Thanks for the Lift, Jupiter!

Pluto-Bound New Horizons Completes Gravity Assist

The APL-built New Horizons spacecraft sailed past Jupiter on February 28, using the massive planet’s gravity to pick up speed on its 3-billion-mile voyage to Pluto and the unexplored Kuiper Belt region beyond.

“We’re on our way to Pluto,” says New Horizons Mission Operations Manager Alice Bowman, of APL. “The swingby was a success; the spacecraft is on course and performed just as we expected.”

New Horizons came within 1.4 million miles of Jupiter at 12:43 a.m. EST, threading an “aim point” that puts it on target to reach the Pluto system in July 2015. During closest approach the spacecraft was out of touch with Earth—busily gathering science data on the giant planet, its moons and atmosphere—but by 11:55 a.m. EST mission operators at APL had

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established contact with New Horizons through NASA's Deep Space Network and confirmed its health and status.

The fastest spacecraft ever launched, New Horizons gained nearly 9,000 miles per hour from Jupiter's gravity, accelerating past 50,000 mph away from the Sun. Covering approximately 500 million miles since launch in January 2006, New Horizons reached Jupiter more quickly than the seven previous spacecraft to visit the solar system's largest planet. On February 28 it raced through an aim point just 500 miles across—the equivalent of a skeet shooter in Washington hitting a target in Baltimore on the first try.

New Horizons has also been running through an intense six-month systems check that will include more than 700 science observations of the Jupiter system by the end of June. Some of the data has already been sent back; early images from the APL-built Long Range Reconnaissance Imager (LORRI), for example, included the best views yet of Jupiter’s Little Red Spot and an eruption from the volcano Tvashtar on Jupiter’s moon Io.

“We’re not only learning what we can expect from the spacecraft when we visit Pluto in eight years, we’re already getting some stunning science results at Jupiter—and there’s more to come,” says mission Principal Investigator Alan Stern, of the Southwest Research Institute in Boulder, Colo.

The outbound leg of New Horizons’ journey includes the first-ever trip down the long “tail” of Jupiter's magnetosphere, a wide stream of charged particles that extends more than 100 million miles beyond the planet.

For the latest news and images, visit http://pluto.jhuapl.edu or www.nasa.gov/newhorizons. 

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Just hours after passing Jupiter, New Horizons spotted a 180-mile-high plume erupting from the volcano Tvashtar on the Jovian moon Io.
STEREO Probes Swing into Position for First 3-D Images

The twin APL-built and -operated Solar TErrestrial RElations Observatory (STEREO) spacecraft completed a series of complex maneuvers in January that positioned them to produce the first 3-D images of the Sun by April.

“STEREO is the first mission to use the Moon’s gravity to redirect multiple spacecraft, launched aboard a single rocket, to their respective orbits,” says Ron Denissen, STEREO project manager at APL.

Since launch last October, mission operations personnel at the Lab have guided both spacecraft through four highly elliptical phasing orbits around Earth to position them for the lunar gravitational assists that propelled them into their respective orbits. The trajectories and lunar swing-by maneuvers were created by APL mission design engineers Peter Sharer and David Dunham.

On December 15, STEREO’s “A” observatory flew approximately 4,550 miles (7,340 kilometers) above the Moon’s surface, using lunar gravity to redirect itself into an orbit “ahead” of Earth.

The “B” observatory passed approximately 7,300 miles (11,776 kilometers) above the lunar surface, where gravity is slightly weaker. Although the “B” observatory’s orbit was slightly boosted, the spacecraft didn’t undergo its full lunar gravitational assist until January 21, when it re-encountered the Moon. The spacecraft then came within approximately 5,468 miles (8,818 kilometers) of the surface, swinging past the Moon in the opposite direction of the “A” spacecraft and into an orbit “behind” Earth.

The two observatories will orbit the Sun from this perspective, separating from each other by approximately 45 degrees per year. Just as the slight offset between your eyes provides you with depth perception, this mirror-image–like positioning of the spacecraft will allow them to take 3-D images and particle measurements of the Sun.

First Images

During post-launch instrument checkouts, scientists got a close-up view of some intense solar activity, when the “A” observatory sent back its first images in early December.

When the cover to the “A” observatory’s SECCHI Extreme Ultraviolet Imager telescope was removed on December 4, it captured images of an active region known as AR903 that produced a series of intense flares. SECCHI (Sun-Earth Connection Coronal and Heliospheric Investigation), built by the Naval Research Laboratory in Washington, is the imaging instrument suite aboard both observatories.

