

NASA approves second spacewalk to test space-station equipment

CAPE CANAVERAL, Fla. (AP) — Astronauts will go on a second spacewalk Wednesday to conduct space station tests that had been scrapped because of last year's satellite rescue.

NASA managers on Monday approved the five-hour spacewalk for the crew of space shuttle Columbia. It will be NASA's last spacewalk before construction is next summer on the international space station.

"We don't take advantage of opportunity here, the next time it we'll be doing it for real," NASA's acting chief of spacewalk operations, Gregory Harbaugh, told the crew earlier in the day.

Among other things, the spacewalk weighed the risk inherent in a spacewalk and also looked for ways the mission might have been extended to allow enough time for the extra work. As it turns out, an additional day was not needed.

NASA says it needs all the spacewalk experience it can get before attempting to build the international space station. It will take five years to assemble; once completed, it will be almost as long as a football field wide and weigh 1 million pounds. American astronauts will have to conduct more than 1,150 hours

of spacewalks to assemble and maintain the station during the first five years. Russian cosmonauts will perform half that amount.

"It sure would be nice to take advantage of being up here now with guys who have already worked with the equipment before we have to do it on station," said shuttle commander Kevin Kregel.

The No. 1 priority for Columbia's spacewalkers will be to conduct more tests with an extendible, 17 1/2-foot crane, a prototype of what will fly on the international space station.

Astronaut Winston Scott had trouble latching a large box onto the end of the crane during his Nov. 24 spacewalk with Japan's Takao Doi. He ended up having to squeeze the two objects together like a sandwich — a technique that may not always work on the international space station.

"We want to come out of this mission with a clear understanding of whether we have a design problem... or whether we have a system that we just needed to learn a little bit more about how to use," Harbaugh explained.

Scott and Doi never got a chance to lift a relatively small object with the crane or try out a free-flying robotic camera, also planned for use on the international space

station. They will try to squeeze in both during Wednesday's outing.

The crane — especially important to station construction and maintenance — was supposed to be tested by another set of spacewalkers in November 1996. The hatch on Columbia jammed, however, and the astronauts never got outside.

This time, a runaway satellite interfered.

Scott and Doi had to catch the \$10 million Spartan science satellite before conducting any station tests. The satellite never got a key computer command before being released from Columbia on Nov. 21 and promptly malfunctioned. To make matters worse, the crew's attempt to capture the satellite with the shuttle robot arm sent the craft into a slow spin.

After grabbing Spartan with their gloved hands, Scott and Doi spent what was left of their seven-and-one-half hour spacewalk working with the crane and a large, battery-like object, and conducting some other station experiments.

The tests left space station designers hungry for more.

"We feel like there is some more money to be made here," Harbaugh told Columbia's six astronauts. When he asked whether they thought a second spacewalk would be worth "all this time and trouble," they replied with a definitive yes.

Boll-weevil biology continues to baffle farmers, researchers

AUSTIN (AP) — They are rather comical-looking, these quarter-inch-long insects of song and sorrow. But they are more likely to move Texas cotton farmers to tears than to laughter.

Big-bottomed and long-snouted, the cotton boll weevil looks too ungainly to fly. Yet there is evidence that the yellowish-brown or gray members of the beetle family can fly high enough to hitch long-distance rides on prevailing winds.

Mary Ann Rankin speculates the unknown migratory patterns of these tropical pests that destroy millions of dollars' worth of cotton each year in the Americas could be a main reason periodic claims of their impending eradication have proved premature.

Rankin, a University of Texas professor of entomology and dean of UT's College of Natural Sciences, is a pioneer in the physiology of the bugs, which are believed to have entered the United States through Texas, flying across the Rio Grande from Mexico in 1892.

Despite decades of research into controlling them, Rankin says their migratory patterns, life cycle and reproduction, and their relationship to each other remain poorly understood.

"Very little had ever been done with that," she said. "We had to start from scratch."

Chemical pesticide-based eradication programs from North Carolina to southern California — and increasingly in Brazil and other South American countries — largely ignore or dismiss the possible role of migration in boll weevil population dynamics, Rankin said.

She has found that it may be particularly important in midsummer when weevil population densities are high and their urge to migrate seems to be strong.

But cotton growers have to focus on their immediate problems.

"Either you get rid of (them), or you get out of the cotton business," said John Norman, a Texas A&M University entomologist.

