

ROBOT INVASION

Big Island to host college competition

By **TOM CALLIS**
Tribune-Herald staff writer

In the first competition of its kind on the Big Island, seven college teams will put their robots to the test in an inaugural space mining simulation on the slope of Mauna Kea.

The five-day event will kick off Monday with a public demonstration of the rover-like machines on Hilo bayfront.

But the real action will take place at the analog test site used by Pacific International Space Center for Exploration Systems, which is hosting the competition.

The site is located at about the 9,000-foot elevation on Mauna Kea, and organizers say its volcanic landscape is as close to a lunar or Martian surface as the teams can get without a space launch.

"If you want realism, this is about as real as it gets here on Earth," said John Hamilton, PISCES outreach and test logistics manager.

The teams from across the United States will face off July 23-24 at the site to see whose machines make the best extraterrestrial excavators. Their task is to collect and transport as much soil, made up of basaltic tephra and ash, as they can within 10 minutes. An awards ceremony will follow July 25.

The robots will be controlled remotely at the Gemini Observatory office in Hilo, Hamilton said.

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A team from the University of Alabama work with their robot in 2012.

The teams

- University of Alabama
- University of Alaska, Fairbanks
- Florida Institute of Technology
- Kapiolani Community College
- Iowa State University of Science and Technology
- University of New Hampshire
- University of West Virginia

Events open to public

Monday, July 21:

- Public exhibition at Hilo bayfront (between canoe hale and small boat harbor entrance), 10 a.m.-2 p.m.

Wednesday, July 23

- Gemini Observatory remote control room, 9 a.m.-4 p.m.

Thursday, July 24

- Gemini Observatory remote control room, 9 a.m.-4 p.m.



A team from Iowa State University tests its robot in May on a beach in Florida.

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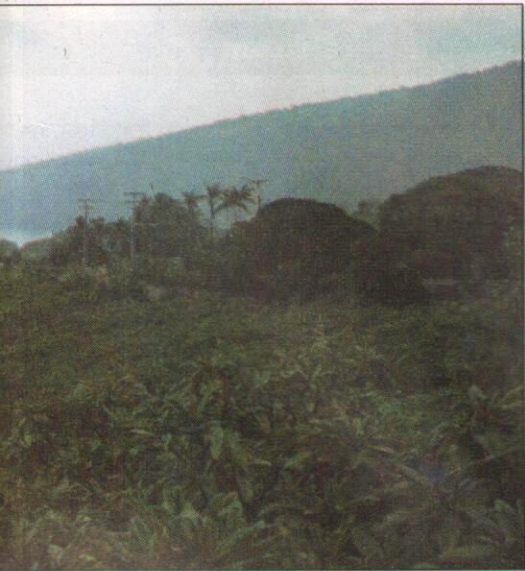
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FROM THE FRONT PAGE



CAROLYN LUCAS-ZENK/Stephens Media Hawaii

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Hawaii Island Rainfall (inches)

Location	24-hour period beginning Sunday, 8 a.m.
Saddle Quarry	7.44
Keaumo	5.99
Laupahoehoe	4.55
Hilo Airport	4.45
Hakalau	4.40
Waiakea Uka	3.57
South Point	2.92
Kapapala Ranch	2.63
Pahala	2.55
Mountain View	2.53
Pali 2	2.50
Pahoa	0.85
Honokaa	0.54
Kahuku Ranch	0.21

ROBOT From the front page

Some will be controlled manually, while a few of the teams will program their machines to operate independently with a push of a button.

Orion Lawlor, a computer science professor who leads a team from the University of Alaska at Fairbanks, said getting the automated machines to recognize their environment might pose a challenge.

At a similar NASA competition hosted indoors, the robots can essentially bounce off the walls to get a feel for their space, he said.

But outdoors, that's not an option.

"It's a lot more like the real world," Lawlor said, referring

to the analog site.

While some aspects of the robots can be high-tech, he noted his own team found innovative uses from low-tech sources, such as using wheels and other parts from a Barbie jeep.

If the ride-in toy can hold up to a 5-year-old, Lawlor said, it can probably work for them.

"The tread is almost worn off, but the tires are totally intact," he said. "They are hard to kill by design."

Lawlor said their robot is about 5 feet wide and between 2 and 2.5 feet long, and weighs about 100 pounds.

Hamilton said PISCES chose to start the competition to encourage the

study of robotics among Hawaii college students and offer an international aspect since NASA's robotic mining contest is now only open to teams from the United States.

While this year there are no international teams participating in PISCES' event — called the PISCES Robotic International Space Mining competition, or PRISM — that is expected to change for 2015, he said.

"We're building it out," said Hamilton, who noted teams from India and Australia are planning to attend next year. "This year will be a pilot."

Email Tom Callis at tcallis@hawaii.tribuneherald.com.

