



The Dryden X-**PRESS**

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Photo courtesy of Draper Laboratory

Masten Space Systems' Xombie rocket with Draper Laboratory's GENIE flight control system has its first untethered flight from the Mojave Air and Space Port.

Xombie rising

By Leslie Williams
Dryden Public Affairs

The first successful free flight of a new rocket-powered vertical landing demonstrator occurred recently at Mojave Air and Space Port, Mojave, Calif. The flight used a new flight control system concept that will enable future demonstrations of landing technologies needed for exploration of planets and moons, as well as near-Earth objects, like asteroids.

NASA's Flight Opportunities Program sponsored the flight and control system test and Dryden manages the Flight Opportunities Level 2 office.

Masten Space Systems' Xombie suborbital rocket lifted off the launch pad Feb. 2 while being controlled by Draper Laboratory's Guidance Embedded Navigator

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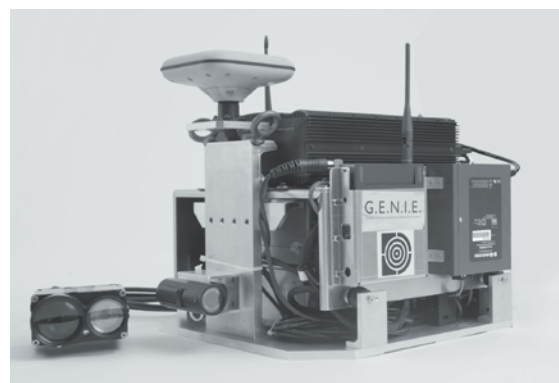


Photo courtesy of Draper Laboratory

Dryden engaged Draper Laboratory to develop the GENIE flight control system to guide the flight of Masten Space Systems' Xombie technology demonstrator.

Bolden talks budget

By Jay Levine
X-Press Editor

NASA Administrator Charlie Bolden spoke to Dryden employees Feb. 23 about the NASA budget as part of a West Coast tour of NASA field centers that included the Jet Propulsion Laboratory in Pasadena and Ames Research Center at Moffett Field, Calif.

See Bolden, page 4

Dryden dollars steady

By Jay Levine
X-Press Editor

Center Director David McBride outlined the key components of the Dryden budget at a Town Hall Feb. 23. NASA Administrator Charlie Bolden, also in attendance, explained the key components of the NASA budget at the start of the event (see related article).

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DC-8 completes assignment

By Beth Hagenauer

Dryden Public Affairs

NASA's DC-8 airborne science laboratory has returned to its home base after completing 13 data-collection flights during a six week mission for NASA's Global Precipitation Measurement Cold-season Precipitation Experiment, or GCPEX, snow study over Ontario, Canada.

The converted jetliner returned to its home hangar at the Dryden Aircraft Operations Facility in Palmdale, Feb. 25, after a six-hour flight from Bangor, Maine. The aircraft flew almost 80 hours during its 13 science flights in the mission.

"The GCPEX mission has been a real success," said Walter Petersen, the Global Precipitation Measurement ground validation scientist at NASA's Wallops Flight Facility in Virginia. "The majority of the mission objectives were accomplished, especially as they pertain to collecting a broad spectrum of snowfall, mixed phase, and even rain precipitation events.

"All indications are that the



ED07 00256-26

NASA Photo by Tony Landis

NASA's DC-8 airborne science laboratory has returned to its base after completing the six-week GCPEX snowfall precipitation mission.

airborne and ground-based instruments worked very well, meaning we expect to have a robust set of data to analyze toward supporting the development of GPM falling-snow retrieval algorithms," Peterson added.

The last science mission Feb. 24, was a 6.8-hour flight over a storm system in the Boston area, followed by multiple passes over the Environment Centre

for Atmospheric Research Experiments, or CARE, location in Egbert, Ontario, and atmospheric convection over Lake Ontario.

The two primary instruments used for this experiment, the APR-2 Airborne Precipitation Radar and the Conical Scanning Millimeter-wave Imaging Radiometer, or CoSMIR, collected data on various types of precipitation.

A prior five-hour flight Feb. 21

targeted the CARE area. Additional passes over Lake Ontario captured good mixed snow and rain data. The previous day, a four-hour flight was flown in clear air over the CARE site for CoSMIR calibration.

