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UAE ANNOUNCES GROUNDBREAKING MISSION TO ASTEROID BELT, SEEKING CLUES TO LIFE'S ORIGINS

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An H-2A rocket carrying the Hope Probe, developed by the Mohammed Bin Rashid Space Centre (MBRSC) in the United Arab Emirates (UAE) for the Mars explore, lifted off from the launching pad at Tanegashima Space Center on the island of Tanegashima, Japan, on July 20, 2020 by Mitsubishi Heavy Industries. | Photo Credit: Reuters

The United Arab Emirates unveiled plans Monday to send a spaceship to explore the solar system's main asteroid belt, the latest space project by the oil-rich nation after it launched the successful Hope spacecraft to Mars in 2020.

Dubbed the Emirates Mission to the Asteroid Belt, the project aims to develop a spacecraft in the coming years and then launch it in 2028 to study various asteroids.

"This mission is a follow up and a follow on the Mars mission, where it was the first mission to Mars from the region," said Mohsen Al Awadhi, program director of the Emirates Mission to the Asteroid Belt. "We're creating the same thing with this mission. That is, the first mission ever to explore these seven asteroids in specific and the first of its kind when it's looked at from the grand tour aspect."

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The UAE became the first Arab country and the second country ever to successfully enter Mars' orbit on its first try when its Hope probe reached the red planet in February 2021. The craft's goals include providing the first complete picture of the Martian atmosphere and its layers and helping answer key questions about the planet's climate and composition.

If successful, the newly announced spacecraft will soar at speeds reaching 33,000 kilometers (20,500 miles) per hour on a seven-year journey to explore six asteroids. It will culminate in the deployment of a landing craft onto a seventh, rare "red" asteroid that scientists say may hold insight into the building blocks of life on Earth.

Organic compounds like water are crucial constituents of life and have been found on some asteroids, potentially delivered through collisions with other organic-rich bodies or via the creation of complex organic molecules in space. Investigating the origins of these compounds,

along with the possible presence of water on red asteroids, could shed light on the origin of Earth's water, thereby offering valuable insights into the genesis of life on our planet.

The endeavor is a significant milestone for the burgeoning UAE Space Agency, established in 2014, as it follows up on its success in sending the Amal, or "Hope," probe to Mars. The new journey would span a distance over ten times greater than the Mars mission.

The explorer is named MBR after Dubai's ruler Sheikh Mohammed bin Rashid Al Maktoum, who also serves as the vice president and prime minister of the hereditarily ruled UAE. It will first make its way toward Venus, where the planet's gravitational pull will slingshot it back past the Earth and then Mars.

The craft will eventually reach the asteroid belt, flying as close as 150 kilometers (93 miles) to the celestial boulders and covering a total distance of 5 billion kilometers (around 3 billion miles).

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In October 2034, the craft is expected to make its final thrust to the seventh and last asteroid, named Justitia, before deploying a lander over a year later. Justitia, believed to be one of only two known red asteroids, is thought to potentially have a surface laden with organic substances.

"It's one of the two reddest objects in the asteroid belt, and scientists don't really understand why it's so red," said Hoor AlMaazmi, a space science researcher at the UAE space agency. "There are theories about it being originally from the Kuiper Belt and where there's much more red objects there. So that's one thing that we can study because it has the potential for it to be water rich as well."

The MBR Explorer will deploy a landing craft to study the surface of Justitia that will be fully developed by private UAE start-up companies. It may lay the groundwork for possible future resource extraction from asteroids to eventually support extended human missions in space — and maybe even the UAE's ambitious goal of building a colony on Mars by 2117.

"We have identified different key areas that we want startups in the private sector to be part of, and we will engage with them through that," said Al Awadhi. "We understand that the knowledge we have in the UAE is you know still being built. We will provide these startups with the knowledge they need."

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