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Spaceport News

John F. Kennedy Space Center - America's Gateway to the Universe

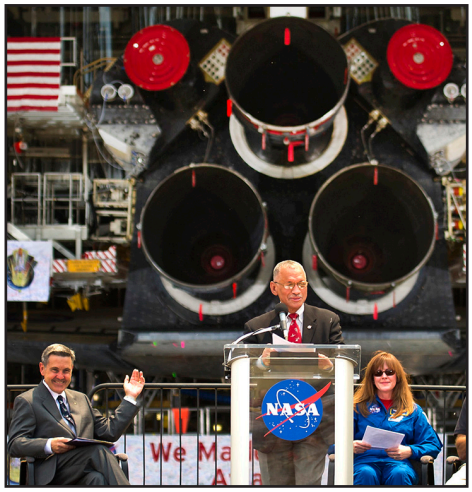
The Story of Atlantis

Illustrious career inspires generations

By Bob Granath
Spaceport News

On the 30th anniversary of the first space shuttle launch, NASA Administrator Charlie Bolden announced that one of the historic ships -- Atlantis -- would remain at its home port as an inspiration for future explorers.

"Not only will those who sent it into space so many times have a chance to still see it," Bolden said April 12, 2011, while standing in front of Atlantis outside a Kennedy Space Center orbiter processing facility, "the millions of visitors who come here every year to learn more about space and to be a part of the excitement of exploration will be able to see what is still a great rarity -- an actual flown space vehicle."



NASA file/2011

NASA Administrator Charlie Bolden, at the podium, announces April 12, 2011, that Atlantis will remain at Kennedy Space Center on permanent exhibition at the spaceport's visitor complex. To the left is Center Director Bob Cabana. On the right is astronaut Janet Kavandi.

As Kennedy's Visitor Complex opened its doors to the Atlantis exhibit on June 29, thousands flocked in to see the spacecraft that facilitated construction of the International Space Station, serviced the Hubble Space Telescope and deployed probes to distant planets.

NASA's fourth space-rated shuttle, Atlantis was named after the two-masted boat that served as the primary research vessel for the Woods Hole Oceanographic Institute in Massachusetts from 1930 to 1966. The boat had a 17-member crew that worked in two onboard laboratories, studying water samples and marine life.

Structural assembly of Atlantis began with the crew module March 30, 1980, at Rockwell International's facility in Palmdale, Calif. Weighing 151,315 pounds, Atlantis was nearly 3.5 tons lighter than the first shuttle, Columbia. This was largely due to the use of large thermal protection blankets on the orbiter's upper body, rather than individual tiles.

Five years after the start of construction, the completed shuttle was transported to the Florida spaceport, arriving April 13, 1985. During the next seven months the new shuttle was prepared for its maiden voyage.

On Oct. 3, 1985, Atlantis launched on its first spaceflight, STS-51J, with a classified payload for the U.S. Department of Defense. The vehicle went on to carry four more DoD payloads on subsequent missions.

Atlantis performed flawlessly. The U.S. Air Force gave the new shuttle high marks, but in the guarded language of the Cold War.

"The performance of the orbiter Atlantis has been solid throughout the mission," the statement read. "Detailed test objectives on orbiter systems were accomplished without incident. The Atlantis (systems) were evaluated and found to be within parameters established by her sister ships."

NASA file/1985

Space shuttle Atlantis lifts off Oct. 3, 1985, on its first flight, mission STS-51J, carrying a payload for the Department of Defense.

Utilizing the world's first reusable spacecraft, shuttle crews conducted cutting-edge research and regularly deployed, retrieved and serviced satellites. Atlantis returned from orbit for the final time July 21, 2011, on the STS-135 mission. Technicians then began work preparing the shuttle for public display.

Last November, Atlantis was transported to a new 90,000-square-foot facility at the visitor complex, also home to NASA rockets, spacecraft and artifacts from the Mercury, Gemini and Apollo eras. Guests now have an up-close view of Atlantis to inspire the next generation of astronauts.

The new space shuttle, Atlantis, arrives at the Shuttle Landing Facility on April 13, 1985, mounted atop the Shuttle Carrier Aircraft, a modified Boeing 747.