The goal of the GCPEX field experiment was to help scientists match measurements of snow in the air and on the ground with measurements to be taken by the Global Precipitation Measurement satellite, due to launch in 2014.

In addition to CARE's ground network of snow gauges and sensors and measurements from aircraft, advanced ground radars scanned the entire air column from the clouds to the Earth's surface.

During GCPEX, the DC-8 flew above the clouds as a Cessna Citation from the University of North Dakota and a Convair 580 from the Canadian National Research Council flew through the clouds while their specialized meteorological instruments measured the microphysical properties of the raindrops and snowflakes inside.

Fossum recalls ISS experiences

By Jay Levine

X-Press Editor

NASA's Mike Fossum spoke to Dryden employees Feb. 21 about his experiences as a NASA astronaut and life aboard the International Space Station. His most recent missions were as a crewmember of Expedition 28 and as commander of Expedition 29.

Fossum attended the U.S. Air Force Test Pilot School at Edwards Air Force Base about three decades ago and after graduation remained at Edwards for eight years. He worked at the Air Force Flight Test Center with an F-16 squadron and then as a Flight Test Manager for Detachment 3. NASA selected him as an astronaut candidate in 1998.

"Coming back here is like coming



ED12 0057-27

NASA Photo by Tony Landis

NASA astronaut Mike Fossum shared stories about his two space shuttle missions and five months aboard the International Space Station with Dryden employees.

home. There are a lot of old friends here, some that go way back," he said.

Dryden Deputy Director Pat Stoliker introduced Fossum. Stoliker worked with Fossum on a project for the F-16 before either man joined NASA. Fossum later was a flight test engineer on the X-38. The X-38 was a prototype for a crew return vehicle developed at Johnson Space Center, Houston, and flight tested at Dryden. Stoliker chaired the flight readiness review team for that flight test.

Fossum flew on two Discovery missions including STS-121, which was the return-to-flight mission following the Columbia

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Breaking ground

Clock starts on \$11.2 million FSC

By Alan Brown

Dryden Public Affairs

Officials turned shovelfuls of soil on Dryden's second new permanent building in two decades, an environment-friendly Facilities Support Center that will bring together a number of functions under one roof.

Groundbreaking ceremonies were held Feb. 23 for the \$11.2 million, 38,000-square-foot structure. It is one of two structures designed for Dryden to meet Leadership in Energy and Environmental Design, or LEED, certification for environment and energy efficiency.

Dryden will seek the platinum designation – the highest level of certification issued by the Green Building Certification Institute – for the new Facility Support Center. The center also is seeking LEED silver certification for the recently completed \$8.8 million Consolidated Information Technology Center, which was designed as an addition to Dryden's Data Analysis Facility.

The Development One architectural firm of Santa Ana, Calif., designed the Facilities Support Center and Comfort and



ED12 0062-31

NASA photo by Tom Tschida

Chris Comfort, president of construction contractor Comfort & Hays, NASA Administrator Charlie Bolden, Dryden Center Director David McBride and Col. Gregory Schwab, commander of the 95th Air Base Wing at Edwards Air Force Base, assist with the Facility Support Center groundbreaking.

Hays Electric, Inc. of Long Beach, Calif., is building the new structure.

The new construction is located between the existing Integrated Support Facility and the Dryden Video Services building. Dryden

facilities architect Gemma Flores is the project manager.

NASA Administrator Charlie Bolden, who participated in the

See FSC, page 7

News at NASA

Cassini finds oxygen on icy Saturn moon

NASA's Cassini spacecraft has "sniffed" molecular oxygen ions around Saturn's icy moon Dione for the first time, confirming the presence of a tenuous atmosphere. The oxygen ions are sparse – one for every 0.67 cubic inches of space, or about 2,550 per cubic foot – and show that Dione has an extremely thin neutral atmosphere.

At the Dione surface, this atmosphere would only be as dense as Earth's atmosphere 300 miles above the surface. The detection of this faint atmosphere, known as an exosphere, is described in a recent issue of the journal *Geophysical Research Letters*.

"This shows that molecular oxygen is actually common in the Saturn system and reinforces that it can come from a process that doesn't involve life," said Robert Tokar, a Cassini team member based at Los Alamos National Laboratory, Los Alamos, N.M., and the lead author of the paper.

