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Marshall Star, September 7, 2011 Edition

# MARSHALL STAR

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## NASA's GRAIL Mission Ready for Launch Sept. 8

*NASA news release*

NASA's Gravity Recovery And Interior Laboratory (GRAIL), mission to study the moon is scheduled to launch Sept. 8, lifting aboard a Delta II rocket from Cape Canaveral Air Force Station's Launch Complex 17B. There are two instantaneous (one-second) launch windows at 9:37:06 a.m. and 10:16:12 a.m. CDT.

***Image right: At Cape Canaveral Air Force Station's Space Launch Complex 17B, solid-fueled boosters are prepared for attachments to the first stage of the Delta II rocket that will launch the GRAIL twin spacecraft. (NASA/Jim Grossman)***



GRAIL's twin spacecrafts' primary science objectives are to determine the structure of the lunar interior, from crust to core, and to advance understanding of the thermal evolution of the moon.

NASA's GRAIL Project is part of the Discovery Program managed at the Marshall Space Flight Center. NASA's Jet Propulsion Laboratory manages the GRAIL mission. Lockheed Martin Space Systems in Denver built the spacecraft. Launch management for the mission is the responsibility of NASA's Launch Services Program at the Kennedy Space Center.

The spacecraft twins, GRAIL A and B, will fly a circuitous route to lunar orbit taking three-and-one-half months and covering approximately 2.6 million miles for GRAIL-A, and 2.7 million miles for GRAIL-B.

GRAIL's launch period opens Sept. 8 and extends through Oct. 19. On each day, there are two separate launch opportunities separated by approximately 39 minutes.

Extensive prelaunch and launch day coverage of the liftoff of the GRAIL spacecraft will be available on NASA's home page on the Internet at:

<http://www.nasa.gov>

A prelaunch webcast for the mission will be streamed at noon on Sept. 7. Live countdown coverage through NASA's Launch Blog begins at 7:30 a.m. CDT Sept. 8. Coverage features live updates as countdown milestones occur and streaming video clips highlighting launch preparations and liftoff.

To view the webcast and the blog or to learn more about the GRAIL mission, visit:

<http://www.nasa.gov/grail>

and

<http://grail.nasa.gov>

The news conferences and launch coverage will be streamed live, with a chat available, at <http://www.ustreamtv/nasajpl2>

The NASA News Twitter feed will be updated throughout the launch countdown. To access the NASA News Twitter feed, visit: <http://www.twitter.com/nasa>

To view live interviews with lunar scientists from 1-6 p.m. on Sept. 8 and 9, visit:

<http://www.livestream.com/grail>

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### **Marshall Center Offers 2011 Buyout/Early Out Opportunity**

The Marshall Space Flight Center has been approved to offer a buyout/early out opportunity worth up to \$25,000 to eligible employees. The buyout is targeted to a limited number of competencies and/or positions and is focused on "reshaping" the center's workforce to meet current and future mission requirements; therefore, not all Marshall employees are eligible. The buyout/early out application period opens on Sept. 7 and closes on Sept. 28. For information on the buyout/early out, visit <http://inside.msfc.nasa.gov/buyout/fy12/>

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### **Marshall Leadership Announces Center Reorganization**

The Marshall Space Flight Center has a new organizational structure to achieve NASA's bold and ambitious new mission for a sustainable program of exploration and innovation. The four new program offices announced earlier this year became effective Aug. 28. The current Shuttle, Ares, and Science & Mission Systems offices have stood down.

All Direct Report Senior Executive Service, or SES, directors and deputies moved to their new assignments effective Aug. 28. Here is a list of new program and project offices, new mail codes which are now in place, and leaders for each organization:

- **Science and Technology – ZP01** – Director Dan Schumacher; Deputy Corky Clinton
- **Flight Programs and Partnerships – FP01** – Director Teresa Vanhooser; Deputy Paul Gilbert

- **Space Launch System – XP01** – Director Todd May; Deputy Jody Singer
- **Shuttle/Ares Transition – TP01** – Director Roy Malone; Deputies Mike Allen and Mike Vanhooser

There also is a new Center Strategic Development function within the Office of Strategic Analysis and Communications' Business Planning & Integration Office (CS10). Headed by Dennis Boccippio, it will guide Marshall's efforts to secure new work that matches the center's capabilities and strengths.

