

EMIRATI 'HOPE' PROBE APPROACHES MARS

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

Hessa Al-Matroushi, Deputy Project Manager for Scientific Affairs, talks about the Hope probe on February 7, 2021 | Photo Credit: [Twitter@HopeMarsMission](https://twitter.com/HopeMarsMission)

The first Arab interplanetary mission is expected to reach Mars' orbit on February 9 in what is considered the most critical part of the journey to unravel the secrets of weather on the Red Planet.

The unmanned probe — named "Al-Amal", Arabic for "Hope" — [blasted off from Japan last year](#), marking the next step in the United Arab Emirates' ambitious space programme.

The Hope Probe is nearing the Red Planet! Tune in at 7PM UAE time on the 9th of February 2021 to witness our future make history. [#ArabsToMars](#) [#HopeProbe](#) pic.twitter.com/zoqh9iKgsI

Here are some facts and figures about the oil-rich nation's project, which draws inspiration from the Middle East's golden age of cultural and scientific achievements.

The UAE, made up of seven emirates including Dubai and Abu Dhabi, has 12 satellites in orbit, with plans to launch several more in coming years.

In September 2019 it sent the first Emirati into space, Hazza al-Mansouri, who was part of a three-member crew. They blasted off from Kazakhstan, returning home after an eight-day mission in which he became the first Arab to visit the International Space Station.

But the UAE's ambitions go much further, with a goal of building a human settlement on Mars by 2117.

China's space probe sends back its first image of Mars

In the meantime, it plans to create a white-domed "Science City" in the deserts outside Dubai to simulate Martian conditions and develop the technology needed to colonise the planet.

The UAE has plans to launch an unmanned rover to the moon by 2024 and is also eyeing future mining projects beyond Earth, as well as space tourism.

It has signed a memorandum of understanding with Richard Branson's space tourism company Virgin Galactic and announced the creation of a "space court" to settle commercial disputes relating to space industries.

The "Hope" probe lifted off from Japan's Tanegashima Space Center on July 20 last year.

The 1,350-kilogramme probe — about the size of an SUV — took seven months to travel the 493 million kilometres to Mars.

Officials say that the "most critical and complex" manoeuvre will begin on Tuesday at 1530 GMT, to slow the spacecraft enough to be captured by the gravity of the Red Planet.

The probe will for the first time fire all six of its Delta-V thrusters, for a duration of 27 minutes, to slow its cruising speed of 121,000 kilometres per hour to about 18,000 kph.

The process will consume half of the spacecraft's fuel, and it will take 11 minutes for a signal on its progress to reach Earth.

If successful, one loop around the planet will take 40 hours.

The "Hope" probe will remain in this phase for approximately two months, during which further testing will take place, until it is ready to enter the "science" orbit — when its data collection work begins.

Unlike the other two Mars ventures this year, the Tianwen-1 from China and Mars 2020 from the United States, the UAE's probe will not land on the Red Planet.

Three instruments mounted on the "Hope" probe will provide a picture of the Mars atmosphere throughout the Martian year — 687 days.

The first is an infrared spectrometer to measure the lower atmosphere and analyse the temperature structure.

The second is a high-resolution imager that will also provide information about ozone levels. And the third, an ultraviolet spectrometer, is to measure oxygen and hydrogen levels from a distance of up to 43,000 kilometres from the surface.

Studying the atmospheres of other planets will allow for a better understanding of the Earth's climate, officials say, and pave the way for scientific breakthroughs.

But the project is also designed to inspire a region too often beset by turmoil, and recall its heyday of scientific advances during the Middle Ages.

"The UAE wanted to send a strong message to the Arab youth and to remind them of the past, that we used to be generators of knowledge," Omran Sharaf, the mission's project manager, told *AFP*.

The mission, if successful, would make the UAE the fifth nation to ever reach Mars, and is timed to mark the 50th anniversary of the country's unification.

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