The international Cassini–Huygens mission has successfully entered orbit around Saturn. At 9:12 p.m. PDT on Wednesday, June 30, flight controllers received confirmation that Cassini had completed the engine burn needed to place the spacecraft into the correct orbit. This begins a four-year study of the giant planet, its majestic rings and its 31 known moons.

“This is a tribute to the team at NASA and our partners at the European Space Agency and the Italian Space Agency, to accomplish this feat taking place 9.4 million miles (1.5 billion kilometers) away from Earth,” said Dr. Ed Weiler, associate administrator for space science at NASA Headquarters. “What Cassini-Huygens will reveal during its tour of Saturn and its many moons, including Titan, will astonish scientists and the public. Everyone is invited to come along for the ride and see all this as it is happening. It truly is a voyage of discovery.”

Referring to the past six months, during which JPL also led efforts to successfully land two Mars Exploration Rovers and fly by comet Wild 2 with Stardust, Weiler quipped, “How do we get away with having so much fun?”

Members of the Cassini-Huygens mission team at JPL broke into cheers and high-fives as NASA’s Deep Space Network confirmed receipt of the signal indicating successful entry into orbit.

“We didn’t expect anything less and couldn’t have asked for anything more from the spacecraft and the team,” said Robert Mitchell, program manager for the Cassini-Huygens mission at JPL. “This speaks volumes to the tremendous team that made it all happen.”

Dr. Charles Elachi, JPL director and team leader on the radar instrument on board Cassini, said, “It feels awfully good to be in orbit around the lord of the rings. This is the result of 22 years of effort, of commitment, of ingenuity, and that’s what exploration is all about.”

Dr. Carolyn Porco, from the Space Science Institute in Boulder, Colo., and Cassini’s imaging team leader, expressed "surprise and shock" at "the beauty and clarity" of the initial images of the planet's rings.

The mission will face another dramatic challenge in December, when the spacecraft will release the piggy-backed Huygens probe—provided by the European Space Agency—which will plunge through the hazy atmosphere of Saturn’s largest moon, Titan.

“This was NASA doing it right,” said Dr. David Southwood, director of scientific programs for the European Space Agency. “They really gave those of us in Europe a challenge. We’ve got six months to go until we land on Titan. We’re just praying that everything will go as well as this is a world mission,” he added. “But it’s been America’s evening, with JPL representing America. We’ve got a lot to live up to.”

Julie Webster, Cassini-Huygens spacecraft team chief, said, “The spacecraft has been an incredible joy to fly. We stand on the shoulders of people who had 40 years of experience building and designing spacecraft.”

Added spacecraft team chief Jeremy Jones, “Cassini performed absolutely flawlessly.”

Saturn is the sixth planet from the Sun. It is the second largest planet in our solar system, after Jupiter. The planet and ring system serve as a miniature model of the disc of gas and dust surrounding our early Sun that eventually formed the planets. Detailed knowledge of the dynamics of interactions among Saturn’s elaborate rings and numerous moons will provide valuable data for understanding how each of the solar system’s planets evolved.

Cassini traveled nearly 3.5 billion kilometers (2.2 billion miles) to reach Saturn after its launch on Oct. 15, 1997. During Cassini’s four-year mission, it will execute 52 close encounters with seven of Saturn’s 31 known moons.
Software on a NASA spacecraft recently made a scientific observation on its own without human intervention. The Space Technology 6 (ST6) Autonomous Science Experiment captured images of Antarctica’s Mount Erebus and detected volcanic activity. The software, developed by JPL, controls the Earth Observing-1 spacecraft. NASA’s Goddard Space Flight Center manages the satellite. The software examines pictures from the Hyperion spectrometer, an instrument highly sensitive to heat released from molten lava. After taking an image of Erebus, the software detected heat from the lava lake at the summit of the volcano and reprogrammed the camera to take more pictures. News of the detection was rapidly transmitted to scientists, who, typically, could take months to learn from a remote volcano was active. Scientists normally would need to take measurements at the volcano to detect the same type of event. Researchers at JPL and Goddard will test the Autonomous Science Experiment on Erebus and other volcanoes for the next several months. “Autonomous Science is a giant leap toward a thinking spacecraft,” said Dr. Steve Chien, JPL senior technologist for the software. “The first software is the use of autonomy training the spacecraft to make decisions without waiting for commands from scientists. It can capture short-lived science events that otherwise would have been missed.”

“With this software we can monitor many more volcanoes, since it knows how to only look at the active sites,” said Dr. Ashley Davies. JPL lead scientist for the experiment. “This software can be used to track natural disasters that pose danger to populated areas, such as flooding and fires,” said Bob Shookord, JPL experiment manager.