A few days later, during an unusually active solar period, the “A” observatory captured images of a coronal mass ejection with one of SECCHI’s two white-light coronagraphs.

Coronal mass ejections are giant clouds of plasma shot into space from the Sun’s atmosphere. Among the largest explosions in the solar system, they can equal the force of a billion one-megaton nuclear bombs. When they collide with Earth at speeds approaching one million miles per hour, coronal mass ejections can produce spectacular auroras and trigger severe magnetic storms that cause electrical power outages, disruption and/or damage to communications satellites, and hazardous conditions for astronauts.

When combined with data from observatories on the ground or in space, STEREO’s data will allow scientists to track the buildup and liftoff of magnetic energy from the Sun and the trajectory of Earth-bound coronal mass ejections in 3-D.

NASA Goddard Space Flight Center manages the mission, instruments and science center. APL designed and built the spacecraft and is operating them for NASA during the mission.

For more information about STEREO or to download images, visit http://stereo.jhuapl.edu or http://stereo.gsfc.nasa.gov.
How TIMED Flies

Atmospheric Mission Marks Five Years in Space

Several members of the TIMED (Thermosphere, Ionosphere, Mesosphere Energetics and Dynamics) team, from across the country, gathered at APL in January to celebrate the mission’s fifth launch anniversary and its many contributions to upper atmospheric research.

The spacecraft, built and operated at APL, was launched December 7, 2001. In coordination with a network of space- and ground-based systems, TIMED has provided the first view of the thermosphere, ionosphere and mesosphere as a coupled system throughout a range of solar activity levels.

“One of TIMED’s main science goals is to understand the energetics of our atmosphere approximately 40 to 100 miles above Earth’s surface, where the Sun’s energy is first deposited into our environment,” says APL TIMED Project Scientist Sam Yee.

Dave Grant, APL’s project manager for the mission, says the team has made great strides toward accomplishing that goal. “The mission has become one of the leading data platforms for the international aeronomy community,” he adds, noting that many European and Asian scientists are using TIMED data in their research.

Originally a two-year mission, TIMED has been extended twice since launch, with operations and data analysis expected to continue through 2010. TIMED will also help set the stage for future NASA missions that examine the Sun’s effects on life and society.

“How TIMED has served as a catalyst for a greater understanding of our thermosphere and ionosphere,” says Larry Paxton, APL project scientist for TIMED’s Global Ultraviolet Imager (GUVI). “It exists at a time of unprecedented advances in space science.”
resources such as NASA's Heliophysics Great Observatory—a collection of NASA's Sun-Earth–focused missions, which includes TIMED—and an extensive international ground-based instrument network. TIMED has also shown that a low-cost mission can contribute to our understanding of the global ionosphere-thermosphere system.

TIMED's long-term study of our middle and upper atmosphere will also help scientists better understand that region’s variability and its effects on communications, satellite tracking, spacecraft lifetimes, degradation of spacecraft materials and the reentry of piloted vehicles.

By measuring the atmosphere's reaction to an array of solar activity—from powerful geomagnetic and solar storms to dazzling auroras and total solar eclipses—TIMED has delivered unprecedented data on the physical connections between Sun and Earth. Coupled with ionospheric measurements from Mars Global Surveyor, TIMED data have even shown similarities between the atmospheres of Earth and Mars.

For more on these and other mission highlights, visit http://www.timed.jhuapl.edu.

NASA Goddard Space Flight Center oversees the TIMED mission. APL leads the project's science effort and manages the mission's Science Data Center.

APL Rocks!

Asteroid Named After Applied Physics Lab

The lab that landed the first spacecraft on an asteroid now has its name on one of the Sun-orbiting space rocks.

Lauding the Laboratory’s leading role in several planetary missions, the International Astronomical Union approved the name “132524 APL” for the provisionally tagged 2002 JF56, a small main-belt asteroid just beyond Mars’ orbit. The Pluto-bound, APL-built New Horizons spacecraft zipped past the asteroid last June, and with some fast planning and programming from operators at APL and other institutions, was able to photograph the two-mile-wide asteroid while testing its abilities to track moving objects.

New Horizons Principal Investigator Alan Stern, of the Southwest Research Institute in Boulder, Colo., proposed the new name to the IAU. “It’s nice to see APL get its name enshrined in space,” Stern says. “It was long overdue.”

