7TH-GRADERS DISCOVER MYSTERIOUS CAVE ON MARS

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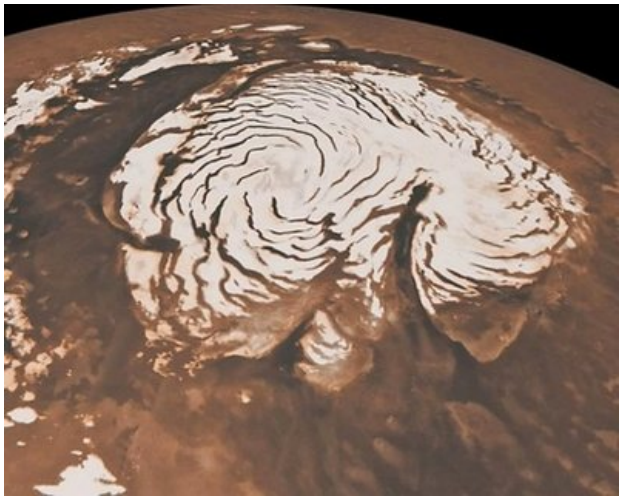

A group of seventh-graders in California has discovered a mysterious cave on Mars as part of a research project to study images taken by a NASA spacecraft orbiting the red planet. The 16 students from teacher Dennis Mitchell's 7th-grade science class at Evergreen Middle School in Cottonwood, Calif., found what looks to be a Martian skylight — a hole in the roof of a cave on Mars.

The intrepid students were participating in the Mars Student Imaging Program at the Mars Space Flight Facility at Arizona State University. The program allows students to frame a research question and then commission a Mars-orbiting camera to take an image to answer their question.

The newfound hole on Mars resembled features seen on other parts of Mars in a 2007 study by Glen Cushing, a U.S. Geological Survey scientist. Cushing suggested that these anomalous pit craters are like skylights — places where a small part of the roof of a cave or a lava tube had collapsed, opening the area below the surface to the sky.

The caves are thought to result from volcanic activity on the red planet. At some point lava channels likely carved out caverns in the rock, and then left behind tunnel, or 'lava tubes', when the eruptions were over. They would have been covered when a solid ceiling of cooled material settled on top, and then sections of the ceiling likely collapsed at some point to form the skylight entrances. Scientists aren't sure what type of materials or deposits could be stored inside.

'This pit is certainly new to us,' Cushing told the students. 'And it is only the second one known to be associated with Pavonis Mons.' He estimated the pit to be approximately 620 by 520 feet (190 by 160 meters) wide and 380 feet (115 meters) deep at least. The young researchers had initially set out to hunt for lava tubes, a common volcanic feature on Earth and Mars.

'The students developed a research project focused on finding the most common locations of lava tubes on Mars,' Mitchell said. 'Do they occur most often near the summit of a volcano, on its flanks, or the plains surrounding it?' The class commissioned a main photo and a backup image of Mars' Pavonis Mons volcano, targeted on a region that hadn't been imaged up close.

The pictures were taken by NASA's Mars Odyssey orbiter using its Thermal Emission Imaging System (THEMIS) instrument. Both images showed lava tubes, as the students had hoped. But the backup photo provided another surprise: a small, round black spot. It was a hole on Mars leading into the buried cave, researchers said.

The students have submitted their site to be further imaged by the High Resolution Imaging Science Experiment (HiRISE) camera on NASA's Mars Reconnaissance Orbiter, which could reveal enough detail to see inside the hole in the ground. 'The Mars Student Imaging Program is certainly one of the greatest educational programs ever developed,' Mitchell said. 'It gives the students a good understanding of the way research is conducted and how that research can be important for the scientific community. This has been a wonderful experience.'