The Laboratory last month hosted Lord David Sainsbury, Great Britain’s Parliamentary Under-Secretary of State for Science and Innovation. Here, Cassini Program Manager Bob Mitchell shows Sainsbury a Cassini model as British Consul General Peter Hunt and JPL Director Dr Charles Elachi look on. Sainsbury’s visit also included an overview of the Mars Exploration Program.

JPL’s ST6 software makes its own discovery

Future versions of the software may also be used to track dust storms on Mars, search for ice volcanoes on Europa, and track activity on Jupiter’s volcanically active Io.

NASA’s New Millennium Program developed both the satellite and the software. The program is responsible for testing new technologies in space. For more information, visit http://ase.jpl.nasa.gov.

UK official pays a visit

Professional Development has announced the debut of this month’s new online training courses for JPL employees. About 150 courses will be offered as an enhancement to the Labs current series of instructor-led classroom sessions.

A three-month pilot program offering management and leadership courses will be available to JPL staff through vendor Targeted Learning Corp. (TLC), a leader in online education, said Professional Development Section Manager John Blowers.

One of the features of the program is its ease accessibility. Users can access the courses 24 hours a day, seven days a week, even from off-Lab. “Many people want to fram on their own time, as opposed to a scheduled training session,” said JPL career counselor Mary Ellen Derro. “The Lab employs very busy people. Using TLC will allow them to get training on demand when they need it.”

The new courses cover a wide breadth of topics that address critical competencies for JPL. Derro said general categories in the course catalog include Change and Innovation, Communications, Customer Service, Development, Individual Development, and Management and Leadership. Courses range from 30 to 120 minutes. All are multimedia-based, so that users can stop, pause or rewind as needed. Course materials can be downloaded and printed. A customer service office is also available.

The software offers a new course every month, but once a course is presented it remains in an archive; where employees can access it at any time.

This year, Professional Development offers about 120 classroom sessions; the majority of which are science- or engineering-based. TLC offers a wide lot more leadership than we have now.” Blowers noted.

Another feature of the new courses is that they offer Lab personnel a chance to see what people in other development and leadership roles at JPL do. “TLC offers a way to get outside JPL, to see what other organizations do.”

Blowers said, “Most of what we offer in the classroom is JPL-specific. Using TLC is a way to get outside JPL, to see what other organizations do. Offering TLC makes good business sense for JPL. JPL is a small lab and we are trying to meet their needs,” Derro said.

Lab staff will not be charged for TLC courses. Derro said “Professional Development is subsidizing the cost so we can assure our employees can take advantage of this.” Employees will receive training credit once the course evaluation has been completed.

“A positive response,” Blowers added. “We will consider more E-training’ that’s convenient for employees.”

To obtain login instructions for TLC courses, visit the Education and Training website at http://et or the Human Resources site at http://hr. Derro said “Cooperations and other organizations will also be interested.”

For more information, call the Employee Assistance program at ext. 4-0112. For more information, call the Employee Assistance Program at ext. 4-0112.

Mon., Tues., July 12-13

Invitation: VAA/CREF will offer one-on-one counseling in Building 218, 9:00-11:00 a.m. to schedule an appointment call (805) 292-3140, ext. 2014 or log on to www.vaaa.org.

Wednesday, July 14

Office of Exploration Systems Update—Come to Building 111-104 from 11:30 a.m. to 1:30 p.m. for an overview of the Library’s products and services, and learn how to access numerous electronic resources from your desktop. For more information, call the Library reference desk, ext. 4-4200.

Thursday, July 15

Challenging Class—Meeting at noon in Building 306-217. For more information, call Shaw-Nelleson at ext. 4-0124.

Thur., Fri., July 15-16

von Kármán Lecture Series—Cassini Principal Investigator and Planetary Geophysicist Jan Hliczek will present “The Rings of Saturn” at 7 p.m. Thursday in von Kármán Auditorium and Friday in Pasadena City College’s Arthur Jordan Forum, 1570 E. Colorado Blvd. Thursday’s lecture will be webcast at http://www.jpl.nasa.gov/publiceducation/vonkarm/ Thursday’s lecture will be webcast at http://www.jpl.nasa.gov/publiceducation/vonkarm/.

Friday, July 16

“Root Cause Trends for Serious On-Orbit Anomalies”—Julia White, senior engineering specialist for the Neospac Corporation’s Group Program Research Office, will speak at 10:30 a.m. in Building 180-101. Her work addresses ministry-wide issues in the fields of on-orbit spacecraft anomalies and lifetimes. Lessons learned and satellite development comparisons, as well as program-specific concerns, requiring a cross-program perspective.