Dated January 6, the IAU citation announcing the name identifies APL as the developer of “numerous space missions” such as NEAR to asteroid Eros, MESSENGER to Mercury and New Horizons to Pluto and the Kuiper Belt. APL made space history in 2000–2001 with NEAR, or Near Earth Asteroid Rendezvous, which was the first spacecraft to orbit and then land on an asteroid.

“As the organization that first landed a spacecraft on an asteroid on behalf of NASA, it’s fitting recognition to now have an asteroid named APL,” says Walt Faulconer, APL's Civilian Space Business Area executive. “It’s also exciting that it’s an asteroid we saw with our New Horizons spacecraft on its journey to Pluto. We’ll have to plan a mission to ‘APL’ someday.”

Asteroid APL was discovered in May 2002 by the Lincoln Laboratory Near-Earth Asteroid Research Team at Socorro, N.M. To track its path in space, visit: http://neo.jpl.nasa.gov/cgi-bin/db_shm?ssstr=+2002JF56

This TIMED picture shows an aurora, superimposed over an image of Earth.
100 Days of Discovery

**CRISM Offers New Look at Martian Surface**

Reaching its first 100 days of operations, the APL-built mineral detector aboard the newest satellite to circle Mars is changing the way scientists view the history of water on the red planet.

The Compact Reconnaissance Imaging Spectrometer for Mars (CRISM) has teamed with the five other cameras and sensors aboard NASA’s Mars Reconnaissance Orbiter (MRO) to provide new clues about where water could have existed on or near the Martian surface.

“We’re finding that Mars has even more compositional diversity and complicated geology than had been revealed by instruments on other Mars orbiters,” says Scott Murchie, CRISM principal investigator from APL. “With CRISM’s help, this mission is going to rewrite our understanding of the planet.”

Since beginning its primary science phase in November 2006, the orbiter has sent home enough data to fill nearly 1,000 compact discs—about 30 percent of which has come from CRISM. Through its telescopic scanners CRISM has taken more than 700 images of specific targets, including more than 250 at high resolution that pinpoint areas down to 15 meters (or 48 feet) in 544 “colors” of reflected sunlight.

The camera has also mapped nearly a quarter of the planet at lower resolution—showing areas as small as 200 meters (660 feet) in 72 colors—and monitored abundances of gases and particulates in the atmosphere.

Some CRISM images reveal unprecedented details of geologic processes on Mars, such as intricate compositional layering of the polar caps, and ancient rocks from Mars’ earliest history that record a time when liquid water was pervasive and long lasting. Its coverage of the north polar region is providing new insight into the vast field of gypsum-rich sand dunes that surrounds the polar cap. Over the past four months the CRISM team has placed several images on the Web at [http://crism.jhuapl.edu](http://crism.jhuapl.edu) (click on “Gallery”).

“CRISM’s high spatial resolution provides the means to not only identify a greater range of minerals on Mars but also associate them with small-scale geologic features,” says Sue Smrekar, deputy MRO project scientist at NASA’s Jet Propulsion Laboratory, Pasadena, Calif. “The result is a tremendous leap forward in interpreting the geologic processes and stratigraphy of surface features. By identifying sites most likely to have contained water, CRISM data will help determine the best potential landing sites for future Mars missions.

CRISM’s resolution in near-infrared wavelengths is about 20 times sharper than any previous look at Mars at these wavelengths. The instrument is searching for areas that were wet long enough to leave a mineral signature on the surface, looking for the spectral traces of aqueous and hydrothermal deposits, and mapping the geology, composition and stratigraphy of surface features. By identifying sites most likely to have contained water, CRISM data will help determine the best potential landing sites for future Mars missions.

NASA’s Phoenix mission team is using data from CRISM and other high-resolution MRO instruments to support landing-site selection for its spacecraft, scheduled to touch down in the northern Martian plains in May 2008. Phoenix will determine the composition of both dry surface soil and ice-rich subsurface soil; CRISM’s infrared sensitivity to the ice and salts typically found on Mars has proven valuable in helping the team find sites with ready access to both features.

APL, which has built more than 150 spacecraft instruments over the past four decades, led the effort to develop, integrate and test CRISM. The CRISM team includes experts from universities, government agencies and small businesses in the United States and abroad; visit [http://crism.jhuapl.edu](http://crism.jhuapl.edu) for more information.
MESSENGER Lines Up for Second Venus Flyby

Next Stop, Mercury!

