Aug. 9, 2013 Vol. 53, No. 16

Spaceport News

John F. Kennedy Space Center - America's gateway to the universe

MAVEN arrives, Mars next stop

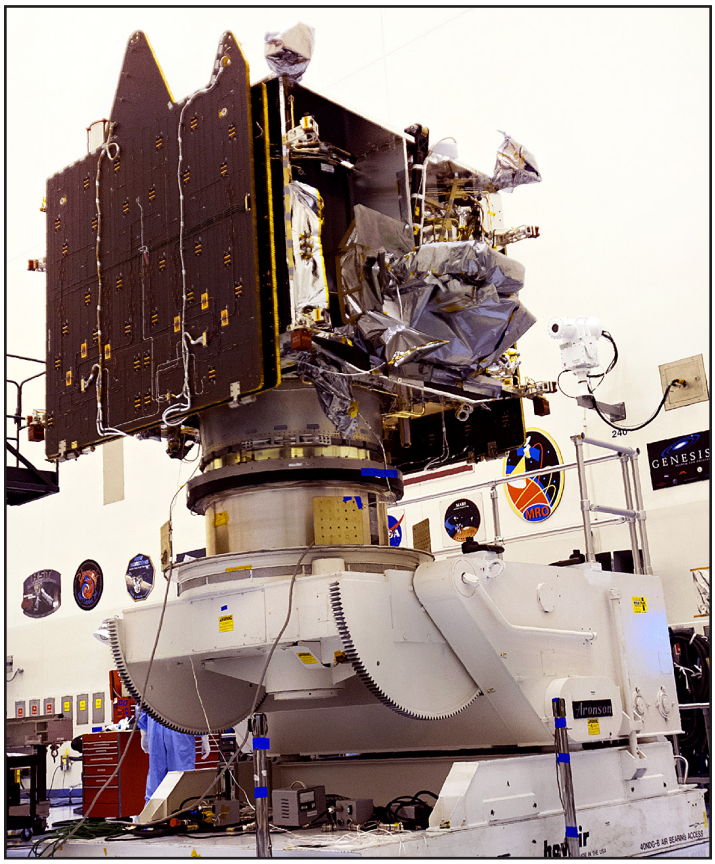
By Steven Siceloff
Spaceport News

MAVEN's approach to Mars studies will be quite different from that taken by recent probes dispatched to the Red Planet. Instead of rolling about on the surface looking for clues to the planet's hidden heritage, MAVEN will orbit high above the surface so it can sample the upper atmosphere for signs of what changed over the eons and why.

The mission will be the first of its kind and calls for instruments that can pinpoint trace amounts of chemicals high above Mars. The results are expected to let scientists test theories that the sun's energy slowly eroded nitrogen, carbon dioxide and water from the Martian atmosphere to leave it the dry, desolate world seen today.

"Scientists believe the planet has evolved significantly over the past 4.5 billion years," said David Mitchell, MAVEN's project manager for NASA's Goddard Space Flight Center in Maryland. "It had a thicker atmosphere and water flowing on the surface. It wasn't like Earth, but it was not like it is today."

Before any of those studies can take place at Mars, though, the spacecraft will see a few months of intense launch processing at Kennedy Space Center. The MAVEN spacecraft, short for Mars Atmosphere and Volatile Evolution, stands inside the Payload Hazardous Servicing Facility at Kennedy where engineers and technicians are taking the first steps in getting it ready for launch in November.



CLICK ON PHOTO *NASA/Tim Jacobs*

NASA's Mars Atmosphere and Volatile Evolution (MAVEN) spacecraft rests on a processing stand inside Kennedy's Payload Hazardous Servicing Facility Aug. 3. MAVEN is being prepared for its scheduled November launch to Mars. Positioned in an orbit above the Red Planet, MAVEN will study the upper atmosphere of Mars in unprecedented detail. For more about the mission, click on the photo.

The instruments, systems and all-important, power-generating solar array wings on the 5,400-pound spacecraft (once fueled) will be tested repeatedly inside the clean room at the Kennedy facility. Engineers also will fuel the spacecraft so it can maneuver through space and arrive safely in orbit around Mars.

MAVEN arrived at Kennedy Aug. 2 on a C-17 transport aircraft.

The spacecraft will be powered on during its second week at Kennedy and tests will begin in earnest soon afterward, Mitchell said.

