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UAE launches 13-year asteroid belt exploration programme

MBR EXPLORER TO TRAVEL 5B KM BEYOND MARS TO STUDY 7 ASTEROIDS

ABU DHABI

BY SAJILA SASEENDRAN
Senior Reporter

The UAE yesterday unveiled a new ambitious space programme with the launch of the UAE Asteroid Belt Exploration Project.

The initiative was launched by His Highness Shaikh Mohammad Bin Rashid Al Maktoum, Vice-President, Prime Minister of the UAE and Ruler of Dubai, at a ceremony at Qasr Al Watan in Abu Dhabi.

Taking to Twitter to announce the initiative, Shaikh Mohammad Bin Rashid said, "Thanks to Allah, we have launched at Qasr Al Watan the scientific details of one of our most important projects in the field of space."

March 2028 lift-off

MBR Explorer, the mission's spacecraft named after Shaikh Mohammad, will blast off to space in March 2028, the UAE Space Agency (USA) officials announced later at a press conference in Dubai. They said it will be the "world's first multiple-asteroid tour and landing mission" to the Main Asteroid Belt between Mars and Jupiter.

The project is slated to last 13 years, with six years dedicated



to development and seven years for exploration. Throughout this duration, the Emirati MBR Explorer will journey a staggering five billion kilometers beyond Mars to explore seven asteroids, with a planned landing on the final asteroid in 2034. The project's scope is ten times that of the Hope Probe mission, a testament to the UAE's ambition in space exploration.

SPECIAL REPORT P5



■ Shaikh Mohammad Bin Rashid Al Maktoum with other shaikhs and UAE Space Agency officials during the launch of the new space project at Qasr Al Watan in Abu Dhabi yesterday.

■ **Left:** An artist's impression of the MBR Explorer.

WAM



■ Shaikh Mohammad, Shaikh Maktoum, Shaikh Mansour and Shaikh Abdullah with UAE Space Agency officials at Qasr Al Watan, Abu Dhabi, yesterday. WAM

MBR EXPLORER: ALL ABOUT UAE'S NEW SPACE MISSION TO ASTEROID BELT

Launching in 2028, spacecraft to study seven asteroids and land on final one

DUBAI
BY SAJILA SASEENDRAN
Senior Reporter

The UAE yesterday unveiled another milestone in its space exploration programme with the launch of the UAE Asteroid Belt Exploration Project.

The ambitious initiative was launched by His Highness Shaikh Mohammad Bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai, at a ceremony at Qasr Al Watan in Abu Dhabi.

MBR Explorer, the mission's spacecraft named after Shaikh Mohammad, will blast off to space in March 2028, the UAE Space Agency announced at a press conference in Dubai. It said it will be the "world's first multiple-asteroid tour and landing mission" to the Main Asteroid Belt between Mars and Jupiter.

Taking to Twitter to announce the initiative, Shaikh Mohammad said: "The Emirates Mission to the Asteroid Belt is a massive scientific project that will result in the establishment of private Emirati companies specialised in space science and technology, the development of a deep space mission control centre, and the training of Emirati talent."

He added: "The Emirates Mission to the Asteroid Belt will cover 10 times the distance covered by the Hope Probe. Emirati youth believe in the motto that 'the impossible is possible'. The secret behind our five-billion-kilometre space mission is our belief in the capabilities of our youth, and our efforts to support them in achieving their ambitions."

EMPLOYMENT AND INNOVATION

Sarah Al Amiri, Minister of State for Public Education and Advanced Technology and Chairwoman of the UAE Space Agency, said: "The EMA is a key component of the UAE National Space Strategy and has one overriding goal: The creation of viable and rewarding employment opportunities for young Emiratis for generations to come. Emirati learning, knowledge transfer and innovation lie at the heart of the EMA. The mission will contribute to empowering local private sector companies and UAE start-ups."

Salem Butti Salem Al Qubaisi, the UAE Space Agency's director-general said: "In addition to extensive research, development and finance, long-term space missions require extensive co-operation with local and global institutions and the private sector. We are keen to expand strategic partnerships with the local private sector to ensure the success and accelerated growth of our future space projects."