The APL-built MESSENGER spacecraft is on course for its second flyby of Venus. The June 5 gravity assist, along with previous flybys of Earth and Venus and three upcoming passes of Mercury, is designed to put the probe at the exact angle and speed for it to be captured by Mercury's low gravity and begin orbiting the innermost planet in March 2011.

APL engineers will also use this second encounter with Earth's “sister planet” to turn the spacecraft's planetary sensors on the cloud-shrouded world to study the Venutian atmosphere and environment and to further calibrate a subset of the instruments. In addition, says MESSENGER Mission Operations Manager Andy Calloway, of APL, the flyby will be used to validate the sequence building blocks that will be used at the Mercury flybys as well as the tools and processes used to generate the complex and densely packed sequences.

“The first Venus flyby in October 2006 did not include any instrument sequencing because of the hour-long solar eclipse and the multi-week solar conjunction period that followed closest approach,” says Calloway. “The upcoming Venus flyby is a golden opportunity to ensure the spacecraft and instrument suite, ground tools and personnel resources are ready for the Mercury flybys.”

Venus has been observed from Earth with ever-improving technology and by more than 20 spacecraft that have flown by, orbited or sent probes into the atmosphere and to the surface. Radar systems—the only way to see through the thick atmosphere—have mapped much of the surface at gradually improving resolution.

Previous missions have raised questions about the atmospheric structure and behavior, and MESSENGER's instruments could provide some answers. For example, the Mercury Laser Altimeter will attempt the first laser ranging to the Venus cloud deck; if successful, this will shed new light on the structure of Venus' cloud layers.

The European Space Agency's Venus Express, already in orbit, carries an instrument suite that is complementary to that on MESSENGER. The Mercury Dual Imaging System and Mercury Atmospheric and Surface Composition Spectrometer on MESSENGER will observe Venus' atmosphere and surface, and scientists will check this data with that from the Visible and Infrared Thermal Imaging Spectrometer on Venus Express.

Venus Express also carries two magnetometers at different distances along a boom. MESSENGER's Magnetometer and Energetic Particle and Plasma Spectrometer, together with Venus Express, will provide novel two-point measurements of the interplanetary magnetic field and its interaction with Venus' ionosphere and atmosphere.

During the upcoming flyby, the Chandra X-Ray Telescope will observe Venus in X-rays to look for X-ray emissions from oxygen, carbon and other species in the upper atmosphere. Data from MESSENGER's X-Ray Spectrometer and Fast Imaging Plasma Spectrometer instruments will be correlated with the Chandra observation data.

For a preview animation of MESSENGER's Venus encounter on June 5, visit http://messenger.jhuapl.edu (click on “Gallery”).

Artist's impression of MESSENGER flying past Venus.
A ‘Flare’ for Solar Research

Andy Dantzler Heads Living With a Star Program at APL

You see the Sun’s light and feel its heat, but have you thought about how the billions of tons of particles it hurls toward our planet can affect many technologies we rely on or what dangers they pose to astronauts?

Andy Dantzler thinks about these things every day as part of his job heading APL’s Living With a Star (LWS) program, a position he has held since August 2006.

“The Sun constantly showers the planets, including Earth, with high-energy rays and energetic particles that can interfere with and/or shut down entire power grids, Global Positioning System and communications satellites, and pose hazards to astronauts,” Dantzler says.

Although Earth’s magnetic field provides a protective layer, many satellites operate within Earth’s radiation belts, where lots of these particles are trapped. “As we venture beyond this protective shield to establish outposts on the Moon or Mars, we need to better understand how the Sun affects us so we can develop better protective measures,” he adds.

Beyond exploration, scientists are also learning more about how solar variability can affect Earth’s climate. “Understanding how the Earth, too, is affected by the Sun is one of the key components of Living With a Star,” Dantzler says.

LWS program management is led by NASA’s Goddard Space Flight Center; related projects are awarded to either APL or Goddard. The first mission, Solar Dynamics Observatory, was awarded to Goddard. Radiation Belt Storm Probes, the second LWS mission, is being led by APL with Ed Reynolds serving as project manager. The twin-spacecraft mission, scheduled to launch in 2012, will examine how solar activity affects Earth’s radiation belts.

APL is also supporting studies for a possible multi-spacecraft mission called Sentinels, recently completing the engineering work to prepare it for NASA’s future announcement of opportunity. This mission’s study of solar energetic particles and coronal mass ejections could help scientists understand and eventually forecast the radiation environment that astronauts would encounter during expeditions to the Moon and Mars.