When the testing and fueling is complete, a payload fairing will be placed around MAVEN and it will be trucked to Launch Complex 41 at Cape Canaveral Air Force Station. MAVEN will be hoisted atop a United Launch Alliance Atlas V for launch Nov. 18 to begin a 10-month cruise to Mars.

Astronauts gather for Skylab's 40th gala

By Bob Granath
Spaceport News

On July 27, the Astronaut Scholarship Foundation hosted a dinner at the Kennedy Space Center's Apollo/Saturn V Facility celebrating the 40th anniversary of Skylab. The gala featured many of the astronauts who flew the missions to America's first space station.

Six Skylab astronauts participated in a panel discussion during the event, and spoke about living and conducting groundbreaking scientific experiments aboard the orbiting outpost.

Launched unpiloted on May 14, 1973, Skylab was a complex orbiting scientific laboratory. Three crews of astronauts were sent up to perform microgravity experiments for up to three months in a shirt-sleeve environment. The program also provided information about how humans adapt to work during long periods of weightlessness.

Lessons in living and working in space learned from the Skylab Program paid dividends throughout the space shuttle era, and now are being applied during International Space Station missions and plans for future long-duration missions beyond low-Earth orbit.

To **SKYLAB**, Page 2

OSIRIS-REx mission: Asteroid recon

By William Steigerwald
Goddard Space Flight Center

Asteroids could one day be a vast new source of scarce material if the financial and technological obstacles can be overcome.

A key step along the way will be taken by NASA's OSIRIS-REx when it surveys and then collects a sample from a near-Earth asteroid.

The possibilities of what might be found in an asteroid have intrigued scientists for decades and the latest information shows a good chance of critical elements, including water, being found in the space rocks.

"Water is a critical life-support item for a spacefaring civilization, and it takes a lot of energy to launch it into space," said Dante Lauretta of the University of Arizona, Tucson, principal investigator for NASA's OSIRIS-REx asteroid sample return mission. "With launch costs currently thousands of dollars per pound, you want to use water already available in space to reduce mission costs," Lauretta said.

The spacecraft, scheduled to launch on an Atlas V from Cape Canaveral Air Force Station in September 2016, will arrive at the asteroid Bennu in October 2018 and study it in detail before returning with a sample of material from its surface. Its primary purpose is scientific -- since asteroids are relics from our solar system's formation, analysis of the sample is expected to give insights into how the planets formed and life originated. Also, the spacecraft will accurately measure how the tiny push from sunlight alters the orbit of Bennu, helping astronomers better predict this influence on the path of any asteroid that presents an impact risk to Earth.

"However, the mission will develop important technologies for asteroid exploration that will benefit anyone interested in exploring or mining asteroids," Lauretta said.

"The mission will be a proof-of-concept -- can you go to an asteroid, get material, and bring it back to Earth," Lauretta said. "Next, people will have to industrialize it so that the economy works out, so for the recoverable value in any given asteroid, you're spending half that to bring it back."

Launch Services Program (LSP) is responsible for NASA oversight of launch operations and countdown management, providing added quality and mission assurance in lieu of the requirement for the launch service provider to obtain a commercial launch license. Lockheed Martin Space Systems is building the spacecraft. OSIRIS-REx is the third mission in NASA's New Frontiers Program.

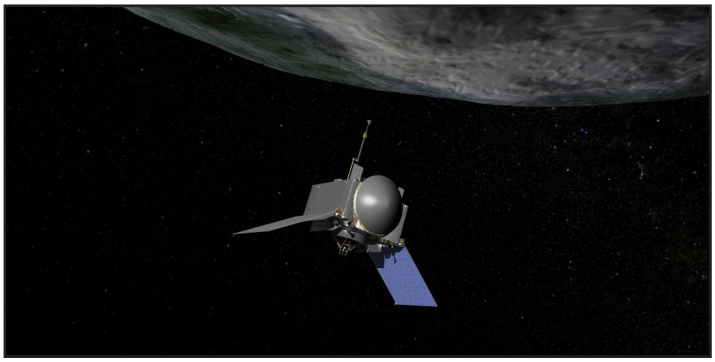


Image courtesy of NASA/Goddard/Chris Meaney

An artist's concept of NASA's OSIRIS-REx spacecraft preparing to take a sample from asteroid Bennu.

