



SMM: first observation of transient event in solar corona

A spectacular solar event is captured in this picture (above) of the outer solar atmosphere taken by the High Altitude Observatory's telescope on the NASA Solar Maximum Mission spacecraft launched February 14, 1980. In this part of the atmosphere of the Sun, temperatures reach about 4,000,000 degrees Fahrenheit, with densities which are less than one billionth of those of the Earth's atmosphere. Seen in the bright region (upper right), is a "transient event"—the first to be observed from this spacecraft. The study of such transient events in the

atmosphere is a part of the program to study solar flares during the current maximum of the Sun spot cycle.

Immense disruptions on the Sun cause ejections of matter, in weight as much as 1 billion tons, to be thrown out from the Sun at speeds up to several million miles per hour. In this photograph, the bright wispy arch is such an event reaching in this case some half a million miles above the surface of the Sun.

The ejection of hot gas clouds represents only a significant fraction of the total energy released in the flare, which can be as much as the equivalent of a billion megaton bombs.

The intricate telescope observing this solar event is one of 6 instruments on board the Solar Maximum Mission satellite. Called a coronagraph, the special

instrument blocks out light from the bright surface of the Sun so that the extremely faint light from the solar corona may be observed. Before the advent of satellite observatories, such pictures of the Sun could only be taken during total solar eclipses when the Moon blocks light so that the corona of the sun can be seen. Total solar eclipses, lasting only a few minutes, occur a couple of times a year, usually at some remote spot on Earth. It was not until Skylab experiments discovered such massive disturbances of the corona that they were found to actually occur. Now from satellites, such as the Solar Maximum Mission, astronomers can observe the Sun up to 5,000 hours during the year, independent of eclipses, weather and other disturbing

Continued on page two

Computer Services support contract

Goddard Space Flight Center has selected Planning Research Corporation's (PRC) Data Services Company of McLean, Va. for award of a contract to provide Automatic Data Processing (ADP) services for the Center's Management Systems Office.

The contractor's estimated cost of this cost-plus-award-fee contract is \$4,765,000 for a base period of one year, with three additional one-year optional extensions.

The Management Systems Office (MSO) is responsible for all administrative ADP functions at Goddard. The services it provides include ADP consultation, systems development, production computer processing, and customized technical support.

The contractor will furnish about 47 man-years of support for these services per year. The work will be performed at Goddard. The services will consist largely of operation of government-owned equipment.

Computer language translator helps analyze Landsat data

Earth resources managers with no computer experience can now use computers to analyze information from NASA's Earth-viewing satellite Landsat, thanks to a new computer language "translator" developed by NASA.

The new translator, called "The ORSER Complete Conversational User-Language Translator" (OCCULT), is a computer program designed to allow users to converse with the computer in simple English, with no extra instruction. The program transforms the layman's terms into the precise format required by the Landsat data analysis program "ORSER" developed at Penn State University's Office for Remote Sensing of Earth Resources (ORSER).

Planners in state and local government use Landsat images to map and study land areas so they can make informed decisions. These images can give inexpensive, up-to-date information on vital topics such as crop yields, extent of urban sprawl, and the effects of pollution.

Orbiting 920 km above the Earth, Landsat's sensors scan the Earth, meas-

uring the color and intensity of light reflected from the surface. This information is beamed to Earth and converted to digital data. The digital data can be used to make false color images that look a lot like aerial photographs. You may have seen some of them in magazines or museums.

More frequently, however, the digital data are manipulated by computers to make them easier to understand or to highlight certain features. Because different objects reflect light differently,

"...OCCULT has been placed on a nationwide computer time-sharing network..."

the computer can also map and measure how much area is crop, forest, water or other kinds of land cover. Penn State's ORSER system can perform over 30 different types of analysis and manipulation of Landsat data. Six of the most useful of these have now been included for analysis through OCCULT. If it proves popular, NASA plans to make more such programs available for use through OCCULT.

OCCULT has been placed on a nationwide computer time-sharing network operated by the Computer Network Corporation (COMNET). The computer is located in Washington, D.C., but a user with a teletype terminal can make a local telephone call to it from anywhere in the U.S. and use OCCULT by paying for the computer time used. OCCULT is also available for purchase by users who may want to install it on their own computers. (Sale of OCCULT and other NASA computer programs are handled by COSMIC at the University of Georgia, Athens, GA.)

The OCCULT program was designed by NASA's Eastern Regional Remote Sensing Applications Center (ERRSAC). The Center, one of three NASA centers responsible for transfer of Landsat technology to state and local governments, developed OCCULT in 1979 as a training aid for instruction in Landsat data analysis techniques.

