

Asteroid Day, June 30



Tunguska Event – Simulated

Tunguska

Today is Asteroid Day, the 108th anniversary of the “Tunguska Event,” the largest asteroid impact in recorded history, when a roughly 40 meter-wide (125 feet) rock exploded high in the air over Tunguska, Siberia, in 1908. The explosion released the power of 185 Hiroshima-type atomic bombs (though without the deadly radioactivity) and flattened trees for many miles.

An asteroid, also known as a “meteoroid,” is simply a chunk of rock or iron shooting through space, usually in an orbit around the sun. Most of them, including the very largest, orbit in the so-called “asteroid belt” between Mars and Jupiter; but a relative few wander the solar system in essentially all kinds of possible orbits. And a “relative few” can be a very large number when we’re talking about asteroids.



Trees felled by the Tunguska Asteroid explosion Jun 30, 1908

Fortunately, there were no known human casualties of the Tunguska Event because the area was uninhabited. It was even several years before scientists could even get to the site to see what had happened.

Asteroid Day was designated, beginning last year, as a way to educate people about the danger imposed by near-earth asteroids. The more people who understand the danger, the more likely our leaders will be to put resources into finding ways to prevent it.

The Panoramic Survey Telescope in Hawaii is dedicated to finding asteroids that cross earth's orbit, called "earth crossers" or "near earth asteroids," because some of them could pose serious dangers to us. So far, it has found 10,000 of them and astronomers estimate there are literally several

million more. The 10,000th one, found June 18, 2013, and designated Asteroid 2013 MZ5, was 1,000 feet (300 meters) across. If it were to strike our planet, it could unleash more than 400 times as much destructive power as the Tunguska Event. Fortunately, it's path does not directly intersect with ours for the foreseeable future.

Chelyabinsk

However, it was only four months earlier, on February 15, 2013, that the Chelyabinsk Meteor entered Earth's atmosphere over the southern Ural region of Russia with a speed of approximately 19 kilometres per second (41,000 mph). Its light was brighter than the Sun, and it was visible up to 100 km (60 mi) away. Some witnesses even felt intense heat from the fireball.

The explosion shattered windows and did other damage, injuring at least 1,500 people enough to seek medical help.

<https://youtu.be/JB2eoQf0GBA>

This was a small one, and it approached earth from the direction of the sun, making it difficult to see. For these reasons, nobody knew it was coming until it streaked across the skies of Chelyabinsk.

Bigger ones are out there. They've hit our planet before, but it's usually hard to find the craters because they've been destroyed or hidden by erosion. It's easier to see that the moon is covered with craters from the bombardment it receives. Earth gets the same punishment from the sky, but the atmosphere burns up the small ones and soon degrades the craters the big ones leave.

The asteroid that finished off the dinosaurs 66 million years ago left a crater more than 180 kilometers (110 miles) in diameter and 20 km (12 mi) deep near Chicxulub, Mexico; but it is mostly under water. The asteroid itself was at least 10 km

(6 mi) in diameter.

Meteor Crater

Possibly the best preserved asteroid crater is Meteor Crater, 37 miles (60 km) east of Flagstaff, Arizona. It is smaller, approximately 1.2 k (3/4 mi) in diameter and 170 m (560 ft) deep, as seen below, and was formed by a nickel-iron meteorite about 50 meters (160 feet) across about 50,000 years ago. It was about 50 m (160 ft) deeper before it eroded.



Meteor Crater in Arizona

The Danger

It's easy to see that an asteroid this size could wipe out a small city and wreak havoc on a much larger area. Fortunately, there were no humans in North America that long ago; but it could happen just as easily today.

The Tunguska Asteroid could have destroyed a state or a small country.

The Solution

The dinosaurs could not help themselves, but we can. By finding the rest of the asteroids that might endanger our planet, we can know when the next one is coming and where it will strike before it gets here.

Using modern space technologies we can deflect an asteroid endangering the earth before it gets here and save ourselves. But it requires resources to locate the dangerous ones and design, build, and test the protection.

Remind our national leaders, we don't want to go the way of the dinosaur.

Sources:

- [Science News](#)
- [Space.com](#)
- [Wikipedia](#)