From **SKYLAB**, Page 1

Skylab 2 astronauts Joseph Kerwin and Paul Weitz, along with the late Charles (Pete) Conrad, were the first to staff the station. Their stay took place May 25 through June 22, 1973.

When Skylab 2 was launched, freeing a stuck electricity-generating solar array was the top priority. According to Skylab 2 pilot Weitz, the spacewalk in which Conrad and Kerwin completed that task was crucial in order to continue the mission.

"Pete and Joe's successful deployment of that solar array was an extraordinary endeavor," he said.

The effort also was an important milestone in human spaceflight as it was the first time astronauts completed a major repair of an orbiting spacecraft.

The second crew to the station was Alan Bean, Owen Garriott and Jack Lousma who launched aboard Skylab 3 on July 28, 1973. They remained in orbit for 59 days, returning Sept. 25, 1973.

Skylab 3 pilot Lousma noted that spacewalks were a crucial part of Skylab, paying dividends in the future.

"We developed the procedures and techniques for doing effective spacewalks on Skylab that were used so successfully in putting together the International Space Station," he said.

Lousma described the astronauts' view from a spacewalking perspective.

"From outside you can see the entire Earth in a three-dimensional perspective," he said. "You're riding along on this 'magic carpet.' There's no vibration, no sound, and a sunrise and sunset every 90 minutes. You just want to stay out there."

Launched aboard Skylab 4 on Nov. 16, 1973, Gerald Carr, Edward Gibson, and William Pogue held the United States' spaceflight endurance record of 84 days until Americans spent up to six months working aboard the Russian space station Mir in the mid-1990s.

Gibson, who served as Skylab 4's science pilot, spoke of the era leading to the first lunar landings and the Skylab space station.

"Apollo was really a great program that required us to develop new technologies," he said. "That put us in a more competitive position. What we got back from it economically was at least two to three times what we put into it."

Skylab 4 completed the program when the Apollo command module splashed down in the Pacific Ocean on Feb. 8, 1974.

Also participating in the gala celebration were astronauts Vance Brand, Robert Crippen, Karol "Bo" Bobko and William Thornton.

Brand, along with Don Lind, was prepared to fly a mission to rescue a Skylab crew if its Apollo command-service module was unusable. Crippen, Bobko and Thornton took part in a 56-day activity during 1972 called SMEAT -- Skylab Medical Experiment Altitude Test -- that preceded the launch of Skylab and helped NASA evaluate equipment and procedures proposed for the long-duration Skylab missions.

Skylab celebrates 40 years, pages 4-5

Commercial Crew Program eyes future flights

By Rebecca Regan
Spaceport News

Since its inception, the procurement strategy of NASA's Commercial Crew Program (CCP) has been based on reaching common ground with industry partners as they work together to establish safe and cost-effective American crew launch capabilities to low-Earth orbit and the International Space Station.

"The success of this program is directly related to the success of our industry partners," said CCP Manager Ed Mango. "While our program priorities have not changed, it's important that we have this open dialogue now and set expectations together so that NASA can have the highest quality crew transportation system come 2017."

As the program prepares to enter its final phase of NASA certification efforts, agency officials met with company representatives who are interested in competing for a contract during this next Commercial Crew Transportation Capability (CCtCap) phase. Held at Kennedy Space Center Aug. 1, the Pre-Solicitation Conference was meant to keep the line of communication flowing and ensure the official Request for Proposals (RFP) is on target when released this fall.

"The CCtCap will be a full and open competition and all offerors will be evaluated equally based on the criteria outlined in the official RFP that will be released this fall," said Maria Collura, CCP certification manager.

Beginning in summer of 2014, when awards are anticipated for one or more contractors, CCtCap efforts will be focused on developing, verifying and validating an integrated system that is safe for crew transportation. A CCtCap contractor also will plan, manage and execute long-term production and operational plans for its crew transportation system (CTS).

The certification portion of CCtCap will include a contractor completing at least one crewed flight test to the International Space Station. NASA plans to award at least two and up to six additional post-certification missions during the CCtCap period of performance prior to a follow-on space station services contract.

"This next phase brings us closer to accomplishing our dual strategies at NASA," said Phil McAlister, director of NASA Commercial Spaceflight Development at the agency's Headquarters in Washington, "to launch our astronauts from U.S. soil and continue critical research aboard the International Space Station, while venturing deeper into space than ever before."

