



NEIGHBORS

Top experts to discuss latest development in rain enhancement

Water security in Gulf key highlight of forum

The National Center of Meteorology (NCM), which manages the UAE Research Program for Rain Enhancement Science (UAEREP), has unveiled the agenda of the fifth International Rain Enhancement Forum.

The event will be held virtually under the patronage of His Highness Sheikh Mansour bin Zayed Al Nahyan, UAE Deputy Prime Minister and Minister of Presidential Affairs from 25 to 26 January, 2021.



Dr Al Mandous

Drawing the participation of several prominent experts from the UAE and across the globe, IREF 2021 will discuss key issues related to rain enhancement research and capacity building, global water security in the light of climate change and artificial intelligence application in meteorology, among other topics related to the latest developments and technologies in rain enhancement research.

Commenting on the event, His Excellency Dr. Abdullah Al Mandous, Director of the National Center of Meteorology (NCM) and President of the Regional Association II (Asia) said: "Over the past four years, IREF has succeeded in providing a definitive platform to stimulate in-depth discussion and collaboration among the global research community in rain enhancement science and technology."

He added: "The forum has helped build a solid base for exchanging expertise, sharing ideas and research studies, and exploring the latest solutions in rain enhancement research and science. Despite the unprecedented times we currently face, NCM decided to go ahead with its plan to host IREF's fifth edition to support the continuity of research work and foster further engage-



ment among cloud seeding experts. This provides us with an unprecedented opportunity to accelerate global efforts to tackle water scarcity through rain enhancement research, while reinforcing the UAE's profound role as a leading contributor to the development of viable solutions to pressing global issues, especially water sustainability."

In her comments on the preparations for IREF 2021, Alya Al Mazroui, Director of the UAE Research Program for Rain Enhancement Science (UAEREP), said: "For the fifth year in a row, Abu Dhabi provides a spe-

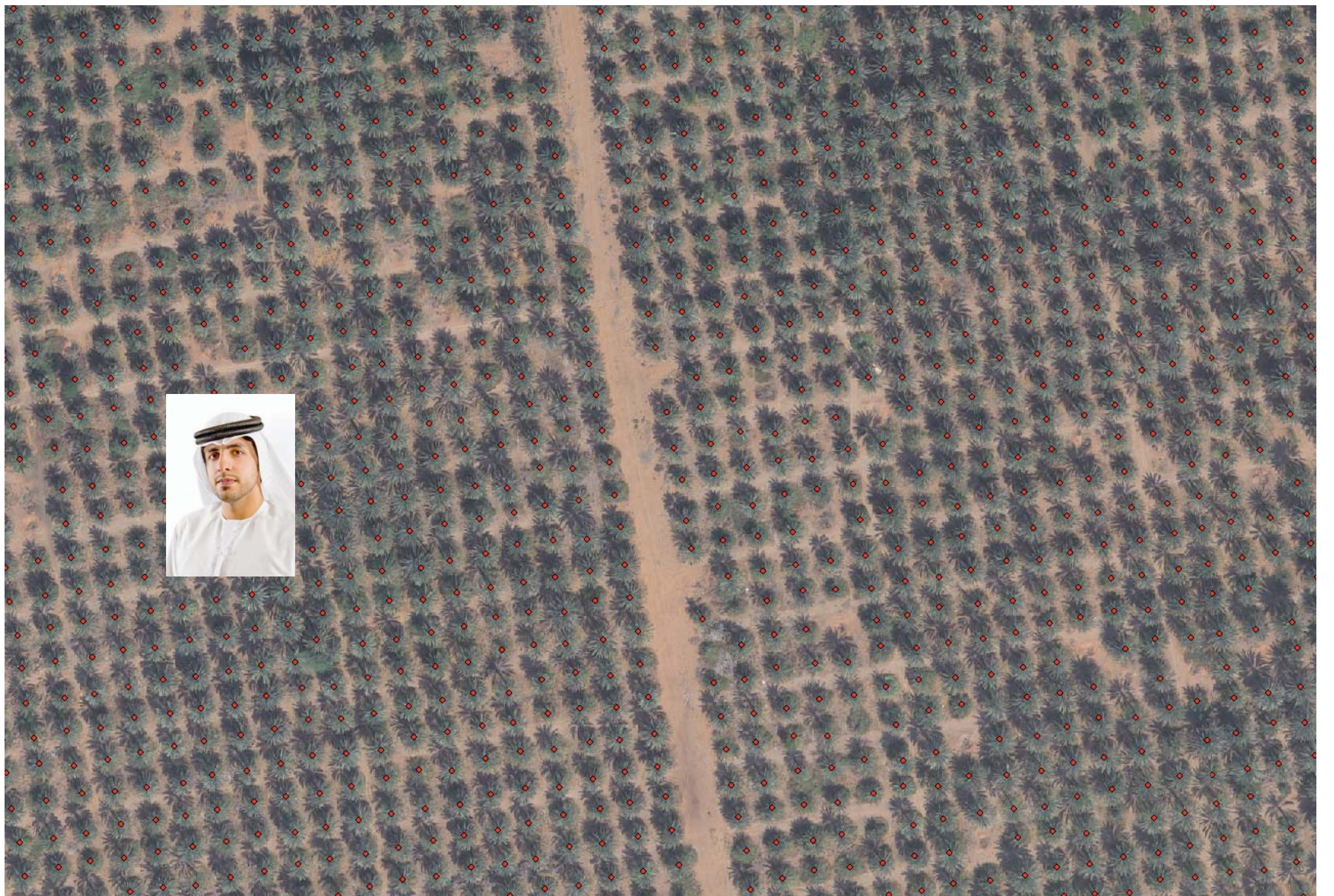
cialized platform to convene prominent international experts and scientists from across the globe to discuss the latest developments in rain enhancement research. At UAEREP, we are proud of the UAE's contributions to the advancement of this growing research domain through the grounding research work of our awardees."

