



LEARN - What Are The Biggest Asteroid Impact Craters on Earth?

Learning Objective:

Learn about the Earth's extensive past of major asteroid impacts.

Overview:

Unlike the Moon, Earth has an atmosphere that over time has polished off the traces of the past when large asteroids impacted its surface. Many of these marks were only discovered thanks to satellite technology and resource extraction. Find out more about the biggest asteroid craters on Earth.

Specifics:

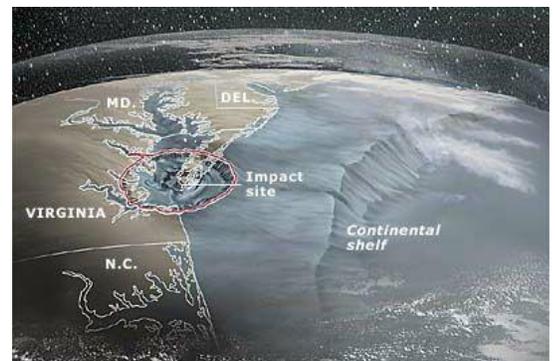
Most asteroids that head towards Earth are very small and consequently incinerated by the atmosphere. However, our planet has a history of impacts by much larger objects. Traces of these impacts can still be found on the Earth's surface. These marks are popularly known as impact craters, but they have a more technical and unusual name: astrobleme, which means "star scar" in Greek.

Almost 200 craters have already been identified and catalogued. With tens and even hundreds of kilometres in diameter, most of them are only noticeable when viewed from above. Here are the main asteroid impact craters found on Earth, listed in alphabetical order:



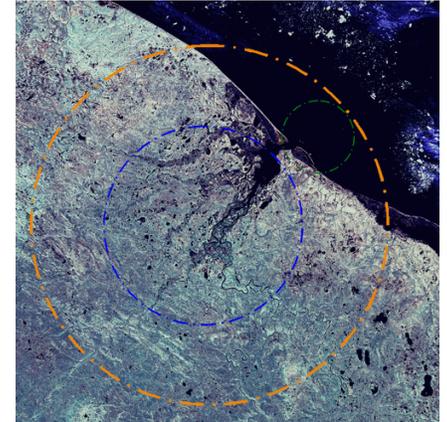
Acraman - Located in South Australia, it was formed about 580 million years ago after the collision with a huge asteroid. It has a diameter between 85 and 90 kilometres approximately. It is a complex crater, well eroded and with different elevations, including a lake with a diameter of 20 km.

Chesapeake Bay - Until a few decades ago, no one knew that the bay located in the American state of Virginia was shaped by an asteroid impact, revealed thanks to the oil exploration activity that took place on the site. The bottom of the crater is 40 km in diameter, but the entire structure is 85 km in diameter, situated at a depth of 1 km. It is one of the best-preserved "wet-target" impact craters in the world.





Chicxulub - This is the best-known crater because its impact would have caused the extinction of the dinosaurs 66 million years ago. It is located in the Yucatan Peninsula in Mexico, and its diameter is about 180 km. The causative asteroid had an estimated diameter of more than 10 km.

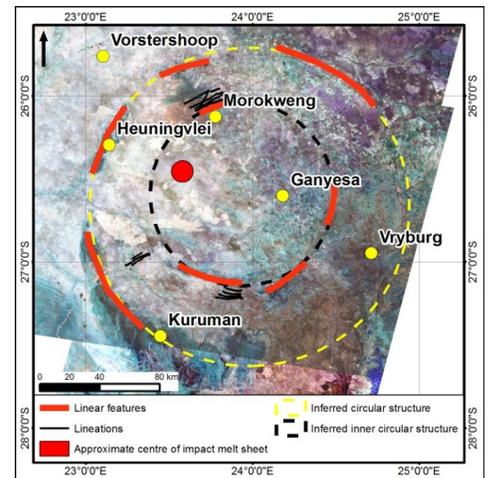


Kara - Located in the Arctic Ocean, in a region belonging to Russia, this crater is not exposed on the surface. It has an estimated diameter of 65 km but it is believed that the crater was initially twice the size. It has been shrinking over time due to erosion.



