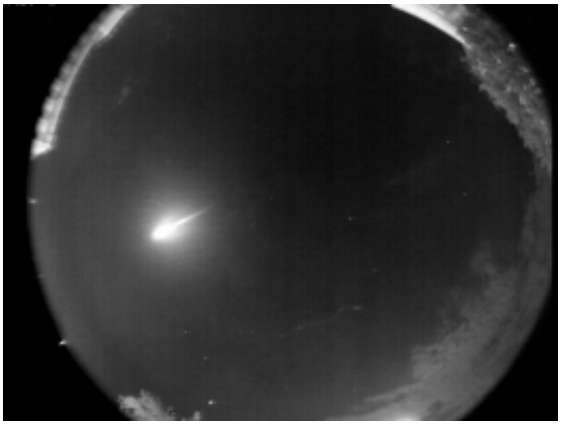
Meteorite from Sept. 25 fireball event recovered and presented

October 16 2009



Composite all-sky camera image of the end of the fireball as seen from Hamilton (Camera #3, McMaster). Available below are movies of the event as seen by several of the SOMN cameras, as well as animations of the object's arrival at Earth. [click to enlarge]

When Tony Garchinski heard a loud crash just after 9 p.m. on Friday, September 25 he didn't think much of it. That is, until he awoke the next morning to find the windshield of his mom's Nissan Pathfinder with a huge crack in it. Making note of the 'unusual' rocks he later found on the car's hood, Garchinski chalked the incident up to vandalism and filed a police report.

It wasn't until two weeks later that his mother, Yvonne Garchinski, heard media reports that researchers from The University of Western Ontario

were searching West Grimsby, Ont. for possible fragments of a freshly fallen meteorite. The Garchinskis realized who the real culprit was in the case of the broken windshield -- or more specifically, what.

The 'what' was a 46-gram (approx. the size of a golf ball) completely fusion-crusted (melted exterior) fragment of an 'ordinary chondrite' meteorite. Chondrites are arguably the most important type of meteorite because they are the least processed of meteorites and provide a window into the material which formed the early solar system.

The meteorite is estimated to be 4.6 billion years old.

Western Associate Professor Peter Brown, an expert in the study of meteors and meteorite falls, and Phil McCausland, a postdoctoral fellow at Western's Centre for Planetary Science & Exploration, presented the found meteorite to the media today at the Garchinski home in Grimsby, with the family on hand to tell their remarkable story.

McCausland has been leading the university's ground search since seven 'all-sky' cameras of Western's Southern Ontario Meteor Network (SOMN) captured rare video footage of the meteor event on September 25.

"Having both the video and the sample is golden because we get the dynamic information and the orbital direction from the video, and by having recovered material on the ground, we can complete the picture. We can take a rock that we now have in hand and we can study it in the best laboratories in the world and we can put it back into its solar system context. We can put it back into where it came from," explains McCausland. "In all of history, only about a dozen meteorite falls have that kind of record."

Brown says, "Scientifically, it's equivalent to a sample return mission,

which is sending a spacecraft out to a known location in the solar system and bringing back a sample. In this case though, the sample comes to us. We don't have to spend huge sums of money to send a spacecraft to get the sample.

"We've worked out the orbit, where it came from, so it becomes a material within context. It's like a geologist who can pick up a rock which may be interesting, but if you know where it came from, that context, it means so much more. Most meteorites - we don't have the context. This one we do."

Yvonne Garchinski has loaned the 'pristine' meteorite sample to Western but it remains her property as meteorites found in Canada belong to the owner of the land upon which they are discovered.

The Western-led search continues in West Grimsby and both Brown and McCausland believe more meteorite fragments will be found. In fact, the Garchinski property is a mere 200 meters off the fall line of the meteorite the Western Meteor Physics Group calculated using data from its video, radar and sound detection systems.

Meteorites may best be recognized by their dark and scalloped exterior, and are usually denser than normal rock and will often attract a fridge magnet due to their metal content. Meteorites may be found in a small hole produced by their fall into soil.

Meteorites are not dangerous, but any recovered meteorites should be placed in a clean plastic bag or container and be handled as little as possible to preserve their scientific information.

Related story: Astronomers capture spectacular meteor footage and images (w/ Video)

Source: University of Western Ontario