The following are associated reassignments of Marshall's Senior Executive Service, Senior Level, and Scientific and Professional cadre. Executives not mentioned below retain their previous assignments in the new organization. A summary of the changes is listed below. The new senior leadership organization chart is available [here](#).

### **Office of the Director**

- Associate Director, Technical: Dale Thomas, SES (DA01)

### **Science & Technology Office**

- Manager, Science & Technology Office: Dan Schumacher, SES (ZP01)
- Deputy, Science & Technology Office: Corky Clinton, SES (ZP01)
- Sr. Science Advisor, Science & Technology Office: Melissa McGrath, SES (ZP01)
- Sr. Scientist, Gamma Ray Team, Science & Technology Office: Gerald Fishman, ST (ZP12)
- Sr. Scientist, X-ray Astronomy Team, Science & Technology Office: Martin Weisskopf, ST (ZP12)
- Deputy Chief Technologist and Chief Scientist for Physical Chemistry, Science & Technology Office: Don Frazier, SL (ZP30)

### **Flight Programs & Partnerships Office**

- Manager, Flight Programs & Partnerships Office: Teresa Vanhooser, SES (FP01)
- Deputy, Flight Programs & Partnerships Office: Paul Gilbert, SES (FP01)

### **Space Launch System Program Office**

- Manager, Space Launch System Program Office: Todd May, SES (XP01)
- Deputy, Space Launch System Program Office: Jody Singer, SES (XP01)
- Manager, Program Planning & Control Office: Jerry Cook, SES (XP02)
- Manager, Boosters Office: Alex Priskos, SES (XP10)
- Manager, Engines Office: Mike Kynard, SES (XP20)
- Manager, Stages Office: Tony Lavoie, SES (XP30)

### **Shuttle-Ares Transition Office**

- Manager, Shuttle-Ares Transition Office: Roy Malone, SES (TP01)

### **Safety & Mission Assurance Directorate**

- Director, Safety & Mission Assurance Directorate: Steve Cash, SES (QD01)
- Chief Safety Officer, Space Launch System Program Office: Rick Burt, SES (QD01)

### **Michoud Assembly Facility**

- Director, Michoud Assembly Facility: Steve Doering, SES (SF01)

### **Engineering Directorate**

- Deputy Director, Engineering Directorate: Preston Jones, SES (ED01)

- Associate Director for Technical Management: Paul McConnaughey, SES (ED01)
- Manager, Office of the Chief Engineer: Scott Croomes, SES (EE01)
- Deputy Manager, Office of the Chief Engineer: Nelson Parker, SES (EE01)
- Chief Engineer, Space Launch System: Garry Lyles, SES (ED01)
- Deputy Chief Engineer, Space Launch System: Danny Davis, SES (EE03)
- Chief Engineer, Core Stages Space Launch System: Neil Otte, SL (EE03)
- Chief Engineer, Flight Programs & Projects Office: Lisa Watson-Morgan, SL (EE04)
- Director, Materials & Processes Laboratory: Wendell Colberg, SES (EM01)
- Deputy, Space Systems Department: Larry Leopard, SES (ES01)
- Director, Test Laboratory: Ralph Carruth, SES (ET01)
- Director, Spacecraft & Vehicle Systems Department: Helen McConnaughey, SES (EV01)

Most employees currently in Ares, Shuttle, and Constellation Level II positions have been mapped to new positions and will be detailed to those jobs once their new position description is generated. Initially, employees will be detailed to new organizations to better deal with fluctuations expected due to the targeted buyout that opened Sept. 7. Once the buyout process is complete, employees will be permanently placed in their new organizations.

Employees who were assigned to the Shuttle, Ares or a Constellation Level 2 program or project office who have not been assigned to a new position will become part of the Shuttle-Ares Transition Office until their final position is determined. Employees in the Engineering Directorate, Safety & Mission Assurance Directorate, or an institutional office who had a Shuttle, Ares, or Constellation charge code will stay where they are and receive a new charge code Oct. 1.

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## 'Have a Plan' -- Making the Most of National Preparedness Month

By Carole Valenti



September is [National Preparedness Month](#) and we encourage all of our Marshall Space Flight Center employees to take time during this month to address both personal and family preparedness plans.