More online

Questions and answers from the Pre-Proposal Conference can be found on the NASA Acquisition Internet Service (NAIS) website at:
http://go.nasa.gov/18aHdF1
For information about NASA's Commercial Crew Program, visit:
http://www.nasa.gov/commercialcrew
To watch a video of the history of human spaceflight and humanity's passion for new adventures and new ships to sail, go to:
http://go.nasa.gov/12Jh1TA

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

Pinpoint payload drop advances Rocket U

NASA/Dimitri Gerondidakis

A team of Rocket University participants fills a high-altitude balloon before launching it with a 5-pound instrument package July 26. Equipped with a parachute, the instrument package was dropped from 65,000 feet and recovered in the ocean.

By Steven Siceloff
Spaceport News

An instrument package released from a high-altitude balloon parachuted to a precise location July 26 in a demonstration that is expected to open the door to more elaborate experiments for a team of Rocket University engineers and designers at Kennedy Space Center.

For this flight, a parachute and 5-pound instrument box were carried beneath a weather balloon to 65,000 feet -- about twice the altitude of a cruising airliner -- and released. The parachute opened and floated down to the ocean where a recovery crew gathered it up. The parachute had no steering ability, but the team was able to predict where the payload would land using a computer model.

"We feel ready for more challenging payloads and relieved because we didn't want to move forward until we got this capability taken care of," said Nicole Dawkins, a Kennedy engineer who leads the Rocket University's aerial balloon segment.

Rocket University is a NASA effort to enhance technical prowess at the agency by pushing engineers and managers into areas outside their specialties. The teams are divided into several areas and involve people at all the NASA field centers.

It took a couple of tries for the team to reach success, but the achievement marked a moment of celebration for the program.

"The team has met the objective of predicting where the payload will land once it's released from the balloon," Dawkins said.

The earlier flights did not succeed in large part because the payload package wouldn't separate from the balloon on command.

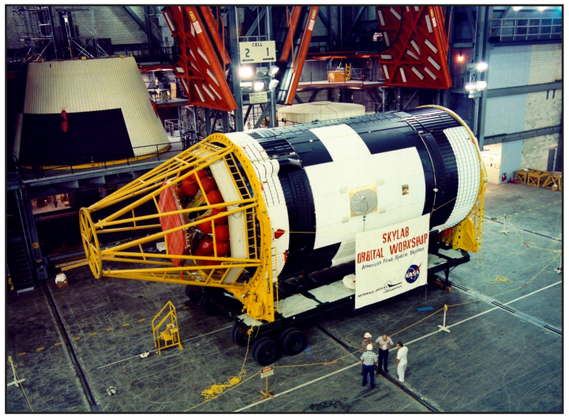
Dawkins said the team would not be able to fly heavier, more complex payloads until it proved it could make precise predictions of landing zones and recover the packages.

The team will participate in a project to gather microbes from the stratosphere next summer using a high-altitude balloon and return the payload to the ground safely.

"As long as we keep challenging and bringing in new participants, I think this is a really good step for Rocket University's near-space environments curriculum," Dawkins said.

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

Skylab paved way for International Space Station 40 years ago



NASA file/1972

The Skylab orbital workshop arrives in the transfer aisle of the Vehicle Assembly Building Sept. 26, 1972.

NASA file/1973

The Skylab 1-Saturn V space vehicle is launched from Launch Pad 39A May 14, 1973.

NASA file/1973

Skylab 2 Commander Charles Conrad undergoes a medical examination by science astronaut Joseph Kerwin during the summer of 1973. In the absence of an examination chair, Conrad simply rotated his body to an upside down position to facilitate the procedure.

By Bob Granath
Spaceport News

The International Space Station has been in operation with research ongoing since Nov. 2, 2000. America's first space station, Skylab, helped pave the way for permanent operations in low-Earth orbit 40 years ago this year.

Skylab was hailed as a "bold concept" by Rocco Petrone, Kennedy's director of launch operations before becoming director of the agency's Marshall Space Flight Center in Huntsville, Ala., from 1973 to 1974.

"The program demanded innovation and ingenuity," said Petrone in Skylab, Our First Space Station, a NASA report published in 1977. "Experience and knowledge gained from earlier space programs provided a solid foundation on which to build, but the Skylab Program was truly making new pathways in the sky."