As NASA funding becomes available, APL will also perform a technology demonstration to test the survivability of the proposed Solar Probe spacecraft, destined to study the Sun’s corona, its sources of heat and solar wind acceleration.

A Shining Star

Dantzler has an extensive background in spaceflight program management with more than 20 years’ experience as a NASA executive, manager and engineer. Before joining APL he was director of the Solar System Division at NASA Headquarters in Washington, D.C., overseeing missions including MESSENGER, New Horizons, Cassini and the Mars Exploration Program.

Used to missions in the limelight, Dantzler is the first to admit that heliophysics projects don’t always have the same public appeal as planetary missions. “But they’re really the missions people should care about the most since they directly impact our life on Earth,” he says.

Dantzler says his goal is to manage the Lab’s LWS program in the most efficient way to keep all of its component projects healthy and on schedule. “I think this will help us secure funding for all LWS components,” he says. “I’ll also strive to maintain flexibility so we can adjust the near-term missions to be more responsive to the program’s larger science objectives as they may change.”

When asked what he likes most about APL, Dantzler replied, “I’m happy to be part of such an engineering intensive team, and I look forward to working with heliophysics experts in our Space Department to make greater strides in understanding solar activity and its impacts on humankind.”
APL Receives NASA Funding for Mars Mission Studies

APL is taking part in two studies that may lead to further contributions to the European Space Agency’s ExoMars mission and a future robotic mission to Mars.

The Mars Organic Molecule Analyzer (MOMA), a joint rover effort between NASA and the European Space Agency (ESA), combines a mass spectrometer and a gas chromatograph to analyze soil samples for organic compounds. Says APL’s MOMA Program Manager Art Jacques, “If we can differentiate organic compounds in the Martian soil, we might be able to say if there was once life on Mars.”

APL’s contribution to MOMA is the Laser Desorption Mass Spectrometer (LDMS). The Laboratory is developing the spectrometer with Principal Investigator Luann Becker of the University of California, Santa Barbara, and Robert Cotter of the Johns Hopkins University School of Medicine.

The European members of the MOMA team are building the gas chromatograph that will be integrated with the LDMS to complete the MOMA instrument. It will be assembled in Germany at the Max Planck Institute for Solar System Research under the direction of team coordinator Fred Goesmann. The MOMA will be incorporated into the Pasteur analytical payload of the ESA’s ExoMars rover, which could launch as early as 2013.

The rover would collect a sample of Martian soil from as deep as two meters and feed it into the MOMA (and other instruments). The LDMS’ chemical laser would then briefly heat the material, causing the molecules of its topmost layers to enter the gas phase directly, without significantly altering their structure. The mass spectrometer would then determine the molecular weights of the molecules, which would reveal the sample’s chemical composition.

“The LDMS design is novel in that the laser sampling occurs in the Mars ambient atmosphere, not under high vacuum conditions,” says MOMA instrument scientist Will Brinckerhoff. “This approach allows MOMA to be a very lightweight and robust instrument.”

Data from the laser desorption and gas chromatograph modes of MOMA are considered highly complementary—they are sensitive to nonvolatile and volatile organics, respectively—and should lead to a powerful assessment of the potential for past or present life on Mars.

APL also has teamed with the Southwest Research Institute, Orbital Sciences Corporation, the University of Michigan, and other institutions to design The Great Escape (TGE), a mission to determine the basic processes in the evolution of Mars’ atmosphere.

“We’re excited to be a partner on the TGE proposal,” says Ted Mueller, APL Space Department chief program manager. “NASA selected just two aeronomy missions for study. This is a head-to-head competition of those missions.”

TGE would directly measure the structure and dynamics of Mars’ upper atmosphere. The mission’s goal would be to shed light on the processes that took Mars from a wet, warm habitat to a cold, dry place.

“The science addressed by TGE is fundamentally important to understanding the evolution of the Mars climate and is relevant to Earth climate studies at a time when climate issues are of paramount importance here on Earth,” says Don Hassler, the Southwest Research Institute’s TGE deputy principal investigator.
Education and Public Outreach Update

Spreading the Word on New Horizons

The APL Space Department’s Education and Public Outreach office has been exciting and inspiring the next generation of space explorers with a range of learning experiences for students, educators and the general public surrounding the New Horizons Jupiter flyby. Here are just a few examples.

Now Playing: New Horizons Podcasts

They’re “flying” the fastest spacecraft ever launched and buzzing the solar system’s largest planet just 13 months after liftoff. How are New Horizons scientists and engineers tackling the technical challenges of the Jupiter encounter? Find out in the podcasts now playing in the Gallery section of the New Horizons Web site.

