

Family



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Science

Celebration of Curiosity

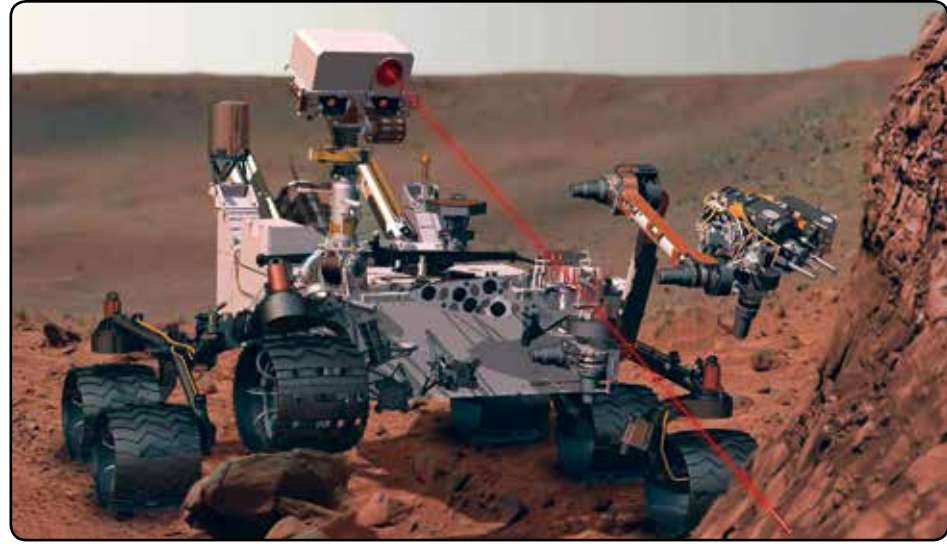
by Walter Reil

As a volunteer public outreach representative for NASA's and Caltech's Jet Propulsion Laboratory (JPL) in Pasadena over the past seven years, I have conducted free multimedia presentations for Central Coast communities bringing the excitement and wonder of astronomy and space exploration to libraries, schools, and community organizations. I am afforded opportunities to receive training from NASA and JPL engineers and scientists on the latest missions orbiting Earth and spacecraft visiting other planets and moons in our solar system and beyond. It is fascinating and humbling to learn about America's stunning accomplishments beyond Earth and the breathtakingly beautiful objects orbiting our Sun and in the depths of our Milky Way galaxy.

I wish to focus on a spectacular new space mission and what it represents for America; the Mars Science Laboratory "Curiosity" rover, which made a flawless landing in Mars' Gale Crater on Sunday, August 5th at 10:32 pm Earth Pacific

Daylight Saving Time. Tucked snugly inside its "aeroshell" cruise cover, Curiosity silently traveled 350 million miles over 8.5 months to reach Mars. Then it performed a stunning and daring descent through the Martian atmosphere to land on the Red Planet.

During "Seven Minutes of Terror," Curiosity entered the fiery Mars atmosphere at a blistering 13,000 miles per hour, then started slowing down beneath a huge hypersonic parachute. The 2,000-pound Curiosity spacecraft continued its descent, shedding its cover and parachute, emerging beneath an amazing first-ever, rocket-powered "sky crane" hover craft that lowered Curiosity on cables to the Martian surface at a gentle 2 miles per hour. The entire 7 minutes of complex, split-second landing maneuvers were performed automatically with guidance from Curiosity's on-board computer, and without any help from us on Earth. In fact, this extraordinary landing occurred 14 minutes before we could learn whether it had been a success



or failure. This waiting period was very anxious for mission personnel!

My family watched all of the action via NASA's Internet TV channel, and enjoyed seeing mission personnel at JPL's Mission Control Center erupt with cheers, jump for joy, and hug each other as they learned of the successful landing. I was in tears as we popped open a bottle of Champagne to celebrate. We nailed it! America triumphed over incredible odds, now having six new rover wheels on Mars (with parts made on the Central Coast!). Learn more at my MSL Curiosity blog webpage, which includes wonderful pictures, explanations, and links to outstanding videos and mission information:

<http://www.fix.net/wreil/blog-2012-07-28-1.htm>

The spectacular nuclear-powered Curiosity rover mission represents something vitally important to all Americans. Our nation desperately needed a successful landing and continued exploration of Mars. This mission, featuring the most complex robotic spacecraft ever built and the most sophisticated and powerful array of scientific instruments ever sent to another planet, represents the premier achievements of phenomenal science, technology, engineering, and mathematics (STEM) education.

Over the past 50 years, America had been the world's leader in STEM education, technological innovations, and daring exploration missions on and beyond Earth. In addition to Curiosity on Mars, the famous Mars rover Opportunity is still operational 8 years after its 90-day primary mission. NASA's Cassini spacecraft has been orbiting Saturn for 8 years, the Messenger spacecraft is orbiting Mercury, the New Horizons spacecraft will arrive at Pluto in 2015, the Juno spacecraft will arrive at Jupiter in 2016, and American spacecraft are orbiting our Moon and the Sun.

JPL and NASA missions represent what is wonderful about America's strong foundation in STEM education. This is absolutely vital to our nation's well-being and progress. Beginning in 1958 with the launch of America's first spacecraft JPL's Explorer I (weighing just 30 pounds), NASA's and JPL's Earth and solar system exploration missions have resulted in amazingly powerful "spinoffs" of technology, including satellite communications and TV, smart phones, desktop computers, automobile electronics, and new medical equipment and treatment techniques. The list is endless, spreading prosperity throughout our nation by creating jobs and

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improving our standard of living. Not a penny is spent in space; all work performed to support space exploration is done by humans on Earth.

I am excited to see Curiosity and other missions in progress and being planned and developed, to help us learn more about ourselves as human beings and whether there may be life, or conditions that could support life, beyond Earth. This all requires STEM education, which is the backbone of our nation's economy and way of life. Unfortunately, the availability and quality of STEM education is rapidly and dangerously deteriorating. We are failing our children and their future, as our place in the world's educational systems has been declining for many years, especially in STEM education. Our children deserve much better. They deserve the best. We must provide it.

Communities throughout our nation are now recognizing this crisis, and developing partnerships to strengthen and enhance STEM education inside and outside of schools. I'm a founding member of the Central Coast STEM Collaborative (<http://ccstem.org>), which serves communities from Paso Robles to Santa Barbara. This all-volunteer organization is comprised of many educators, business leaders, non-profit STEM education organizations, and local residents working to improve the future for our children and future generations.

I encourage you to check out JPL's new Mars Science Laboratory "Curiosity" mission and other NASA missions. I also encourage your involvement in the Central Coast STEM Collaborative. Our children could soon be designing, building, and operating space and ocean exploration missions, or becoming medical doctors and technicians, or designing and constructing the computers, buildings, and highways of tomorrow. They must be given the tools to succeed. STEM education, combined with other core instruction and the arts, provides these tools. America's future prosperity, security and survival depend upon it.

Walter Reil lives in Atascadero and can be reached at walter.reil@hotmail.com.