NEWS

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Researchers seeking assistance in pinpointing Rocky Mountain meteorites

[Photos]

Meteorite researchers are appealing to the general public for photographs of the fireball that blazed across western Canadian skies between 2:22 and 2:23 p.m. on Sunday, October 14.

Travelling nearly south to north, the fireball crossed the British Columbia-Alberta border travelling between Field, BC and Lake Louise, AB. Eyewitnesses reported the fireball to Alan Dyer of the Calgary Science Centre from as far east as Medicine Hat, AB and as far west as Vancouver, BC.

The fireball exploded over the northern boundary of Banff National Park about 30 kilometres above the Ram River Glacier, making a huge boom that rocked the mountains. The boom was heard up to 150 kilometres away, as far as Borden and Cochrane, Alta., and Radium Hot Springs, B.C. The explosion was unnerving at nearby locations, such as Lake Louise, where residents spilled out of their homes to see what had happened and dogs ran home in fright.

"The falling rock was an asteroidal fragment weighing 5 to 10 tonnes and about 1.5 metres in diameter. It was travelling at roughly 20 kilometres per second based on its trajectory. This is probably the biggest rock to fall on Alberta since 1960," says Alan Hildebrand, a Canada Research Chair in Planetary Science at the University of Calgary.

Eyewitnesses report that some of the projectile survived the explosion and hundreds of meteorites will have fallen farther north, probably in the valleys of the Ram River, Whiterabbit Creek or Siffleur River. However, newly fallen snow may delay meteorite hunting until next spring.

The fireball was captured on film by Brad Gledhill, visiting from Australia, who snapped his picture from the summit of Tunnel Mountain in Banff. Jeff Darlington, visiting from England, captured the sound with his video camera and was also startled enough to seek shelter in his car.

"While we have been helped tremendously by the hundreds of witnesses who have called in, we desperately need another photograph of the fireball or the dust trail that it left behind to triangulate its trajectory," Hildebrand says.

With another photograph the researchers will be able to precisely locate the explosion and where the meteorites will have fallen. Anyone who photographed the dust trail or fireball is urged to contact Alan Dyer at the Calgary Science Centre at (403) 221-3731. "Another photograph will also help to calibrate Canada's infrasound array by establishing the explosion's location and altitude," Hildebrand says.

The explosion's blast travelled 1,400 kilometres across half a continent to be recorded at Lac du Bonnet, Manitoba, by an infrasound station maintained by the Geological Survey of Canada.

The infrasound signal has been analysed to yield an energy estimate for the explosion of about 250 tonnes TNT equivalent by Doug Revelle and Peter Brown at Los Alamos National Lab, Los Alamos, New Mexico, and David Brown of the Center for Monitoring Research, Washington, DC.

The Lac du Bonnet infrasound station is one of 60 that will eventually be deployed around the globe to

enforce the Comprehensive Test Ban Treaty by monitoring the atmosphere for nuclear explosions. Large fireballs like that of October 14 are the natural phenomenon that most closely mimics nuclear explosions in the atmosphere.

Gledhill's photograph, the infrasound record of the fireball's explosion, and a picture of a 500-tonne TNT detonation can be seen here.

For further information, or if you have any photographic images to share, please contact:

Alan Hildebrand, (403) 220-2291, University of Calgary

Alan Dyer, (403) 221-3731, Calgary Science Centre

Peter Brown, (505) 665-7134, Los Alamos National Laboratory

Alan Hildebrand and Peter Brown are members of Canada's volunteer meteorite committee, the Meteorites and Impacts Advisory Committee to the Canadian Space Agency.

Additional links:

Canadian Meteorite Catalogue

Prairie Meteorite Search

Meteorites and Impacts Advisory Committee
