**GALILEO, THE VENERABLE SPACECRAFT**

Launched in 1989 and in orbit about Jupiter and its moons since late 1995, Galileo will come to the end of its mission with a controlled dive into the planet on Sunday, Sept. 21.

Among Galileo’s bountiful science return is the discovery of likely subsurface water oceans on Europa, which has fueled speculation about the possibility of life on the icy Jovian moon. Galileo was not designed for such a search, so it was not subjected to the rigorous sterilization procedures such as those mandated for Mars-bound spacecraft. To prevent any possible future biological contamination of Europa, the decision was made to provide a final resting place—Jupiter itself—so that Galileo could never collide with any of the Jovian moons.

“It’s sad to see the mission end; it has been fabulous for planetary science,” said Project Manager Dr. Claudia Alexander. “It certainly seemed like we would never arrive and do the mission, and it seemed like, with the high-gain antenna not opening, we wouldn’t do half the things we set out to do, but in the end, with a little bit of tenacity, the spacecraft proved to be resilient, and the mission has been incredible.”

Rather than an impact, Galileo’s demise will actually be a gradual, but very rapid, immersion in the gas atmosphere, returning to its constituent atoms as it makes its unannihilable plunge into the vast weather systems of Jupiter. Following its arrival at Jupiter in December 1995, Galileo orbited the solar system’s largest planet 35 times. From launch to impact, the spacecraft has traveled 4.6 billion kilometers (about 2.9 billion miles), returning more than 14,000 pictures.

Following launch, Galileo flew past Venus (February 1990) and then twice past Earth (December 1990 and December 1992). The highlights of its observations and discoveries will fill volumes.

Also on route to Jupiter, Galileo flew close to two asteroids—the first such visit by any spacecraft—encountering Gaspra in October 1991 and Ida in August 1993. Galileo also discovered Dactyl, the first confirmed moon of an asteroid, orbiting Ida. During the latter part of its interplanetary cruise, Galileo was used to observe the collisions of fragments of Comet Shoemaker-Levy with Jupiter in July 1994.

In addition to discovering strong evidence that Europa has a melted saltwater ocean under an ice layer on its surface, Galileo also found indications that two other moons, Ganymede and Callisto, may have layers of liquid water as well. Other major science results from the mission include details of varied and extensive volcanic processes on the moon Io, measurements of conditions within Jupiter’s atmosphere, and discovery of a magnetic field generated by Ganymede.

By Jane Platt

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**The JPL-managed Space Infrared Telescope Facility (SIRTF) has switched on two of its onboard instruments and captured some preliminary star-studded images. The space observatory was launched from Cape Canaveral, Fla., on Aug. 25.**

The images were taken as part of an operational test of the infrared array camera. It will take about a month to fully focus and fine-tune the telescope.

The engineering image was derived from 800 seconds of observing time on one of the three science instruments aboard SIRTF.

The team is very pleased with the rapid progress of the observatory and all of its onboard systems, said Project Manager David Gallagher of JPL.

In addition to the infrared array camera, the multi-band imaging photometer instrument was also switched on for the first time in a successful engineering test. The spacecraft’s pointing calibration and reference sensor detected light from a star cluster. The third instrument, the infrared spectrograph, will be turned on later this month.

These operations are part of a mission of a two-month in-orbit checkout, which will be followed by a one-month science verification phase. After that, the science mission will begin a quest to study galaxies, stars and other celestial objects, and to look for possible planetary construction zones in dusty discs around other stars.

**SIRTF’s first images released**

By Jane Platt

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**WF-PC 2 helps ID Rosetta comet target**

The Wide Field Planetary Camera 2, the JPL-built and developed camera onboard NASA’s Hubble Space Telescope, played a major part in identifying a football-shaped comet as the new target for the European Space Agency’s Rosetta mission, the first ever to land on a comet.

