

Rapid response strategies to announced small asteroid impacts

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Asteroids 2008 TC₃ and 2014 AA were detected in space a similar 20 and 21 hours prior to impacting the Earth, respectively. While 2008 TC₃ was well observed prior to impact on October 7, 2008, and meteorites were recovered on the ground in the Nubian desert of Sudan [1], asteroid 2014 AA was lost soon after the initial detection on January 1, 2014. Shortly after impact, two infrasound stations detected a faint rumble from a direction over the Atlantic ocean, north of Brazil. That rumble signaled a lost science opportunity to forge links between meteorite types and asteroid classes.

Now, a program is being established to prepare for, and help execute, a rapid and effective response to a predicted Earth impactor. By developing an effective alert system, the program brings together the asteroid survey projects that can detect such an asteroid and the astronomers that can respond. Strategies to respond rapidly to an announced small asteroid impact are being developed. Goal is to facilitate the astronomical observations of small asteroids on their way in, to measure the meteoroid kinetic energy, internal structure and composition during impact in the Earth's atmosphere, even if the impact is over water, and to increase the likelihood that meteorites are recovered pristinely for laboratory investigations. For that purpose, an international consortium was formed to further these goals.

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