

6 280100 02354

FRIDAY FEBRUARY 10, 2023  
RAJAB 19, 1444

[gulfnews.com](http://gulfnews.com)

# GULF NEWS



Scan for our social media

NATION | P3

**UAE extends Hope Probe to study Mars' moon**



THE VIEWS | P10

**Biden's State of Union speech: key takeaways**



BUSINESS | P9

**Aldar sets record performance with Dh3.1b profit in '22**

FRIDAY

**VALENTINE'S DAY: HOW TO CREATE THAT PERFECT DATE NIGHT LOOK**

Check out the guide to dazzling jewellery and stunning outfits



# UAE EXTENDS HOPE PROBE TO STUDY MARS' MOON

MISSION TO FOCUS ON COLLECTING MORE DATA OF RED PLANET'S ATMOSPHERE

**DUBAI**

**BY SAJILA SASEENDRAN**  
Senior Reporter

**T**he UAE's Hope Probe has achieved its primary target of operating two years in Martian orbit and the Emirates Mars Mission has been extended to study the Mars' moon and gather more data on the red planet's atmosphere, it was announced on Thursday.

Celebrating two years of orbiting the Red Planet yesterday, the Emirates Mars Mission 'Hope Probe', the first Arab-led planetary exploration mission, is transitioning to a new orbit, top officials said at a press conference.

The orbital transfer will allow the Hope Probe to fly within approximately 150km and capture unprecedented data on Deimos, the smaller and outermost of the two natural satellites of Mars.

The Hope Probe successfully reached Mars' orbit at 19:42 on February 9, 2021, completing one of the most complex and intricate stages of its mission, after covering 493 million kilometres over a seven-month journey through space.

"We are done with the operation for one Martian year [nearly two Earth years on Mars' orbit] as planned," Mohsen Al Awadhi, director of Space Missions Department at the UAE Space Agency told *Gulf News*.

## Possible extension for 2 years

"The Hope Probe has accomplished what it needed to by doing the operation, the observations, taking photos and data, but releasing that data is still not accomplished as it takes about six months. So whatever we have released today is six-months-old," he explained.

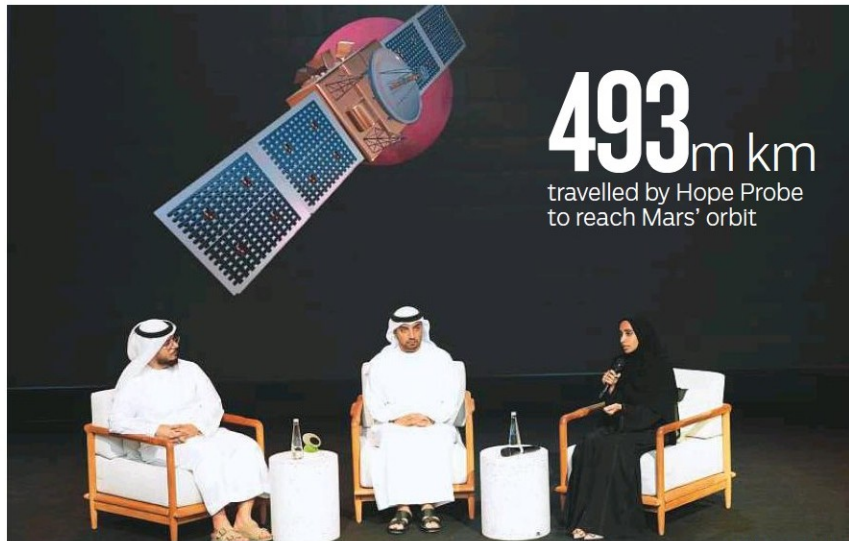
Speaking about the plan to extend the Emirates Mars Mission (EMS), he said: "By mid-last year, we started assessing the spacecraft and the instruments to see if we can think about extending the mission and we found everything is good, all green. We can actually continue for at least one more Martian year, that is two years on earth."