The observations revealed that comet 67P/C-G is approximately a three-by-two-mile object on which it is possible to land. Mission scientists were concerned that the solid nucleus could be nearly 3.6 miles (6 kilometers) across. The higher gravity on a comet that size might make a soft landing more difficult. “Although 67P/C-G is roughly three times larger than the original Rosetta target, its ellipsoidal shape would make landing on its nucleus feasible, now that measures are in place to adapt the lander package to the new configuration before next year’s launch,” said Dr. Philippe Lamy of France’s Laboratoire d’Astronomie Spatiale in France, who presented the results on Sept. 5 at the annual meeting of the Division of Planetary Sciences of the American Astronomical Society in Monterey. Mission scientists began considering the new target when the Rosetta mission’s launch date was postponed. The delay made the original target, comet 469P/Wirtanen, no longer easily reachable. But scientists did not have enough information on the new target, comet 67P/C-G, and sought data from the largest telescopes. The team snapped 61 Hubble images of comet 67P/C-G over an interval of 21 hours on March 11-12, 2003. The Wide Field Planetary Camera 2 isolated the comet’s nucleus from the coma—the diffuse cloud of dust and gas surrounding the nucleus—and provided the missing figures. The telescope showed that the nucleus has an ellipsoidal shape.

Rosetta’s launch is currently planned for February 2004, with a rendezvous with the comet about 10 years later.
Secretaries beef up their skills

By Mark Whalen

By Mark Whalen

SECRETARIES: THE HUB OF THE WHEEL

Mary Ellen Derro of Human Resources’ Professional Development Group. "Secretaries are the hub of the wheel," she said. "They are the go-to people when people go to them to get things done. They are an integral part of the team."

The new JPL Secretarial Profile and Curriculum, created and sponsored by Professional Development, includes 22 courses for secretaries. The training covers technical areas, such as widely used software programs, professional development, which includes such topics as customer service, time management and mentoring, and additional development, which includes the JPL Secretarial Workshop, to be held in late September. Anticipated roll out Labwide will be late October in early November.

The secretarial workshop will be available to every secretary on the Lab, said Derro. "This represents the first time any such training has been offered," she added. "This workshop is designed to be JPL-specific. Our contract secretaries are eligible to attend the three-workshop option."

The ongoing Secretarial Profile and Curriculum courses are described online at http://hr/jpl/conf/secrets. Secretary positions are available for all 23 courses; those at the staff level may take 10 of the courses, and associate secretaries are eligible for nine courses.

Classes are offered on Lab, in Pasadena and Burbank. "Participants can hear issues from people with other companies and get a broader perspective," said Derro.

The upcoming secretarial workshops will be split into three sections, each four and a half hours in length. Derro said they could be repeated quarterly depending on demand.

Training for the new JPL Secretarial Profile and Curriculum began about a year ago. Focus groups were conducted across the Lab, and opinions were solicited from the 3x group supervisor workload reduction task force, members of Office Professional Resources Group, administrators and business administrators, and others.

Curriculum was developed in the areas of technical, professional and additional development based on needs identified by the focus groups.

The curriculum is divided into the levels of secretary and mirrors what Compensation has identified as the roles and responsibilities of each level.

Also, focus groups said the Lab needed to do a better job of assimilating new secretaries into JPL policies and practices; thus the new secretarial training program maximizes the percent of the presenters will be secretaries from across the Lab who will share their knowledge and experience with course attendees," said Derro.

"The new JPL Secretarial Profile and Curriculum are designed to equip secretaries with the tools to do their jobs more effectively," she added. "They can be a better partner with their supervisors." It will give them confidence and empowerment."
Ombudsman Lewis Redding is here to listen to JPLers’ concerns

The Ombuds position was established at JPL in fall 1995 as a response to concerns expressed by employees and employee groups such as the Advisory Council for Minority Affairs and the Advisory Council for Women that there was no office to which issues and concerns could be taken that did not display a pro-management bias and where their concerns could be safely and confidentially voiced. Ombudsman Lewis Redding, who joined JPL in August 1996, discusses his role.

WHAT HAS SURPRISED YOU MOST ABOUT JPL?

Aside from its resiliency, I think that what surprised me the most about JPL and continues to be surprising is the relative “quiet” of the organization. Indirectly, I hear all kinds of things but, broadly speaking, JPL employees seem to me to be reluctant to raise issues and concerns.