***Image left: Carole Valenti, emergency management director for the Marshall Space Flight Center (Angela Storey)***

The theme of this year's event is "A Time to Remember -- A Time to Prepare." We all know what we need to do to be prepared, but most of us never take the time to actually create a plan, much less execute the preparation phase to

make certain the supplies are in place should they be needed.

April 27, 2011, is a day all of us in North Alabama will remember for a very long time. We knew bad weather was coming but no one imagined the day would end with such tragedy. The morning of April 28 dawned -- and life had changed for all of us. Homes and businesses were without power, most people had little fuel in their vehicles, countless families had little food in the house and many were low on medicines and other essential supplies. Numerous individuals lost their homes or experienced severe damage. Communication was spotty at best and quickly created a feeling of isolation.

This month is an opportunity for us to ensure we have a family plan for all types of emergencies we may face in our area,

and to ensure we have the supplies in place to weather at least the first 72 hours on our own.

Make sure you have [an emergency kit](#) for your home. Make a smaller one for each of your vehicles to stay prepared for severe winter weather or for a quick evacuation if necessary. Include plans for family members who have special needs, especially small children and elderly members. And don't forget about your pets -- cats, dogs and even goldfish are part of the family as well.

If you don't have a storm shelter in your home, determine the safest location available. Make sure you have room there for everyone. If not, see if a neighbor has a shelter with extra space or find the closest designated shelter in your area. Don't wait until disaster is on the way to do some critical "discovery learning."

Create a communications plan. Your family may not be together when disaster strikes. Make sure you know how to contact each other and how to get everyone to a safe location. Create a rendezvous point outside the immediate area in case of an evacuation. Consider making prearrangements with family or friends in neighboring states if a prolonged evacuation becomes necessary.

Remember, a plan is only good if you are familiar with the directions it provides and everyone follows it.

For more detailed information or ideas for planning, visit the [Federal Emergency Management Agency \(FEMA\)](#) website.

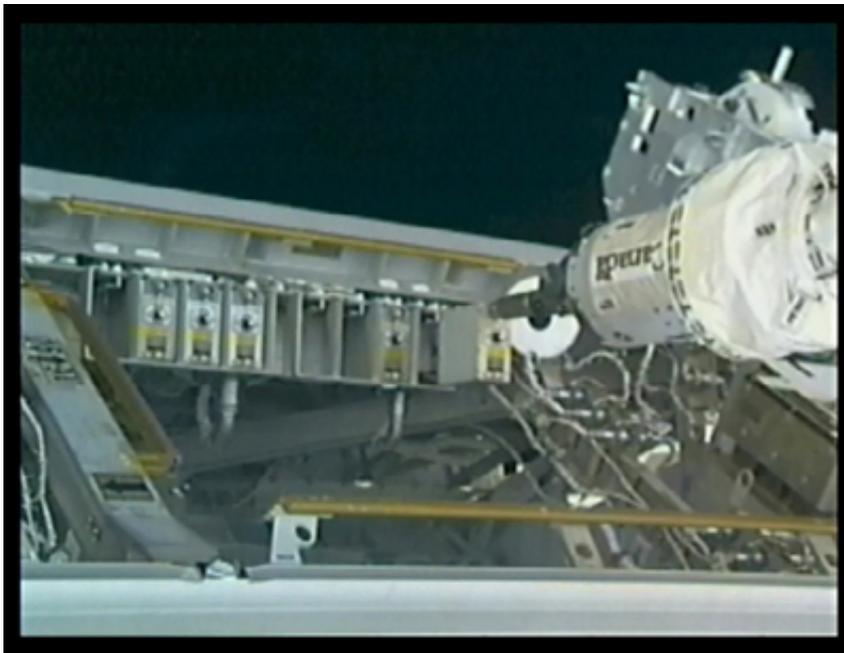
*Valenti is the emergency management director for the Marshall Center.*

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## **Dextre, Space Electrician: Canadian Robot Repairs Component on Station for First Time**

*From combined reports*



Dextre, the Canadian Space Agency's robotic handyman aboard the International Space Station, has successfully replaced a faulty circuit-breaker box on the orbiting lab. The maneuver marks the first time Dextre has replaced defective equipment on the station.