Recap the team’s activities since launch in From Earth to Jupiter, go inside the planning and preparations for the Jupiter Gravity Assist in The Jupiter Flyby and look at the amazing science data New Horizons is gathering in Encounter with Jupiter: Science Never Sleeps.

Also, don’t miss the movie trailer detailing “the new adventure” that begins this year with the Jupiter flyby. To view the podcasts and movie trailer, visit http://pluto.jhuapl.edu/gallery/videos/podcast.php.

Discover New Horizons in Prime Time!

During National Space Week, starting May 5, watch the Discovery Channel for an updated version of the highly successful New Horizons E/PO product Passport to Pluto, a behind-the-scenes look at how the New Horizons mission came together.

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The aurora may light up the atmosphere over the Earth’s poles, but the phenomenon that drives the displays occurs about 40,000 miles away, where the magnetic field lines of the planet merge with those of the Sun. This recent discovery was made by a team of APL researchers who developed a formula that describes the merging rate and also predicts the aurora and several other aspects of space weather.

Pat Newell, Tom Sotirelis, Kan Liou and Ching Meng, along with Frederick Rich of the Air Force Research Laboratory, pored over more than a decade’s worth of data from NASA, NOAA and Air Force satellites. They questioned the prevailing theory that the solar wind’s electric field activity was the best predictor of 10 different aspects of space weather and sought to develop new formulas to describe the various phenomena. They were (pleasantly) surprised to learn that a single formula—for the merging rate—gave the best clues to the behavior of all 10.

“Having this formula is a big step forward for understanding how the Sun and Earth interact,” says Newell. And that understanding could help predict the space weather that affects communications, navigation and the health of humans in space.

The space between the Earth and Sun is not empty but filled with energetic particles, most of which are generated in the solar atmosphere. Temperatures of a few million degrees accelerate a stream of these particles, called the solar wind, to roughly one million miles per hour. The APL team was the first to rigorously test the theory that the electric field lines in the solar wind were responsible for space weather. They found that the merging rate of the magnetic field lines is fundamental to the circulation of particles and magnetic fields throughout near-Earth space and is a much better predictor of space weather.

For a space scientist, the work is interesting because it provides the first strong empirical estimate of the global merging rate. Boston University’s George Siscoe and Leicester University’s Stanley Cowley had previously suggested the merging rate might better explain near-Earth convection, but it had never been proven. Says Siscoe, “[The study] clearly represents a massive amount of work, and it is undoubtedly an important contribution to the subject of solar wind–magnetosphere coupling. People will probably be discovering further implications of the formula for years.”

An article describing this research, “A nearly universal solar wind–magnetosphere coupling function inferred from 10 magnetospheric state variables,” appeared in the January 2007 issue of the Journal of Geophysical Research. Newell presented the research—and hosted a press conference—at the 2006 Fall American Geophysical Union Meeting in December. As a result, he’s received queries from researchers interested in studying and applying the new formula. The research was funded by NASA and the National Science Foundation.
This “sequel” will take viewers through the preparations for and success of New Horizons’ Jupiter encounter.

Can’t wait until then? You can watch the current Passport to Pluto online at http://pluto.jhuapl.edu/gallery/videos/passToPluto.php.

Of Note

• A full-scale New Horizons model—built at APL—was on display at NASA Headquarters in Washington in mid-January.

• The New Horizons educator cadre and E/PO team joined mission scientists and engineers in January for a Jupiter flyby professional development workshop at the U.S. Space and Rocket Center, the home of Space Camp and a New Horizons E/PO partner in Huntsville, Ala.

• Team members also trained the NASA Solar System Ambassadors, educators and members of the Museum Alliance for a series of nationwide Jupiter flyby events. The NASA Solar System Ambassador Program includes more than 450 volunteers who communicate information about New Horizons and other missions in their local communities.

Woodrow Whitlow Jr., director of NASA’s Glenn Research Center, toured APL’s Environmental Test Facility in early March. In the photo above, from left, APL Civilian Space Business Area Executive Walt Faulconer and facility manager Hadi Navid explain the operations of the Space Simulation Laboratory to Whitlow and Harry Cikanek, deputy director of GRC’s Engineering Directorate. On the wall behind them is a full-scale artist’s depiction of the lunar lander API and other partners are developing for NASA’s Robotic Lunar Exploration Program.