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KIARA ADVANI: BOLLYWOOD'S GOLDEN GIRL

29-year-old, who debuted in 2014, has tasted box office success at a time when hits are rare



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WHAT UAE'S SALEH AL AMERI HAS ACHIEVED AS ANALOG ASTRONAUT

Among other things, global confidence in the UAE's space initiatives has soared



DUBAI
BY ANGEL TESORERO
Senior Reporter

On Sunday (July 3), UAE analog astronaut Saleh Al Ameri – along with three Russian and two American crew members of Sirius-21 (Scientific International Research in the Unique Terrestrial Station) – left the isolation facility at Moscow's Institute of Biomedical Problems, completing an eight-month mission studying the effects of spaceflight on human physiology and psychology.

After conducting around 70 scientific experiments over the last eight months, the Sirius-21 crew has made new discoveries that will significantly impact the advancement of space exploration for the benefit of humanity. They have gathered new data on how astronauts can cope physically and mentally with long-term isolation, which are required for long-duration space travel.

More information will be shared and studied in the days to come, but what Al Ameri has achieved as UAE analog astronaut is significant.

In his own words, Al Ameri said, "It is my honour to congratulate my fellow Sirius-21 crew members and to dedicate this achievement to the wise leadership of rulers of the UAE and to express how very proud I am of the success of the first UAE Analog Mission. The mission involved 240 days of hard work, but to me it represented 240 days of serving my country. I would like to also extend my gratitude and appreciation to my colleague Abdullah Al Hammadi for his incredible support during the mission where we achieved all our goals."

"It was a long mission and we experienced complete isolation, with the cooperation of an international crew of collaborators. That said, it was a very rich task, as 70 scientific experiments were conducted, that required 12 hours a day shifts from seven in the morning until seven in the evening. I was pleased to participate in this exceptional experience due to the presence of a professional and supportive crew in various circumstances. Above that, I had the opportunity to benefit and learn about different aspects of space, and it will be a strong impetus to make further progress in this sector, with the continuous endeavour to invest in the youth of the country."

What is the Sirius programme?

The Sirius project was designed to last up to five years, with three phases of the programme already completed. The first phase, Sirius-17, lasted for a period of 17 days, from November 7 to 14, 2017; while the second phase,



IMPORTANT EXPERIMENTS

Al Ameri's experiments included those relating to physiology, psychology and biology, while the research of UAE universities selected for the mission included studies by the Mohammad Bin Rashid University of Medicine and Health Sciences focused on the effects of long-duration exposure to environments simulating life in space on changing the state of the heart. The University of Sharjah highlighted a study of determining the effects of stress caused by isolation on circulatory and musculoskeletal function in crew members during the mission. The American University of Sharjah presented a study on relieving psychological stress in periods of isolation and closed environments, while the United Arab Emirates University proposed research on the psychological challenges posed by isolation during spaceflight, centred on the subject of the role of motivational dynamics and intense interval training as a measure to prevent bone density loss and insulin resistance in space.

Virtual reality tests

Al Ameri's experiments, implemented with high efficiency, included simulating the operation of a space robot and reducing stress in isolation. He also conducted virtual reality experiments, such as launching a vehicle and securing its docking with the International Space Station, in addition to flying over the moon and Mars. The results of his electroencephalogram experiment provided a clear picture of brain functions in isolation. This provides more insights into the effects of long-term isolation on the brain and changes in its cognitive functions. Other experiments included examining the samples Al Ameri collected with his colleagues during a simulated lunar landing experiment, collating and transporting them to the lunar base, as well as experiments with the use of the robotic arm to pick up cargo vehicles and transport equipment, among others.

Sirius-19, covered 120 days and took place between March 19 and July 17, 2019. Sirius-21 is the third phase of the programme, which lasted for eight months, from November 24, 2021, to July 3, 2022. The fourth phase Sirius22/23 will be launched in 2022 and will last for 12 months.

The participation of an Emirati team is a strong indication of the international scientific community's confidence in the capacity

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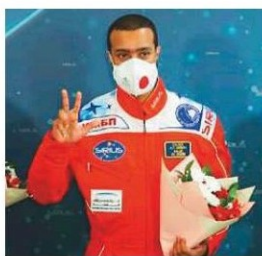
and progress of the UAE's space initiatives.

