



GSDO
GROUND SYSTEMS
DEVELOPMENT & OPERATIONS

EXPLORATION BEGINS HERE



PROGRAM HIGHLIGHTS • JANUARY 2013

At NASA's Kennedy Space Center in Florida, the Ground Systems Development and Operations (GSDO) Program Office is leading the center's transformation from a historically government-only launch complex to a spaceport bustling with activity involving government and commercial vehicles alike. GSDO is tasked with developing and using the complex equipment required to safely handle a variety of rockets and spacecraft during assembly, transport and launch. For more information about GSDO accomplishments happening around the center, visit <http://go.nasa.gov/groundsystems>.

GSDO 2013 Review: A Year of Progress

During 2013, the Ground Systems Development and Operations (GSDO) Program at Kennedy Space Center in Florida continued to upgrade or modify several facilities and ground support equipment to be ready to support the processing and launch of NASA's Exploration Flight Test-1 in 2014 and the agency's Space Launch System (SLS) with the Orion spacecraft atop it in 2017.

At Launch Pad 39B, construction crews have removed the space shuttle-era flame deflector and Apollo-era brick walls from the flame trench that sits below and between the crawler tracks to make way for a new flame deflector and brick walls. On the surface of the pad, a new elevator has been constructed.

All of the crawler track panels were removed so the concrete surface below and the catacomb roof can be inspected and repaired. New crawler track panels will be installed this year.

Upgrades, including new roller shaft bearings, were installed on crawler-transporter 2 so it can support the added weight of the mobile launcher and SLS on its journey to Pad 39B. Crawler-transporter 1 (CT-1) received new jacking, equalizing and leveling, or JEL, hydraulic cylinders and was taken for a test ride to Launch Pad 39A to undergo a leveling and turning test. CT-1 continues to be modernized so that it is available to carry a variety of



An aerial view of Launch Pad 39B with the Vehicle Assembly Building in the background.

launch vehicles to the pad.

The crawlerway leading to pads A and B was upgraded to improve the foundation and prepare it to support the weight of the SLS and mobile launcher on the crawler-transporter during rollout. Workers removed the original Alabama river rock and restored the layer of lime rock below to its original depth of 3 feet. New river rock was added on top.

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The Multi-Payload Processing Facility is undergoing extensive upgrades and modernizations to support processing of the Orion spacecraft. The building, originally constructed in 1995, primarily will be used for Orion hypergolic fueling, ammonia servicing and high-pressure gas servicing and checkout. Upgrades include installing new pneumatics systems, hypergolic systems and a ground cooling system.

With crewed launches on the SLS and Orion spacecraft beginning in 2017, GSDO led the effort to select an emergency egress vehicle that future astronauts could use to quickly leave the Launch Complex 39 area in case of an emergency. The first of four refurbished Mine-Resistant Ambush-Protected (MRAP) vehicles was shipped from the U.S. Army Red River Depot in Texarkana, Texas, and arrived at the Kennedy Dec. 5. They will be modified to meet NASA's emergency egress requirements.



A road grader resurfaces a section of the crawlerway leading from the Vehicle Assembly Building to the launch pads.

GSDO Preliminary Design Review Begins

NASA kicked off the preliminary design review (PDR) for its Ground Systems Development and Operations (GSDO) Program on Jan. 15. This major program milestone provides an assessment of the preliminary designs, and upon successful completion, will allow development of the ground systems to proceed to detailed design.

"The preliminary design review is incredibly important, as it must demonstrate that the ground systems designs meet all requirements within cost, schedule and risk constraints," said Mike Bolger, GSDO program manager. "This review also will help ensure that GSDO stays on track to process and launch the Space Launch System (SLS) and the Orion spacecraft in 2017 at the Kennedy Space Center."

The SLS is larger than the Saturn V rocket and will be the most powerful rocket ever built. Orion will transport astronauts to destinations beyond Earth orbit and will



GSDO Program Manager Mike Bolger kicks off the preliminary design review Jan. 15.



NASA and contractor workers attend the kickoff of the GSDO preliminary design review Jan. 15

return them safely to earth. Representatives from NASA, its contractor partners and experts from across the aerospace industry will validate the ground systems to ensure they can be safely and successfully integrated with the rocket and spacecraft.

A variety of buildings will be needed to process specific elements of the agency's next deep space booster and spacecraft. The PDR is a technical milestone that will ensure these structures are suited for their vital roles in developing and building the spacecraft and rocket NASA needs to carry out its deep-space missions.

The review process will take several weeks and is expected to conclude in the spring.

Employee Spotlight – Sasha Sims

Sasha Sims is the Business Management and Analysis Branch chief for GSDO at Kennedy Space Center. Her primary role is to manage the development and administration of the program's budget.

She leads a team of program analysts who work with technical counterparts to identify resource requirements and prioritize allocation of funding.

"We also are responsible for ensuring that financial decisions are in line with the program's technical baseline and support the schedule baseline," Sims said.

Sims is originally from Camuy, Puerto Rico. She graduated from the University of Puerto Rico, Mayaguez Campus, with a bachelor's degree in industrial engineering in 2002. She earned a master's in engineering management from the Florida Institute of Technology in Melbourne in 2007.

Her interest in space began during her sophomore year in college after completing a course in physics. She joined NASA in January 2003, just three days before the launch of Columbia on the STS-107 mission.

Sims worked as a logistics engineer in the Cape Canaveral Spaceport Management Office until 2006. She then moved to the Constellation Program and worked as a mission operations engineer for five years. Sims has worked in the GSDO Program since its formulation in 2011 and 2012.

Sims is fascinated with photography and spends some of her time capturing memorable moments in photographs. She likes to travel and has a goal of traveling



to a part of the world she has never been to every year.

Her first car was a 1997 Toyota Rav-4. She didn't get a car until her fourth year of college, so she spent most of her student life walking everywhere.

Sims and her husband, Michael, have been married for nearly eight years. They have one son, Lucas, who is almost five years old.



GSDO hosted a media day Jan. 21 at various locations around the center. Managers provided progress updates on the work being done to the Mobile Launcher (ML), crawler-transporter 2 (CT-2) and Launch Pad 39B. At left is Mary Hanna, crawler-transporter project manager, talking to reporters about CT-2 inside the Vehicle Assembly Building. At right is Mike Canicatti, ML construction manager, talking to reporters near the Mobile Launcher.