I used to think there was less reluctance on the technical side of the house, but I am no longer certain that is the case.

WHY DO YOU THINK EMPLOYEES MAY BE RELUCTANT TO BRING CONCERNS FORWARD IN GENERAL?

There are several possible reasons, undoubtedly including some I haven’t even considered. One, with layoffs in 1997 came a distinct loss of trust between management and employees. For some employees the changes in the classification system exacerbated that loss of trust (not to mention the more recent changes in parking allocation). Two, employees will not bring concerns forward if the institutional culture is one of “shoot the messenger.” Three, employees will not bring issues forward if the institutional culture says that acknowledging or admitting there is a problem means you will be viewed as being incompetent or not very intelligent. Four, employees will not bring concerns forward if they feel that their management does not wish to hear their concerns.

Since his assumption of the leadership of JPL, Dr. Elachi has been proactively encouraging employees to raise concerns to him in group settings throughout the year. I would hope that managers at all levels are nurturing his efforts across the organization. Openness and honesty are particularly critical in an organization such as ours.

Of course, the possibility that JPL employees have no issues or concerns cannot be overlooked either.

WHAT IS THE ROLE OF THE OMBUDS OFFICE IN ALL OF THIS?

From the beginning, the Ombuds Office has been a place to which employees may bring work-related issues and concerns in confidence for advice, counsel or resolution. The number of employees who do utilize the office, however, has been smaller than I might have anticipated.

I have heard there are employees who are afraid the office is too closely linked to JPL management. The fact is that nothing said in my office by any employee goes to management without the employee’s express permission. If, however, I hear similar concerns from several different employees from the same section or division, then I have an obligation to take forward the concerns that have been raised, but only in a generic fashion and without using names.

I have also heard employees feel that nothing ever happens as a result of a visit to my office. First of all, employees need to give permission in order for there to be any fair and balanced exploration of an issue they may bring forward. Even if permission is given, however, and an issue is taken forward, it is possible that the individual most responsible and able to deal with that employee’s issue may not be as responsive as one might like, or may respond appropriately, but still not to the employee’s liking. There is no institutional requirement for anyone to respond to concerns and that can certainly leave employees with the impression that nothing has happened.

Most employees come to the Ombuds Office either because they want to explore what options they may have in any given situation, or because they want to “vent,” or because they want information. Rarely do JPLers want any intervention. Intervention means that an Ombudsman has to examine all sides of the matter that is of concern and that usually means talking to those involved.

Employees are afraid to give me permission to speak to the other party or parties involved for fear of escalating the situation and for fear of loss of confidentiality.

There is also the JPL culture with which to contend. Unfortunately, in an environment in which employees are paid for their acute problem-solving skills, for some, openly acknowledging a problem or concern at JPL comes very close to being an admission of personal incompetence or stupidity.

WHAT KINDS OF ISSUES HAVE COME TO YOUR OFFICE?

The office is most used by employees to help themselves to concerns expressed by employees and employee groups such as the Advisory Council for Minority Affairs and the Advisory Council for Women that there was no office to which issues and concerns could be taken that did not display a pro-management bias and where their concerns could be safely and confidentially voiced. Ombudsman Lewis Redding, who joined JPL in August 1996, discusses his role.

WHAT DO YOU WANT EMPLOYEES TO KNOW MOST ABOUT YOUR OFFICE?

There are a couple of things. One is that the Ombuds Office is not a “cop” for the Laboratory. Its purpose is to provide confidential, neutral, assistance to help employees resolve misunderstandings and conflicts as quietly as possible and as far down in the organization as is appropriate.

As an Ombuds, I don’t see it that way. An intelligent as JPLers are, we’re still all human beings in the workplace and no one has the answer for everything. Raising a concern in confidence or seeking assistance with an issue in confidence is another reason for the existence of the Ombud function.

