

QuikSCAT spacecraft contract awarded

Mission will fill data gap from NSCAT loss; launch planned for November '98

By MARY HARDIN

NASA has approved an immediate new start for the Quick Scatterometer (QuikSCAT) mission—to be managed by JPL—and has placed the first delivery order issued under its Indefinite Delivery/Indefinite Quantity (ID/IQ) contracts for rapid delivery of satellite core systems to Ball Aerospace Systems Division, Boulder, Colo.

The ID/IQ procurement method provides NASA a faster, better, cheaper method for the purchase of satellite systems through a "catalog," allowing for shorter turnaround time from mission conception to launch.

The mission will fill in the ocean-wind vector data gap created by the loss of the NASA Scatterometer (NSCAT) on the Japanese Advanced Earth Observing Satellite (ADEOS). The NSCAT instrument ceased functioning when ADEOS failed on June 30, 1997. The follow-on scatterometer for monitoring ocean winds, called SeaWinds, is scheduled for launch on the Japanese ADEOS-II spacecraft in 2000. QuikSCAT is planned for launch in November 1998, reducing the data gap by about one-half.

"The challenge levied to us requires the satellite, instrument, ground system, and launch vehicle to be developed, integrated, and launched in less than a year, something that has not been accomplished before," said Jim Graf, Quik-

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Jet Propulsion
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Mars penetrators complete crucial test

Payload will be mounted on Mars '98 lander

By JOHN G. WATSON

Two miniature science probes designed to penetrate the Martian surface and analyze the water vapor content of the planet's subterranean soil in 1999 have successfully completed a crucial subsystem test deep in the New Mexico desert.

This successful check of the batteries and soil collection drill of the mission known as Deep Space 2 (DS2) provides a green light for subsequent integrated system tests next spring, said DS2 Project Manager Sarah Gavitt. The DS2 mission hardware will be launched in January 1999, mounted on the Mars Surveyor '98 Lander. Both missions will arrive on Mars in December 1999.

DS2 is the second scheduled launch in NASA's New Millennium Program, which is designed to test new advanced technologies prior to their use on science missions in the 21st century. DS2 will validate the ability of small probes loaded with sensitive, miniaturized instruments to analyze the terrain of planets and moons throughout the solar system.

In the late-October test, a two-kilogram (4.4-pound) prototype probe containing a soil collection drill and a circular group of eight lithium thionyl chloride cells—forming two batteries—was shot into the ground at more than 644 kilometers per hour (400 mph). The drill survived a 20,000-G impact, and the batteries, nestled inside a custom-designed casing, survived a

45,000-G impact intact. Both continued to function as designed. One G is the normal force of gravity on Earth.

"The Mars Pathfinder lander experienced about 19 Gs when it hit the Martian terrain in July, so you can see that we are working at enormous rates of deceleration," Gavitt explained. "One of our biggest challenges has been to find a way for our components to survive such a

high deceleration force. The items at highest risk are the batteries, their packaging and the motor drill assembly.

"Although the recent test was one in a long series, it was the first test using flight-like hardware and packaging, so it served as a complete qualification of the battery and drill subsystems," she added.

The probe design features two modules: a circular aftbody, five inches (13 centimeters) in

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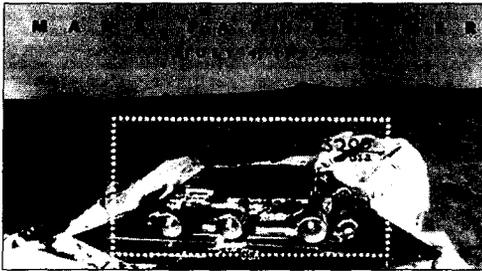


The Deep Space 2 batteries (left) and probe (right) are shown in images taken during an October test in Socorro, N.M. The batteries and probe were shot out of an air gun at more than 645 kilometers per hour, simulating conditions that will occur when DS2 impacts Mars after its separation from the cruise stage of the Mars '98 lander. The probe penetrated 30 centimeters.



Pathfinder lands on postage stamp

Postal Service to hold 'first day of issue' event on Lab Dec. 10



Perforations on the souvenir sheetlet to be sold by the U.S. Postal Service show the new \$3 stamp, which will be issued for the first time Dec. 10 at JPL.