She added: "We are confident that the outcomes and recommendations of the virtual forum will help enhance the efficiency and accuracy of cloud seeding operations in finding sustainable water resources. Furthermore, it will go a long way in achieving the program's objectives of facilitating international partnerships and exchanging knowledge and expertise to address global water security challenges."

Over its two days, the Forum's sessions will discuss a wide array of topics related to rain enhancement research. On day one, it will host three sessions discussing "Outlook for Global Water Security in Light of Climate Change", "Transitioning from Research to Operations in Rain Enhancement: Case Studies and Roadmap", and "Artificial Intelligence and Intelligent System Applications in Meteorology and Rain Enhancement".

The Forum's agenda for the second day features sessions titled "The Science of Cloud Formation and Rainfall in the Arabian Gulf", "Innovations in Rainfall Enhancement: Methodologies and New Insights", and "Evaluation of Impacts of Rain Enhancement Efforts".

Hosted by the UAE capital Abu Dhabi, IREF serves as a global platform to bring together leading international and national experts, researchers, scientists and stakeholders to tackle pressing water and sustainability issues worldwide.



Satellite image of palm trees. Inset: Saeed AlMansoori, Head of Application Development & Analysis Section, MBRSC

45,000 palm trees detected, with an accuracy of 98.7%

Al Ain joins with Space Center to analyse tree cover

In line with the UAE's efforts to increase agricultural productivity, the Mohammed Bin Rashid Space Centre (MBRSC) developed AI technology that helped detect 45,000 palm trees, in various regions of Al Ain. The project is within the framework of UAE's approach to enhance cooperation between government entities to improve services and develop innovative solutions that are both cost and time saving.

MBRSC developed the AI technology to analyse the 10 centimetre-per-pixel resolution images provided by Al Ain Municipality by utilising in-house technology and experts from the Centre's Application Development & Analysis Section. Through the AI system, MBRSC was able to detect 45,000 trees in less than a week, with an accuracy of 98.7%. With this technology, MBRSC was able to provide a solution to achieve an acceptable degree of accuracy to identify and extract very small objects using remote sensing technology, which would otherwise have taken months of work to achieve.

The project demonstrates the readiness and ability of Emirati competencies to employ remote sensing and artificial intelligence technologies to obtain innovative solutions that help the country achieve more with lesser time, money, and effort. It further reflects the spirit of cooperation between government agencies in the country and reinforces the principle of cooperation among them to improve service offerings in the UAE. The collaboration is also an example of how modern technology can assist in realising the UAE's national agenda of ensuring sustain-

able development while preserving the environment and achieving a perfect balance between economic and social development.

Unique services

Saeed AlMansoori, Head of Application Development & Analysis Section, MBRSC, said: "Our strategy of combining the use of our high-resolution remote sensing capabilities with an evolving AI-driven analytics and delivery platform ensures that we offer some of the best services for environment monitoring and detection in the region with great accuracy."

He added: "The delivery of AI technology for analysis and image processing for this project demonstrates our ability to leverage requests via next generation analytics architecture to deliver insights quickly and accurately. These services provided by MBRSC have been used for monitoring environmental changes, in addition to disaster relief efforts as artificial intelligence enables us to integrate information, analyse data, and use the resulting insights to improve decision making."

In addition to helping UAE government entities with their projects and initiatives, MBRSC is also part of the International Disaster Charter and Sentinel Asia, playing a crucial role in disaster relief and management globally. Furthermore, the Centre's geo analytics platform has contributed to providing potential solutions in terms of large area coverage, spatial and spectral information for government and private entities.

About MBRSC:

The Mohammed Bin Rashid Space Centre, founded in 2006, is home to the UAE National Space Programme. The Centre builds and operates earth observation satellites, offering imaging and data analysis services to clients around the world. It has launched the DubaiSat-1, DubaiSat-2 and the KhalifaSat, which was developed 100% in the UAE by a team of highly qualified Emirati engineers. The Centre launched the Emirates Mars Mission "Hope Probe", the first Arab interplanetary mission, on 20th July 2020.

The probe is expected to reach the Martian orbit by 2021 and gather key scientific data about Mars' atmosphere. Recently, the Centre announced the launch of the Emirates Lunar Mission, the first Emirati and Arab mission to explore the Moon and plans to develop MBZ-SAT, the most advanced commercial satellite in the region in the field of high-resolution satellite imagery. Furthermore, MBRSC is hosting the 72nd edition of the International Astronautical Congress (IAC) 2021, the world's premier space event, in Dubai. The UAE is the first Arab nation to host the IAC since its establishment in 1950. The Centre is also responsible for the UAE Astronaut Programme, which saw the launch of Hazzaa AlMansoori, the first Emirati Astronaut, to the International Space Station on a scientific mission on 25th September 2019, and the development of the Mars 2117 Programme to build a human colony on Mars.

editor's choice

