

Goddard celebrates 20th Anniversary



Notables on the dedication platform in 1961 include (left to right): A. Silverstein; Dr. Hugh Dryden; NASA Administrator James Webb; Mrs. Robert Goddard; Goddard Director Dr. Harry Goett; and Dr. Robert Seamens.

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Lovelace announces revised NASA budget of 6.1 billion

NASA Acting Director Dr. Alan Lovelace reported to the press March 10 on the Space Agency's amended budget for Fiscal Year 1982 (as included in the Administration's final budget proposals to Congress). Following is his budget overview statement.

The revised budget being transmitted as part of President Reagan's Economic Recovery Plan reduces the NASA budget by \$604 million to a revised total of \$6,122 million.

The revised budget for Fiscal Year 1982:

- preserves the Space Shuttle research, development and flight test schedule . . . leading to an initial operational flight in late 1982;
- continues production of four orbiter fleet;
- maintains an option for a fifth shuttle orbiter;
- supports continued development of the Space Telescope on the schedule we described in January;
- schedules the Galileo mission to Jupiter for 1985 Shuttle launch using a modified Centaur Upper Stage;
- continues support for flight missions such as Voyager that have been launched and are returning valuable scientific data;
- provides for continued development of Landsat D for launch in 1982;
- eliminates or defers all FY 1981 and 1982 new program initiatives in Space Science, Aeronautics and Applications;

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Code 100 notes:

EEO observes Black History Month

This is the second report from the Office of Equal Opportunity Programs keeping Goddard readers abreast of its activities. James R. Mundy, Head of the Office of Equal Opportunity Programs, submitted the following notes on the observance of Black History month at Goddard.

In keeping with this year's theme "Black History—Role Model for Youth," the Equal Opportunity Programs Office arranged for a visit to the Center of students from four junior high schools in Washington, D.C. and Baltimore on February 27, 1981.



Dr. Edward W. Robinson, Jr., Assistant Managing Director of the City of Philadelphia, lectures to students on their historical background. The program took place in the building 8 auditorium.

While on site, students were shown the NASA film, "Where Dreams Come True," toured the Visitors Center, viewed the photographic display, "Living Legends in Black History," and heard a presentation by Dr. Edward W. Robinson, Jr., the keynote speaker for the occasion.

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Goddard celebrates 20th anniversary of dedication

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March 16, 1981 marked the 20th anniversary of the dedication of Goddard. Center Director A. Thomas Young commemorated the event with a tree planting ceremony. The plaque accompanying the tree reads "This tree planted 3-16-81, commemorating the 20th anniversary of the dedication of the Goddard Space Flight Center."

The following speech was delivered by Center Director A. Thomas Young during the ceremony.

"Today is the 20th anniversary of the dedication of Goddard. Twenty years ago on March 16, 1961, Goddard was a different place physically. Only buildings 1, 2, 3 and 4 were here. Glenn Dale Road was a two-lane blacktop. I was not here; but I am told that it could take 30 minutes to get to the Baltimore-Washington Parkway in the evening.

"There were many other differences—at that time we had more hopes for the future than accomplishments to look back on. We had a grand total of 8 satellites in orbit; we had never supported an astronaut flight (except one primate named Ham); and Delta had been launched three times with two successes.

today reaches into every home in America and every continent in the world because of the contributions we have made to weather and communication satellites. We are recognized worldwide as a scientific center of excellence. We were a key group in the placing of man on the moon.

"Also, I would like to remind you that 55 years ago today, Robert Goddard, whose achievement inspired the name of our center, successfully launched his first liquid fueled rocket.

