Australian Firms Team up to Deliver High-resolution Hyperspectral EO Microsatellites

LatConnect 60 and Gilmour Space Technologies will work together to build and launch the first microsatellite in a planned high-resolution hyperspectral imaging constellation. The smart satellites will be placed in 30-degree inclined orbits for frequent revisit data capture over the Earth's equatorial and mid-latitude regions. LatConnect 60 (LC60) is an Earth observation and data fusion company based in Perth, Australia.

Executives from the Australian companies announced the HyperSight 60 constellation agreement jointly at the 37th Space Symposium in Colorado Springs, Colorado, USA, an annual meeting that brings together space leaders from around the world.

Remote Sensing Data Collection of Mid-latitude Areas

"HyperSight 60 will deliver geospatial insights for mid-latitude areas at a level of detail and frequency not possible with other commercial remote sensing systems," said Venkat Pillay, LC60 CEO and founder. "The addition of Gilmour Space to the LC60 team contributes significantly to the future success of our ambitious plans."

Under the agreement, Gilmour Space, which is based in Queensland, will develop the first 100kg HyperSight 60 satellite on its G-class satellite bus (G-Sat), which will be launched on Gilmour's Eris rocket from the Bowen Orbital Spaceport in Queensland, ideally located to place satellites into equatorial and mid-inclined orbits. The microsatellite and subsequent constellation will be owned and operated by LC60.

"This agreement would be our second G-class satellite mission on Eris, and we're excited to be working with the pioneering team at LC60 to bring this significant capability to market," said Gilmour Space CEO, Adam Gilmour.

The first HyperSight 60 microsatellite is planned for launch in Q4 2024. Once the entire eight-satellite constellation is operational, an hourly revisit rate will be possible at mid-latitude locations between 30 degrees north and south in Australia, Asia, South America and Africa. This revisit, combined with the spectral bands collected in high- and medium-spatial resolution, will deliver timely information-rich insights for agriculture, forestry, environmental, mineral/oil & gas, climate change, maritime and defence applications.

AI and Machine Learning-based Data Fusion

Established in 2019, LC60 currently owns exclusive rights to 80cm imagery captured over Australia, with global access from a high-resolution multispectral satellite. The Perth-based company has leveraged this imagery along with other geospatial data sets to develop advanced artificial intelligence and machine learning-based data fusion and analysis algorithms for a variety of applications. Most notably, LC60 is now delivering insights to assist Southeast Asian palm and rubber plantations in improving productivity while enhancing environmental sustainability.

LC60 is also focused on designing 'smart' satellites equipped with onboard AI-based computing technology. For the HyperSight 60 constellation, this will enable 'tip-and-cue' capabilities among satellites within the constellation and allow pre-processing of data, including radiometric and geometric correction, to occur in orbit before the data is downlinked to the ground.

Canberra Capital Hill satellite imagery. (Courtesy: LatConnect 60)

“For HyperSight 60 and other planned LC60 constellations, our unique approach to onboard AI sensors, combined with advanced data fusion on the ground, will fill gaps in the insights that can be gleaned from current remote sensing systems,” said Pillay.

Canberra Capital Hill satellite imagery. (Courtesy: LatConnect 60)