SMM: first observation

Continued from page one

atmospheric effects.

The image of the corona shown in this photograph is "raw" data as transmitted directly from the satellite. Because of the corona's faint light, this image of the Sun was recorded on a highly sensitive TV tube and automatically stored in one of the satellite's tape recorders.

NASA's ground receiving station at Quito, Ecuador, acquired the image data transmitted by SMM then relayed it to the Goddard Space Flight Center in Greenbelt, Maryland. At Goddard, image data is processed by computers and displayed on a TV screen where scientists of the High Altitude Observatory of Boulder, Colorado, and their colleagues from all over the world, monitor activity in the corona.

This picture from the TV screen will eventually be converted to scientifically accurate and meaningful information. Each of these pictures contains 24 million bits of information which will be proces-

sed through the computer of the National Center for Atmospheric Research in Boulder, Colorado. Many thousands of such images are anticipated during the lifetime of the spacecraft.

During 1980 and into 1981, maximum activity of the sunspot cycle is expected to occur. More than 100 scientists associated with the Solar Maximum Mission and the complementary network of ground observatories all over the world will work together to solve the scientific mysteries relative to the origin of the explosions on the Sun, the physics of solar flares, and of course, their effect on the Earth's physics.

Solar flares are known to disturb communications on Earth and to be potentially dangerous to future space travelers.

To date, performance of all SMM systems has been flawless. Over 900,000 commands have been issued without a single error and over 50 billion bits of data have been transferred successfully.

People

Joinna Carr-Van Poole wants to help you share gas, save energy

The rising cost of gasoline and the need to conserve energy promise a new outlook for mass transportation at Goddard in the near future, including more effective Metrobus service onto the Center and greater use of car and van pools.

"Goddard has been negotiating with Metro to bring more buses here and the response has been encouraging," says Joinna Carr-Van Poole of Logistics Management Division (LMD). Recently, Goddard employees received a questionnaire concerning their mass transit needs and their reply is being used by LMD and Metro to determine how service can be improved. "If progress continues at the present good rate," says Joinna, "we may see additional buses arriving on Center soon."

As the energy crunch tightens, more and more employees have begun to look to buses as an alternative but have found existing services to be disappointing, says Joinna. Presently there are only three buses entering Goddard. The schedules are erratic and some employees have complained that on occasion buses have not entered the Center, that bus drivers are sometimes unfamiliar with their routes

on Center, and that there are no Metro signs on Center marking bus stops.

The Logistics Management Division has been negotiating for buses from additional points to enter the Center and for more frequent stops around the complex. Employees, notes Joinna, have indicated they would like to see buses from Bowie, Annapolis, Columbia and Baltimore among other new points of origin.

Joinna is also exploring the possibility of Metro's selling multiple-trip "flash passes" on center. She predicts flash passes, which offer the possibility of large savings in fares over two week periods, could go on sale at Goddard as early as the end of April.

Joinna Carr-Van Poole is also assisting employees with forming car and van pools as an alternative means of conserving energy. The office conducted its first car pool questionnaire in September of 1979 to assist people in forming pools. A second mailing was distributed Center-wide two weeks ago. Tabulated results of this survey are providing employees with the names of persons interested in forming car or van pools within a 3 mile radius of their homes. "Eventually we hope to

Note from Center Director: Please share the ride

Waiting for mass transit alternatives to ease the energy crunch of getting to work, it is easy to overlook the fact that one of the solutions is already in our midst. That, of course, is car and van pooling.

Sharing gasoline offers a means for vast savings of energy through the workweek, perhaps nowhere more so than at facilities such as Goddard, where so many commute long distances from home.

As we work to conserve badly needed energy at an organizational level at Goddard, I would like to express my support for all those who are trying to reach the same goals on an individual level through car and van pooling.

A. Thomas Young

provide all employees with printouts to assist them in forming car and van pools," says Joinna.

Joinna has found it difficult to determine how successful pooling efforts have been to date because employees have not notified her when car pools have been formed. Employees are requested to call Joinna after forming car pools. This information assists Joinna in her efforts.

Joinna is coordinating van pools as another means of conserving energy, and has brought a van pool company representative to Goddard to present a seminar on leasing and using vans for pools. The rules are as follows:

- A driver must have a class C license.
- There must be 14 people in the pool, including a principal driver and one co-driver.
- You must travel 10 miles (20 miles round trip) to Goddard.
- The principal driver must sign a 30-day leasing contract with the company leasing the van, which can be renewed automatically every 30 days.

To date, says Joinna, there are no van pools on Center, but every possible avenue is open for those who are interested in being the first.



