe that design excellence is not a luxury, but rather a necessity. We believe that it is important to constantly upgrade the quality of our graphics in order to improve communications with the citizens of our country and to develop a closer relationship between graphic design and program operation so that design becomes a tool in achieving the program objectives of NASA."

The new system will embrace all means of communications with the public and within the agency from publications to stationery, from press releases to vehicle identification and signage, to a new agency logotype.

The central element of the new system is this logotype. In this, the letters "N-A-S-A" have been reduced to their simplest possible form. The strokes are all one width, the panel explained, giving a feeling of unity and technological precision. Elimination of cross-strokes in the A's results in two "nose-cone" shapes within the logotype, imparting a "vertical thrust" to the total unit.

The panel that worked out the system evaluated hundreds of samples of NASA graphic material from all Centers. Members included Marion Swannie, Design Program Manager, IBM; Alvin Eisenman, Chairman of the Graphics Department at Yale University; Paul Rand, nationally known graphics designer; Howard Paine, National Geographic Magazine; and John Leslie, U.S. Department of Labor.

NASA has contracted with Danne & Blackburn, a New York City graphics concern, for a preliminary report and plan for implementation of the Graphics Improvement System. Its representatives will visit NASA Centers early in 1975 to discuss the program and work out details of a graphic manual for distribution throughout the agency.

Five Cited for ASTRE Presentations

Five Goddard employees have received cash awards for outstanding contributions to the Annual Science, Applications, and Technology Review held here on December 5 and 6, 1974. The awards were presented by Vern Stelter, Networks Associate Director for Engineering, and Paul Butler, Assistant Director of Engineering for Operations.

The awards were given for conducting ASTRE exhibits that met high standards of originality of subject matter, effectivness of display, and effectiveness of presentation. Those receiving the awards were:

ASTRE AWARDS were recently presented to five persons who were responsible for outstanding exhibits at the Annual Science, Applications, and Technology Review and Exhibit held in December. Presenting the awards were Vern Stelter, Networks Associate Director for Engineering, and Paul Butler, Assistand Director of Engineering for Operations. At the presentation were (from left) Leonard Deerkoski, Donald Lokerson, Mr. Stelter, Mr. Butler, Lurie Shima, and David Schaefer. Not Shown is Wayne Chen.

Donald Lokerson, Head of the Flight Data Processors Section, for his exhibit "Space Technology's Integrated Circuits Can Help Decode Speech," that demonstrated a system that may eventually aid deaf people who must lip read.

Wayne Chen, Industrial Relations Officer in Goddard's Special Programs Office, for his exhibit demonstration the "Arterial Pulse Wave Transducer for Hypertension Research." (See Technology Utilization story in this issue.)

Lurie Shima, of the Earth Resources Branch, for her exhibit and presentation "Earth Resources Application."

David Schaefer, Head of the Information Management Systems Section, for his exhibit and presentation "TSE Computers for On Board Image Processing."

Leonard Deerkoski, of the TDRSS Study Office, received a special award for his efforts as Theme Chairman for the comprehensive TDRSS Exhibit.

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