## Chancing upon Mars' moon

The Hope Probe will now move to a new elliptic orbit around Mars, following a Lambert orbital transfer manoeuvre utilising the change in its velocity.

What is described as a "historic move" is the result of an opportunity to study about Deimos that came along during the course of the mission, Al Awadhi revealed.

Exploring Deimos was not part of the baseline of the EMS, he said. "We never put it in the baseline back when we started the mission. But we knew the orbit and that there might be an opportunity, but we never announced anything because we didn't want to over-promise anything. Today, as we complete one Martian year, it is right time now to do something extra without impacting the objectives of the mission. So I think as long as the science community sees benefit from these data, the team will continue to do it. The importance and focus will be on the science



**493m km**  
travelled by Hope Probe to reach Mars' orbit

Clint Egbert/Gulf News

■ **From left:** Mohsen Al Awadhi, Director of Space Missions Department, UAE Space Agency, Zakaria Al Shamsi, Project Director of Emirates Mars Mission, Hessa Al Matroushi, Science Lead, Emirates Mars Mission, at a press conference at Museum of the Future in Dubai yesterday.



**The Hope Probe will capture high cadence images and data of the irregularly shaped, crater-heavy moon, during fly-bys at different times."**

**Hessa Al Matroushi**  
| Science Lead, Emirates Mars Mission



**The Hope Probe has accomplished what it needed to by doing the operation, the observations, taking photos and data."**

**Mohsen Al Awadhi**  
| Director of Space Missions Department



■ The Hope Probe reached Mars' orbit on February 9, 2021, after a seven-month journey through space.

of Mars. But whenever a possible opportunity exists, the team can support with more data on Deimos."

## Capturing Deimos

Zakaria Al Shamsi, project director at EMS, said the spacecraft had manoeuvred its orbit "only a little bit" to capture Deimos without affecting its view of Mars as the objective of the original mission was to be on the 'science orbit' of Mars.

"Other missions have very little data about Deimos. We would love the UAE to be participating in this and help the scientific community to discover more about Deimos," he said.

Deimos is the least observed

compared to the red planet's second moon, Phobos, which has been widely observed since its discovery in 1969. Orbiting Mars on a larger orbit, Deimos completes a revolution around the planet every 30 hours.

Hessa Al Matroushi, science lead at EMS, said the Deimos campaign by EMS aims to provide the international scientific community with previously unseen observations and data. "The Hope Probe will capture high cadence images and data

## MILESTONES

The Emirates Mars Mission has so far issued six batches of data on the red planet. The first batch size was 110 gigabytes and was released on October 1, 2021, while the second batch size was 76.5 gigabytes and was released on January 12, 2022.

The 57-gigabyte third batch of data was announced on April 1, 2022, while the fourth batch offered 118.5 gigabytes of data. The fifth batch of data provided 236.8 gigabytes

The sixth batch of data offered several observations, which were captured by the Probe's Emirates Mars Ultraviolet Spectrometer (EMUS), and the Emirates Mars Infrared Spectrometer (EMIRS), while the Emirates Exploration Imager (EXI) captured high cadence images of high dust movement on Mars, on June 6, June 13, June 22, June 27, July 13, July 22, and August 12, 2022. A series of EXI colour composites taken over about six hours on September 24 revealed a massive dust storm and dense fog covering Valles Marineris and the surrounding areas from early morning hours until noon, as well as the rapid evolution of the storm.

of the irregularly shaped, crater-heavy moon, during fly-bys at different times."

The first Deimos fly-by began late January and continues through February 2023. As the Probe moves to its closest approach to the moon, this allows the Hope Probe's Emirates Exploration Imager (EXI), Emirates Mars Ultraviolet Spectrometer (EMUS), and the Emirates Mars Infrared Spectrometer (EMIRS), to capture high cadence images and detailed observations of the moon.

To enable the orbital transfer manoeuvre, the Hope Probe completed two out of three manoeuvres using its main thrusters in September 2022 and January 2023, marking the first time the thrusters were activated remotely to make the necessary orbital corrections.



Read story in full and watch a related video