— Lewis Redding, JPL ombudsman

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— Lewis Redding, JPL ombudsman
The investigation of the Columbia tragedy revealed the need for NASA to improve its approach to risk engineering and safety standards, share technical information, practices and talent, and independently assess the ability to achieve mission success. To this end, NASA administrator Sean O'Keefe in July announced the establishment of the NASA Engineering and Safety Center (NESC). Chaired by the NESC will provide independent technical expertise to evaluate problems and support the research and engineering activities for agency programs and projects.

That's a big order. It's also a stimulating one, as NASA lookout. The NESC will take over the engineering talents of the best minds across the agency's 10 field centers, said Langley Director Roy Bridges.

O'Keefe has tasked Bridges with the development and start-up of the NESC, giving him the ultimate responsibility for the intricate shuttle system and other advanced aerospace systems to make him the right person to lead this critical initiative, said O'Keefe.

The NESC will take over the program management of Brian O'Connor, Associate Administrator for the Office of Safety and Mission Assurance.

"In addition to NASA expertise, the NESC will also tap the nation's top experts to bring the most contemporary, national laboratories and industries," said O'Keefe. "We have a responsibility to make our programs as safe and reliable as we know how. The NESC enables us to more completely fulfill our commitments for assessing risk and making better risk-scrutiny decisions.

The NESC will provide centralized management of independent engineering assessments, oversee the safety of the UTC tools and methods and ensure that we have the benefit of adequate funding to perform truly independent assessments and risk analyses. NASA will fund the NESC at the corporate level. An unprecedented level of independence will exist.

The NESC does not, however, relieve program managers from their responsibilities for safety. Instead, NESC initiatives will complement the engineering and safety efforts of programs and NASA centers. NESC's credibility and its independent chain of command will assure consideration of all points of view on complex technical issues. How can you help?

The NESC will be based at the Langley Research Center. Hampton, Va. and will have a management structure consisting of approximately 30 to 40 full-time employees. Another 30 to 50 senior engineering and safety experts will be located at the centers but assigned full-time to the NESC. This workforce will be supplemented through partnerships with external organizations.

Finally, "road-testers" at each field center will be able to receive any needed support so that the NESC can address the 150 in 2005 in a variety of technical specialities will be called upon for peer review and critique of flight safety technologies, assure continued learning, testing, lessons learned and the like.

Bridges has chosen him for the special role of NESC implementation plan.

"It's a tremendous responsibility but it's a stimulating one as well," said Bridges.

While the NESC is one of several initiatives to enhance the shuttle in safe flight, its broader objectives include strengthening and expanding the agency's safety assurance and engineering functions to fulfill its mission of independence of ownership and/or the top technical expertise in NASA and other federal programs.

In other words, the agency's policy is to have all NASA facilities and the top technical expertise in NASA and other federal programs.

The NESC's current mission is to be a part of that important NASA mandate. If you are intrigued in the career opportunity, visit http://nesc.nasa.gov.

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**Letters**

My father, Carl, flew and myself would like to thank all my friends, co-workers and JTL for their thoughts, prayers, gifts and support during my sister's illness and recent death. I also appreciated the phone calls that JPL received from my mother. Violet Boyd

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**Real Estate**

OREGON: 5th floor stc., 3 Br 2 ba., 320 sq. ft., 380 SW 10th Ave, $425/ob, 526-0017.

NAPA VALLEY, 6bd., 5 ba., 2,400 sq. ft., 90 A, tile flrs., w/pool, fenced, runs good, $150,000. 707/295-7622.

SACRAMENTO, 2br., 1 ba., 880 sq. ft., 50's style apts., 2 brd., 1 ba., patio, dishwasher, gas heat, $350. 916-482-7070.

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**Vacation Rentals**

BEAVER LAKE, 6BR/6BA, 2nd floor, sleeps 10, 1600 sq. ft., 1050 acres, 8 mo., $4,000,000.00. 714/642-1213.

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**Classifieds**

For Sale

ANTIGUA: dressing mirror 43 x 22 $35, a big love seat 8x8 775, black lamp table 32 x 18 250, side table 32 x 20 175, rocking chair 135, and recent death. I also appreciated the phone calls that JPL received from my mother. Violet Boyd

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