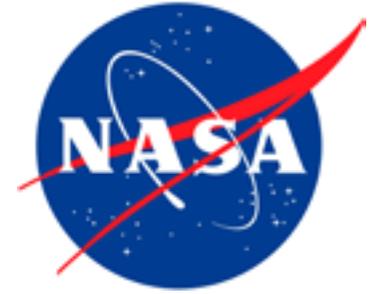


Spaceport News

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

www.nasa.gov/centers/kennedy/news/snews/spnews_toc.html



Technical trainer marks 100th crew exercise

By Linda Herridge
Spaceport News

Before space shuttle Atlantis launches the STS-129 crew and spare parts to the International Space Station next week, the history books can record an Earth-bound achievement for one Kennedy Space Center employee.

Ed Ryan, who is a technical training manager with REDE-Critique on the Kennedy Institutional Support Services contract, helped train his 100th flight crew when the STS-129 astronauts were at the center for their Terminal Countdown Demonstration Test, or TCDT, in October and for its completion again earlier this month.

Launch of Atlantis on its STS-129 mission to the International Space Station is set for Nov. 16 at 2:28 p.m. EST.

"It's hard to believe I've trained so many astronauts," Ryan commented. "It doesn't seem like I've been here that long."

He came to Kennedy in 1987 and worked as a tech-



NASA/Kim Shifflett

Ed Ryan, who is the technical training manager with REDE-Critique, helped train his 100th flight crew when the STS-129 astronauts were at the center for their Terminal Countdown Demonstration Test, or TCDT. Launch of Atlantis on its STS-129 mission to the International Space Station is set for Nov. 16 at 2:28 p.m. EST.

nical trainer and instructor with EG&G. Then in 1998, he transitioned to Indyn.

The first crew he trained was for the STS-26 Return to Flight mission in 1988. Since then, he's missed only four flight crew trainings.

Ryan teaches the astronauts, closeout crew and fire and rescue team personnel how to use the air supply in the launch pad bunkers, as well as the use

of the liquid air packs, in case of an emergency during a launch countdown. He's also trained several astronaut candidate groups to use the fire systems, egress systems, bunkers and breathing air systems.

Ryan coordinates with the fire trainers on hypergolic fire suppression and flight crew fire extinguisher training for the astronauts and support personnel. He's also

trained medical personnel in the use of respirators and the propellant handlers who wear the Self Containment Atmospheric Protective Ensemble, or SCAPE, suits.

Working with flight hardware and the astronauts is what motivates him get up and come to work.

"Very few get the privilege of doing this every day," Ryan said. "We get things accomplished and

still have fun at the same time."

Some of his recollections include a training session in the late 1980s when he and the astronauts had to evacuate the pad because of lightning in the area, and meeting John Glenn during bunker training for the STS-95 mission.

He also witnessed the only astronaut, NASA Administrator Charlie Bolden, to ever ride the slidewire basket down from the launch pad during training in July 1988.

He said challenges include keeping up with the evolving changes at Kennedy, making sure bilingual instructions are available and ensuring special certifications are current.

"I'm optimistic about the future of our space program. I hope to be around to see the next space vehicle come on line," Ryan said. "I don't care what car we take, as long as we make the trip. The American people have always had the vision."

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Heritage: Apollo 12
overcame obstacles



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Workers 'reuse it' so they don't 'lose it'

By Linda Herridge
Spaceport News

Kennedy Space Center's America Recycles Day 2009 events on Nov. 3-4 gave hundreds of workers the opportunity to learn about the center's recycling initiatives, recycled products and fuel efficient vehicles. The Environmental Management Branch of Kennedy's Center Operations Directorate coordinated the event with the theme "Reuse it or Lose it."

America Recycles Program Coordinator Maggie Forbes said the event is held annually to educate the center's work force and keep everyone updated on new initiatives. This year's nationally celebrated event is Nov. 15.

"The goal is to reduce our footprint at the center and to diminish the amount of materials going to landfills," Forbes said. "Kennedy's workers are more aware and really want to be involved."

Local industry vendors gathered at the Operations and Checkout Building Mission Briefing Room and Multi-Function Facility cafeteria. Representatives from Innovative Health Applications, The Boeing Company, Sam's Club, Brevard County Solid Waste Management, United Space Alliance, Bridges, Wal-Mart, EG&G, Van Pools and the Florida Department of Environmental Protection, set up displays and distributed information.