Mars Pathfinder, which brought spectacular images of the red planet to Earth, will conduct its next mission on the surface of a U.S. postage stamp.

The U.S. Postal Service announced Nov. 12 that it will issue a \$3 Priority Mail stamp commemorating the historic mission. The stamp will be officially dedicated in a JPL ceremony on Dec. 10 at 10 a.m. in the mall.

The event will include remarks from JPL Deputy Director Larry Dumas and NASA Management Office manager Dr. Robert Parker.

In addition to the \$3 souvenir sheetlet to be sold by the Postal Service, the JPL Stamp Club will

offer for sale special collector's "first day of issue" covers for both the new stamp and sheetlet.

Based on the first image received from Pathfinder after its landing on the Martian surface July 4, the stamp features the Sojourner rover resting on the Pathfinder with a panoramic view of the Ares Vallis region of Mars in the background. Informational text about the Pathfinder mission is printed on the reverse of the stamp sheet. Fifteen million of the stamps have been printed.

"That first historic image of Pathfinder and the rover sitting safely on Mars ignited worldwide interest in our efforts to explore Mars," said JPL Director Dr. Edward Stone. "It is an honor for this mission to be recognized by issuance of this special U.S. postage stamp."

"As one of the most significant achievements in the history of America's space program, it is fitting

that the Pathfinder mission be honored on a U.S. postage stamp," said Postmaster General Marvin Runyon. "When this stamp lands in stamp collections or on Priority Mail pieces nationwide, it will be a reminder of the unmatched ingenuity that leads the world in space exploration."

The Mars Pathfinder stamp is the third U.S. stamp to incorporate hidden images to prevent counterfeiting, while adding an interesting design element. The hidden text—Mars Pathfinder, July 4, 1997 and the letters USPS—is not visible to the naked eye but can be viewed by using a decoder lens, which is available through the Postal Service's Philatelic Fulfillment Center in Kansas City, Mo. The U.S. Air Force and Classic Movie Monsters stamps issued earlier this year also feature hidden images.

The Postal Service said customers have 30 days to obtain the first day of

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Informal meetings on Superfund scheduled locally

As part of the Superfund process, representatives from the Agency for Toxic Substances and Disease Registry (ATSDR) will visit Pasadena and JPL next week to begin a public health assessment and to evaluate available environmental sampling data for the Oak Grove site. This federal installation was placed on the Superfund list in 1992, when several industrial contaminants were discovered in water pumped from the Arroyo Seco aquifer.

ATSDR, a division of the Department of Health and Human Services, is a federal public health agency created by Superfund legislation in 1980. It gathers and evaluates site-related community health concerns and questions about listed sites like Oak Grove and, toward that end, ATSDR is sponsoring public availability sessions at the following locations and dates:

Tuesday, Dec. 2
10 a.m. to 2 p.m., 4 to 7 p.m.

Pasadena Holiday Inn
The Aspen Room
303 E. Cordova
(818) 449-4000

Wednesday, Dec. 3
10 a.m. to 2 p.m., 4 to 7 p.m.
La Canada-Flintridge Library
4545 Oakwood Avenue
(818) 790-3330

Public availability sessions are not intended to be large-scale meetings, but rather are convenient opportunities for community members to meet one-on-one with ATSDR staff to discuss health and site concerns. Conversations with ATSDR staff are confidential. Those wanting additional confidentiality should contact ATSDR staff listed below to discuss their concerns by phone.

The final report, which is a public health assessment, reviews available information about hazardous substances at a site and evaluates whether exposure to those substances might cause any harm to people. The ATSDR assesses every site on, or proposed for, the Superfund National Priorities List. This list is generated by the Environmental Protection Agency for environmental

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Xerox to take over duplicating, distribution services for Lab

By JEAN AICHELE
Technical writer, Section 644

Xerox Business Services (XBS) will begin providing duplicating and document distribution services to the Laboratory on Monday, Dec. 8. The contract provides high-speed duplicating, engineering document reproduction, bindery and document distribution services. The contract does not include walk-up office copiers, which will continue to be provided and serviced by Lanier.

The contract was awarded to XBS on Oct. 15, and Sue Pateracki, supervisor of the Duplicating and Document Distribution group, expects "a smooth transition with continued focus on meeting customer requirements for quick, dependable turnaround and low cost."

