

# Remote Field Site Test

By Kendra Ceule

The quiet Arizona desert recently attracted some space invaders. Unusual beings in spacesuits and robots roamed around, and strange lights were seen glowing in the area.

No need to call the *Enquirer* – this was all part of the Remote Field Site Test, a series of tests conducted by JSC spacesuit and robotics engineers. September's test marked the fifth time that JSC technologies were brought to the desert for field testing. The terrain provides a good testing ground for technology designed for use on Mars. Past tests have been held in Death Valley and Silver Lake, Calif.; this is the third such test in Flagstaff, Ariz.

Among the equipment tested were the MK III spacesuit and the EVA Robotic Assistant (ERA). The MK III is an advanced demonstration suit being used to develop elements for future suits. The ERA, as its full name implies, could someday assist astronauts on spacewalks. Both the suit (worn by a test subject) and the robot practiced tasks such as navigating rough terrain and hills and positioning geophones – small devices used to capture seismic data. The suited subject also interacted with the ERA using voice-activated commands.

And what about those strange lights? The cause was a new helmet lighting system, also being tried out. The test crew waited until nightfall to test the Light Emitting Diode system, which passed with flying colors. The suited test subject was able to complete a circuit around a predetermined path using only the new helmet light for guidance. Several other vehicles, devices and communication systems were also given a day in the sun during the 10-day field test.

It takes many people to put together a marathon test session for some of the most groundbreaking technology in the world. Heading up the effort was Joe Kosmo, Senior Project Engineer for JSC's Crew and Thermal Systems Division. Kosmo was joined by scores of other employees from dozens of organizations – from NASA Centers to universities to technology companies.

Will the space invaders ever land in Arizona again? Possibly. Kosmo said there are tentative plans in place to have another field test next year, possibly involving a lunar rover test vehicle that was used to train Apollo astronauts to drive the real lunar rover. ❖

## All Photos by Robert Markowitz

- A. A suited test subject deploys geophones, which are used to collect seismic data. This was one of the many tasks attempted by suited subjects during the field test.
- B. SAIC's Dr. Dean Eppler dons the MK III suit in preparation for his test activities. Assisting him are JSC employees (L-R) Jose Ribas, Suit Technician; Amy Ross, Test Conductor; and Joe Kosmo, Test Director.
- C. The ERA robot is given its chance to deploy and retrieve geophones. Pictured with the robot are Joe Kosmo, Test Director; Kevin Groneman, Test Subject; and Jeff Graham, ERA Test Conductor.

D. The ERA robot practices responding to voice-activated commands. Here, it was told to hand a rock to the suited subject.

E. A test subject in the MK III suit traverses the desert near Flagstaff, Ariz., accompanied by the ERA robot.

Background photo: A suited subject in the MK III suit conducts a practice extravehicular activity in the desert. The rough terrain is used to simulate an alien landscape. NASA JSC 2002e38058



NASA JSC 2002e38795



NASA JSC 2002e38762



NASA JSC 2002e40504



NASA JSC 2002e38760



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