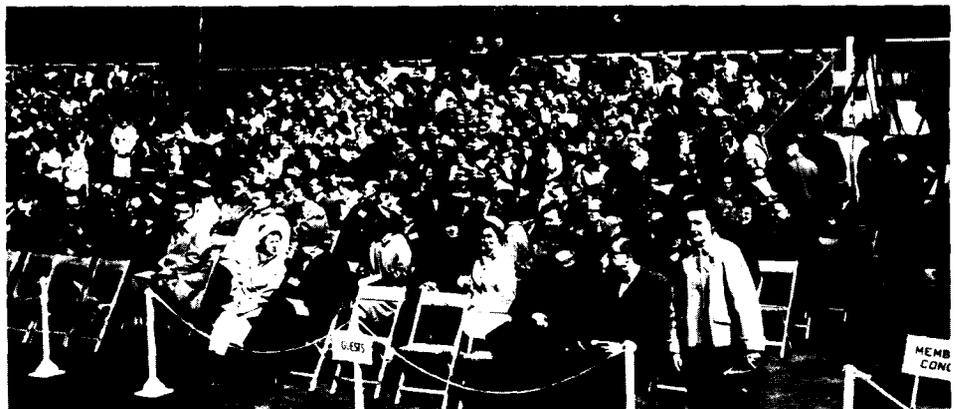
"We have checked informally and I understand that a fairly large number of people are still here who were Goddard

employees in 1961. That in itself is an impressive characteristic of Goddard.

"Today—one thing is very much the same as it was 20 years ago—we can look to the next 20 years with the same spirit of enthusiasm and anticipation. I am convinced that our capabilities are greater than ever.

"We are still on the front door step of space research and the best is yet to come.

"All of you can be proud of your participation in the 20 years of outstanding accomplishments we've completed and we can all look ahead with excitement to the same degree of success in the future."



A crowd of well-wishers were present in this 1961 photo for Goddard's first dedication ceremony.



Participating in a tree-planting ceremony, celebrating Goddard's 20 year anniversary dedication are: (from left to right) Center Director A. Thomas Young, Benita A. Sidwell, Director of Management and Operations, Allen Berndt, code 800, and William K. Lau, code 900.

"Now, 20 years later, we can look back with pride at an almost incredible record of accomplishments. Goddard's influence

Center congratulates TAP graduates



From left to right—Wayne Jackson, Linda Miner and David Peters are three recent graduates of code 700's Technical Apprenticeship Program (TAP). In a ceremony held earlier this month, the three in-house trained technicians were awarded certificates for their accomplishments.

Tracking and Data Acquisition Network gears up for Space Shuttle launch

"Tracking the Space Shuttle from lift off to reentry and communicating with its astronauts and multitude of instruments is the role of the Goddard managed world-wide tracking team. Next to our colleagues in Houston, Goddard could not have a more important role, since tracking is the very lifeline for this program."

Richard Sade

In a prolonged flurry of activity, the Networks Directorate has readied Goddard's worldwide Satellite Tracking and Data Network of ground stations to support the first flights of the Space Shuttle, opening the door to a new era of high data rate spacecraft communications which will see transition to an entirely new and in-orbit network of high capacity Tracking and Data Relay Satellites in late 1983.

Directed by Richard Sade, Code 800 teams, with the cooperation of foreign countries and Bendix contractors, have expanded the present number of 12 ground stations by six.

Four of the stations are overseas to improve the 22 percent coverage of the Shuttle's orbit when it blasts off perhaps as early as next month. They will permit Shuttle controllers at Houston to add two-way voice contact with the two astronauts over Africa (Senegal and Botswana), the Indian Ocean Seychelle Islands, and Australia. Thanks to the host governments, the African stations have come on line in record time by locating alongside existing international satellite telecommunications facilities. Australia's station, at Yarabadee, is co-located with Goddard's existing laser tracking facility.

Two new U. S. stations offer supplementary audio links plus the full complement of communications capabilities which permit keeping housekeeping tabs on the Shuttle. These are 'Ponce de Leon Point,' some 40 miles north of the Merrit Island station near Cape Canaveral, and 'Tula Peak' at White Sands, New Mexico.