NSSC Human Resources has zero errors

The NASA Shared Services Center Human Resources retirement team recently received a "zero error rating" from the Office of Personnel Management for processing retirement packages for all NASA employees.

OPM had set a strategic goal to increase the number of retirement records that are complete to more than 79 percent by the end of fiscal year 2011. OPM reviewed agency retirement claims processed from May 2011 through June 2011 for completeness and accuracy. The

initial results were very good and indicated that OPM easily met the goal. The NSSC results matched that analysis.

The government-wide results of the final fiscal year 2011 audit show that the government wide accuracy rate was about 82 percent on 4,222 cases and that the NSSC had 100 percent accuracy in its 44 cases during the review period.

The NSSC retirement team includes 11 government workers and service providers working on a retirement package workload that

increased by 40 percent in fiscal year 2011. The number of cases rose from 375 cases in fiscal year 2010 to 609 cases in fiscal year 2011.

A key service requirement for Human Resources benefits processing is for 95 percent of routine retirement packages to be submitted to the Department of Interior within 10 business days from an employee's effective date of retirement. For fiscal year 2011 to present, the Human Resources retirement processing team has been perfect in this metric.

The NSSC provides retirement counseling, including calculating retirement estimates for all NASA civil servant employees. Employees may submit a request for retirement counseling by completing the online Retirement Application, or Estimate form, or by calling the NSSC Customer Contact Center. The online Retirement or Estimate form can be accessed at <https://www.nssc.nasa.gov/benefits>. Under the Retirement and Benefits tab, click Retirement Application Processing.

Bolden... from page 1

Bolden outlined NASA's future course in space exploration, environmental and aeronautical research at the Antelope Valley Board of Trade's 2012 Business Outlook Conference in Lancaster, Calif., on Feb. 24.

At Dryden, Bolden also received briefings on Dryden Earth science, astrophysics, exploration and aeronautics research work and participated in groundbreaking ceremonies for the center's new Facilities Support Center.

President Barack Obama's proposed budget for 2013, which includes NASA funding, will begin working its way through the U.S. Congress this month. In fact, Bolden said he is scheduled to testify March 7 in congressional hearings on the proposed \$17.7 billion NASA 2013 budget, which is just slightly less than NASA's 2012 \$17.8 billion budget.

"We are in a very constrained budget environment. I don't have to tell you because you see it everyday," Bolden said. "The nation's in a crunch and NASA's being asked to pull back on our budget just like everybody else."

Although Bolden was generally pleased with NASA's budget, he said he was disappointed that the 2013 Aeronautics Research \$551 million budget excludes funds for hypersonic work.

"We have to take a step back. I have asked the U.S. Department of Defense and the U.S. Department of Energy who will pick up this research? We don't want to drop the baton in a handoff. If we are not doing fundamental hypersonic work, then someone has to do it. We have the expertise. Maybe we could do it as reimbursable work? That discussion is not over yet. It will not go away," Bolden said.

However, NASA will be leading science and exploration efforts.

"The budget we were able to craft through cooperation with the Office of Science and Technology Policy through the Office of Management and Budget, and that



Photo courtesy of Kevin Rohrer

Engineer Ed Haering, right, briefs NASA Administrator Charlie Bolden, center, on sonic boom reduction and mitigation research in front of a NASA F/A-18. Center Director David McBride, left, escorted Bolden on his tour of Dryden.



ED12 0061-11

NASA Photo by Tom Tschida

Above, Tom Rigney, Gulfstream III aeronautics test bed project manager, briefs NASA Administrator Charlie Bolden on research instrumentation installation. At right, Bolden talks at the Outlook Conference.



ED12 0066-57

NASA Photo by Tom Tschida

I am going to defend, maintains a robust portfolio of programs that will be challenging to us. It will enable us to remain leaders in the world in terms of exploration," he said.

The proposed 2013 budget will allow that leadership to continue, Bolden said.

"We remain the exploration

leaders in the world. I don't care what anybody tells you. China is not close. Russia is not close. Yes, we are using Soyuz to get our crew back and forth to space right now. But in terms of the expertise and capability, everybody still looks to us. We are the world's leader in exploration."