XBS is one of the most successful divisions of Xerox Corporation. It is known for its best business practices and has been named a 1997 winner of the prestigious Malcolm Baldrige

National Quality Award in the "service category." XBS intends to enhance JPL's existing duplicating and document distribution services by providing state-of-the-art equipment, innovative products and a customer service representative in each satellite to assist you with your duplicating needs and tracking your job through completion.

Effective Dec. 8, XBS will operate six quick-service satellites in buildings 171-104, 180-B5, 230-B13, 264-113, 303-301, and 525-C93. XBS will also have a duplicating facility at 601 Mission St. in South Pasadena, where the following services will be performed: high-volume duplicating, including reproduction of engineering drawings, blueprints, and large-format bond and vellum documents; bindery; and document distribution. The current duplicating facility in Building 171 will be converted to a quick-service satellite; the

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QuikSCAT

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SCAT project manager at JPL.

"To accomplish this extremely short schedule, the satellite was chosen from a source with existing satellite hardware and Ball was chosen under NASA's newly instituted Indefinite Delivery/Indefinite Quantity contracts to be the spacecraft contractor," Graf said. "The instrument will be assembled by JPL from SeaWinds hardware spares."

QuikSCAT is planned for launch from Vandenberg Air Force Base, aboard a Titan II vehicle. Total cost for the QuikSCAT mission is approximately \$93 million, including \$39 million to Ball for the spacecraft and \$22 million for the launch vehicle. JPL's cost to develop the instrument is \$13 million. Congress approved NASA's use of fiscal year 1997 appropriated funds to undertake the mission.

QuikSCAT represents a unique

collaboration between JPL and NASA's Goddard Space Flight Center in Greenbelt, Md. JPL's NSCAT/SeaWinds program office has been assigned the QuikSCAT management responsibility and will provide management, ground systems and a SeaWinds-type scatterometer instrument.

Goddard has been given responsibility to procure the satellite under the newly instituted ID/IQ, which enables a quick acquisition of a science bus to support NASA's space science, Earth science and technology needs. The award is the result of a competition among the eight contractors previously selected. This is the first of two spacecraft delivery orders expected to be placed in the first quarter of fiscal year 1998.

Ball will implement the QuikSCAT mission, which includes providing the spacecraft bus, integrating the JPL scatterometer, and performing up to two years of observatory on-orbit operations.

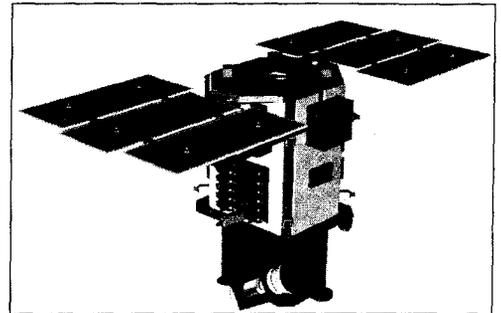
QuikSCAT will use a rotating dish antenna with two microwave beams

of the same design as SeaWinds. The antenna will radiate microwaves across 90 percent of the Earth's ice-free oceans every day.

The instrument will collect wind speed and wind direction data in a continuous 1,800-kilometer-wide (1,118-mile-wide) band, making approximately 400,000 measurements each day.

In a parallel effort, NASA intends to issue a solicitation for scientific data to determine whether any such capabilities exist in the commercial sector. If such data were available, it could have the potential to achieve cost savings or the added benefit of a backup source of data if a problem were to arise with the QuikSCAT mission.

Measuring ocean winds is important because winds are a driving force for oceanic motions, ranging from small-scale waves to large-scale systems of ocean currents. Winds directly affect the turbulent exchanges of heat, moisture and greenhouse gases between the atmosphere and the ocean. These air-sea



BALL AEROSPACE

Artist's rendering depicts QuikSCAT spacecraft, to be constructed by Ball Aerospace Systems Division. It will use a rotating dish antenna with two microwave beams of the same design as SeaWinds.

exchanges, in turn, determine regional weather patterns and shape global climate. Ocean winds data collected before the loss of NSCAT showed great promise in improving sci-

entists' ability to forecast the movement of tropical storm systems—one reason why NASA wants to bring this capability back on-line as soon as possible. □

Lab to celebrate 35th anniversary of Mariner 2's Venus encounter in December

Mariner 2, the world's first successful interplanetary spacecraft, passed within about 34,000 kilometers (21,000 miles) of Venus, sending back valuable new information about inter-

planetary space and the Venusian atmosphere. The historic encounter with the second planet from the sun took place Dec. 14, 1962, and JPL will commemorate the event on Friday,

Dec. 12 with a pair of lectures, one for JPL personnel at noon and another for the general public at 7 p.m.

