

# Star Wars: Scientists Hope To Save Lives With New High-Tech Telescope

By Eileen Chao | 03/14/2013

University of Hawaii astronomers are using a \$5 million federal grant to build a giant camera they say will be able to snap pictures of asteroids headed for Earth and warn of impending danger.

The [ATLAS, or Asteroid Terrestrial-Impact Last Alert System](#), is expected to be able to predict a 50-yard diameter asteroid like the one that hit Chelyabinsk, Russia last month, the biggest in a century.



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More than 1,200 people in the Russian city were injured by glass that exploded into schools and workplaces following the asteroid's impact. No deaths were reported.

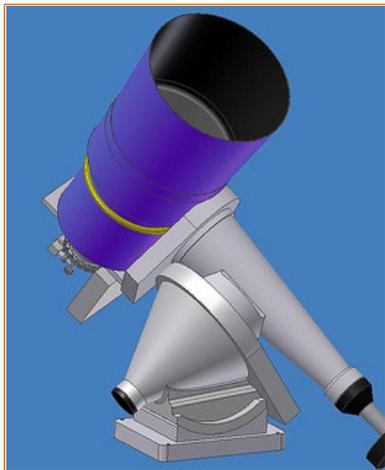
UH astronomer John Tonry says these injuries could have been avoided if people had had enough warning and time to evacuate. He and a team of astronomers at [University of Hawaii](#) have been working to develop an asteroid detection device, funded by the National Aeronautics and Space Administration grant.

The project design is nearly complete and construction is expected to begin soon. Tonry said that \$3.5 million of the [NASA](#) money has been designated for design and construction in the first three years, with the remainder for operating the system in the following two years.

Scientists hope to be able to detect large asteroids — about 50 yards in diameter — that are big enough to wipe out an entire city up to a week in advance with the ATLAS telescope. They estimate that one of these “city killer” asteroids strikes the Earth once every few hundred years, the most recent one occurring [103 years ago over Tunguska in Siberia](#).

For an even bigger 150-yard diameter “county killer” asteroid, ATLAS is expected to be able to detect the object three weeks in advance, according to Tonry.

“That’s enough time to evacuate the area of people, tell citizens to stay away from the windows,” Tonry said in an interview with [Civil Beat](#). “Nobody would’ve been hurt if everybody knew there was going to be a big explosion.”



ATLAS will be able to monitor the skies in a way that’s “never been done before,” giving researchers not only a wide view of the sky, but also heightened sensitivity. Up to eight small telescopes, each fitted with 100-megapixel cameras, will be mounted to a base at one or two locations in the Hawaiian Islands.

While locations are still being considered, Tonry expects one mount to be on Oahu and another on a neighboring island.

The project is “a giant telephoto lens pointed at the sky, and we’re just taking pictures, connecting it to our software and analyzing the pictures,” Tonry explained.

The lens will scan the sky twice per night, much faster than other telescopes that can take more than a month for a single sweep, he said.

Astronomers at UH have also been working on a similar monitoring system, [Pan-STARRS](#), that can detect larger asteroids years in advance — asteroids that have the potential to wipe out entire cities. Pan-STARRS, which made headlines in recent years for spotting a large number of asteroids, is not able to detect many of the smaller asteroids like the one that struck Chelyabinsk, astronomers say.

Tonry said that both Pan-STARRS and ATLAS solidify Hawaii’s position as a center for advanced technology in the field of astronomy.

“The most important thing is it puts Hawaii on the map — we’re a serious contender in high-tech technology,” he said. “It’s not being done by Russia or India or China, it’s being done by the United States, and it’s being done in Hawaii, and that’s significant.”

John Rayner, an astronomer at UH who has been surveying planetary objects for NASA for more than 20 years, says that the innovative ATLAS technology will provide astronomers with data, fast.

“ATLAS has a very good chance of finding these objects which can be quite potentially harmful to the planet and the atmosphere much sooner [than other technologies],” said Rayner.

He said smaller asteroids that now mostly aren't detectable can still do city-wide damage.

The fact that the ATLAS technology will be located in Hawaii is also critical to its design.

"Mauna Kea is an ideal site because it is at a high altitude with good weather, low water vapor content, the sky is relatively stable from the mountain so the star images are more clear," he said.

In addition to asteroids, ATLAS will also look for dwarf planets, supernova explosions and flashes of light that occur when a star is gobbled up by a supermassive black hole.

The project is not expected to be fully operational until 2015, but the public will have a chance to learn more at [UH Institute for Astronomy's Open House event](#) on April 14 from 11 a.m. to 4 p.m.

**DISCUSSION:** *Do you think Hawaii is a contender not only in the world of astronomy, but also cutting-edge technology?*