The proposed 2013 budget

supports Bolden's claims with a budget for Science that is the single biggest budget category of the Agency at \$4.9 billion. Included in that figure is nearly \$1.8 billion for research and a fleet of Earth observation aircraft and spacecraft to better understand climate change,

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Budget... from page 1

“These are tough fiscal times the country is in, but Dryden’s 2013 budget will remain relatively stable at \$256 million,” McBride said.

For comparison, Dryden’s 2011 budget equaled \$262.7 million and the 2012 budget is about \$260.8 million. President Barack Obama’s 2013 NASA budget proposal requests \$256 million for Dryden. Projections are for the budget to remain flat from 2014 to 2017.

Dryden’s Center Management and Operations budget – those items that are critical mission support activities, but are not tied to a specific project – will continue to be under pressure in the 2013 budget, McBride said. The larger Management and Operations budget category is called Cross-Agency Support, which also includes Agency Management and Operations of \$74.1 million in 2011, an estimated total of \$66.1 million in 2012 and tentatively set at \$65.9 million for 2013.

However, Dryden’s core programs and projects are stable and a groundbreaking occurred Feb. 23 for the center’s new \$11.2 million, 38,000-square-foot Facility Support Center (see related article).

In fact, the Construction and Environmental Compliance Restoration budget has been solid, McBride said. The area of the budget that includes the new Facility Support Center also has funded the construction of the \$8.8 million Consolidated Information Technology Center that is nearly ready to be occupied. This area of the budget was \$26.9 million in 2011, about \$22.2 million in 2012 and tentatively set at \$22.3 million in 2013.

The allotted funds for science missions stay on course with a proposed budget of \$70.6 million for 2013. That is a decrease from the 2011 budget of \$80.1 million and the estimated 2012 budget of \$74.8 million. This funding category includes Dryden’s Astrophysics mission with the Stratospheric Observatory for Infrared Astronomy, or SOFIA, and



ED12 0061-48

NASA Photo by Tom Tschida

NASA Administrator Charlie Bolden and Center Director David McBride responded to employees’ questions at a town hall during Bolden’s visit.

Earth Science missions.

Funding decreased as a result of the SOFIA’s transition from a developmental program to an operational one, McBride said. Avionics and systems upgrades are nearing completion to make way for the full operational use of the SOFIA, he said. Recently released images of the galactic center taken from the flying observatory are an example of the science the SOFIA has already helped astronomers obtain, he said. The President’s budget request includes \$45.9 million for the SOFIA in 2013.

Earth Science will maintain a robust campaign schedule, McBride said. Dryden science aircraft include the DC-8 flying laboratory, two ER-2s, a Gulfstream III and two Global Hawk aircraft. The Earth Science mission budget request is \$24.6 million for 2013.

Although hypersonic research has taken a hit in the Agency’s 2013 Aeronautics Research budget, Dryden’s proposed funding is set at \$65.9 million for 2013, McBride

said. The 2011 budget was \$52.3 million and 2012 budget is about \$66.6 million.

The Aeronautics focus continues to be on improving aviation safety, minimizing the environmental impact of aviation and revolutionary new technologies. Dryden also is supporting the integration of unmanned aircraft systems into the National Airspace System.

Space Technology is one area where the center has seen a ramping up over the past several years. Included is funding for Dryden’s management of the NASA Flight Opportunities Level 2 program office to secure launch services from commercial companies for the Agency. This budget is about \$18.5 million for 2012 and proposed for \$24.4 million for 2013.

In addition, Dryden is involved in other technology development, McBride said. For example, each NASA center receives funding to seed researchers’ technology development ideas. At Dryden, that fund is called the Dryden

Innovation Fund. The Space Technology funding category also includes funding for Dryden managed technology areas as part of the Small Business Innovative Research, or SBIR, and Small Business Technology Transfer, or STTR, awards.

Concerning Exploration, Dryden will provide an emergency abort capability on launch that will sustain the crew in space and provide safe re-entry from deep space return velocities for the Orion Multi-Purpose Crew Vehicle, or MPCV. As part of that work, Dryden will be supporting the Space Exploration Flight Test 1 in 2014, McBride said. Dryden’s Exploration budget was \$8.8 million in 2011, is estimated at \$5.4 million in 2012 and \$5.5 million in 2013.

