Mystery at misfits flat

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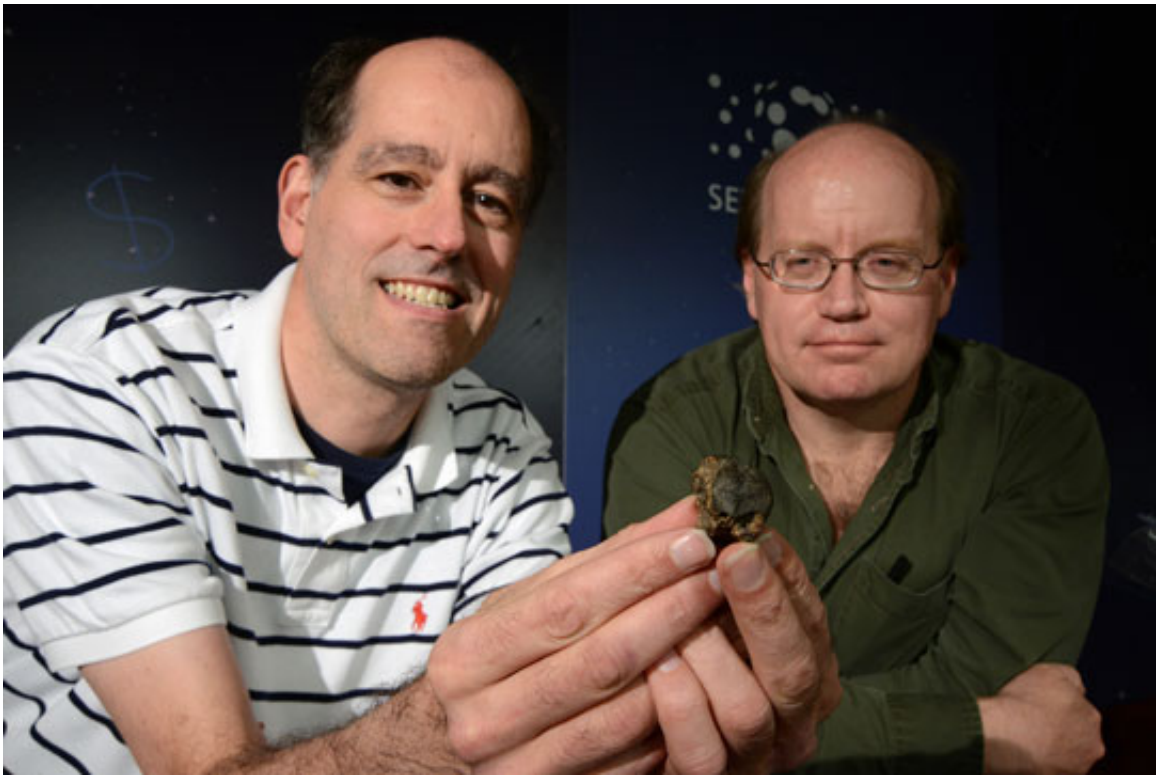

Peter Jenniskens (left) examines meteorites found by Scott Harlan during a visit to the SETI Institute.

An amateur has discovered a trove of meteorites on Misfits Flat dry lake in Nevada. No meteorites had been found at this tiny lakebed before. In an unusual twist, at least some of those turn out to have fallen less than 300 years ago.

The discovery came to light when Scott Harlan, a resident of Salinas,

California, visited SETI Institute meteor astronomer Peter Jenniskens, and presented him with a new meteorite find.

"This was Harlan's very first meteorite hunting experience," says Jenniskens. "He set out to help in the search for remains of fireballs seen with our meteor cameras, known as CAMS (the Cameras for All-Sky Meteor Surveillance project). However, the terrain in which he was searching was difficult, so he decided to try his luck at the nearest dry lake."

Dry lakes are known to be good hunting sites, because ice and wind can concentrate the fallen rocks from a large area near the shore. Harlan drove into Nevada and stopped at a small dry lake southeast of Reno named after the 1961 Clark Gable movie "The Misfits." Its horse-wrangling scenes were filmed at this location.

Within a few hours, Harlan had found his first meteorite. Since then, he has returned to Misfits Flat 19 times, and recovered 58 more.

Generally speaking, the meteorites found on dry lakebeds in the American southwest fell a long time ago, many thousands of years in the past. That is why Jenniskens was surprised to see several fresh-looking meteorites in Harlan's collection. He initiated a consortium study, which involved researchers from NASA's Johnson Spaceflight Center, the University of Arizona, and the University of California, Davis. This research is being presented in a poster session at a Meteoritical Society meeting in Berkeley, California on July 28.

They found that the newly discovered space rocks present an intriguing puzzle. All meteorites examined so far are of type LL5, the same type as the one that streaked across the skies of the Russian city of Chelyabinsk in 2013. If these are fragments from a space rock less than a half-meter in size, then it can be surmised that most fell 8,000 years ago. However,

some of the recovered meteorites clearly fell less than 300 years ago.

"It is hard to believe that two falls of the same rare type (only 15 percent of all falls) hit tiny Misfits Flat dry lake in the past 10,000 years," says Jenniskens, "We suspect instead that this area was hit by a single object more than two meters in size sometime in the past 300 years, but more research will be required to find out if that is the case."

"A big event in the past few centuries may have been seen and heard by real-life horse wranglers. If a record of the firefall can be found, we may still learn more about this intriguing discovery."

Provided by SETI Institute