Both will be held in von Kármán Auditorium.

Mariner 2 project manager Jack James, now retired from the Laboratory, will describe the project, which was designed, built and operated in the original "faster, better,

cheaper" era. He will be joined by Dr. Jeff Plaut, deputy project scientist on JPL's Magellan mission to Venus, which was launched in 1989 and completed its mission in 1994. □

Retirees

The following JPL employees have retired in recent months:

September

James Lonborg, 41 years, Section 349; E.K. Cassini, 39 years, Section 760; Albert Metzger, 38 years, Section 323; Dee Sedgwick, 30 years, Section 506;

Carl Christensen, 29 years, Section 312; Philip Mullen, 28 years, Section 314; V. Pete Anello, 18 years, Section 357; Cornelia Mateescu, 16 years, Section 663. □

October

John Wedel Jr., 50 years, Section 394; John Smith, 36 years, Section 394; Donald Richardson, 32 years, Section 393; R. William Gulizia, 30

years, Section 515; Burton Zeldin, 28 years, Section 353; Thomas Arge, 19 years, Section 384. □

November

Theodore Price, 38 years, Section 3501; Karl Koch, 30 years, Section 623; Janet Williams, 25 years, Section 644; Jerry Swan-son, 23 years, Section 515; James Korfanta, 14 years, Section 392; Joan Brandt, 11 years, Section 395. □

Annuity info coming in December

Benefit-based employees will receive information in December on the 1998 maximum contribution to the tax-deferred annuity plans offered by Caltech/JPL, according to the Laboratory's Benefits Office.

Employees may enroll or change their participation in tax-

deferred annuities at any time during the year.

Information is available from the Benefits Office, 291-218, or visit the Benefits World Wide Web site at <http://epic/hr/Benefits/benefits.htm> for direct links to Fidelity, TIAA-CREF and Prudential. □

ATSDR

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nation requiring cleanup.

Public health assessments take into consideration the following factors:

- 1) The levels (or "concentrations") of hazardous substances;
- 2) The "exposure pathways" such as breathable air, potable water, contact with contaminated water or soil, or the consumption of food through which people might have

been or are now being exposed to contamination;

3) Any harm these substances might cause to people;

4) Any correlation between working or living nearby and adverse effects on people's health; and

5) Other dangers to people such as unsafe buildings, abandoned mine shafts or other physical hazards.

ATSDR's mission is to prevent adverse human health effects and diminution in the quality of life as a result of exposure to hazardous sub-

stances from waste sites, unplanned releases and other sources of pollution in the environment. One of its roles is to advise federal, state and local agencies on actions to prevent or reduce human exposure to hazardous substances.

ATSDR is an advisory, non-regulatory public health agency and consequently does not have the authority (as EPA does) to close down sites.

Prior to release of its final report, ATSDR will ensure that copies of a

draft document are available for public review at several public locations; the agency will later provide the addresses and phone numbers of those locations along with the public comment period dates (usually 45 days after issuance). A copy of the draft public health assessment will also be mailed to any community member who requests one.

For those who wish to talk with ATSDR Health Assessor Dr. W. Mark Weber or Community Involvement Specialist Linda West, both in

Atlanta, or Dan Strausbaug, the ATSDR regional representative in San Francisco, about this process, either at a public availability session or in private, should call (800) 447-1544 in Atlanta between 9 a.m. and 5 p.m. EST. After 5 p.m. and on weekends, the caller can leave on the ATSDR answering machine his or her name, telephone number (including area code) and a suggested time to return the call. Callers should also identify the appropriate site (NASA's Jet Propulsion Laboratory). □

Special Events Calendar

Ongoing

Alcoholics Anonymous—Meeting at 11:30 a.m. Mondays, Tuesdays, Thursdays (women only) and Fridays. For more information, call Occupational Health Services at ext. 4-3319.