Workers test drove alternative- and fuel-efficient vehicles, including the Ford "Think," the "Miles" zero emissions truck, and the EV Innovations "Smart Car" powered by Lithium batteries. According to Bruce Chesson, alternative fuel vehicle coordinator in the Logistics Branch, Kennedy has used alternative fuel vehicles since 2005, with 33 currently in use.

The center recycles more than 25 items, including mixed office paper, toner cartridges, cardboard, plastic, glass and aluminum, scrap metal, concrete and asphalt, blast media, untreated wood, batteries and tires.

Also, fluorescent bulbs, aerosol cans, antifreeze, oil filters, used oil, rags and textile wipers, solvents and



NASA/Jim Grossmann

Workers gather Nov. 3-4 to celebrate America Recycles Day, which is Nov. 15. The goal of this event is to promote recycling activities at work and home, and to encourage everyone to recycle and buy recycled products. The theme for this year is "Reuse it or Lose it." The event was held in conjunction with a multiday electronics collection at several sites around Kennedy on Nov. 2-6.



NASA/Jim Grossmann

Blair Ingraham of Boeing Co. drives the "Smart Car" at the Operations and Support Building I on Nov. 4.

small quantities of certain chemicals.

Recycling is just one of the center's green initiatives. In June 2008, NASA and Florida Power and Light signed an agreement that allowed FPL to build a 950-kilowatt photovoltaic solar power facility at Kennedy to support its electrical needs.

In 2005, Kennedy's largest solar power system was installed at the center's landfill. The five-kilowatt solar photovoltaic system provides

electrical power to one of two buildings previously powered by diesel generators, saving the government about \$26,000 per year, and eliminating safety and environmental hazards associated with generators.

A new Life Support Facility in the Industrial Area opened in June 2008. It is the first NASA-funded building at the center to be awarded the U.S. Green Building Council's Leadership in Energy and Environmental Design, or LEED, Silver certification. It also is the first LEED

building to offer a dedicated parking and government electric vehicle charging location at Kennedy.

Construction soon will begin on another facility. The Propellants North Facility will be green and meet the platinum level of LEED certification.

Kennedy uses a variety of alternative fuel vehicles and alternative fuels. These include flex-fuel vehicles that use E85 and unleaded gasoline, bi-fuel vehicles that use compressed natural gas and unleaded gasoline, vehicles that use only compressed natural gas, and diesel vehicles that use B20 fuel.

Chesson said that while the center has made great strides to reduce petroleum, everyone's help is needed to make sure that the appropriate alternative fuels are used in the center's fleet.

Kennedy obtained a hydrogen fuel station this year from Oviedo, Fla., for future acquisition of hydrogen-fueled cars and buses.

"We want to try and be as green as we can be," Chesson said. "We're also looking at setting up a commercial electric charging station infrastructure for fleet and employees to use."

What a difference a FEW workers can make

Even the smallest gesture can impact someone's day in a big way... just ask the Space Coast Chapter of Federally Employed Women.

Every year on the fourth Saturday of October, the group celebrates Make a Difference Day by giving back to the local community.

On Oct. 24, the chapter chose to support the Central Brevard Sharing Center and the Central Brevard Humane Society. The sharing center provides emergency assistance to those who are struggling to obtain life's most basic needs, while the humane society provides a "no kill for space" shelter for animals.

This year, the projects took on a whole new meaning when a few Kennedy Space Center co-workers said they would like to help -- a small gesture that grew



From left, Kennedy employees Dan Tran, Renee Debing and Jimmy Gonzalez load a vehicle with food for people and pets in need in Brevard County.

NASA

to include all Kennedy employees.

Community Outreach Chairperson Vickie Hall said even though times are tough for many right now, Kennedy workers came

through like a charm with their generosity of donations and gifts.

"I personally would like to say a special thank you to all who set up boxes, collected donations and helped

to deliver them to the sharing center and humane society," Hall said. "Once again, we did good and helped to make a difference."

Next up on the chapter's agenda, is its annual

Stuff a Stocking Project. Sandra Getter will be leading the effort to help the Salvation Army stuff stockings, shoe boxes and gift bags full of presents for children who normally wouldn't get to celebrate the holiday season.