Two years ago, the country sent to Mars the 'Hope Probe', the first Arab interplanetary space mission, which is now conducting a complete scientific study of the Martian atmosphere. UAE has been sharing with the global scientific community a vast amount of data of the Red Planet's environment and this Mars mission is just the beginning of the UAE's

Our recent accomplishments will strengthen our position in the global space community as a leader among nations with space programmes."

Hamad Obaid Al Mansoori
| Chairman of MBRSC

70 experiments conducted during the Sirius-21 mission



- Top: Saleh Al Ameri with his fellow analog astronauts from the mission.
- Above: Al Ameri and his UAE colleague on the mission, Abdulla Al Hammadi, with officials.
- Left: Saleh Al Ameri acknowledges wellwishers on completion of the mission while signalling its success.

long-term space programme.

Soon, the country will be sending to the moon Rashid Rover, the world's smallest lunar rover named after the late Shaikh Rashid Bin Saeed Al Maktoum, the founding father of modern Dubai. Rashid Rover itself is actually two years ahead of its original launch schedule. UAE companies are working on international projects, including the Emirati-made MBZ-SAT, which will be launched by the end of 2023 as the second operational UAE satellite. The country is developing its own satellites, which is a big leap from the first specialist team that was sent to Korea 17 years ago to serve as its space programme.

Now, Al Ameri, has successfully completed the eight-month mission. The importance of international collaboration cannot be underestimated. UAE has achieved so much in such a short time, with the UAE government

from the start saying: 'Work with others'. Partnerships and international collaboration have always been the foundation of successful space missions. The best minds from around the world are together to solve complex problems and come up with countermeasures to beat the odds and thrive in the final frontier.

Al Ameri collaborated with three Russian and two American crew members – Oleg Blinov, Ekaterina Karyakina and Victoria Kirichenko from Russia's Institute of Biomedical Problems of the Russian Academy of Sciences (IBMP), and Ashley Kowalski and William Brown from United States space agency, Nasa.

The over-arching message of Al Ameri's mission is that countries with common interests advance various stages of space co-operation and gain shared goals. This is an accomplishment that the UAE is truly proud of.

HOW TOP OFFICIALS SEE THE MISSION

Hamad Obaid Al Mansoori, Chairman of MBRSC, said, "The great support provided by His Highness Shaikh Mohammad Bin Zayed Al Nahyan, President of the UAE, His Highness Shaikh Mohammad Bin Rashid Al Maktoum, Vice President, Prime Minister and Ruler of Dubai and Shaikh Hamdan Bin Mohammad Bin Rashid Al Maktoum, Crown Prince of Dubai, Chairman of the Executive Council and President of the Mohammad Bin Rashid Space Centre, to develop the space sector is key to the UAE's successive achievements in the field of space exploration. Our recent accomplishments will strengthen our position in the global space community as a leader among nations with space programmes as well as contribute to new knowledge and innovation."

He added: "Saleh AlAmeri has contributed new knowledge and key developments to the Emirati space exploration project, thanks to his efforts and perseverance that led to the Analog Mission's success."

Salem Al Marri, Director General, MBRSC, said: "Analog astronaut Saleh AlAmeri has successfully achieved the goals of the first UAE Analog Mission, which he accomplished through effort and perseverance during an eight-month isolation period within the Sirius-21 programme, noting that the positive results achieved through the scientific experiments that took place, will contribute significantly to studying the effects of isolation on human psychology and physiology, in addition to helping prepare for future space exploration missions."

Adnan Al Rais, Director of Mars 2117 Programme, MBRSC, said: "We in the UAE and the MBRSC are proud to participate in the Analog Mission, which represents an important milestone within the UAE Analog Programme, as part of our long-term project Mars 2117, to send humans to Mars and build a settlement on the surface of the Red Planet. "The Sirius-21 project is a representation of international collaboration, where all involved parties work together towards the common goal of developing science and technologies that will enable us to launch ambitious future missions."

The mission involved 240 days of hard work, but to me it represented 240 days of serving my country."

Saleh Al Ameri

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