The Space Shuttle Program wraps up in 2012 with the delivery of the orbiters to museums across the nation and shuttle equipment and artifacts that are no longer required

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Fossum.. from page 2

tragedy, and STS-124. The missions focused on completing the ISS and concluded with landings at Edwards. The completed station, which he assisted with building during his shuttle missions, is big, he said adding, "and the space station has about one and a half times the volume of the NASA 747."

After flying aboard space shuttles on his first two missions in space, Fossum traveled to the ISS for the Expedition 28 and Expedition 29 missions in the Russian Soyuz spacecraft – not something he expected growing up.

"I was a Cold Warrior in a city that was not even on the maps when I became an astronaut. They (the Russians) have different technology, a different way of doing business, but the same passion," he said.

Fossum, Russian cosmonaut Sergei Volkov and Japanese astronaut Satoshi Furukawa launched to the ISS on June 7, 2011, from the Baikonur Cosmodrome in Kazakhstan. The trio arrived at the station on June 9. NASA and its international partners celebrated the 11th anniversary of continuous residence and work aboard the station during that mission. Expedition 28 Commander Andrey Borisenko handed over station command duties to Fossum on Sept. 14, 2011.

Training for travel in the Soyuz and working on the ISS was intense and included about eight months of training in Russia, Japan and Canada to learn all the intricacies of working on the space station for a six-month mission.

Tutors, textbooks and other language products are used to help the astronauts learn Russian because everyone learns it differently, he said. The hardest part is the five to six week immersion in Moscow and work with tutors, he said. "The Soyuz controls are all in Russian – you have to know it," Fossum added.

Other preparation was required, such as when the Soyuz crew was fitted for flight. Fossum explained that a plaster mold would be used to

Bendrick, Creech earn Snoopies



ED12 0057-35 and 36



NASA Photos by Tony Landis

NASA astronaut Mike Fossum, at right in both photos, presented two Silver Snoopy awards when he came to Dryden Feb. 21. The presentations were made to Dr. Gregg Bendrick, in the photo at left, and Gray Creech, in the photo at right.

create a seat pan for each occupant. From that point, the crew could not gain or lose more than a few pounds, he said. When the day came to put the training in use as he traveled in the Soyuz, his knees were near his chin 2.5 hours before liftoff. Straps over the knees also added to the tight fit.

"You orbit for four hours before you get out of the seat and even in zero gravity there is not much room to stretch your knees. It is five hours total until you are docked with the ISS," he said.

Fossum was familiar with the Soyuz and the ISS. In January 1993, Fossum, then a NASA systems engineer, evaluated the Soyuz for use as an emergency escape vehicle for the new space station. Later in 1993, Fossum was selected to represent the Flight Crew Operations Directorate in an extensive redesign of the ISS. Following those assignments, he continued assembly operations work for the crew office and Mission Operations Directorate. In addition, Fossum served as the Astronaut Office lead for ISS flight software development.

A personal mission for Fossum was to gain images of the Aurora Borealis. He knew time-lapse photography was possible, so he studied how to do it.

"I had not seen it [the Aurora Borealis] until Atlantis was docked. It looked like a green smudge on the horizon, he said. "You see these things and you do not know how to describe it. Now, I don't have to," he said of his imagery that has wowed those who have seen it.

When Atlantis made the final mission of the Space Shuttle program on STS-135, the crew delivered the food and supplies expected to last for years. It was a busy time. Fossum, already aboard the ISS, engaged in a spacewalk that gave him a career total of seven walks totaling 48 hours, 32 minutes and elevating him to seventh on the all-time list for cumulative space walks time.

"If not a little bit scared, you don't belong out there because it's a dangerous place," he said of spacewalks.

Life aboard the ISS is busy and work hours are essentially from 8 a.m. to 6 p.m. and bedtime at 9 p.m. Mealtime had an international flare with Russian, Japanese and American cuisine. The large number of experiments leaves little time for mundane tasks like haircuts and there is an additional list of tasks to be completed if an astronaut has any spare time, Fossum explained.

Returning to Earth in a shuttle

Two Dryden employees were honored Feb. 21 with "Silver Snoopy" awards for their active involvement and support of NASA's recently concluded Space Shuttle Program.

Astronaut Mike Fossum presented the pins to Dr. Gregg Bendrick, Dryden's flight surgeon and head of the Dryden Health Unit, and public affairs specialist Gray Creech of the Jacobs/Tybrin Corp. Fossum made the

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is different than in a Soyuz capsule, he noted. The descent of Soyuz is steeper and astronauts feel more than twice the gravity in the Soyuz.