If you would like to participate, hand out stockings, set up collection boxes or help with delivery to the Salvation Army, contact Getter at 321-867-6951, or Cassandra.F.Getter@nasa.gov.

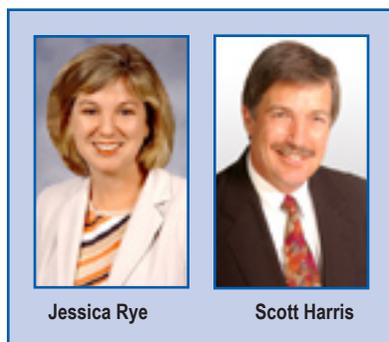
Also, Sandra Eliason is collecting pink Yoplait yogurt lids in support of the Save Lids to Save Lives Campaign until mid-December. The campaign donates 10 cents per lid to Susan G. Komen for the Cure, a foundation that funds breast cancer education, screening and research. You can send your clean lids to Eliason at Mail Code PH-L.

National Space Club honors Kolcum award winners

The National Space Club of Florida recently named Jessica Rye, senior manager of regional communications for ATK, and Scott Harris, anchor of Central Florida News 13, as the 2009 Harry Kolcum Memorial News and Communications Award Winners during a luncheon at the Oceanfront DoubleTree Hotel in Cocoa Beach on Nov. 10.

Named for the late aerospace writer, who worked for Aviation Week and Space Technology, this award recognizes the contributions of professional journalists and communicators who inform the public about launch operations from Kennedy Space Center and Cape Canaveral Air Force Station.

"Jessica and Scott have helped tell the story of the important accomplishments of the U.S. space program at Cape Canaveral and the Kennedy Space Center," said Mike



Jessica Rye

Scott Harris

Maier, National Space Club Florida committee chairman. "Their efforts are imperative in informing the public and maintaining support for an industry that is vital not only to Central Florida but the nation. The Space Club is proud to acknowledge their achievements."

Rye currently serves as the senior manager of Regional Communications for ATK, responsible for all aspects of communications in Florida and Alabama.

Rye earned a Bachelor of Science degree in public relations from Florida State University and obtained her accreditation in public relations in 2001.

Since 1999, Rye has been an active member of the Florida Public Relations Association and served as the state president of the nearly 1,500 member organization in 2007. She served as the vice president of Accreditation and Certification in 2004; vice president of Finance on the Executive Committee in 2002; and president of the Space Coast Chapter of FPRA in 2001.

Rye also served as a public affairs officer with NASA's External Relations supporting the space shuttle program.

A political reporter with an extensive news background, Harris has worked in Central Florida throughout his entire career as a broadcast jour-

nalist and played a significant role in launching News 13.

His knowledge of the local area and people gives viewers a valuable perspective. As News 13's political expert and anchor of the weekly political show "The Agenda," Harris' interviews range from local mayors to national political figures.

When he's not covering the political arena, Harris is reporting from Kennedy. His knowledge of NASA and the Space Shuttle Program provides News 13 with exclusive information, essential background information and an endless amount of contacts.

Harris was born in Providence, R.I., and moved to Central Florida with his family in 1962. He graduated from Florida Technological University, known now as the University of Central Florida, with a bachelor's degree in communication. He also is a veteran of the U.S. Air Force.

Scenes Around Kennedy Space Center



Photos by NASA/Mike Chambers

2009 Disability Mentoring Day provides 'hands-on' activities

The 2009 Disability Mentoring Day on Nov. 5 provided students with disabilities the opportunity to work and be mentored by Kennedy Space Center professionals. The event was sponsored by NASA's Education Office and the Disability Awareness and Action Working Group, or DAAWG.

Palm Bay High School student Durrell Johnson, above, selects music for possible use in future videos from Kennedy's music library. Johnson, an aspiring music producer who has an interest in hip-hop music, told his mentor, NASA Kennedy Web Operations Manager Jeanne Ryba, that he enjoys his math and career planning classes.