Skylab orbited the Earth from 1973 to 1979. The 169,950-pound space station included a workshop, a solar observatory, a multiple docking adapter and systems to allow three crews to spend up to 84 days in space. While the space station lifted off unpiloted as Skylab 1 atop a Saturn V launch vehicle, the astronaut crews were launched to orbit by Saturn 1B rockets.

Liftoff of Skylab 1 came on May 14, 1973, but within minutes it was apparent that there was trouble. NASA's Skylab Program Manager William Schneider filled in the details at a post-launch news conference.

"At approximately 63 seconds into the launch of Skylab 1, there was an indication of premature deployment of the meteoroid protective shield," Schneider said. "If that has happened, the shield was probably torn off. The thermal indications are that it is gone, and we have some indication that our solar array on the workshop also did not fully deploy."

As a result of the uncertainty, launch of Skylab 2 with the crew of Charles Conrad, Joseph Kerwin and Paul Weitz, scheduled for the next day, was postponed.

NASA file/1973

As the crew of Skylab 2 departs June 22, 1973, the gold, parasol-like sun shield covers the main portion of the space station. The solar array at the top was the one freed during a spacewalk.

The NASA-industry team located throughout the country went into action to develop plans and hardware necessary to save Skylab. The astronauts practiced using special tools to remove material that jammed the remaining solar array, allowing it to provide Skylab with the needed electrical power. A square thermal shield, which operated like a sunshade, also was developed to protect the station from the heat of the sun.

The crew launched May 25, 1973, aboard an Apollo command-service module and mission commander Conrad expressed confidence that the preparations would pay off right away.

"This is Skylab 2, we fix anything," he said at the moment of liftoff.

The crew deployed the new solar shield through a small scientific experiment airlock located in the side of the workshop normally facing the sun. Once outside, the shield popped open like a parasol, with four struts extending outward from a segmented center post. Temperatures inside the lab soon lowered to near-normal levels.

Next came the spacewalk to free the jammed solar array. After considerable work, Kerwin was able to cut the metal that had jammed the solar wing in a folded position. Using a rope sling, Conrad forced the array beam to deploy. Full extension of the solar panel occurred later, providing electrical power crucial for the three planned piloted missions.

The longest American spaceflight at that point had been the 14-day mission of Gemini 7 astronauts Frank Borman and James Lovell. Skylab 2 doubled that record and showed that the astronauts adapted well.

"Mobility around here is super," Conrad said. "Every kid in the United States would have a blast up here."

Following splashdown in the Pacific Ocean and recovery of Skylab 2 on June 22, 1973, NASA Administrator James Fletcher had high praise for the crew and the entire agency-industry team.

"For the first time, a crew of astronauts has returned from an extended tour in a space laboratory," he said. "Essentially all of the objectives for this mission have been completed."

Skylab 3 launched the second crew on July 28, 1973, with Alan Bean, Owen Garriott and Jack Lousma aboard.

Early in the mission, Garriott and Lousma performed a spacewalk to erect a new twin-pole solar shield that provided better thermal control for the remainder of the Skylab missions.

The second crew returned to Earth Sept. 25, 1973, following 59 days in orbit.

Skylab 4 originally was planned for a mission of about the same length. When the final Skylab expedition was extended to 80 days or more, NASA's Preflight Operations Branch at Kennedy, under Raul "Ernie" Reyes, was given the challenge to squeeze another 980 pounds of food, film and equipment into the Apollo command module. Using Reyes' "a place for everything, and everything in its place" philosophy, his team succeeded in using every cubic inch of storage space.

On Nov. 16, 1973, astronauts Gerald Carr, Edward Gibson and William Pogue lifted off. During their 84-day mission, the Skylab 4 crew continued the comprehensive research programs.

All three expeditions produced a vast study of Earth -- its crops, weather and changes in environment. They also completed a revealing study of the sun, while crews manufactured alloys, grew perfect crystals and learned to work in space.

Skylab 3 pilot Jack Lousma recently noted that the program helped pave the way for long-duration missions in low-Earth orbit or to Mars and beyond.

"Flights of 28, 59 and 84 days were forerunners of what we are doing now aboard the International Space Station," he said. "The fact that we could work in space for longer periods is one of the things we were able to prove during Skylab."