Mr. Richard Sade, Networks Director

The first affords contact with the Shuttle at launch unobstructed by the rocket's radio attenuating exhaust plume which may mask Merrit Island, while the second provides support for an alternative landing field in the event of a mission abort during launch (with the Shuttle going once around the Earth), or if during re-entry, the Shuttle is overspeed or there is water on the dry-lake bed at Dryden, California.

Directorate Notes

Taking a step away from Apollo's familiar radio conversations, the network has developed a new capability for digital voice communication, which permits broadcasting with lower signal power. Listeners will be able to detect the difference as a slightly lower fidelity, more clipped representation. The network also will accommodate uninterrupted, real time television transmissions from the Space Shuttle as the craft passes over the continental U.S. Television transmissions over more distant parts, for example Australia, will not return in real time to the U.S. but as videotapes recordings which will be shipped back.

To communicate its variety of voice, television, and housekeeping data, the Shuttle will use a transponder unlike that aboard any other spacecraft presently tracked by the network. In all, the transponder will forward 196 kilobits per second of information (where 8 bits commonly represents a word) with several kinds of data interspersed at a time. The transponder challenged the ground stations with new acquisition techniques and caused some concern when initial tests showed difficulty in communicating data

to and from the spacecraft. To increase confidence in the ability of the stations to communicate successfully, a Shuttle transponder was flown in a training flight over critical ground stations. The plane that carried the transponder was made available by Johnson Space Center and was the same that NASA used in weightlessness training for the Shuttle astronauts.

But the real challenge the Shuttle poses for ground stations, notes Networks Director Sade, is not so much in receiving data as in tracking the vehicle's progress, where exceedingly accurate and timely monitoring becomes critical when lives are at stake. If the Shuttle strays off course, there can be difficulty in precisely predicting where the Shuttle will appear on a following station's horizon once it has passed out of contact with a previous station that may be as much as one revolution away. Maneuvers are particularly critical: for example, the initial burn that will push the Shuttle into Earth orbit will occur out of contact with the Bermuda station, with the Shuttle not due to be picked up again until Madrid some seven minutes later. If the Shuttle thrust is abnormal, the spacecraft can be early or late in passing over, with controllers anxiously wondering how long to maintain their antennas on the anticipated flight curve before initiating a search elsewhere in the sky, a search which must be done quickly since in six minutes the craft will have passed through the station's window and be on its way to an even more unpredictable situation down the line. The tracking stations are preparing for such eventualities by perfecting automated search patterns for their antennas that can make the best use of available time.

Another tracking challenge is in following the Space Shuttle's re-entry through the atmosphere at 18,000 miles per hour and its approach for landing at 225 miles per hour. For these purposes, the Shuttle's radio emitting beacon which tells satellite tracking and data network stations its location will not suffice, and

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Tracking network

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the Networks Directorate is cooperating with Air Force radio equipped tracking stations to actively locate and lock onto the fast moving vehicle. To prove the radar's ability, Goddard and the Air Force recently made a re-entry simulation using an ultra high speed reconnaissance airplane (the SR 71).

As the business of getting ready for the Space Shuttle has entailed some modifications at the ground stations, so has it meant making new connections between the stations and Goddard and also to Shuttle mission control at Houston.

For the most part, Shuttle information collected by stations abroad will be fed by Intelsat to Goddard and on to Houston simultaneously with the Shuttle's overflight of the antennas. To accommodate the flood of information dumped at major ground stations, the Directorate has reserved three wideband lines capable of carrying 56 kilobits per second each from the stations to Goddard. By contrast, the maximum 7.2 kilobits per second capacity of most lines during Apollo meant information continued to slowly pour back to Goddard well after the spacecraft had left the station's window and was moving towards its next contact.

