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Hero dev writes the CODE that COULD SAVE THE WORLD

Best summer coding job ever for US student?

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An asteroid collision with Earth could now be less likely thanks to a software developer who created a computer program capable of tracking NEOs (Near Earth Objects).

Mark Trueblood of the National Optical Astronomy Observatory spotted that such a coding opportunity would be perfect for a student's summer project.

He enlisted Beloit College student, Morgan Rehnberg, who developed the program – dubbed PhAst – last summer alongside Trueblood, Robert Crawford of the Rincon Ranch Observatory and Larry Lebofsky of the Planetary Science Institute.

"An asteroid impact with the Earth can really ruin your day: just consider the dinosaurs," reads a release from the NOAO.

"Most asteroids, also known as minor planets, orbit the Sun beyond the planet Mars and present no danger, but there is a class of asteroids whose orbits cross the orbit of the Earth.

"If one of these asteroids and the Earth are at the same point in their orbits at the same time, a collision could occur."

NEOs are keeping astronomers very busy. Those starry-eyed boffins are keeping a close watch on such objects and hope to discover as many of them as possible.

By tracking them, space experts can compute more accurate orbits.

"In this way, if a potential future collision were to be identified many years in advance, space probes could carry out steps to tweak the path of the NEO and deflect the collision," the NOAO cheerily noted.

Asteroids are sneaky. They move quickly and are difficult for the naked eye to track.

"Unlike most of the data that astronomers work with, tracking a fast moving asteroid requires that the observer view multiple digital images obtained at the telescope by blinking between them, almost like a movie," said the agency.

"In addition, accurate coordinates locating the NEO in the sky need to be computed. (Termed right ascension and declination, these are similar in concept to the latitude and longitude of a position on Earth.)"

It added that software packages already exist that are used by astronomers, but none of them suit the exacting needs of the tracking software coded by Rehnberg, who modified an existing image viewer program called ATV – written in the IDL code.

The software examined as many images as required, in any order, said the NOAO. It also performed the astrometric (positional) as well as photometric (brightness) analyses.

"Although Morgan tested his new software on existing data, the first actual trial occurred in October, during an observing run at the 2.1m telescope at Kitt Peak National Observatory. The group observed a Potentially Hazardous Asteroid (PHA), designated NEO2008 QT3: these are asteroids with orbits that bring them within 50,000 km of the Earth (the Earth-Moon distance is about 385,000 km)," the NOAO soberly explained.

"Morgan's software program was able to correctly compute the position and brightness of this object with half the measurement errors in the previous software."

The Minor Planet Center accepted the observations after the team submitted the results to the clearinghouse.

Asteroid-chasing PhAst is available online here [1]. ®

Links

1. http://www.noao.edu/noao/staff/mighell/phast/