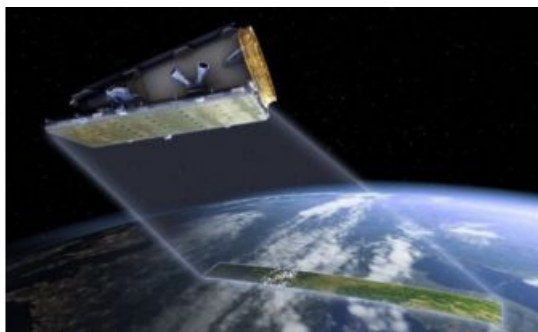


UK Radar Satellite NovaSAR Returns First Images



The first all-UK NovaSAR radar satellite, developed jointly by Surrey Satellite Technology Ltd and Airbus, has sent back its debut images which feature Sydney Harbour and the Egyptian pyramids. The images are being assessed for use in diverse applications, including crop analysis, flood and forestry mapping, and maritime surveillance.

The satellite was launched in September 2018, with the intention of having a constellation of NovaSAR satellites. Such a network would enable repeat images of locations to be acquired more quickly - something that is important if changes detected in a scene require a rapid response. (e.g. reacting to an oil spill).

Satellite radar's great advantage is that it sees the Earth's surface in all weathers and at night. Many other types of Earth observation (EO) spacecraft need daylight and cloud-free skies to gather their data. The image of Sydney Harbour, with its famous bridge and opera house, illustrates this point as it was taken after dark.

"NovaSAR is seeing not only large vessels but also much smaller pleasure craft. We can't see the shape of them, but we can certainly see that they are there. And that's encouraging because one of the main objectives of NovaSAR will be maritime surveillance," said Luis Gomes, the chief technology officer at SSTL.

The satellite is equipped with a receiver that can pick up Automatic Identification System (AIS) radio signals. These are the positional transmissions that large ships are obliged to broadcast under international law. Vessels that tamper with or disable these messages very often are engaged in smuggling or illegal fishing activity. If such ships appear in NovaSAR's radar pictures, they will be reported to the authorities.

The images featuring the Great Pyramids showcase the satellite's ability to discern different land uses.

Martin Cohen, a radar expert with Airbus, said "The first image from orbit is always a key moment for everyone involved in such a mission, and this is no exception. The quality of the imagery is a credit to the hard work and dedication of the whole team. We look forward now to supporting SSTL through the rest of the commissioning phase, and seeing the mission begin full operational use."

There are a range of partners involved in assessing NovaSAR's capabilities. These include EO specialists in India and Australia. The UK's Ministry of Defence also wants to see what the spacecraft can offer Britain's armed forces.

UK engineers have long worked in space radar industry, but their technology has previously always gone on broader missions, such as those for the European Space Agency. NovaSAR, in contrast, is solely a British initiative with the UK government investing £21m in the project.

Science Minister Sam Gyimah said: "This 'eye in the sky' can capture an image a dozen times wider than the Strait of Dover and the data it provides can help crack problems from illegal shipping to alerting us to damaging pollution that needs to be countered."