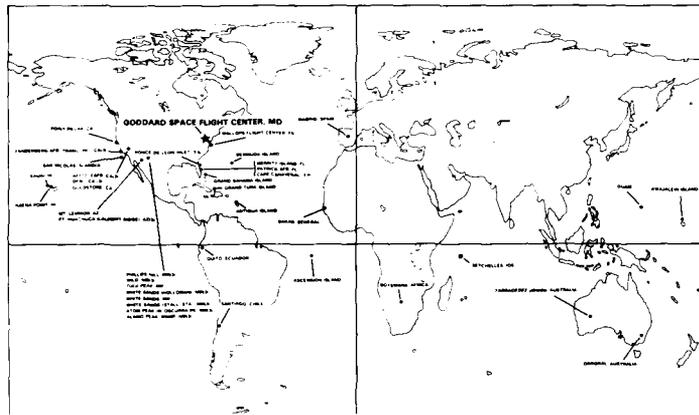
Controllers at Goddard will send information along to Houston by domestic communications satellite, all the while maintaining channels open on two different satellites in the event one channel should fail (a rare occurrence). This pipeline to Houston, whose redundancy was successfully proven early this year, can handle up to 1.5 megabits of information per second, enough to feed in data from several overlapping stations at once. It assures Houston of real-time mission control while leaving scheduling of network operations and problem resolution to controllers in Goddard's Network Operations Control Room (Building 14) under Networks Director Dale Call. Flow of communications between stations and over the Houston pipe will be handled by NASCOM controllers in the same building. Pulling together pre-mission planning was the responsibility of Network Support Manager Mike Stevens.



The Satellite Tracking and Data Network station at Bermuda looking toward the horizon.

During the period of support to the Shuttle there will be some impact on network support to the 34 low orbiting satellites already in space. Steps have been taken to minimize this impact to ensure

health and safety and data acquisition for other spacecraft. The additional data impact from the Shuttle is quite great, but the real time support and critical nature of the mission is what really impacts the Network resources. Excluding Landsat, the Network currently receives some 12,000 megabits per day, while the Shuttle will add another 23,000 megabits per day to the load. Networks Director Richard Sade feels confident that all users will be well supported due to the overtime dedication already shown and continuing to be shown by Network personnel worldwide, including civil servants, contractors and foreign nationals, as well as the full cooperation of the governments of Spain, Chile, Australia and Ecuador which operate ground stations for NASA.



Bldg. 16/16W parking problems alleviated

The Facilities Health & Safety Committee (FH&SC) has come up with a plan to alleviate present and future parking problems for employees who work at building 16/16W.

After evaluating proposed alternatives to the parking problems, the committee opted in favor of having building 16/16W employees use existing parking spaces behind buildings 7 and 10. Because of current budget and logistics constraints, the committee found this alternative not only the most convenient but also the most favorable to the employee's pedestrian safety.

Those individuals who would prefer to utilize buildings 7, 10 and 15 as "short cuts" to building 16/16W can do so providing they use the building corridors only and do not cross work spaces such as laboratories or assembly areas. These restric-

tions limit the "short cut" paths to the southwest corridor (northwest entrance) and the southeast corridor (main exit, southeast exit).

Until recently parking restrictions around the island in front of building 16/16W and the building's loading dock facing Soil Conservation Road had not been enforced. The present move of Administration Logistics Support and future move of Hollins Ferry Supply Depot to building 16/16W has and will substantially increase truck traffic in this area as well as magnify the safety problems associated with illegal parking around the island and loading dock; therefore, effective March 13, 1981, parking restrictions around the island and loading dock will be enforced through parking tickets.



Linton Cheers, Chief, Logistics Management Division, congratulates Middleton for starting Goddard's first van pool, while Center Deputy Director John H. McElroy looks on.

Official van pool starts at Goddard

In an effort to conserve energy and to combat the spiraling cost of gasoline, Hank Middleton, a Computer Systems Analyst, code 206, started Goddard's first official van pool on March 9, 1981. A ribbon cutting ceremony was held with Center Deputy Director John H. McElroy congratulating Middleton for his initiation of the first van pool. Dr. McElroy's participation reinforced Goddard's efforts to conserve energy.

