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All-weather radar eye up in the sky as Etihad-SAT gets to work

DATA IT SENDS WILL BE USEFUL FOR DETECTING OIL SPILLS, MANAGING DISASTERS

DUBAI

BY ASHWANI KUMAR
Chief Reporter

The Mohammad Bin Rashid Space Centre (MBRSC) announced receiving the first signal from Etihad-SAT, its first Synthetic Aperture Radar (SAR) satellite.

While the satellite was successfully launched from Vandenberg Space Force Base in California, US, aboard a Falcon 9 rocket at 10:43am (UAE time), the team at the ground station in Dubai received the first signal at 12:04pm (UAE time).

Technological leap

The satellite is equipped with advanced SAR imaging technology that enables high-precision Earth observation and provides high-resolution images in all-weather and environmental conditions, both day and night.

It represents a technological leap in MBRSC's satellite fleet, integrating radar imaging technology with existing optical satellite capabilities. Unlike traditional optical cameras, radar imaging relies on radio waves that penetrate clouds, darkness, and even rain, making it a powerful tool for consistent and uninterrupted data collection.

Etihad-SAT was developed through a strategic partnership with South Korea's Satrec Initiative.

Asmaa Al Janaahi, Special-



Officials at the Mohammad Bin Rashid Space Centre as they receive the first signal from Etihad-SAT.

The satellite is equipped with advanced radar imaging technology, enabling data collection in all-weather conditions, both day and night.

ist, Image Processing Section at MBRSC, pointed out that the data provided by Etihad-SAT will be processed using AI-powered technologies.

"Etihad-SAT transmits electromagnetic radar waves towards Earth, which then strike various materials and bounce back. The reflectance varies between different materials based on their physical properties," Asmaa said. "When these waves are reflected back to the

satellite, it collects data that is analysed using artificial intelligence to generate high-resolution imagery. The process functions effectively in different weather conditions and even at night," she noted.

A powerful tool

Abdullah Harmoul, Project Manager, Etihad-SAT, explained the imaging modes used by the advanced SAR satellite for Earth observation.

"The SAR satellite Etihad-SAT provides precise imaging of Earth in three modes. The first one is spot mode, which covers small areas with higher resolution imaging. The second is scan mode, which provides wider area coverage, and the third is strip mode, which provides longer coverage," Harmoul said.

These features make Etihad-SAT a powerful tool for multiple industries, from detecting oil spills and managing natural disasters to enhancing maritime navigation, supporting smart agriculture, and conducting environmental monitoring.

The satellite will be operated and managed by MBRSC's Mission Control Centre.