Thirty-five enthusiastic Brevard County students with disabilities partnered with mentors from the Kennedy work force who volunteered to share their day job shadowing and providing hands-on experiences. At the end of the day, Susan Kroskey, executive advisor of DAAWG, welcomed them back to the Training Auditorium for a special program and feedback on the day's activities. Joining Kroskey were Janet Petro, Kennedy Deputy Director; Laureen Summers, project manager of NASA's American Association for the Advancement of Science internship program for students with disabilities in science, engineering, mathematics and computer science; and Paul Mogan, DAAWG member and engineer Logistics and Support Systems with NASA's Constellation Project Office. Petro gave a special thanks to the mentors for providing such a great learning experience to the students in many different career fields at Kennedy.



NASA/Kim Shifflett

Volunteers met at Kennedy Space Center's Beach House on Nov. 5 for a volunteer luncheon. The former NASA workers enjoyed camaraderie, and were given an update of NASA and the future of the space program by Center Director Bob Cabana.



Photos by NASA/Jim Grossmann

CDC hosts costume event

The Kennedy Space Center Child Development Center hosted its annual Fall Festival on Oct. 30. Activities included a costume parade and pumpkin patch photographs. Parents and younger children, who dressed up as well, watched as preschoolers in costumes marched around the playground. Each class held a party afterward.



NASA/Jim Grossmann

Kennedy Space Center's Health Education and Wellness Program, or HEWP, hosted an H1N1 and seasonal influenza seminar Nov. 2 in the Training Auditorium. Barbara Russell, a registered nurse, provided information on H1N1, including the vaccine.



NASA

The FBI honored Ares I-X Deputy Mission Manager Jon Cowart with a plaque for the outstanding technical assistance he provided in a recent and successful joint FBI/NASA investigation. From left, are, Christopher Nicholas, supervisory special agent, FBI Los Angeles; Kevin Moberly, special agent, FBI Los Angeles; Cowart; Kennedy Space Center Deputy Director Janet Petro; and Amy Shuman, supervisory special agent, FBI Headquarters.



For NASA

Several of the Northrop Grumman Academy students pose below the front wheel well of space shuttle Discovery in Orbiter Processing Facility-3, with their guide Zach Taylor, left, of United Space Alliance. The students are from Brevard Community College, Embry Riddle Aeronautical University, Florida Institute of Technology and the University of Central Florida. They are on schedule to release a scientific balloon and payloads from the KSC Visitor Complex on Friday, Nov. 13, at 9 a.m. The balloon and payloads are set to achieve an altitude of 100,000 feet, almost 20 miles high, at which point the students hope to see the curvature of the Earth and the blackness of space. The academy is administered by Space Florida and the Florida Space Grant Consortium.



Flags, homemade videos make short trek on Ares I-X

By Steven Sicheloff
Spaceport News

A few hundred people who don't know whether they'll ever travel to worlds beyond Earth had their visions for space exploration touch the sky during the Ares I-X flight test.

Homemade videos that were submitted to the NASA Web site and then burned onto three DVDs were packed inside the first stage of the experimental rocket during its Oct. 28 launch.

For NASA's Constellation Program, the flight test was a chance to prove the first stage of the Ares I design would work as planned.

For the video producers, it was an opportunity to join the first flight of a new NASA rocket. Ares I-X was the first vehicle designed with astronauts in mind since the space shuttle's debut in April 1981.

"It gives them a piece of history that they're going to be part of," said Derek Wang, the NASA outreach coordinator for the video project. "It's using the power of the social media and participatory process."

It was more than a chance to vicariously ride a rocket -- the videos were an opportunity for people to tell the space agency what kind of space exploration they'd like to see.

"The attitude has been really positive," Wang said. "We've had tapes from different countries, we have people who want us to explore more. They definitely want to go somewhere, to a destination."

That desire to leave Earth orbit is a perfect theme for the Ares rockets, said Jon Cowart, the Ares I-X deputy mission manager.

"This rocket in



NASA

Working inside the Vehicle Assembly Building, a pair of technicians place three, shoebox-sized packages into Ares I-X before it rolled to Launch Pad 39B. Each bag was loaded with small American flags to mark the flight test. Three DVDs containing homemade videos submitted to NASA's Web site also were in each bag.

particular excites and inspires because it represents our first tangible step toward new exploration goals," he said. "With the Ares family of rockets (Ares I and Ares V), we will once again be capable of leaving the bounds of Earth orbit and venturing out."

Wang sifted through the videos and many of them are now posted on the agency's Web site. All of them, though, flew aboard the rocket.