Codependents Anonymous—Meeting at noon every Wednesday. For more information, call Occupational Health Services at ext. 4-3319.

Gay, Lesbian and Bisexual Support Group—Meets the first and third Fridays of the month at noon in Building 111-117. For more information, call employee assistance counselor Cynthia Cooper at ext. 4-3680 or Randy Herrera at ext. 3-0664.

HIV Support Group—Meets quarterly. Call employee assistance counselor Cynthia Cooper at ext. 4-3680 for more information.

Overeaters Anonymous—Meets Mondays at noon. For more information, call Occupational Health Services at ext. 4-3319.

Parent Support Group—Meets the fourth Tuesday of the month at noon. For location, call Jayne Dutra at ext. 4-6400.

Senior Caregivers Support Group—

Meets the second and fourth Wednesdays of the month at 6:30 p.m. at the Senior Care Network, 837 S. Fair Oaks Ave., Pasadena, conference room #1. For more information, call (626) 397-3110.

Wednesday, November 26

JPL Drama Club—Meeting at noon in Building 301-127.

JPL Toastmasters Club—Meeting at 5:30 p.m. in the Building 167 conference room.

Tuesday, December 2

JPL Gamers Club—Meeting at noon in Building 301-227.

JPL Genealogy Club—Meeting at noon in Building 301-169.

Wednesday, December 3

Caltech Management Association Lecture—Frederick Smith, chairman and president of Federal Express will present a talk titled "Successful Entrepreneurship Through Vision, Conviction, Commitment and Leadership" at 8 p.m. in Caltech Athenaeum. The talk will be

ed by a no-host bar at 6 p.m. and dinner at 6:45. Tickets are \$33; send checks to Ron Egge at mail stop 301-481.

JPL Drama Club—Meeting at noon in Building 301-127.

JPL Retirees Club—Meeting at 10 a.m. at the Caltech Credit Union, 528 Foothill Blvd., La Cañada.

Thursday, December 4

JPL Dance Club—Clogging class will be held at noon in Building 300-217.

JPL Gun Club—Meeting at noon in Building 183-328.

"The State of the Universe"—Timothy Ferris, author and professor emeritus at UC Berkeley, will speak at 7 p.m. in Caltech's Athenaeum, preceded by a social hour at 6:00. The cost is \$48 for members of Friends of the Caltech Libraries, \$58 for non-members, and includes dinner in the main dining room. Deadline for reservations is Dec. 1. For information, call (626) 395-6411.

Friday, December 5

JPL Dance Club—Meeting at noon

in Building 300-217.

Travel Film—Lecturer Buddy Hatton will chronicle his rail journey from Singapore to Bangkok, Thailand through his travel film "The Eastern and Oriental Express," at 8 p.m. in Caltech's Beckman Auditorium. Tickets are \$9 and \$7. For information, call (626) 395-4652.

Fri., Dec. 5—Sat., Dec. 6

Baroque Holiday Concert—The Caltech Glee Clubs will perform free of charge at 8 p.m. in Caltech's Dabney Lounge. For information, call (626) 395-4652.

Saturday, December 6

Children's Holiday Party—Jim Gamble's Puppets, along with Santa and Mrs. Claus, will be featured at this annual event, to be held at La Cañada High School at 10 a.m. Tickets are \$2 and are on sale at the ERC.

Tuesday, December 9

JPL Scuba Club—Meeting at noon in Building 168-427.

JPL Stamp Club—Meeting at noon in Building 183-328.

Wednesday, December 10

JPL Amateur Radio Club—The annual year-end banquet meeting will be held starting at 6 p.m. at Marie Callender's Restaurant in Pasadena.

JPL Drama Club—Meeting at noon in Building 301-127.

JPL Toastmasters Club—Meeting at 5:30 p.m. in the Building 167 conference room.

SESPD Lecture Series—Project Manager Dr. Paul Swanson will discuss the Keck Interferometer at 11 a.m. in von Kármán Auditorium.

Thursday, December 11

JPL Astronomy Club—Meeting at noon in Building 198-102.

JPL Dance Club—Clogging class will be held at noon in Building 300-217.

Friday, December 12

JPL Dance Club—Meeting at noon in Building 300-217.