

NASA's Regolith Excavation Challenge Draws Mechs, Bots and Press Pay Dirt Triples to \$750,000

Santa Maria, CA (05-12-07) Four U.S. teams and their exotic and unusual looking excavation machines competed for a NASA purse of \$250,000 today in the Regolith Excavation Challenge—the sixth NASA “Centennial Challenge” event since 2005—but walked away empty-handed. The purse triples to \$750,000.

Each of the regolith machines attempted in a unique way to scrape, rake, roll or dig out and deposit into a collector minimum of 150 kilograms of simulated lunar regolith—mock “moon dirt”—in 30 minutes while seven judges that included scientists, educators, and industry experts intently watched on.

The simulated lunar regolith labeled “JSC-1A” is processed by Orbitec in Wisconsin from volcanic basalt and resembles the physical properties of the moon's surface where there is a layer of finely compacted dust that is difficult to dig through. The NASA Centennial Challenge involving the simulated lunar regolith required teams to create excavators that would have to run on 30 watts of power and less than 40 kilograms in weight (about 83 pounds).

“What struck me most about today's effort was the accessibility of the technology,” noted Deb Hirsh, executive director of the California Space Education and Workforce Institute (CSEWI) that co-hosted the event with their parent organization, the California Space Authority (CSA). “Ordinary materials found in ordinary homes were used to make these exquisite excavators. It was human imagination coupled with human innovation that turned bike chains, wood, denim, and workout-weights into workable lunar excavators. I hope the visibility of this example will encourage other to participate [in the next Regolith event] as well.”

The four competitors included Duplex Engineering from Berkley, Michigan; Lunar Minors from Rolla, Missouri; Terra Engineering from Rancho Palos Verdes, California; and, Technology Ranch from Pismo Beach, California. Three of the four teams had excavators that shut down due to mechanical or electrical challenges from digging. Technology Ranch, however, was the exception drawing 65.25 kilograms within the half hour requirement—a clear accomplishment but still far below the 150 kilograms needed to win.

Matt Everingham, Special Projects Manager for the California Space Authority (CSA) and in coordinating the Regolith Excavation Challenge noted, “No one achieved the five kilograms per minute excavation rate needed to reach the minimum of 150 kilograms in 30 minutes.”

The Regolith Excavation Challenge ran throughout the day and concurrently with 1st Annual California RoboChallenge that included nearly 40 teams of kids k-12 using LEGO® Mindstorm® pieces. The two events drew nearly 500 attendees who listened to various speakers including Dr. S. Pete Worden, director of NASA Ames Research Center, Colonel Stephen Tanous, USAF, Commander of the 30th Space Wing, and Dr. Buzz Aldrin, Apollo 11 astronaut. Aldrin delighted the crowds as he interacted with CSA officer Jamie Foster who played the role of Albert Einstein and took questions from kids. One child asked, “Do you believe in aliens?” Aldrin smiles and replied, “I am an alien.” Parents and press erupted in laughter.

Writers representing notable magazines like *WIRED*, *New York Times Magazine*, *Launch Magazine*, *New Scientist* were joined by several television crews from Discovery Channel, KCOY-TV, and

KSBY-TV along with radio entities like BBC Science and The Planetary Society. “The press has been superb,” said Wil Simon, CSA media and public relations manager, “and they have captured the spirit of what NASA, CSEWI, and CSA are trying to do which is more than just finding solutions to space challenges—it's to inspire the next generation of youth to dream about space and to venture forth to the moon, Mars, and beyond.”

Although there were no winners, no one appeared disappointed. Teams vowed to return to win the prize next year. The 2008 competition will most likely be held in another region of the state.

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