

June: Did you ‘find’ the two asteroids, or minor planets, I mentioned last month? Mag 10 objects are hard to find as there are over a million stars ‘up there’ of that brightness. And if you found them, you would not have seen the “rocky potato” like objects featured in magazines. One e-mailer asked, “Why bother?”

There are only a few dozen asteroids over 100 miles across, but thousands of 1,000’ and up and millions smaller than that. Most asteroids stay in orbits around our Sun at a distance of 150 million to billions of miles, whirling around for 5 billion years already. So many for so long... there must have been collisions and near misses; orbits might have changed as a result.

Could those asteroids cross Earth’s or Moon’s path? Yes! The many craters on the Moon are evidence of asteroid collisions. Earth has been hit too, but due to erosion, evidence is hard to detect. You might have seen the crater near Winslow, AZ; a ‘small’ meteoroid, 130’ across, hit Earth 50,000 years ago, causing a crater one mile in diameter. Much has been written about the Tunguska impact, which happened in 1908 in Siberia. And there was one that likely wiped out the dinosaurs and 75% of all living species; a big ‘minor planet’ caused the Chicxulab crater in Yucatan 65 million years ago. The crater, now covered with sediments, is over 100 ml in diameter and the impacting minor planet must have been 6 miles across!

Could this happen in our times? Yes, we have to add such disastrous events to the threats of nature, just as hurricanes, volcanoes, earthquakes and the like.

Statistics for such disasters are hard to come by. Daily we have particles entering our atmosphere and burning up there, “falling stars”, nothing to do with stars, of course. These particles are meteoroids around 1 mm (.04”). Once a month, on average, a small meteoroid up to 10” enters our atmosphere. If noticed at all, it is recorded as a ‘boom’, as it burns up, explosively, in the upper atmosphere. Once a year, on average again, an asteroid visitor up to 10 ft comes along. Since 75% of Earth’s surface is water, the majority falls in the oceans with an explosion and splash; impacts are comparable with a ton of TNT ... keep distance! Once per century we can expect an impact from an asteroid up to 50 ft with the effect of the Tunguska one. That’ll be like a megaton of TNT, definitely disaster potential!

Major calamities can come from the big ones: 100+ ft, once per millennium, and one of a mile across can be expected every million years or so.

Can we do something about it? We can and should; and we are, fortunately. About 80% of the bigger ones have been cataloged and their orbits are well known. If they are not crossing Earth’s orbit, there are no problems. But if they cross we’ll have a “Near Earth Object” (NEO). Few asteroids smaller than a mile across have been cataloged so far, but astronomers and amateurs are working on it.

What can we do if a NEO is detected and an impact likely? If we have months of notice, we can shoot a rocket up. In July 2005 we ‘shot’ Tempel-1 with an 800 lb block of copper as probe. We could have blown it to pieces too. Rockets can be attached to asteroids and push them out of collision orbits into safe-passage orbits. That is a preferred procedure.

PBS and the History Channel have presented some animation movies showing what a disastrous asteroid impact would look; check for the repeats, they’re nice and scary!

Clear nightskies from the Starsplitters.

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