NASA has flown digitized names on space probes, but Wang said this is the first time homemade videos have been launched.

Although the videos were produced by outsiders, making a safe place for them was strictly the domain of professional engineers.

Cowart said the analysis was not hard in this case, but it had to be thorough.

"I know you're thinking, intuitively, 'It's just a couple of DVDs,'" Cowart said, "but I assure you, objects smaller and lighter than DVDs have hampered missions before by falling in the wrong place at the wrong time."

A few thousand flags also shared the space with the DVDs. Working from designs that flew on STS-96, engineers made three bags, each about the size of a shoebox, to hold 3,500 flags.

Larry Clark, director of Engineering for ATK's Florida operations, and Jim Bolton of NASA came up with the idea of flying flags inside the forward skirt of a solid rocket booster on

STS-96 as commemorative items.

The flags moved to the backs of their minds for the STS-96 launch because the focus was on a successful liftoff.

"Once the boosters separated and came back down, we were like, 'Yay! The flags survived!'" Clark said.

With that success in their minds, Clark and Bolton proposed it again for the Ares I-X mission, this time arranging them to fly in the fifth segment simulator on the top of the first stage.

"Everyone liked the idea and so we went ahead with it," Clark said.

Technicians recovered the first stage of Ares I-X, which parachuted to the ocean just like the solid

rocket boosters after a shuttle launch. The video discs and flags were housed in roughly the same area as the parachutes.

The top part of the test rocket, which included weight simulators for the upper stage and Orion spacecraft, was not scheduled to be recovered after it fell into the Atlantic Ocean.

With the first stage brought back to land, the mementos will be pulled out and mounted on award plaques to go on display, though exactly where hasn't been established yet.

Wang said plans are in the works to give people opportunities to take part in future missions in similar ways.

Remembering Our Heritage

Apollo 12 lifts off despite challenges 40 years ago

By Kay Grinter
Reference Librarian

Apollo 12 lifted off Kennedy Space Center's Launch Pad 39A at 11:22 a.m. Nov. 14, 1969, four months after the historic first lunar landing, but not without some quick problem-solving on the part of NASA's launch team.

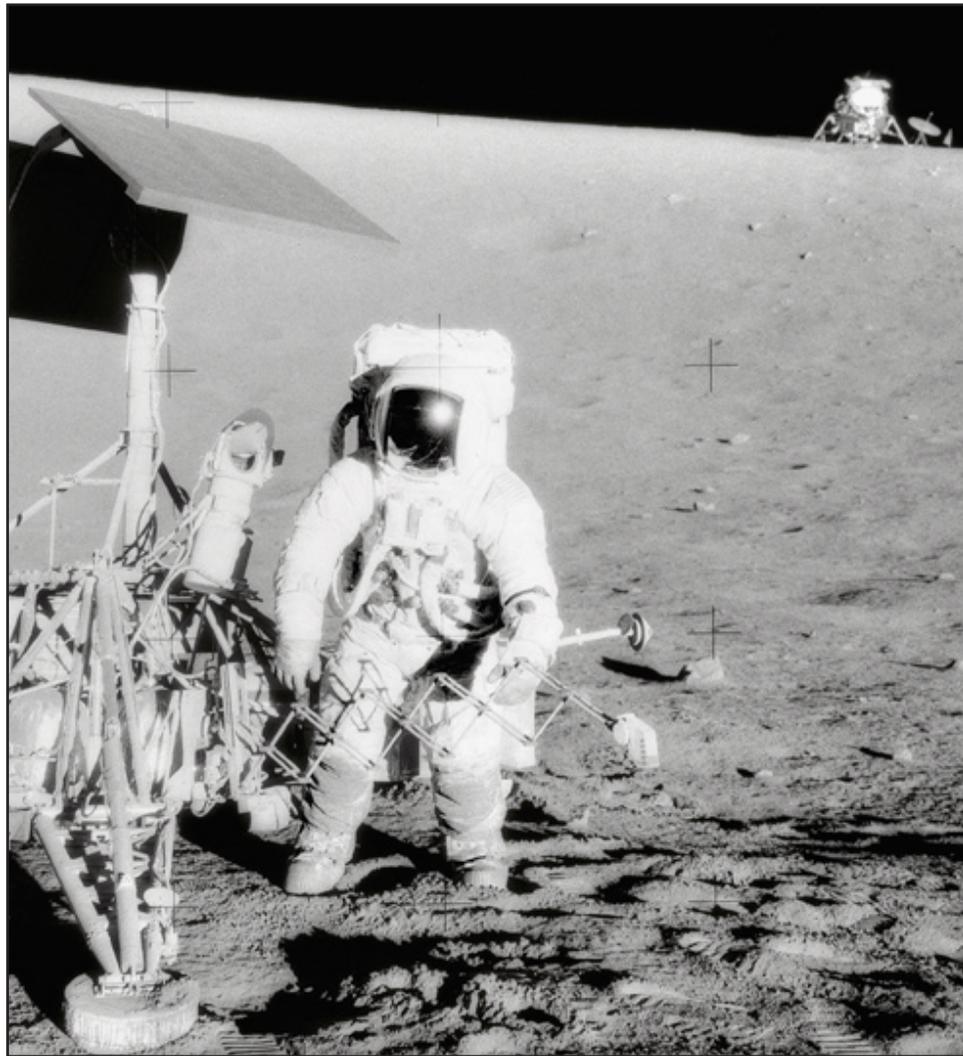
The countdown proceeded smoothly until two days before launch, at T-minus 40 hours, when super-cold liquid hydrogen began flowing into the fuel cell tanks in the service module.