"Out the window of the Soyuz you see an orange plasma ball when you are coming in. You watch the orange glow. Incandescent sparks started behind me – it was really cool. You are then falling at 1 g, pyrotechnic devices are going off and hatches are blown for the chutes. You whip around like a ball on the end of a string," he said.

Soft landing rockets right behind the Soyuz occupants help reduce the acceleration, but landing in a Soyuz is, "Definitely like a car crash. It's like getting rear ended – your head is spinning," he said.

Mission controllers were concerned about the frigid conditions at the landing site, but it wasn't a problem for the Soyuz crew. "We rode home in a meteor, we weren't cold.

From there, it was a short chopper ride to the airport for a ceremony and a climb aboard a NASA aircraft for the ride home. "We were home in Houston 24 hours after landing at Kazakhstan," he said.

Fossum also did his part during his visit to Edwards by inspiring the next generation with a visit to students at Irving L. Branch Elementary School.

Final flight



ED12 0045-25

NASA Photo by Tony Landis

NASA No. 911, one of two Boeing 747s modified for use as Shuttle Carrier Aircraft, lands at Air Force Plant 42 in Palmdale Feb. 8 after its final flight, a short hop from Dryden's main campus.

FSC... from page 3

groundbreaking ceremony while visiting Dryden, noted that the new facility is one of 24 new structures throughout the agency, three of which have been completed, that were designed to meet the LEED platinum certification standards.

"It is both a partnership and a privilege with NASA to achieve LEED platinum certification," added Comfort and Hays president Chris Comfort. "We are committed to this project, and have the resources to do it."

The single-story building will provide office and technical spaces for Dryden's Facilities Engineering and Asset Management office

as well as the Safety, Health and Environmental office, combining in one structure functions that are currently performed in several obsolete and inefficient facilities on the Dryden campus. The building plan includes office space, conference rooms, restrooms and shower/changing facilities, workshops, storage mezzanine and laundry facilities.

Environmental and energy saving features of the new Facilities Support Center are building-mounted photovoltaic systems, enhanced ventilation systems designed to take advantage of ambient conditions for improved heating and cooling and

automatic interior lighting controls that increase or decrease lighting levels based on outside lighting. Also planned is a combination of transparent and translucent siding materials, at least 20 percent recycled content in its construction, and drought-tolerant xeriscaping around its perimeter.

Dryden facilities engineers forecast with building energy consumption simulations that the Facilities Support Center energy use will be reduced about 40 percent over conventional construction.

The firm fixed-price contract calls for completing the new building in 2013.

Snoopies... from page 6

presentation at Dryden prior to his talk with employees about his experiences on the International Space Station.

The Silver Snoopy award is a special honor given to NASA employees and contractors in appreciation of their "professionalism, dedication and outstanding support that

greatly enhanced space flight safety and mission success." The award depicts Snoopy, a character from the Peanuts comic strip created by the late Charles M. Schulz.

NASA astronauts personally give the honors whenever possible as it represents the astronauts' own recognition of excellence. The Silver

Snoopy award is one of several awards overseen by NASA's Space Flight Awareness program.

The award consists of a sterling silver Snoopy lapel pin flown during a NASA mission, a commendation letter stating the mission the Silver Snoopy pin was flown on and a signed Silver Snoopy certificate.

Come out and play

Dryden employees who would like to play in the Palmdale coed and men's volleyball teams are invited to join teams forming at the Center.

The 12-week season begins in late March with coed volleyball on Tuesday or Thursday nights, and the men's teams playing Monday night. For more information call John Payne at ext. 2903.

Groen, 80, FTF designer, dies

Joseph "Mike" Groen, who had a 30-year career at Dryden prior to his retirement in 1988, died Feb. 11. He was 80.

Groen transferred from Langley Research Center, Hampton, Va., to Dryden (then the NASA Flight Research Center) in 1962. He was a program manager in the Research Division from 1965-1975. He made the formal request to the U.S. Air Force for the use of two F-111 aircraft for flight research. He also was program manager on the two aircraft and Flight Safety Review Board Chairman for key F-111 work.

