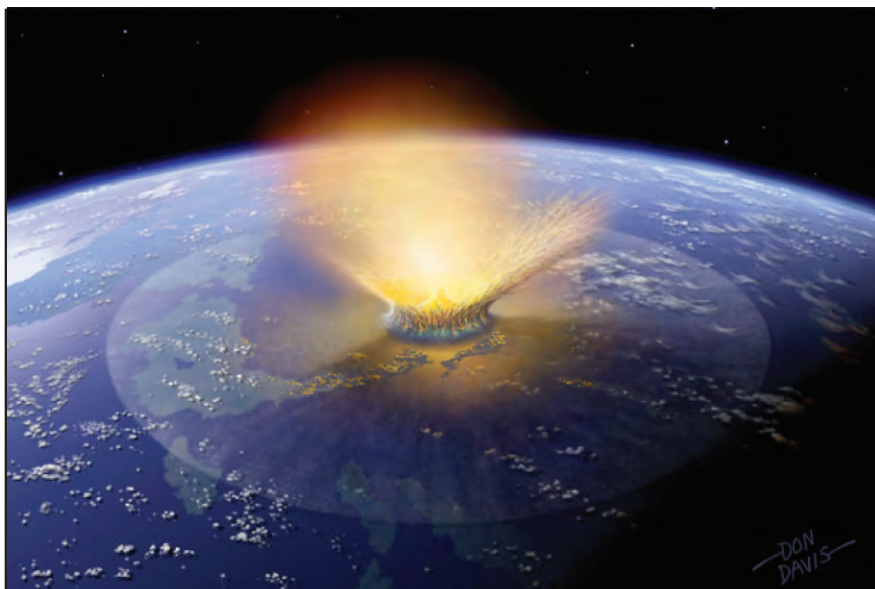


# ATLAS



## New Detection Capabilities

*Complementing and Expanding Existing Alert Systems*



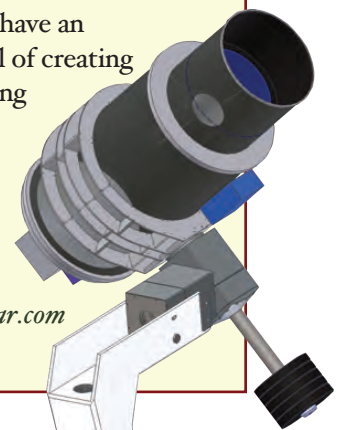
Art by Don Davis

ATLAS is designed to detect near-Earth objects (NEOs) before they hit Earth and provide emergency response authorities with critical information needed in the event of an impending impact. ATLAS's nightly all-sky surveys will use cameras with extremely wide fields of view to find previously undetected asteroids. The new wide-field telescope technology will complement the existing Pan-STARRS narrow/deep survey that is currently discovering and tracking NEOs from Haleakalā, Hawai'i.

### UH Instrumentation

Astronomers at the University of Hawai'i Institute for Astronomy are leaders in the design, development, and production of new technology with the ability to automate nightly collection and analysis of enormous amounts of data. They have contributed to state-of-the-art land- and space-based programs that operate computer-automated imaging systems.

UH scientists involved in developing the largest digital camera in the world, the 1.4 Gigapixel Camera built for Pan-STARRS, are now excited about the potential for improving and expanding our ability to detect near-Earth objects. They have an ambitious goal of creating an early-warning system for Earth impacts — ATLAS.



<http://fallingstar.com>

### ATLAS WILL

- provide days to weeks of warning of an impending impact by an asteroid larger than about 50 yards in diameter that could destroy a small country.
- robotically image and process the entire visible sky several times each night.
- be able to detect objects that are about one millionth as bright as can be seen with the naked eye in a dark, clear sky.
- produce wide-field images covering about 150 times the area of the full moon.
- consist of two observatories in Hawai'i, separated by 100 miles, one on Mauna Loa and one on Haleakalā.
- use observations taken by both observatories at the same time to immediately determine the location of objects near Earth.
- construct the first two observatories in Hawai'i and propose to build additional observatories in other parts of the world that can be smoothly integrated into the ATLAS all-sky system.
- use a special algorithm to look for streaked images that would be generated by asteroids closer to us than the distance to the Moon.

For more inquiries about ATLAS or potential public/private funding opportunities with significant donor branding opportunities, please contact UH Astronomer John Tonry, [tonry@hawaii.edu](mailto:tonry@hawaii.edu)



# ATLAS Technical Specifications

Number of observatories	Initially 2, goal 6 or more
Site separation	100 miles (160 km)
Telescope field of view	7.4°
Detector	10.5k x 10.5k CCD
Pixel scale	1.86"
Nominal exposure time	30 seconds
Sensitivity	Magnitude 20
Time between revisits each night	About 1 hour
Total number of images per night per site	1000
Total data rate per site	150 GB per night
Number of asteroid detections per night	Up to 25,000 asteroids
Impact warning time	About a week for 50 meter diameter impactor About a month for 140 meter diameter impactor