The establishment of this first van pool was relatively easy once the members of the group were identified. Assistance was available from Logistics Management Division (LMD), Vango Inc. (State of Maryland), and Van Pool Services Inc., a subsidiary of Chrysler corporation.

Although there may be other van pools at Goddard, Middleton, in cooperating with LMD, which supplies employees with pool questionnaires and tabulated results, is hailed as the first van pooler. He will receive a reserved parking space in front of building four.

The tabulated results from LMD enabled Middleton to more conveniently find employees from Baltimore interested in van pooling and, furthermore, provides all employees with printouts assisting them in joining or starting a ride-sharing program.

Middleton is leasing his van from Van Pool Services Inc. and, as the manager of the pool, carries out all business transactions. The vehicle is a new and attractive 15 passenger, 1981 Dodge Van, equipped with AM, FM, and CB radio. There are 11 members in Middleton's van pool with Ms. Cindy Sharopshire, code 405, as the back-up driver.

You too can start a van pool—see Joinna Carr—Van Pool, Logistics Management Division, building 27, 344-5733. Listed below are questions frequently asked by potential van poolers.

- Q. What is my commitment to the van?
 - A. The driver and riders make only a month-by-month commitment. As a courtesy, each rider is asked to give as much notice as possible of an intention to leave the pool so another rider can be found.
- Q. Does the van provide door-to-door service?
 - A. The route and schedule are determined by the group. We find many vans go door-to-door, others have a common meeting point. Your ridesharing office can assist in planning these meeting points.
- Q. What happens when the driver is sick or on vacation?
 - A. Each vanpool group has a backup driver who can take over in these circumstances.
- Q. What happens if a rider is sick or on vacation?
 - A. The monthly fare reserves your seat whether you ride or not, so refunds are not given for missed days. You may arrange to sublet your seat to "occasional" riders from the vanpool's waiting list.
- Q. Who helps locate new passengers?
 - A. Your local ridesharing office is available to help fill empty seats. All vanpool riders should actively pursue filling empty seats to help keep costs as low as possible.
- Q. What are the drivers' basic responsibilities?
 - A. Drivers are responsible for picking up and delivering passengers, arranging for van maintenance, fueling, and fare collection.
- Q. Are special driver's licenses required?
 - A. No. A driver must satisfy a set of qualifications. These include a valid driver's license, good driving record, and good attendance.

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GEWA elects new officers



Tom Harbach, Club Chairman



Bob Lively, 2nd Vice-President and Club Co-chairman



Tom Hamilton, Food Services Chairman

Three new people have joined the Executive Council of the Goddard Employees Welfare Association (GEWA). Tom Harbach, has replaced Vince Arillo as Club Chairman; Bob Lively, elected back in December, now serves as the 2nd Vice-president and Club Co-chairman; and Tom Hamilton replaces Kathi Williams as the Food Services Chairman. The Executive Council is responsible for the management of all GEWA activities.

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Dr. Robinson, currently the Assistant Managing Director for the City of Philadelphia, is an authority on Afro-American life and history, and is best known for his production of the popular historical album, "Black Rhapsody." He is also the author of the soon to be published novel on African History, *Songhai*.

Dr. Robinson enlightened the students on the importance of understanding the true nature of their historical background. On their departure, students were given biographical sketches of contemporary role models whom they could emulate.

