NASA crashes two probes into a mountain on the moon

Irene Klotz, Reuters

(Reuters) - A pair of NASA moon-mapping probes smashed themselves into a lunar mountain on Monday, ending a year-long mission that is shedding light on how the solar system formed.

The Gravity Recovery and Interior Laboratory, or GRAIL, spacecraft had been flying around the moon, enabling scientists to make detailed gravity maps. The probes sped up slightly as they encountered stronger gravity from denser regions and slowed down as they flew over less-dense areas.

By precisely measuring the distance between the two probes, scientists discovered that the moon's crust is thinner than expected and that the impacts that battered its surface did even more damage underground.

Out of fuel and edging closer to the lunar surface, the probes were commanded to smash themselves into a mountain near the moon's north pole, avoiding a chance encounter with any Apollo or other relics left on the surface during previous expeditions.

"We do feel the angst about the end of the mission," said Charles Elachi, director of NASA's Jet Propulsion Laboratory in Pasadena, California, which oversaw the mission. "On the other hand, it is a celebration because this mission has accomplished tremendous science."

The U.S. space agency lost radio communications with the first spacecraft at 5:28 p.m. EST and the second about 20 seconds later, a NASA mission commentator said.

The probes' final resting place was named after the first U.S. woman in space, Sally Ride, who orchestrated GRAIL's educational outreach program before her death in July. The spacecraft included cameras that were operated by students.

After completing their primary mission in May, the GRAIL twins, each about the size of a small washing machine, moved closer to the lunar surface, dropping their orbits from about 34 miles to less than half that altitude to increase their sensitivity.

On December 6, the probes, nicknamed Ebb and Flow, flew down to about 7 miles to make one last detailed map of the moon's youngest crater.

"Ebb and Flow have removed a veil from the moon," said lead researcher Maria Zuber, with the Massachusetts Institute of Technology.

The discoveries not only will help scientists better understand how the moon formed and evolved, but what happened to Earth and the other inner planets which were similarly showered with comets and asteroids early in their history.

Several follow-up studies are planned, including coordinating the moon's new gravity maps with the locations where Apollo soil and rock samples were collected, Zuber said.

(Editing by Kevin Gray and Phil Berlowitz)

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