One significant contribution was the design and test of the Flight Test Fixture mounted on the F-104 No. 826. It was used for research projects including the testing of the space shuttle's thermal protection system tiles.

Groen was an operations engineer on the Enterprise Approach and Landing Test. He also was flight test operations engineer for projects like the F-15 Aircraft Spin Research Vehicle, the F-18 support aircraft, the JetStar laminar flow work, and the Controlled Impact Demonstration that tested a fire suppressant fuel additive.

Xombie... from page 1

Integration Environment, or GENIE, system. The rocket rose 164 feet, moved laterally 164 feet, and then landed on another pad after a 67-second flight. The flight represents the first step in developing a test bed capability that will allow for landing demonstrations that start at much higher altitudes several miles above the ground.

With a growing interest in vertical takeoff and landing with commercial suborbital launch vehicles, the Flight Opportunities Program initiated

the development of a commercial landing technology demonstration test bed. Draper Laboratory, of Cambridge, Mass., was selected to lead this effort. Draper Lab subsequently selected Masten Space Systems to provide the vehicle to demonstrate this new landing technology.

“The Draper and Masten team has done a tremendous job pulling together this flight demonstration in a short amount of time,” said John Kelly, Flight Opportunities

Program manager at Dryden. “Draper was awarded this task in September 2011. This capability will allow the program to quickly demonstrate landing technologies for future space missions.”

The Flight Opportunities Program, part of NASA’s Space Technology Program, is enabling demonstration and maturation of new technology payloads using suborbital reusable launch vehicles, high-altitude balloons and parabolic aircraft to expose

technology payloads to space-relevant environments of reduced gravity or near-space flights.

The program facilitates low-cost access to suborbital environments for a broad range of innovators as a means of advancing space technology development and supporting the evolving entrepreneurial commercial space industry. Among NASA’s key goals for the program is regular, frequent and predictable access to near-space at a reasonable cost with easy recovery of intact payloads.

Agency... from page 4

improve future disaster predictions and provide environmental information. Another key project is the budgeted \$628 million for moving forward on the James Webb telescope.

“We have more than 80 science missions, 56 of which are

operating now and 28 missions in development,” he said.

The commitment to space exploration also is solid. The proposed 2013 Exploration budget of \$3.9 billion includes the development of a heavy lift launch vehicle and multipurpose

crew vehicle. The proposed 2013 Space Operations budget of more than \$4 billion funds the International Space Station and the Space Technology budget of \$699 million supports the development of commercial crew vehicles.

“When people say we have walked away from human spaceflight, that is not the case at all. Almost half of the budget is dedicated to human space flight,” Bolden said.

Concerning the ISS, NASA astronauts have been aboard continuously for 12 years. An agreement between NASA’s international partners extends the station’s operations through at least 2020 and the station is certified to operate through 2028, Bolden said.

U.S. astronauts, currently traveling to the ISS by way of the Russian Soyuz, will again travel in

U.S. vehicles in the future, he said.

Lockheed Martin, the prime contractor for the Multipurpose Crew Vehicle, plans to fly the vehicle without a crew in 2014 – in just two years. That will reduce risk for planned flights in 2017 of the vehicle system. If everything goes as planned, the first crewed flight around the moon or an asteroid is planned for 2021. The mission has not yet been determined, Bolden said.

It is estimated that 2017 is the earliest a commercial vehicle could take a U.S. crew to the ISS, although some companies think they can do it faster, he said.

Regardless of how quickly NASA’s key goals are achieved, the proposed 2013 budget will help move programs and projects forward that will continue to benefit the country and the world, Bolden said.

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are dispersed.

Dryden’s Education Office will continue to offer high quality science, technology, engineering, and mathematics, or STEM, education using NASA’s unique capabilities through internships, fellowships and educator professional development.

Education budget allotments have been pooled at NASA Headquarters. Resources will be reallocated at the Centers as funding opportunities are competed following a streamlining and focus of Education at the Agency level.

NASA’s \$17.7 billion budget was released Feb. 13, and following Bolden’s press conference on the budget, Dryden officials conducted a press conference at the Aerospace Education Research and Operations Institute in Palmdale.

McBride, Deputy Director Pat Stoliker, Director for Programs Dennis Hines, Chief Financial Officer Valerie Zellmer and Director for Mission Support Gwen Young were available to answer media representatives’ questions.

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