NASA file/1973

During a spacewalk June 7, 1973, astronaut Joseph Kerwin uses a cutting instrument to remove metal that had jammed the solar array in a partially opened position.

NASA file/1973

Skylab 3 Science Astronaut Owen Garriott operates the Apollo Telescope Mount from a console in the Skylab space station Aug. 8, 1973. Observations of the sun were a primary achievement of the program.

NASA file/1974

Skylab 4 Commander Gerald Carr flies the Astronaut Maneuvering Equipment Experiment in the forward compartment of the Skylab space station Feb. 11, 1974. The jet-propelled back pack was designed to demonstrate the unit's flying qualities.

Scenes Around Kennedy Space Center

Photo courtesy of Northrop Grumman/Steve Potter

Bob Watkins, retired vice president and assistant base manager for Northrop Grumman, addresses guests and VIPs during an event July 20 honoring the Grumman Lunar Module team that had gathered at the Apollo/Saturn V Facility to celebrate the 44th anniversary of the first lunar landing.

CLICK ON PHOTO *NASA/Jim Grossmann*

Workers pour concrete onto the movable launch platform for the Project Morpheus lander at the north end of the Shuttle Landing Facility (SLF) July 30. Testing of the prototype lander has been ongoing at NASA's Johnson Space Center in Houston in preparation for free flight. The SLF will provide the lander with the kind of field necessary for realistic testing, complete with rocks, craters and hazards to avoid. Morpheus utilizes an autonomous landing and hazard avoidance technology, or ALHAT, payload that will allow it to navigate to clear landing sites amidst rocks, craters and other hazards during its descent. For more information on Project Morpheus, click on the photo.

NASA/Charisse Nahser

Kennedy Space Center workers James Davis, Maxine Daniels, and Bettye Lee serve food to attendees of the 2013 Black Employee Strategy Team (BEST) BBQ at KARS I Park on Merritt Island on July 27. Events included a noncompetitive car show and a spades tournament. BEST hosts the barbecue as a fundraiser for the Evelyn Johnson Scholarship, which is handed out every year to students who exemplify significant achievement both academically and in their community. The scholarship is in honor of Evelyn Johnson, a founding member of BEST and former deputy director of Kennedy's Diversity and Equal Opportunity Office.

CLICK ON PHOTO *NASA/Jim Grossmann*

A Lockheed Martin technician performs tube welding on the Orion crew module for Exploration Flight Test-1 inside a clean room processing cell in the Operations and Checkout Building high bay at Kennedy Space Center July 26. For more about Orion's future missions, click on the photo.

Curiosity celebrates first year on Mars

NASA/Kim Shiflett

The Mars Science Laboratory and its Curiosity rover, shown here on Oct. 31, 2011, launched from Kennedy Space Center on Nov. 26, 2011, and landed on Mars on Aug. 6, 2012.

By Kevin Ball
Spaceport News

NASA's appropriately named vehicle, the Curiosity rover, made its majestic arrival on the surface of Mars one year ago.

Since then, Curiosity has sent more than 70,000 pictures back to Earth and collected more than 190 gigabits of data. The rover also accomplished its primary objective of finding environmental signs that suggest Mars once was suitable enough for supporting microbial life. These findings may be an indicator to additional scientific discoveries that lie ahead as Curiosity moves toward Mount Sharp.

"Successes of our Curiosity -- that dramatic touchdown a year ago and the science findings since then -- advance us toward further exploration, including sending humans to an asteroid and Mars," said NASA Administrator Charles Bolden. "Wheel tracks now will lead to boot prints later."

NASA's Mars Science Laboratory (MSL) mission and its rover are part of a long-term operation by the Mars Exploration Program to learn about the Red Planet's capability to be inhabited.

The 1-ton, automobile-sized rover began its life in a clean room at NASA's Jet Propulsion Laboratory in Pasadena, Calif.

Two flights were required for the Air Force C-17 cargo plane to carry the spacecraft components from March Air Reserve Base in Riverside, Calif., to Kennedy. Reassembly and testing took countless hours of work by a group of engineers and technicians in the Payload Hazardous Servicing Facility cleanroom.

On Nov. 26, 2011, the MSL spacecraft was launched from Cape Canaveral Air Force Station. The self-steering spacecraft tactically maneuvered through the Martian atmosphere and a parachute, along with retrorockets, slowed the descent before lowering the rover on a tether into its landing site, the Gale Crater, on Aug. 6, 2012.