Monday, July 19

“How to Finance Your Child’s College Education”—Dr. Larry String, director of financial aid at Caltech, will speak at noon in von Kármán Auditorium. He will address the application of student financial aid, which types are available, how much financial aid you might expect, who qualifies and how to navigate the often complex financial aid application maze. This talk will be geared to families with junior-high to high-school age children.

Wednesday, July 21

VAA/CREF Enrollment Meeting—The workshop will be held at noon in Building 180-101, is designed to assist employees newly eligible for the VAA/CREF retirement plan with selection of investment options and completion of their enrollment forms.
How many of Saturn's 31 moons will be studied?

For the four-year prime mission, the main focus is on Titan, for which we will have 45 close encounters. In addition to this, we will fly by five of the small icy moons for a total of seven encounters with these. Eight counting Phoebe. We will fly by Enceladus three times and the others will be one each. These will be relatively close — within about 1,000 kilometers — where we will control the trajectory flyby point. Then there are about 50 or so more distant, non-targeted encounters with the small moons. These generally will be closer than the larger moons — 220 kilometers in diameter. Among the others, two are about 1,000 kilometers in diameter and another two are about 1,500 kilometers in diameter. They have very different features. 

How are you and the team feeling? Excited? Nervous? Confident?

Yes, to all of those. The team is very upbeat; the Phoebe flyby got them really stoked. But the Phoebe flyby was not like falling off a log. It was our first use of optical navigation for two things: to target the spacecraft to a body this close, and in support of pointing the instruments to a target. It was also the first time we've done a 'live update' — we had a sequence already on board, counting down to do the Phoebe observations, and in flight we changed parameters in the sequence memory that altered the pointing based on our updated knowledge of where both the spacecraft and Phoebe were.

There was some apprehension, but we had a fair amount of testing and training to validate that we could really do it, and it went off just flawlessly. The team deserves a lot of credit for an excellent job. 

Long ride ends, new one begins

After a journey of almost seven years and 3.5 billion kilometers (2.2 billion miles), the Cassini-Huygens spacecraft is about to begin its four-year study of Saturn and its moons.

About a week prior to orbit insertion on June 30, Universe caught up

by Program Manager Bob Mitchell.
Classifieds

For Sale

ARM CHIPS: Whiteboard,room 500 sf, 5 bdrms, 1 bth, Pex pipe, $4,500. 626/281-0355.

DORMANY, knapsack purse with palmation designs, hand painted, 200,000 mile warranty, $100.


PONZI, The Invention of the Piano, 1986, cloth, $30.

RAMM, To change the world, 360 pages, cloth hot, $30.


VEY, The Restless Feet, 384 pages, cloth hot, $30.

WATSON, The Invention of the Piano, 1986, cloth, $30.


designed by David Hinkle, Audrey Steffan/

Design Services

David Hinkle, Audrey Steffan/

Advertising

Design Services

David Hinkle, Audrey Steffan/

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vacating the property, 15 miles from SFO, unit sleeps 4, $1,900; 3rd fl., 2 BD., 2 BA., 1100 sq. ft. $1800/ mo. 626/440-0778.

SAN FRANCISCO, Nob Hill Inn, walking dist. to BART. 2 bdrms., 2 baths, $2100/mo. 415/392-9820.

ROSARITO BEACH condo, 2 bd., 2 ba., ocean view, $500/night. 626/355-7888.

LAS VEGAS timeshare, 5-star resort, 7 nights, Puerto Vallarta special - studio with view to mtns., Jacz., sauna, streams, BBQ, pool, game room, great ocean view, $1700.

HAWAII, Maui condo, NW coast, ocean front, ground level, on the beach, $2400/week. 808/879-3620.

FLORIDA condo in New Smyrna Beach, fully furnished, 3 bdrms, 2 bth, 1,800 sq. ft. $1200/mo. 954/356-5440.

LACOSTE, 2 bdrms., 2 ba., 1100 sq. ft. $2200/mo. 213/932-0685.

LA CANADA, 1 bd., 1 ba., in 4-plex, upstairs, 1,000 sq. ft., 9/1 launch, $1,200/mo. 818/283-9393.

LA FABRICA, 1 bdrm, 1 bath, 900 sq. ft., $700/mo. 310/484-0164.

PASADENA, beautiful home in Hastings Manor, 3 bd., 2 ba., 1,400 sq. ft. $2,600/mo. 626/355-3959.

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