***Image left: Dextre's hand slides the faulty circuit-breaker box out of its casing. (NASA/CSA)***

The robot swapped the failed component for a new one, restoring part of the orbiting lab's backup electrical systems.

Known by the technical term "Remote Power Control Modules," circuit-breaker boxes that control the flow of electricity through the

station's secondary power distribution system occasionally fail. Up until now, exchanging the boxes was done by spacewalkers, which always carries a certain level of risk. Dextre was designed to reduce the need for astronauts to conduct routine maintenance, allowing more time for the crew to perform other activities.

Supporting Dextre during the entire operation Aug. 28-29 was Canadarm2 -- Canada's robotic system that plays a key role in space station assembly and maintenance. The arm moves equipment and supplies, supports astronauts working in space, and services instruments and other payloads attached to the station.

Dextre was operated from the ground by robotics flight controllers at the Johnson Space Center, and supported by several teams of engineers both at Johnson and the Canadian Space Agency's Headquarters in Saint-Hubert, Quebec.

Visit [here](#) to read more about Dextre.

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## Chandra Finds Nearest Pair of Supermassive Black Holes

*NASA news release*

Evidence for a pair of supermassive black holes in a spiral galaxy has been found in data from NASA's Chandra X-ray Observatory. This main image is a composite of X-rays from Chandra (blue) and optical data from the Hubble Space Telescope (orange and yellow) of the spiral galaxy NGC 3393. The inset box shows the central region of NGC 3393 as observed just by Chandra.

**Image right: Spiral galaxy NGC 3393 (X-ray: NASA/CXC/SAO/G. Fabbiano et al; Optical: NASA/STScI)**

The Marshall Space Flight Center manages the Chandra program for NASA's Science Mission Directorate in Washington. The Smithsonian Astrophysical Observatory controls Chandra's science and flight operations from Cambridge, Mass.

Two separate peaks of X-ray emission -- roughly at 11 o'clock and 4 o'clock -- can clearly be seen in the inset box. These two sources are black holes that are actively growing, generating X-ray emission as gas falls toward the black holes and becomes hotter. The regions around both black holes are heavily obscured by dust and gas, blocking the copious amounts of optical and ultraviolet light produced by infalling material.

At a distance of 160 million light years, NGC 3393 contains the nearest known pair of supermassive black holes. It also is the first time a pair of black holes has been found in a spiral galaxy like our Milky Way. Separated by only 490 light years, the black holes in NGC 3393 are likely the remnant of a merger of two galaxies of unequal mass a billion or more years ago.

Dubbed "minor mergers" by scientists, such collisions of one larger and another smaller galaxy may, in fact, be the most common way for black hole pairs to form. Until the latest Chandra observations of NGC 3393, however, it has been difficult to find good candidates for minor mergers because the merged galaxy is expected to look like an ordinary spiral galaxy.

If this was a minor merger, the black hole in the smaller galaxy should have had a smaller mass than the other black hole before their host galaxies started to collide. Good estimates of the masses of both black holes are not yet available to test this idea, although the observations do show that both black holes are more massive than about a million suns.

For more information about Chandra, click [here](#).



## NASA's Summer of Innovation Program Brings Hands-On Science and Math to Local Youth



Margie Morrow, right, an instructor at Sci-Quest Hands-on Science Center, works with Huntsville area youth at the Oscar Mason Library in Huntsville to help them explore how the balance point for their own bodies moves as they move. The exercise was part of a Summer of Innovation event sponsored by the Marshall Space Flight Center and Sci-Quest. The program also was held for sixth- and seventh-grade students of military personnel on Redstone Arsenal, as well as for local Girl Scouts troops and Boys and Girls Clubs.

The Summer of Innovation Program works with thousands of middle school teachers and students from across the country to engage students in stimulating math and science-based

education programs. The program supports President Obama's Educate to Innovate campaign for excellence in science, technology, engineering and mathematics, or STEM, education. NASA's goal is to increase the number of future scientists, mathematicians, and engineers, with an emphasis on broadening participation of low-income, minority students. (Sci-Quest)

### Find this article at:

<http://www.nasa.gov/centers/marshall/about/star/index.html>