Curiousity still has a lot of work ahead as it nears the base of Mount Sharp where geological layers in that area can give details of Mars' past environment. Researchers hope to discover additional indications of the planet's habitability and how much it has evolved of the years.

NASA already is looking ahead toward the next mission to Mars, which will study processes in the upper atmosphere. The Mars Atmosphere and Volatile Evolution (MAVEN), is being prepared for launch in November.

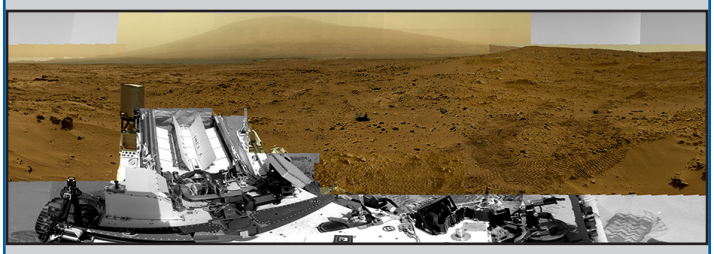
FY 2013 Third Quarter Length of Service Awardees

Barbara	Naylor	TA	40
Denise	Coleman	EX	35
Pedro	Rosado	GP	35
Laurette	Brown	IT	35
Craig	Baker	NE	35
Albert	Folensbee	NE	35
Arthur	Edwards	SA	35
Dennis	Bayon	TA	35
Martin	Lougheed	VA	35
Cheryl	Hurst	EX	30
Tracy	Anderson	GP	30
William	Haase III	GP	30
Patty	Hepburn	GP	30
Gregory	Katnik	GP	30
Timothy	Potter	GP	30
Darrell	Thomas	IT	30
Debra	Kral	LX	30
Barbara	Brown	NE	30
Eric	Schafer	NE	30
Eric	Smith	NE	30
Bhupendra	Deliwala	SA	30
William	Higgins	SA	30
Mark	Hoffman	SA	30
Jeffrey	Pryor	SA	30
Maynette	Smith	SA	30
Michael	Carney	VA	30
Gerard	Durback	VA	30
Rex	Engelhardt	VA	30
Claire	Neptune	VA	30
Cheryl	Malloy	FA	25
Armando	Oliu	FA	25
Roger	Rudig	FA	25
Kenneth	Tenbusch	FA	25
Douglass	Lyons	GP	25
Brian	Cheshire	NE	25
Fernando	De La Pascua	NE	25
Donald	Dehart II	NE	25
William	Espinosa	NE	25
Cassandra	Getter	NE	25
Kevin	Grant	NE	25
John	Branard	SA	25
Matthew	Carroll	TA	25
George	Coleman	TA	25
Brian	Graf	TA	25
Herschel	McCoy	TA	25
Robert	Kuczajda	UB	25
David	Burris	TA	20
Pauline	Shook	TA	20

NASA/Sandra Joseph

Barbara Naylor, who joined NASA in 1973, recently achieved 40 years of service on June 25.

NASA Spinoffs: Did You Know?