NASA file/1985

Missions essential to spaceflight history

By Linda Herridge
Spaceport News

During 26 years of history-making spaceflight, Atlantis sent probes to Venus and Jupiter, delivered several components and modules to the International Space Station, and carried astronauts on the fifth and final Hubble Space Telescope servicing mission.

The space vehicle launched Oct. 3, 1985, on its first mission, STS-51J, and carried two Department of Defense (DoD) satellites for deployment. Following two more DoD missions, Atlantis served as the in-orbit launch site for the Magellan probe to Venus during STS-30 in May 1989 and the Galileo probe to Jupiter during the STS-34 mission in October 1989.

In the 1990s, Atlantis deployed the Compton Gamma Ray Observatory, the second in NASA's Great Observatories program, during STS-37, and carried the first Atmospheric Laboratory for Applications and Science on STS-45.

Atlantis was the first space shuttle to dock with Mir during the STS-71 mission, which also was the 100th U.S. manned spaceflight, in June 1995. Atlantis pioneered the Shuttle-Mir missions, flying the next six missions to dock with the Russian space station. When linked, Atlantis and Mir together formed the largest spacecraft in orbit at the time.

During the 2000s, Atlantis delivered several vital components to the International Space Station (ISS), including the U.S. laboratory module, Destiny; the Joint Airlock Quest; the European Space Agency's Columbus laboratory; and multiple sections of the integrated truss structure that makes up the station's backbone.

All of the U.S. components and many of the international partners' modules or laboratories were processed, tested and prepared for flight in Kennedy Space Center's Space Station Processing Facility.

"Atlantis has a special place in the hearts of the ISS team at Kennedy. We worked many long hours preparing many station elements for flight," said Josie Burnett, the ISS Ground Processing and Research director. "Atlantis safely brought many of these critical elements to orbit, thus completing a unique microgravity laboratory which is today making incredible discoveries that benefit life on Earth."

The space shuttle's middeck was the site of many science experiments that took place during most missions to further enhance space research in low-Earth orbit.

During its spacefaring years, Atlantis' systems were upgraded twice. During its second major overhaul, Atlantis received the new Multifunction Electronic Display System, or "glass cockpit."

NASA file/2009

On May 14, 2009, astronauts John Grunsfeld, left, and Andrew Feustel performed the first of five STS-125 spacewalks to service the Hubble Space Telescope.

Hundreds of NASA and United Space Alliance workers prepared Atlantis for each mission in the orbiter processing facilities and the Vehicle Assembly Building.

"The people that worked on Atlantis and the rest of the shuttle fleet were special people and accomplished amazing things," said Angie Brewer, who was an Atlantis flow director. "They were the best at what they did. I'm not sure it sunk in until it was over, how unique this program and its accomplishments were."

The STS-135 mission marked Atlantis' 33rd and final flight when it launched July 8, 2011. NASA's Space Shuttle Program came to an end July 21, 2011, when Atlantis touched down at Kennedy's Shuttle Landing Facility.

Atlantis now is ready for its next mission -- to tell the story of 30 years of spaceflight and inspire the next explorers.

"We are extremely proud to have Atlantis home at the Kennedy Space Center and showcased in such an outstanding manner," said Kennedy Director Bob Cabana. "Atlantis will continue to amaze and inspire for generations to come, and now we get to share her and the history of the shuttle program with the world."

NASA file/2010

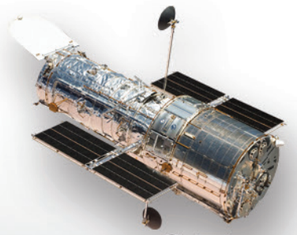
This image taken May 17, 2010, during STS-132, captured space shuttle Atlantis' cabin and forward cargo bay and part of the International Space Station while the two spacecraft remain docked.

ATLANTIS' ACCOMPLISHMENTS

126,000,000
Miles Traveled
Equal to Traveling About
3.5 Times to Mars and Back

17,500 MPH
Cruising Speed

35,000,000
Horsepower



37
Hours Servicing Hubble

33
Missions of which 19 were to MIR and ISS

203
Crew Members Spent a Combined
307
Days in Space

4,848
Earth Orbits

Atlantis exhibit opens at Visitor Complex

Space Shuttle Atlantis now is on display at the Kennedy Space Center Visitor Complex. The exhibit includes interactive hubs that tell the story of the 30-year Space Shuttle Program and highlight the future of space exploration.