Revised NASA budget

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- deletes the U.S. Solar Polar spacecraft, but supports our commitment to the European Space Agency by providing for a 1986 launch opportunity for a cooperative mission using the ESA spacecraft;
 - makes significant across-the-board cuts in aeronautical and space technology development, but retains an effective aerospace research base;
 - deletes planned constructions of facilities projects including the Transonic Dynamics Tunnel, the Small Engine Component Test Facility, the Mach 19 Nitrogen Tunnel and a project to reduce energy consumption;
 - lowers NASA Civil Service employment levels by 840 from the previously planned level of 22,713.
- More specifically, the reductions in Space Science in FY 1982 total \$173 million. Major changes include:
- The Venus Orbiting Imaging Radar, previously proposed for launch in 1986, deferred until 1988; FY 1982 activity will focus on detailed early design efforts;
 - the overall Spacelab flight schedule will be revised with resultant savings in FY 1982;

- launch of the Gamma Ray Observatory is delayed from 1986 to 1988;
- the International Solar Polar Mission, twin spacecraft scheduled for launch in 1985, is being restructured. Funds for the U.S. spacecraft in FY 1982 are deleted. We are prepared to continue this cooperative mission by funding the U.S. instruments to fly on the European-built spacecraft, and are discussing with the European Space Agency a launch opportunity for the ESA spacecraft in 1986, using a Centaur Upper Stage in the Shuttle;
- deferral of research and analysis activities; and deferral of planned mission operations and data analysis activities.

In Space Applications, reductions total \$110 million; major changes include:

- delaying development of instruments for a proposed Upper Atmosphere Research Satellite;
- eliminating the evaluation phases of a joint international search and rescue mission;
- cancelling the proposed geological applications program relating to geological and mineral exploration;
- delaying and reducing agricultural applications of remote sensing data (A_gRISTARS);

- cancelling the National Oceanic Satellite System, a tri-agency operational demonstration involving a new satellite;
- terminating the Technology Transfer program and phasing down the Technology Utilization program.

Aeronautics, Space Technology and Energy program cuts total \$79 million, including:

- deferral for further consideration of the proposed Numerical Aerodynamic Simulator;
- and, eliminating specific funding for NASA energy technology activities.

Other major programs in aeronautics that have been cancelled or deferred include the efforts in Supersonic Cruise Research, the Variable Cycle Engine and V/STOL systems technology. In addition, a proposed initiative in Large Composite Primary Aircraft Structures was eliminated.

In Space Research and Technology, we are deferring a planned buildup in effort of the longer range technology efforts which are important to our future leadership in space.

The adjustments in the FY 1981 column, in general, reflect the impact in that year of decisions made on the FY 1982 budget. The FY 1981 column also shows an increase of \$60 million in the Space Shuttle category of changes and systems/upgrading. This adjustment has been made to provide added schedule confidence in the Space Shuttle development and test activities and in the production of orbiter vehicles.

At our previous press conference, we informed you of our intent to discontinue development of the three-stage version of the inertial upper stage for use in planetary programs and to undertake modification of the Centaur Upper Stage for use in the Shuttle. The Amended Budget reflects this decision. This modified Upper Stage will enable us to fly the Galileo mission to Jupiter on a single launch in 1985. It will also be available for the restructured Solar Polar Mission in 1986 and for the Venus Orbiting Imaging Radar Mission in 1988.

Van Pool

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- Q. Does the driver have personal use of the van?
- A. Yes. The first 150 miles are free except for gas (in return for keeping the van clean). Mileage over 150 is charged at 8¢ per mile (you pay for gas).
- Q. Does the same person drive every day?
- A. Yes, usually. The driver and backup driver may share.
- Q. Could my fare change?
- A. Changes in gasoline prices, the cost of insurance, or maintenance costs are

passed on to passengers and could change your fare.

- Q. Is smoking permitted in the van?
- A. The group decides whether or not smoking is permitted.
- Q. How much insurance is carried on the vans?
- A. Van Pool Services, Inc. carries a \$500,000 insurance policy per occurrence on each van. Van Pool Services, Inc. pays the deductible for any commute accident. The driver pays the \$100 deductible for any non-commute accidents.

GODDARD NEWS

The GODDARD NEWS is published every two weeks by the Office of Public Affairs, Goddard Space Flight Center, Greenbelt, Md. 20771. Deadline for submitted material is two weeks from the date of publication. For additional information on major articles contained herein, contact the editor on (301) 344-5566

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