Former Space Shuttle Launch Director Bob Sieck, then chief engineer for the Apollo 12 command and service module test team, told the Spaceport News in 1969: "We had an indication that something was wrong when we first started loading. The number two tank didn't chill down like the other tank, and we thought at first we had a constriction in the feed line."

The tanking continued until both tanks were 90 percent full. "Then we let them cold soak," Sieck said.

The quantity in the No. 2 two tank kept dropping off. An inspection of the interior of the service module revealed frost on the outer shell of the tank. The frost indicated one of two problems -- a leak in the inner shell was permitting liquid hydrogen to flow into the vacuum area between the inner and outer shell or there was a leak in the outer shell and "we were trying to chill the great outdoors," Sieck explained.

Further troubleshooting found a leak in a weld between the inner and outer shell of the tank. The vacuum jacket had lost its integrity. Liquid hydrogen



NASA file/1969

Charles Conrad Jr., Apollo 12 commander, examines the Surveyor III spacecraft during the second spacewalk. The lunar module "Intrepid" is in the right background. This picture was taken by astronaut Alan Bean, lunar module pilot. Intrepid landed on the moon's Ocean of Storms only 600 feet from Surveyor III. The television camera and several other components were taken from Surveyor III and brought back to Earth for scientific analysis. Surveyor III soft-landed on the moon on April 19, 1967.

was not leaking, but boiling off.

The fix was to replace the ailing tank with one from the Apollo 13 spacecraft undergoing processing in the Manned Spacecraft Operations Building, now known as the Operations and Checkout Building.

Approximately 100 bolts had to be removed to open a panel on the spacecraft to provide entry to the service module and access to the tank. Electrical connections and feed lines had to be removed and the tank unbolted from its shelf.

"The main problem was

to be careful," Sieck said. "There was power on the spacecraft."

The team of about two dozen engineers, technicians and quality control personnel made the changeout in less than 24 hours. All but about three-and-a-half hours of built-in hold time had been used, but the problem was solved with time to spare.

President and Mrs. Richard M. Nixon, with their daughter, Tricia, and Vice President Spiro Agnew, were among the more than 5,000 guests on hand to see Commander Charles Con-

rad, Command Module Pilot Richard Gordon, and Lunar Module Pilot Alan Bean on their way to the moon. Nixon was the first president to witness a space launch while in office.

Large banks of clouds moved in over the space center as liftoff time neared and rain drenched the spectators. At launch time, weather conditions were within allowable limits. The spacecraft and launch vehicle were designed to launch in the rain.

However, two parallel streaks of lightning flashed 36 seconds after liftoff from

the clouds, through the spacecraft, to the ground, shutting off the spacecraft's electrical power and triggering numerous alarms. The spacecraft automatically switched to backup battery power while the crew worked quickly to restore the primary power system.

Conrad radioed mission control in Houston, "We had everything in the world drop out."