Visitors to the 90,000-square-foot facility will get an up-close, 360-degree look at Atlantis with its payload bay doors open, similar to how it looked in space. Visitors also can see the wear and tear of its 33 missions on its protective external tiles and view this national treasure from several different levels.

Exhibits include the shuttle's key role in the launch and servicing of the Hubble Space Telescope, as well as construction of the International Space Station. The full-scale replica of the Hubble telescope is 43-feet-tall and hangs through an opening in the second floor.

At the entrance is a full-scale set of space shuttle twin solid rocket boosters and external fuel tank.

For more information about the exhibit and the visitor complex, go to http://**www.kennedyspacecenter.com**.

Measurements

Weight:	151,315 pounds
Length:	122 feet
Height:	56.5 feet
Wingspan:	78 feet

Did you know . . .
It took more than
2.5 million
parts to build Atlantis.

Joint testing on commercial crew agenda

By Rebecca Regan
Spaceport News

NASA's astronauts will play an integral role in flight testing America's future space transportation vehicles as the Commercial Crew Program (CCP) works toward mid-decade service missions to the International Space Station.

During a media briefing at Kennedy Space Center on June 27, CCP's manager Ed Mango and astronaut Mike Good discussed the joint test team concept that will be built into the program's next phase of certification efforts.

"You can design and analyze and test things on the ground, but ultimately you have to put the system to the test in the environment it was designed to operate in, and in our case that's space," said Good, who is serving as the flight crew representative to the program.

CLICK ON PHOTO NASA/Jim Grossmann

Ed Mango, NASA's Commercial Crew Program (CCP) manager, left, and astronaut Mike Good brief media about the future of American human spaceflight June 27. For more about CCP, click on the photo.

The newest certification phase expected to kick off next summer will be called the Commercial Crew Transportation Capability (CCtCap). The program manager said CCtCap will include at least one crewed demonstration mission to the orbiting laboratory.

"NASA personnel will have an early involvement in those activities that will culminate in a crewed flight test to the International Space Station," Good said.

The joint test team concept is based on the Department of Defense model used for testing new aircraft, but is modified for commercial spacecraft. NASA and its aerospace industry partners will be intimately involved in the day-to-day testing of CCP spacecraft. The goal is to leverage the combined knowledge and experience of NASA and the commercial partners in order to mitigate risk and increase safety during flight testing.

"In the end, it's really about getting crew, whether it's our NASA crew or any other crew, to low-Earth orbit safely and back home so they can see their families," Mango said.

The "human-in-the-loop" assessments, as they're called, will allow NASA to gain a firsthand understanding of the vehicle handling qualities, situational awareness provided in the cockpit, and the workload and complexity of operational tasks. Astronauts also will have a chance to assess cockpit layout, displays and controls, and the flight crew suits.

"This really takes me back to my roots in the Air Force, going back to the flight test center out at Edwards Air Force Base and the test pilot school," Good said. "It's exciting to start thinking about actually flying and doing flight tests."

Kennedy facilities key to NASA's transition

By Linda Herridge
Spaceport News

As Kennedy Space Center transforms from a government-only launch facility into a multiuser spaceport, the Ground Systems Development and Operations (GSDO) Program office manages the renovations and upgrades made to the launch and support infrastructure.

"This is an exciting time for Kennedy," said Jeremy Parsons, the chief of the GSDO Operations Integration Office at the center. "We're in the process of transitioning to a multiuse spaceport and GSDO is working very hard to ensure that we can set up the grounds systems to support NASA's Space Launch System and Orion."

Launch Pad B, for example, is being extensively modernized. The historic flame trench used during the Apollo and shuttle missions is being transformed into a universal flame deflector, capable of supporting a wide variety of rockets and spacecraft.

In order to support NASA's Space Launch System (SLS), the exhaust bays for the mobile launcher base will be widened to support two solid rocket boosters and four main engines.

CLICK ON PHOTO NASA/Tim Jacobs

Technicians remove cover plates in preparation for replacing the roller bearing assemblies on crawler-transporter 2 (CT-2) in the Vehicle Assembly Building at Kennedy Space Center on June 18. For more about the Ground Systems Development and Operations Program, click on the photo.

