



1. Two asteroids to whiz past Earth on September 14: NASA and ESA will team up to deflect Earth-bound asteroids

- What is an ambitious Asteroid Impact Deflection Assessment (AIDA) mission all about?
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- What is an asteroid, exactly? Where do asteroids come from?
- Why do asteroids hit Earth? How are asteroids discovered?

GS paper 3 (Awareness in Space)

In this video, you can find detailed answers for all the above questions.



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Indian Express. Retrieved from <https://indianexpress.com/article/explained/explained-how-to-deflect-an-asteroid-plan-in-progress-5963243/>



What is the context about?



Among all the causes that will eventually cause the extinction of life on Earth, an asteroid hit is widely acknowledged as one of the likeliest.



If humanity is going to stop dangerous asteroids, countries will likely have to work together -- thankfully, that might just happen. NASA and ESA teams are meeting in Rome next week to discuss progress on on the Asteroid Impact Deflection Assessment.



It is a joint research mission to study the viability of diverting an asteroid by crashing a spacecraft into its surface.

What is an ambitious Asteroid Impact Deflection Assessment

(AIDA)mission all about?



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It is an ambitious double-spacecraft mission to deflect an asteroid in space, to prove the technique as a viable method of planetary defence. The mission, which includes NASA and the European Space Agency (ESA), is known as the Asteroid Impact Deflection Assessment (AIDA).



During September 11-13, asteroid researchers and spacecraft engineers from around the world will gather in Rome to discuss its progress.



NASA will provide the collider, the Double Asteroid Impact Test (DART). It should launch in summer 2021 and will smack into the smaller of the two Didymos asteroids at about 14,764MPH.



How this process of an asteroid deflection will be carried out?



The target is the smaller of two bodies in the “double Didymos asteroids” that are in orbit between Earth and Mars. Didymos is a near-Earth asteroid system.



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The project aims to deflect the orbit of the smaller body through an impact by one spacecraft. Then a second spacecraft will survey the crash site and gather the maximum possible data on the effect of this collision, ESA explained in a statement.

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ESA's contribution is a mission called Hera, which will perform a close-up survey of the post-impact asteroid, acquiring measurements such as the asteroid's mass and detailed crater shape.



Hera will also deploy a pair of CubeSats for close-up asteroid surveys and the very first radar probe of an asteroid.

Two asteroids to whiz past Earth on September 14: Should we be concerned?



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Large asteroids are considered to be a concern when they come near our planet. These celestial objects orbit the Sun and at times they tend to come too close to the Earth.



Now, two giant asteroids are set to fly close to the Earth on September 14. Earlier this month, NASA warned about asteroid 2000 QW7, which is the size of the Burj Khalifa, that is set to whiz past our planet at a speed of 23,100 km per hours on September 14.



Recently a well-known astrophysicist had warned that the 370-meter wide Near-Earth asteroid Apophis 99942 might spark a major tsunami that can potentially wipe out the entire west coast of North America if it manages to hit the Earth.



What is an asteroid, exactly? Where do asteroids come from?



An asteroid is a small, rocky or metallic object orbiting the Sun. They are now usually defined as being larger than 1 meter in diameter with objects smaller than that being called meteoroids.



The largest asteroid is Ceres at 965 km (600 mi) diameter. Most asteroids, including Ceres, are located in the asteroid belt between Mars and Jupiter, but some asteroids come near to or cross Earth's orbit.



Asteroids are typically material left over from the period of planetary formation 4.5 billion years ago, the stuff left over that didn't form into planets in the inner solar system. Often they are fragments of collisions between asteroids in the past.





Why do asteroids hit Earth?



Space is really empty and big, but there is also a lot of stuff out there, and Earth is a big target with big gravity, so things run into Earth or Earth runs into them.

How are asteroids discovered?



Astronomers use telescopes to look for objects that are moving relative to the background stars. They use the telescopes to take repeated pictures of a part of the sky over many hours or days.



The stars will not move in one picture to the next. But asteroids will, as will planets and comets. Moving objects are compared against where known objects are expected to be. The objects that are left are possible asteroids.