

Study: Findings sharpen chance for life on Jupiter's moon

WASHINGTON (AP)—The discovery of organic compounds on two of Jupiter's moons increases the possibility all of the elements necessary for life are present on Europa, another of the planet's moons.

The finding, received from instruments on the *Galileo* spacecraft orbiting Jupiter, suggests Europa may have all three of the ingredients scientists consider essential for life: an energy source, liquid water and organic molecules, Thomas B. McCord, a planetary scientist at the University of Hawaii, said.

"This doesn't mean there is life on Europa," McCord, lead author of a study to be published Friday in the journal *Science*, said. "The exciting thing now is the evidence that Europa may have all three of the ingredients."

Europa already is known to have water and internal heat sources.

Dale Cruikshank, a research scientist at NASA's Ames Research Center, said the work of McCord and his team should sharpen the research concentration on Europa, which already "is the subject of very special interest."

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The study of Jupiter's moons is part of a growing effort by astronomers and planetary experts to find evidence of life within the solar system, particularly on Mars.

A major goal of NASA's Mars exploration, for example, is to search for the fingerprints of life on the Red Planet. Researchers have determined Mars once had vast pools of water, and there is speculation this could have led to the evolution of life. Some believe there already may be evidence of life in frozen underground water.

NASA researchers also have found what some believe may be the fossilized remains of microbes in an asteroid that fell to Earth from Mars. The interpretation of that finding, however, is controversial.

In the case of Jupiter's moons, instruments on *Galileo* detected the complex organic molecules on the surfaces of the moons Callisto and Ganymede, suggesting such organics also are present on Jupiter's other two large moons, Europa and Io.

"What we have on Callisto and Ganymede are some of the kinds of organic molecules that could be the basis for life," McCord said. "These are the basic ingredients."

And if Callisto and Ganymede have these compounds, said McCord, then it is highly likely the compounds also exist on Europa.

Water and an energy source, McCord said, are the key ingredients on the triangle of life."

By finding organics present on two other moons, there is a strong suggestion the third angle triangle may be present on Europa, he said.

Life on Callisto, Io and Ganymede is considered likely because of their dry climates.

No organic chemicals have been detected on Europa, but researchers have speculated there may be an organic soup below the moon's ice cap, and this could be a warm, liquid place for the evolution of life.

None of the research so far has proven that life has ever existed on any of Jupiter's moons, McCord said.

He compared the research progress to a cake being made.

"We've got the flour and sugar and the yeast to make the dough," McCord said, "and there's a suggestion that the oven is on."

But assembling the ingredients doesn't mean the cake has been made, he said.

Searchers scouring rural area for missing plane, nine passengers

MONTROSE, Colo. (AP) — Search parties scoured the woods and mountains Thursday for a chartered plane that vanished while carrying eight employees of the federal Bureau of Reclamation and a pilot to a meeting in Arizona.

Rescuers focused on a rugged, snow-covered forest 23 miles south of Montrose, where radar indicated the single-engine Cessna may have gone down shortly after takeoff in clear weather Wednesday morning.

"The challenge is there's a lot of thick brush and pine trees and low visibility," Air Force Capt. Leslie Pratt said.

The employees on board included William H. Duncan, who manages the Glen Canyon Power Plant and Dam on the Colorado River in Arizona; Jeff Waite, who manages the power plant; Delphina Holliman, Walt Kaltmaier and Katrina Wall, computer specialists; and Jim Bloomfield, electrical engineer. All worked at the Bureau of Reclamation's Page, Ariz., office.

The two other bureau employees aboard were Al Inman, who manages the agency's Montrose office, and Jon Nees, a safety and occupational health specialist, also of the Montrose office.

The plane, owned by Scenic Airlines Inc. of Arizona, had left Montrose on a 90-minute flight to Page. The

plane never reached its destination and a search began around midnight.

Dozens of volunteers combed the ground until dark. Overnight temperatures dropped into the 20s, and three inches of snow fell on the ground from a storm on Thursday.

The search resumed at dawn Thursday as 10 planes focused on an area known as the Uncolored Plateau, where elevations range as high as 10,000 feet.

Six other planes searched routes between Montrose and Page. Those paths would have taken the aircraft over landscapes including high mountains, plateaus and dense forest.

At agency offices throughout the region, workers were trying to identify the main optimistic their colleagues would be found alive, spokeswoman Susan Iams said.

"This is a great shock to us," Iams said. "We're hoping for a positive outcome."

The employees had arrived in Montrose Tuesday for a meeting and were scheduled to return Thursday night, but bad weather delayed flight until Wednesday.

The pilot, Robert Armstrong of Phoenix, had been flying Scenic for 10 years, airline spokeswoman Irit Langness said.

Texas universities experience decline in enrollment for '97

AUSTIN (AP) — Enrollment at the state's public universities continued to decline this fall, with blacks making up a slightly smaller percentage of all students.

At the same time, overall higher education enrollment — at public, private and professional schools — increased by 12,514 students, 1.35 percent.

The Texas Higher Education Coordinating Board released the numbers Thursday based on a count of college and university students on the 12th day of classes.

According to the board, the state's public universities reported a total of 397,050 students, a decrease of 243 from last year. The figures continue a trend toward lower enrollment from the high of 410,706 reached in the fall 1992.

Blacks account for nine percent of university enrollment, or 35,827 students, down from 36,303 last fall, when they represented 9.14 percent.

While the number of Hispanics in public universities decreased to 73,574 from 74,510, they represent a larger percentage of students — increasing from 18.52 to 18.8 this year.

Sen. Bill Ratliff, R-Mount Pleasant, chair of the Senate Finance Committee, said the figures do not show significant change.

"The significance is that there has not been any big drop off in enrollment of minorities because of *Hopwood*," Ratliff said, referring to a federal court ruling banning the use of race in scholarship and admissions decisions in Texas.

He said the report also shows the number of whites in state public universities is decreasing. According to the board, whites represented 61.5 percent of students, a drop from 62.59 last year.

Ratliff said the decline illustrates the state's changing demographics.

Gary Bledsoe, head of the National Association for the Advancement of Colored People in Texas, said the numbers must be put in context.

"When you see nationally the trend is for there to be a decrease in black enrollment, it's not surprising why Texas is different," Bledsoe said. "I think the effects of *Hopwood* are being felt."

Bledsoe said many black students are leaving Texas not because they cannot get admitted but because they are receiving better financial offers.

"The perceived hostility of campuses has not helped, probably exacerbated it," he said. Coordinating board officials said they remain concerned about the continuing enrollment decline at state institutions.

"We had anticipated that would start to see an increase based on the demographics of the state," David Gardner, deputy commissioner for the coordinating board, said.

The board still predicts between 2000 and 2010 the state will lose an additional 30,000 students to public institutions, Gardner said.

"We expected to see some trickle type of increase this year," he said.

The overall increase in the number of students enrolling in universities, whether private or public, can mainly be attributed to an increase in community college enrollment, Gardner said.

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