In the Vehicle Assembly Building, new platforms are set to be installed to accommodate the SLS and other launch vehicles.

Inside the Operations and Checkout Building high bay, the Orion crew module for Exploration Flight Test 1 recently was put through static loads tests to confirm Orion's structure could withstand the rigors of spaceflight.

Now, Orion is in a clean room area where technicians are installing all of the propulsion and environmental control life support system tubing lines.

"This will lead us up to a follow-on proof test of those systems," said Scott Wilson, manager of Orion Production Operations at Kennedy. "We'll do our first power-up of Orion later this year."

The SLS is managed by Marshall Space Flight Center (MSFC) in Huntsville, Ala., Johnson Space Center in Houston, and Kennedy.

"This is an exciting time for everyone at NASA," said Tom Erdman, of the MSFC resident office at Kennedy. "We're on the cusp of once again starting deep-space exploration. The SLS vehicle is pivotal to make that happen."

For the complete story, go to
http://www.nasa.gov/kennedy

IRIS flight adds to impressive launch lore

By Steven Siceloff
Spaceport News

NASA's IRIS solar observatory opened a fresh eye onto the sun this week after the seven-foot-long spacecraft rode into orbit on a winged Pegasus rocket to mark the latest success for the agency's Launch Services Program, based at Kennedy Space Center.

The program, known by its acronym LSP, has steadily added to its impressive record of achievement in recent months with launches of some of the most dramatic missions NASA ever pulled off. Upcoming flights are to build on those accomplishments, although engineers and researchers know every liftoff only comes after years of diligent and precise preparations.

CLICK ON PHOTO *NASA/Chris Wiant*

An Orbital Sciences L-1011 carrier aircraft takes off from Vandenberg Air Force Base, Calif., on a mission to launch NASA's IRIS spacecraft into low-Earth orbit on June 27. For more about NASA's Launch Services Program, click on the photo.

The IRIS spacecraft, short for Interface Region Imaging Spectrometer, will offer physicists a detailed view of the area of the sun between the surface and the glowing corona. Its flawless launch into space capped years of planning and work that is common to the launch of each mission.

LSP professionals work closely with mission planners and researchers, along with the spacecraft and rocket builders, to make sure every detail is covered to ensure a successful flight.

Next up for LSP is the MAVEN mission, scheduled to launch Nov. 18 from Kennedy on an Atlas V rocket. MAVEN will be NASA's latest mission to Mars and is designed to build on the tremendous success of several missions to Mars in recent years, including the rover Curiosity now traversing the Martian landscape.

MAVEN, which stands for Martian Atmosphere and Volatile Evolution, will orbit the Red Planet collecting data for signs about how and why compounds such as carbon dioxide left the atmosphere and what that might mean for the Martian future.

Dispatching probes like MAVEN and the SUV-sized Curiosity rover to a distant world requires the strength of some of the largest rockets in the NASA catalog. The choices range from the small Orbital Sciences Pegasus rocket like the one that lifted IRIS, to the medium-class Delta II and the powerful Atlas V.

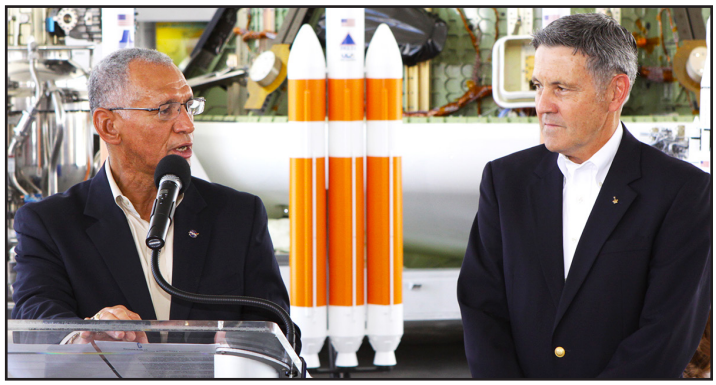
LSP also conducts launches from Kwajalein in the Marshall Islands; Kodiak Island, Alaska; and NASA's Wallops Flight Facility on Virginia's eastern shore.