Adult weevils relentlessly destroy cotton by boring into its seedpods, or bolls, and laying eggs in the hole. Hatching weevil larvae feed on the

development from larvae into adults.

This fall, the Texas Advanced Research/Advanced Technology program, an annual statewide competition for up to \$60 million in research money, awarded Rankin \$181,447 to continue her research.

She plans to work with specialists at Texas A&M University and the University of California to clone boll weevil genes that regulate the production of an enzyme called juvenile hormone esterase.

Using the cloned gene to make more of the enzyme than can be obtained from the bugs themselves, she will pursue evidence that it is critical to boll weevil reproduction and, possibly, long-distance flight.

Her goal is to find ways to reduce the 10 percent or so of the bugs now estimated to survive each winter in a form of insect hibernation called diapause. Their reproduction in the spring begins the annual assault on cotton crops.

Because juvenile hormone esterase plays a major role in diapause, Rankin wants to develop a test for its presence. A test would help target the insects most likely to survive diapause to explore the use of proteins, hormones and growth regulators to disrupt their ability to reproduce.

But her research suggests that whatever method works best, it will have to be universally applied. Control of boll weevils in one place may be impossible as long as potential weevil migrants are thriving elsewhere in the hemisphere.

"They'll just re-infest us each year," Rankin said.

"Either you get rid of (them), or you get out of the cotton business."

JOHN NORMAN
TEXAS A&M ENTOMOLOGIST

bolts from the inside.

North American cotton producers lose an estimated \$350 million a year in reduced yields and in spending on insecticides and other pesticides. Even heavy use isn't always effective, sometimes triggering new outbreaks of crop destruction by killing natural enemies of other pests. Some weevils also have evolved resistance to the sprays.

Investigating weevil biology to find ways to use it against them is an increasingly popular scientific alternative.

Scientists at Texas Tech University in Lubbock, for instance, are experimenting with insect viruses that kill boll weevils by arresting their de-

veloped and confident.

"She's one of the few people I've seen that hasn't lost her cool," Clancy said. "No matter what is going on around her, she's always calm and collected."

Dr. Charles Self, head of the journalism department and chair of the student publications board, said Inbody has strong ideas about the future of *The Battalion*.

"She will help *The Battalion* move forward in a good direction," he said. "She has good leadership qualities. She inspired confidence in the board."

ARCHITECTURE

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SKS Architects believes very strongly in the close link between professional side and academic and tries to maintain a mentoring relationship with students," Skaggs said. "For years, we had ongoing projects with the College of Architecture. We had the class with a client. Through such projects, the students learn teamwork and strong communication skills, since they have to identify and meet the

needs of an actual client."

George J. Mann, the Ronald L. Skaggs Endowed Professor of Health Facilities Design at A&M, directed the project which brings students together with possible employers.

"The students worked hard," Mann said. "They learned teamwork and to help each other. The hospital gets ideas from the students and the architecture firm identifies students for future employment."

LouAnn Kirkpatrick, a senior environmental design major, said her group spent around \$500 on the project, including \$100 on pictures. "When it's all said and done,

you forget how much you paid," Kirkpatrick said. "I've learned it really doesn't matter the design process you go through to complete the project. The final result is what counts."

Dr. Kaname Yanagisawa, a post-doctoral fellow in the College of Architecture, helped the students on the medical facility design.

"The project is huge and complicated," Yanagisawa said. "I think it is a challenging project and a good opportunity for students. There was a great effort from students, and they did an excellent job."

EDITOR

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"When I started, *The Battalion* was printed on campus," she said. "We had to do paste-ups in the back. Cartoons and ads were not done on computers then."

Inbody also has been night news editor and managing editor at *The Battalion*.

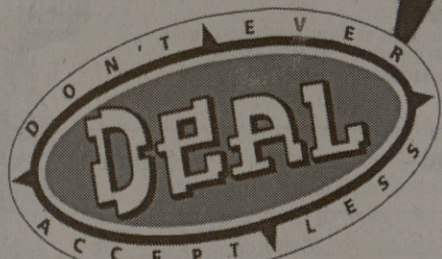
Clancy, who worked with Inbody on the night news desk in Fall 1996, said Inbody is easy to work with, or-

Check out our holiday values!

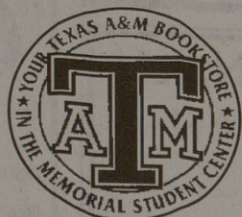
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