

TIMELESS QUEST: ON NASA'S OSIRIS-REX AND THE BENNU ASTEROID SAMPLE

Relevant for: Science & Technology | Topic: Space Technology & related matters

To enjoy additional benefits

CONNECT WITH US

September 28, 2023 12:10 am | Updated 07:46 am IST

COMMENTS

SHARE

READ LATER

On September 24, [NASA's OSIRIS-REx](#) spacecraft [dropped off a capsule over the earth](#), leaving it to be pulled down by the planet's gravity. It then deployed parachutes and gently landed in Utah in the U.S., where experts waited to retrieve its invaluable contents: around 250 grams of rocks and dust that OSIRIS-REx had collected from the surface of 101955 Bennu. Bennu is an asteroid orbiting the sun (with a period of 436 days) such that it comes relatively close to the earth once every six years or so. It is a carbonaceous asteroid with characteristics that suggest it settled into its present form and composition within 10 million years after the solar system's formation, surviving the last 4.5 billion years nearly intact. Such 'leftover' pieces of debris are expected to reveal the system's ingredients and the signatures of the processes that combined them in different ways. Many scientists also believe that when rocks such as Bennu crashed into the earth, they delivered the compounds required for the formation of life. Also, as Bennu could smash into the earth between 2178 and 2290, studying it could inform ways to prevent this collision. NASA launched OSIRIS-REx (Origins, Spectral Interpretation, Resource Identification, Security-Regolith Explorer) in 2016. Two years later, scientists worked to place it into orbit around Bennu, at an altitude of just 2 km. Bennu itself was zipping through space at 28 km/s. On October 20, 2020, OSIRIS-REx landed just long enough to grab a sample of the asteroid from a pre-identified spot before flying back up. In May 2021, it began its long journey back to earth, where it dropped off the capsule holding Bennu's regolith. After this, it will reincarnate in its OSIRIS-APEX avatar, to rendezvous with the silica-rich asteroid 99942 Apophis in 2029.

The OSIRIS mission has two identities. In time, it works alongside Japan's two Hayabusa missions, which have collected and returned samples of 25143 Itokawa and 162173 Ryugu, to expand our knowledge of the solar system's history. OSIRIS is NASA's third element of its 'New Frontiers' programme, after New Horizons (to explore the Kuiper Belt) and Juno (to study the planet exerting the largest gravitational influence in the solar system). While studies of Bennu include significant commercial components — such as opportunities for space-mining and impact mitigation technologies — they also participate in a more timeless quest: to find out where life came from and what its fate could be. With OSIRIS's capsule, humankind virtually gets to hold infinity in the palm of the hand.

COMMENTS

SHARE

[USA](#) / [space programme](#) / [Japan](#)

BACK TO TOP

Comments have to be in English, and in full sentences. They cannot be abusive or personal. Please abide by our [community guidelines](#) for posting your comments.

We have migrated to a new commenting platform. If you are already a registered user of The Hindu and logged in, you may continue to engage with our articles. If you do not have an account please register and login to post comments. Users can access their older comments by logging into their accounts on Vuukle.

END

Downloaded from **crackIAS.com**

© **Zuccess App** by crackIAS.com

CrackIAS.com