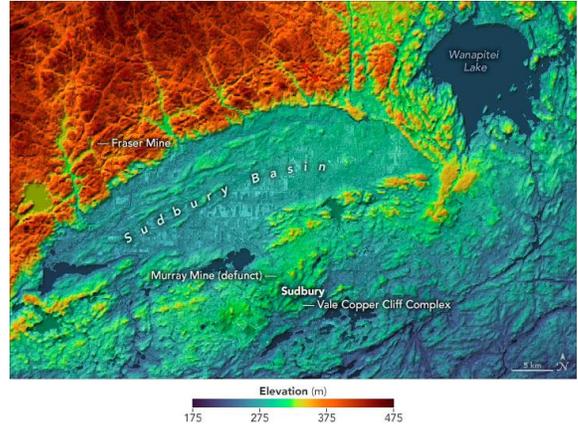
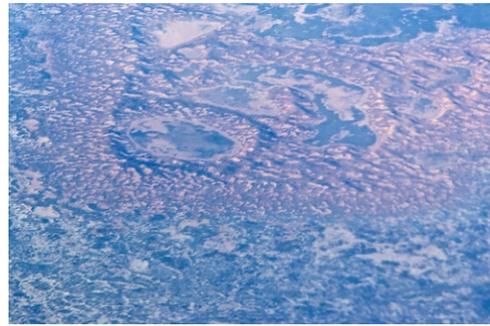
Manicouagan - Known as "the eye of Quebec", a region located in Canada, the crater's inner ring is a 350-metre-deep circular lake. The impact that generated this crater occurred about 215 million years ago and is one of the most beautiful and preserved craters on Earth, with an estimated diameter of between 85 and 100 km.

Morokweng - This crater was discovered in the 1990s near the South African part of the Kalahari desert and has an estimated diameter of 70 km. The impact occurred about 145 million years ago and in 2006, [pieces of the original asteroid measuring up to 25 cm were found](#).



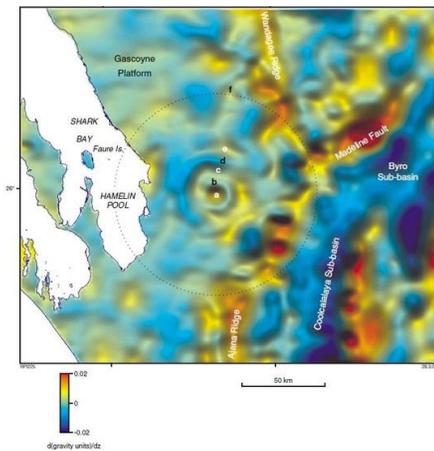
Popigai - This nearly 100 km diameter crater located in Russia was formed by the impact of an object estimated to be 8 km in size, which occurred about 35 million years ago. As this region was rich in carbon, the heat and pressure caused by the impact resulted in the formation of large diamond reserves.

Sudbury Basin - Located in Canada and with a diameter of 130 km, it is one of the oldest craters on Earth. The impact that occurred 1.8 billion years ago was so strong that it produced lava and split the minerals apart. Fragments of this collision were found 800 km away.



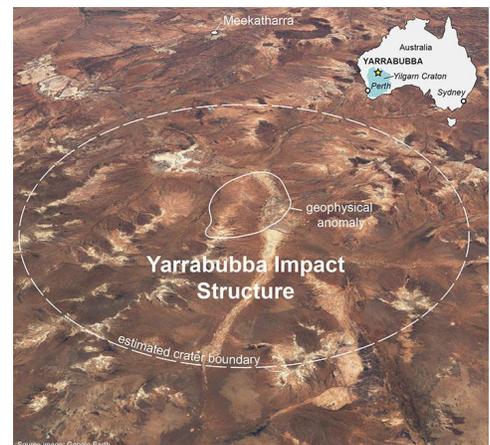
Tookoonooka - Located in Australia, this crater is not visible from the surface and was only discovered because of oil exploration in the region. Its diameter is about 55 km and it originated from an impact that occurred 128 million years ago.

Vredefort - The largest impact crater on Earth, with an estimated diameter of 300 km, is located in South Africa and a city occupies part of the site. With the impact that occurred 2 billion years ago, the original asteroid was between 10 and 15 km, but a [more recent study](#) indicates that the object was much larger, between 20 and 25 km in diameter



Woodleigh - Another large crater located in Australia, it has a diameter between 40 and 60 km, but some studies point out that its diameter is double, hidden at a depth of 200 metres. One of the rarest minerals in the world, reidite, [was found in this crater in 2018](#).

Yarrabubba - Also located in Australia, it is considered to be [the oldest known crater](#), formed 2.3 billion years ago. The original crater was 70 km in diameter, although its remnant today is only 20 km.



Learn more about this subject by visiting these websites:

[LEARN – What happens when an asteroid hits Earth?](#)

[Earth Impact Database - PASSC - University of New Brunswick](#)

[10 Earth impact craters you must see \(Space.com\)](#)

[Studying How Craters Are Made: The Planetary Impact Lab \(JHU Applied Physics Laboratory - video\)](#)