

Earth from space: Meteor Crater

June 28 2024



Credit: contains modified Copernicus Sentinel data (2024), processed by ESA,

Ahead of Asteroid Day (June 30), the Copernicus Sentinel-2 mission takes us over the Meteor Crater, also known as the Barringer Meteorite Crater.

About 50,000 years ago, an iron-nickel meteorite, estimated to be 30–50 m wide, smashed into North America and left a massive hole in what is today known as Arizona. The violent impact created a bowl-shaped hole of more than 1,200 m across and 180 m deep in what was once a flat, rocky plain.

During its formation, millions of tons of limestone and sandstone were blasted out of the crater, covering the ground for over a kilometer in every direction with a blanket of debris. Large blocks of limestone, the size of small houses, were thrown onto the rim.

One of the crater's main features is its squared-off shape, which is believed to be caused by flaws in the rock which caused it to peel back in four directions upon impact.

The wide perspective of this image shows the crater in context with the surrounding area. The impact occurred during the last ice age, when the plain around it was covered with a forest where mammoths and giant sloths grazed.

Over time, the climate changed and dried. The desert that we see today has helped preserve the crater by limiting its erosion, which makes it an excellent place to learn about the process of impact cratering.

Impact craters are inevitably part of being a rocky planet. They occur on

every planetary body in our solar system—no matter the size. By studying [impact craters](#) and the meteorites that cause them, we can learn more about the processes and geology that shape our entire solar system.

Over the past two decades, ESA has tracked and analyzed asteroids that travel close to Earth. ESA's upcoming Flyeye telescopes will survey the sky for these near-Earth objects, using a unique compound eye design to capture wide-field images, which will enhance the detection of potentially hazardous asteroids.

ESA's Hera spacecraft, launching later this year, will closely explore asteroids and improve our understanding of these celestial bodies and help us better prepare for potential future asteroid deflection efforts.

Provided by European Space Agency

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