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MethaneSAT is an observatory designed and built by BAE Systems, Inc., previously Ball Aerospace, for MethaneSAT LLC, a wholly owned subsidiary of the Environmental Defense Fund. The MethaneSAT observatory is designed to locate and quantify anthropogenic methane emissions, specifically oil and gas emissions, throughout the world. The data will be quickly processed and made publicly available.

The MethaneSAT observatory consists of an O2 Sensor and CH4 Sensor with the associated Flight electronics integrated to a Blue Canyon Technologies Saturn Bus. The Sensors are designed to balance performance with size and cost, and each consist of a refractive objective telescope paired with a refractive Littrow spectrometer. The O2 Sensor covers the Oxygen singlet-delta absorption feature with a spectral sampling of 0.06-nm and resolution of 0.18-nm. The CH4 Sensor measures the 1.6-um CH4 absorption feature and a portion of the adjacent CO2 absorption feature with a spectral sampling of 0.08-nm and a resolution of 0.25-nm. The high spectral resolving power is achieved using a flat holographic grating paired with a prism. Each Sensor utilizes a Teledyne HgCdTe GeoSnap detector passively cooled to 190K. The Sensors each cover a nominal 200-km swath with a cross-track GSD of approximately 100-m.

BAE conducted characterization and calibration of the Sensors throughout development demonstrating excellent performance. The Sensors were then integrated to a Blue Canyon Technologies bus and final characterization and calibration of the Flight System was conducted prior to launch. MethaneSAT was successfully launched on March 4th, 2024. BAE is conducting on-orbit Commissioning of the observatory prior to hand-over to MLLC and Mission partners for long-term operations.
Meeting homepage
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