"We had a couple of cardiac arrests down here, too," mission control responded.

"There wasn't time up here," Conrad answered.

The lunar module, Intrepid, made a pinpoint landing in the moon's Ocean of Storms on Nov. 19 about 600 feet from the landing site of the now inactive Surveyor III spacecraft. Surveyor III had set down on the lunar surface April 19, 1967, more than two-and-a-half years before.

The lunar lander touched down so gently its shock-absorbing legs were barely telescoped by the impact.

Conrad's thoughts surely were on Neil Armstrong's well-thought-out, oft-quoted first words as he stepped onto the surface, aware that they would be hard to match.

"Whoopee! Man, that may have been a small step for Neil, but that's a long one for me," Conrad blurted out spontaneously.

Fortunately, the power system performed normally throughout the rest of the mission.

The command and service module Yankee Clipper splashed down safely Nov. 24, just four miles from the recovery ship U.S.S. Hornet, a perfect ending for a mission that started out with so many challenges.

NASA Employees of the Month: November



NASA/ Tom Farrar

Employees of the month for November are, from left: Lori Hicks, Human Resource Office; Roger Langvin, Center Operations; Mark Lewis, Engineering Directorate; and Samantha Manning, Engineering Directorate. Not pictured are, David Crawford, Information Technology and Communications Services; Michael Vinje, Constellation Project Office; John Gurecki, Launch Integration Office; Christina Williams, Procurement Office; Gordon Perry, Launch Vehicle Processing Directorate; Laura McDaniel, Safety and Mission Assurance Directorate; and Michael Wolf, Launch Services Program.

Looking up and ahead . . .

Targeted for Nov. 14	Launch/CCAFS: Atlas V, Intelsat 14; 12:48 to 2:18 a.m. EST
Nov. 16	Launch/KSC: Atlantis, STS-129; 2:28 p.m. EST
Planned for Nov. 27	Landing/KSC Shuttle Landing Facility: 9:43 a.m. EST
Targeted for Nov. 19	Launch/CCAFS: Delta IV, WGS SV-3; Window 7:45 to 8:30 p.m. EST
Dec. 7	Launch/VAFB: WISE; Window: 9:10 to 9:23 a.m. EST
Targeted for February	Launch/CCAFS: Falcon 9, TBD; Window 11 a.m. to 3 p.m. EST
No earlier than Feb. 3	Launch/CCAFS: Atlas V, SDO; 10:53 to 11:53 a.m. EST
Targeted for Feb. 4	Launch/KSC: Endeavour, STS-130; 5:52 a.m. EST
No earlier than March 4	Launch/CCAFS: Delta IV, GOES-P; TBD
Targeted for March 18	Launch/KSC: Discovery, STS-131; 1:34 p.m. EDT
Targeted for May	Launch/CCAFS: Delta IV, GPS IIF-1; TBD
Targeted for May 14	Launch/KSC: Atlantis, STS-132; 2:28 p.m. EDT
Targeted for May 23	Launch/VAFB: Delta II, Aquarius / SAC-D Satellite; TBD
Targeted for July 29	Launch/KSC: Endeavour, STS-134; 7:51 a.m. EDT
Targeted for Sept. 16	Launch/KSC: Discovery, STS-133; 11:57 a.m. EDT
No earlier than Oct. 1	Launch/VAFB: Taurus, Glory; TBD

WORD ON THE STREET

NASA is delving into the world of social networking. Do you subscribe to any? What updates do you follow?



"Facebook. I am friends with NASAEdge . . . I rely on e-mails for my launch updates."

Shannah Trout,
with Innovative Health Applications

"Facebook. It's good for families to stay in touch . . . as for launch updates, I go to nasa.gov."



Sandy Walsh,
with NASA



"No. Actually I go to Kennedy Space Center's home page to get my launch updates."

Leslie Alderman,
with NASA

"Facebook. I get my launch updates from the EG&G mission support office via e-mail."



Carlray Boswell,
with Space Gateway Support



"Facebook. I'm a fan of Kennedy Space Center. If I want to know what's going on, I go there."

Cindy Silvestri,
with REDE/Critique

To follow Kennedy's social networking updates, go to:
facebook.com/NASAKennedy or twitter.com/NASAKennedy



John F. Kennedy Space Center

Spaceport News

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