NASA begins shuttle landing facility talks

By Chris Hummel
Spaceport News

On June 28, NASA announced it has selected Space Florida, the aerospace economic development agency for the state of Florida, for negotiations toward a partnership agreement to maintain and operate the historic Shuttle Landing Facility (SLF).

"This will continue to expand Kennedy's viability as a multiuser spaceport and continue to strengthen the economic opportunities for Florida and the nation," said Charlie Bolden, NASA Administrator. "This demonstrates our commitment and progress in building a strong commercial space industry so that American companies are providing safe, reliable, and cost effective transportation to and from the ISS and other low orbit destinations."



CLICK ON PHOTO *NASA/Jim Grossmann*

NASA Administrator Charlie Bolden addresses news media before the grand opening of the Atlantis exhibit at the Kennedy Space Center Visitor Complex on June 28. Next to him is Kennedy Center Director Bob Cabana. For more about the Center Planning and Development Directorate, click on the photo.

NASA issued a request for information to industry in 2012 to identify new and innovative ways to use the facility for current and future commercial and government mission activities.

Space Florida's proposal is aligned closely with Kennedy's vision for creating a multiuser spaceport.

Additionally, the SLF can handle all types and sizes of aircraft and horizontal landing spacecraft, including future vehicles that may launch and land horizontally.

"We have an extremely bright future ahead of us that we're going to make happen," said Bob Cabana, Kennedy Space Center Director. "I really appreciate the partnerships we've had with Space Florida – the investments they've made are helping us through these transitions as we bring commercial operations to Cape Canaveral."

These partnerships not only provide cost savings to NASA, but also enable the creation of new high-tech jobs on the Space Coast.

"For more than 50 years the road to America's leadership in space exploration has run through Florida and Kennedy Space Center," said Bolden. "We intend to build on that success, and we envision a greater role for the space coast as Kennedy transforms into a 21st century launch complex."

Q-and-A with STS-135 Commander Chris Ferguson

Chris Ferguson, a retired NASA astronaut and the commander of Atlantis' final mission, STS-135, talks about his hopes for the shuttle's new mission of inspiration and what he envisions for the future of space exploration.

QUESTION: What was it like to pilot and then command space shuttle Atlantis?

ANSWER: You spend 10 years of your life preparing for that moment. To be able to actually take the controls of a space shuttle is just one of those moments you never forget. Of course, when you need to land, the pressure is a little bit higher. Walking away from that, it's a lifelong achievement. I was fortunate enough to do it twice.

Q: What do you hope visitors take away from the Atlantis exhibit at the Kennedy Space Center Visitor Complex?

A: I remember standing on the runway after we landed Atlantis for the final time and I turned around and thought, one day Atlantis is going to be in a museum and there's going to be a little kid with their dad looking up at this shuttle in amazement. And that little kid is going to say, 'Dad, that really went into space?' I think this will just do wonders for the inspiration of the next generation of explorers.

Q: If you were to stand next to someone gazing up at Atlantis, what would you want to say to them about the Space Shuttle Program?

A: Atlantis in all its grandeur really represents the tip of a huge iceberg. You know, "standing on the shoulders of giants" is probably one of the colloquialisms I would use to describe the shuttle workforce. The shuttles were the products of not just decades, but literally an entire generation of people who were dedicated to this effort. I remember when I was a new astronaut, I asked a man working in an orbiter processing facility, "Is the fact that you get to work on a space ship day in and day out ever lost on you?" His response was "Never for a day do I forget exactly what I'm doing." I took great comfort in that. The workforce underlying that beautiful vehicle, their contributions cannot be overstated.

Q: As someone who helped construct the International Space Station during three shuttle missions, what would you say is the main reason America maintains a human presence on board?

A: There will be some major scientific breakthroughs that come from the studies taking place on board the International Space Station. We'll also get a great look into all of the tools we need as a species to support human life beyond low-Earth orbit for the months, or years, we need to get to Mars. ISS will help us complete our toolbox. We're putting ourselves in the position to leave low-Earth orbit and be certain that the systems we need to keep our crews alive are going to be reliable enough to get them to their destination and return them home safely.

NASA file/2011/Kim Shiflett

STS-135 Commander Chris Ferguson places a plaque in front of space shuttle Atlantis' hatch in the White Room at Kennedy Space Center's Launch Pad 39A on June 22, 2011.

John F. Kennedy Space Center

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