

Potential lab in outer space to open for amateur astronomers

September 10 2010

Two amateur astronomers who independently observed and videotaped an asteroid striking the giant planet Jupiter on June 3 have opened the possibility, in effect, of a giant research lab in space for planetary scientists.

According to a paper by professional astronomers, expected to be published today online by [Astrophysical Journal Letters](#), the asteroid was eight to 13 meters in diameter and packed a punch equivalent to a 250- to 1,000-kiloton nuclear bomb — smaller than the violent airburst that decimated trees for 40 kilometers around Tunguska in central Siberia 100 years ago, but similar in its effects.

The initial observations, if supplemented by future observations of asteroid impacts on Jupiter by other [amateur astronomers](#), could help scientists understand the behavior of meteoroids of various dimensions and composition entering an atmosphere at varying angles and speeds, said Sandia National Laboratories researcher Mark Boslough, one of the paper's authors

“These amateur observations are very important,” Boslough said. “To me, the primary significance is the demonstration that relatively small bolides on Jupiter can directly be observed from Earth, that their energy can be quantified and that such impacts are frequent enough to observe.”

A continuous amateur observation campaign could provide data to determine the impact intensity and size of asteroids in the vicinity of

Jupiter.

“This would be a major scientific achievement,” Boslough said, because “the physics is the same as when something enters Earth’s atmosphere. More data on airbursts build up our understanding based on empirical observations. And we’re looking down on Jupiter, which gives us a perfect observational platform.”

The Shoemaker-Levy [comet impact](#) observed on Jupiter in the 1990s, modeled with startling accuracy at Sandia by Boslough with Sandia researcher David Crawford, revolutionized the way researchers treat airbursts on earth. “That modeling directly translated into understanding the Tunguska explosion of the early 20th century and the mystery of Libyan desert glass,” says Boslough. The Libyan desert glass phenomenon involved the discovery of large deposits of shattered glass in the Egyptian desert, where there should be none.

“It seems to me that Jupiter — a big target with tremendous gravitational attraction — should be getting hit by things this size all the time. But apparently nobody is usually watching at the right time,” said Boslough. “Here, two people were watching at the right time. The amateurs are so reliable and sensitive these days that we’re seeing more impacts.”

Provided by Sandia National Laboratories

Citation: Potential lab in outer space to open for amateur astronomers (2010, September 10) retrieved 26 April 2024 from

<https://phys.org/news/2010-09-potential-lab-outer-space-amateur.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.