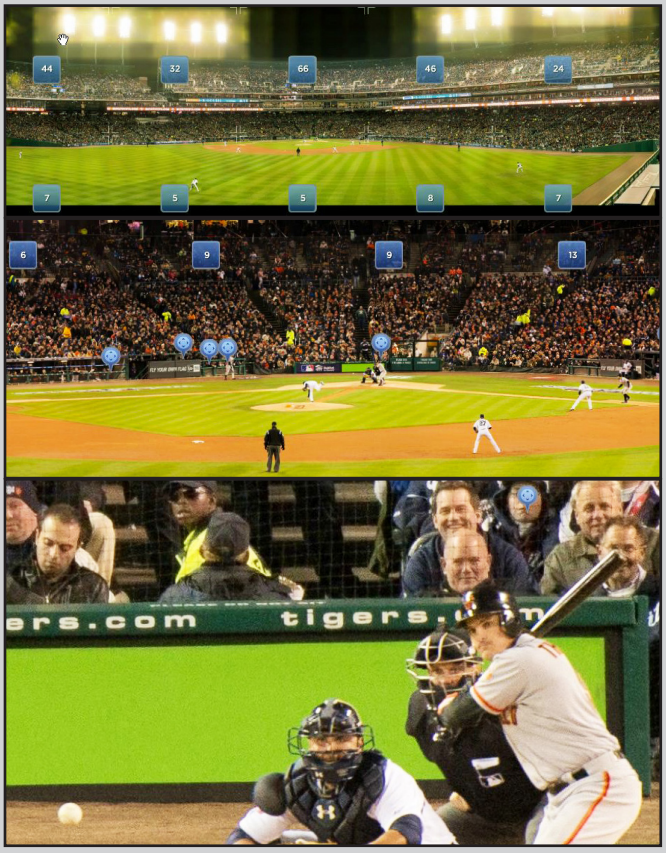
NASA

Major League Baseball takes a swing at NASA's Mars image technology

During its year on the Martian surface, the Curiosity rover has become a bit of a celebrity. The robotic explorer recently released a gigapixel image -- that's 1.3 billion pixels -- of the Red Planet's surface using NASA's custom built tripod. The process works by taking dozens, hundreds, or thousands of still photographs and combining them into one seamless image.

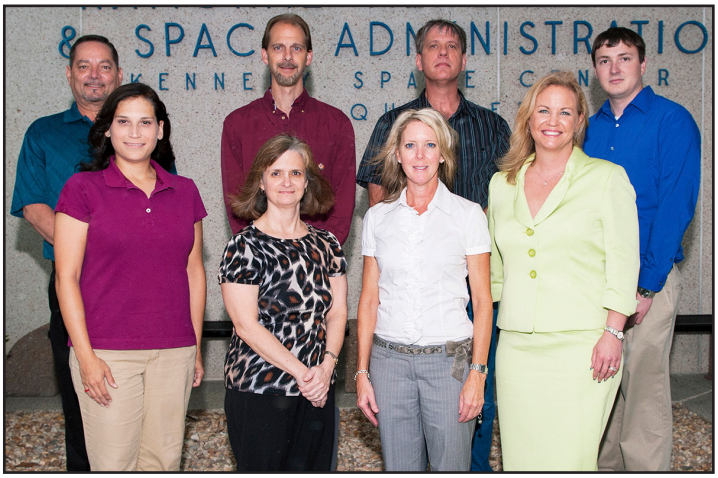
Here on Earth, baseball fans can have a similar view of their team on the field by using Spinoff technology. Gigapan and TagOrganic now allow users to see their team's entire stadium at a glance. What's even more impressive, like Curiosity's gigapixel shot, is that you can zoom in and see close ups of everything in the image. Not only can you find yourself, relatives and friends, the new technology allows you to tag yourself in Facebook.

Joining thousands of other Spinoff technologies that make life on Earth easier and more enjoyable, this new social feature couples nicely with mass gatherings and scenic events.



Photos Courtesy of Major League Baseball

NASA Employees of the Month: August



NASA/Rick Wetherington

Employees of the Month for August are, from left, John L. Kelley, Procurement; Marianne Colon Zambrana, IT and Comm Services; Miroslava J. Guisbert; Engineering and Technology; Charles E. Loftin, Safety and Mission Assurance; Jennifer P. Horner, Public Affairs; Gordon B. Coffey, Ground Processing; Jennifer L. Tharpe, Center Operations; and Matthew A. McGuire, Financial Office. Not pictured are Bradley W. Smith, Chief Council; Stephen K. Cox, Ground Systems Development and Operations; Richard Birr, Engineering and Technology; Bartholomew A. Pannullo, ISS and Spacecraft Processing; and Jeffrey R. Ehrsam, Launch Services Program.

Looking up and ahead . . .

**** All times are Eastern***

Sept. 6
Mission: Lunar Atmosphere and Dust Environment Explorer (LADEE)
Launch Vehicle: Minotaur V
Launch Site: Wallops Flight Facility, Va.
Launch Time: 11:27 p.m.
Launch Pad: Mid-Atlantic Regional Spaceport Pad 0B
Description: LADEE will gather detailed information about conditions near the surface and environmental influences on lunar dust. A thorough understanding of these influences will help researchers understand how future exploration may shape the lunar environment and how the environment may affect future explorers.

To watch a NASA launch online, go to **http://www.nasa.gov/ntv**.

John F. Kennedy Space Center

Spaceport News

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