Three new members have been appointed by their Directorate heads to serve on the Library Users Committee this year: Vuk Peric (301), Joseph Dolan (681) and Hubert Tschunko (722). The Committee helps the Library meet the needs of the Goddard community by assisting in establishing library policy, acting as a feedback mechanism for library users, and serving as a review board for the library's collection.

The Library Users Committee wants to hear your needs. Directorate representatives are (above, l. to r.): Richard Fitzenreiter (692), Michael King (915), Richard Ormsby (730), William Wooden (Chairman, 582), Joseph Dolan, Walter Hoegy (621), Adelaide Del Frate (non-committee member—Head Librarian), and Hubert Tschunko. Not pictured are James Zerega (220), Wesley Willard (240), Vuk Peric, Jean Swank (661), and Andrew Chi (810).



Viking fund seeks to prolong Mars data

The Viking lander spacecraft is currently relaying valuable scientific information from the Martian surface to Earth, and a private effort is underway to raise \$1 million by the end of July of this year for continuing this operation over the next ten years. Viking's message includes Martian environmental data (useful in solving the riddles of Earth's weather), clues in the search for life, and other tantalizing details from the Red Planet. Just \$1 million is all that is needed to process, reduce, and analyze Viking's Martian collect call for this ten year period.

The Viking Fund, as the effort to raise the \$1 million has been named, was initiated by the San Francisco Section of the American Astronautical Society to guarantee that in an era of rampaging inflation and competing budget pressures, Viking's information would not be lost for the want of relatively minor funds. The Viking Fund will cooperate with NASA and the Jet Propulsion Laboratory of the California Institute of Technology (the Mission Control Center for Viking operations) in supporting Viking's explor-

ation of Mars, although NASA, as a federal agency, cannot, and does not endorse the Fund. The Fund will also directly finance the exploration of Mars at the research institute and university levels. In this manner, such activities' dependence on federal funds will be reduced.

Not to be overlooked in an election year are the political implications of such a graphic demonstration of public interest in the space program. Privately raising \$1 million for a space project would be a tremendous signal to Washington, D.C. of the public willingness to support space activities. Even at this early stage in the Fund's campaign contributions are being received from all states, from all backgrounds, from both young and old.

Those interested in the Fund, and those wishing to make a donation (minimum amount \$1.00—made payable to The Viking Fund) should write to: THE VIKING FUND, P.O. BOX 7205, MENLO PARK, CALIFORNIA 94025, U.S.A. All contributions are tax deductible, and all contributors receive acknowledgement of their gift, and an open invitation to the dedication of the Fund in Washington, D.C., during July of this year.

Key personnel Apts

Project Management Directorate

Effective March 2, 1980, Dr. Edwin E. Speaker is appointed Project Manager, Landsat-D (Code 435, 344-8257). Dr. Speaker comes to the Center from the Defense Intelligence Agency, where he served as Chief, Weapons and Systems Division.

Engineering Directorate

Effective March 9, 1980, Mr. Anthony F. Durham is appointed Assistant Chief for Technical Management within the Instrument Division (Code 720, 344-7103).

Coming & Going New employees

Quinn, Susan L., Contract Specialist (Code 200.4), 2-24-80.
Wagner, Alice G., Clerk-Typist (Code 850), 2-24-80.
Tratt, Barbara A., Clerk-Typist (Code 268), 2-24-80.
Cruz, Edward B., Boiler Plant Operator (Code 292), 3-2-80.
Sharps, Monica L., Clerk-Typist (Code 240), 3-2-80.
Keathley, William C., Director of Project Management (Code 400), 3-2-80.
Speaker, Edwin E., Project Manager (Code 435), 3-2-80.
Rabb, Leonard, Aerospace Engineer (Code 301), 3-2-80.
Abid, George E., Administrative Office (Code 600), 3-2-80.
Rice, Charles, Aerospace Engineer (Code 302), 3-2-80.

Retirements

February

Cullemer, William H.	754.4
Yaffee, Philip	702
Etzel, John G.	752
Brown, Larry E.	270
Behrens, Walter	754.3
Harvey, Glenn	751.1
Sheehy, Robert N	313.2
Pruett, William	754.1
Austin, Leonard E.	312
Rice, Charles F., Jr.	734.3
O'Brien, James S.	741
Raskin, Walter H.	726
Rabb, Leonard	301
Higgs, Ruth G.	289
Abid, George	600
Rushing, W. J.	271.5
Rice, Charles F.	302
Perry, Leslie, Jr.	752.1
Bryant, George K.	813.3

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