DURATION OF THE PROJECT

Mohsen Al Awadhi, director of Space Missions Department, who is also the project lead of the asteroid mission, and Hoor Al Mazmi, deputy project scientist, provided further de-

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Shaikh Mohammad Bin Rashid Al Maktoum



■ The MBR Explorer will study the evolution and origin of seven asteroids, specifically the water and minerals found on them.

■ **Left:** Sarah Al Amiri said the mission will contribute to empowering local private sector companies and UAE start-ups.

WAM



All you need to know about the UAE Asteroid Belt Exploration Project

The 13-year mission involves six years of development and seven years of exploration. The explorer will study six asteroid and land on the final one to gather data for seven months.

2.8 tonnes
weight of MBR Explorer. It will travel at an average speed of **33,000km/h**

2034
planned landing on 269 Justitia Asteroid after travelling **five billion km**

tails of the project. "It is a 13-year mission with six years of development and seven years of exploration," Al Awadhi said. The Explorer will fly by the Earth, Mars and six asteroids and attempt a landing on the final asteroid in 2034.

Al Mazmi said the mission will explore the final asteroid for seven months and send back valuable data for the global scientific community.

MISSION'S OBJECTIVE

The officials said the mission involves exploring seven asteroids, with a focus on water-rich asteroids to bet-

ter understand the source of water on Earth and other planets. "The mission aims to study the evolution and origin of these asteroids. It will specifically study water and minerals on these asteroids with an aim to make use of them as resources for future space exploration projects," Al Mazmi said.

WHICH ARE THE ASTEROIDS?

The seven asteroids that the UAE spacecraft will explore are 10253 West-erwald Asteroid, 623 Chimaera Asteroid, 13294 Rockox Asteroid, 88055 Asteroid, 23871 Asteroid, 59980 Asteroid

and finally the 269 Justitia Asteroid. "The asteroids represent five different families of asteroids. The final one [Justitia] is the most significant because it is one of the two reddest asteroids in the belt," Al Mazmi said.

MASSIVE SPACECRAFT

The MBR Explorer will weigh around 2.8 tonnes, according to Al Awadhi. "In Emirates Mars Mission [EMM], we had approximately [a weight of] 1,400kg. Today, we are close to double that," he said.

It will have the most advanced thrusters ever used in a space mis-

sion and travel at an average speed of 33,000km/h. "We are developing 50 per cent of the mission based on the experience from developing the Emirates Mars Mission. But this mission is going into deeper space as compared to Hope Probe," Al Awadhi said.

"The solar panels designed for the project are 10 times bigger than the ones designed for EMM."

FOUR SCIENCE INSTRUMENTS

The MBR Explorer's four science instruments include a high-resolution camera, a thermal infrared camera, a mid-wavelength spectrometer and an infrared spectrometre. Together, these instruments will support observations that will measure the surface composition, geology and interior density and structure of asteroids across five of the main belt 'families'.

NATIONAL TEAM

A national team involving officials, researchers, engineers and other experts from the UAE Space Agency and its various partners are working on the project. Currently, Al Awadhi said, close to 80 team members are directly working with the mission.

He said private companies in the UAE play a major role in developing the mission alongside the Laboratory for Atmospheric and Space Physics in the University of Colorado Boulder which had helped build the Hope Probe.

The lander of the spacecraft will be developed fully by two Emirati start-ups specialising in space technologies.

Ali Al Suwaidi, founder of 971 Space and Maryam Al Nabooda, founder of Sadeem Space Solutions, shared the excitement about their startup companies working on the ambitious project.

Meanwhile, Abdullah Essa Sharif, senior engineer for research and development, said: "The UAE is building a vibrant space sector. It is a new field filled with challenges, but it also has opportunities for investment and high returns from a scientific perspective."

HOW STUDENTS WILL BENEFIT

Al Awadhi said various programmes have been developed to engage students in the mission. "We recognise the importance of universities as key players, particularly in the science field. We are in discussions with them to prepare PhD students and determine the required areas of expertise. Our focus is to involve students not only in science but also in engineering and technical aspects," he said.

The mission's academic partners include Khalifa University, New York University Abu Dhabi, National Centre for Space Science and Technology at UAEU, University of Colorado Boulder, the Italian Space Agency, Arizona State University and Northern Arizona University and Malin Space Science Systems.

Contributors include Emirati companies such as TII and Yahsat.