

MethaneSAT -- Progress Update

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 Complete MethaneSAT team listed at: methanesat.org/our-team



The MethaneSAT Mission

- Primary mission goal: directly influence the reduction of CH₄ emissions from the global oil and gas sector by 45% by 2025
- Quantify regional scale CH₄ emissions from O&G production areas across the globe at ~ 1 km²
- Identify and quantify CH₄ emissions from large sources
 - > 500 kg/hr in 1 acquisition
- Quantify diffuse sources (aggregate of smaller sources) and large intermittent sources
- Collaboration with New Zealand for Mission Operations & additional science projects aimed at agricultural emissions
- ~30 targets (~200 km x 200 km) selected for imaging each day based on cloud & wind forecasts

MethaneSAT Specifications

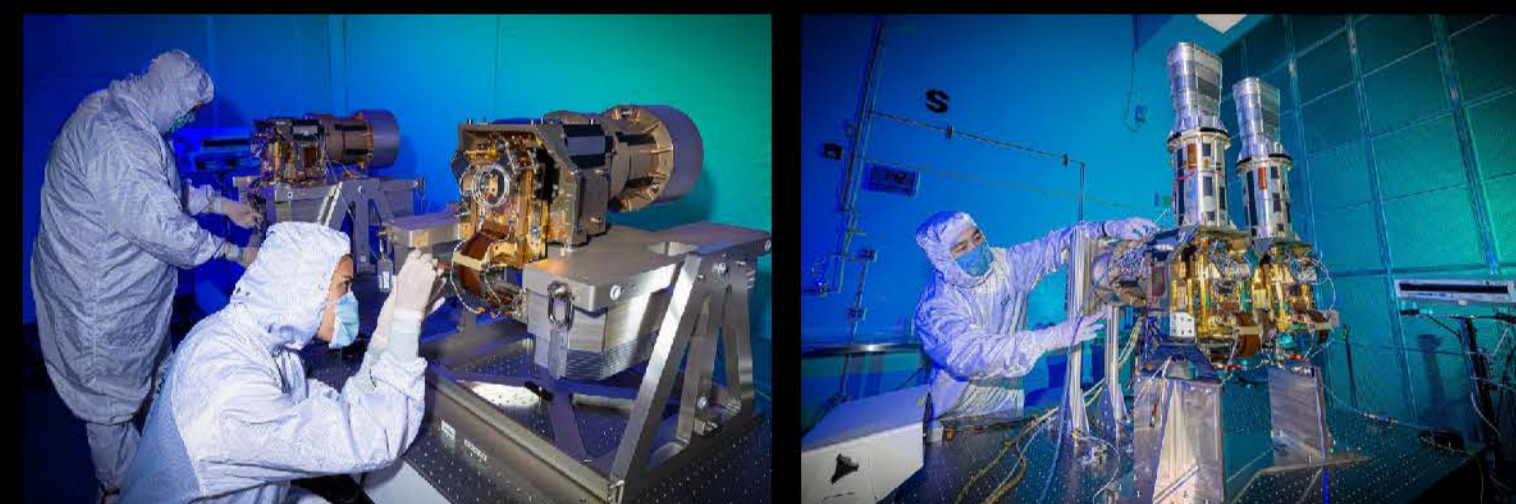
Flight system mass (kg)	~366
Orbit altitude (km)	~526
Field of view (deg)	~21
Swath width @ nadir (km)	~195
Native pixel size (m)	~100 x 400
O ₂ passband (nm)	1249 -1305
O ₂ sampling / resolution (nm)	0.06 / 0.18
CH ₄ passband (nm)	1598 -1683
CH ₄ sampling / resolution (nm)	0.08 / 0.24

MethaneSAT sensors designed and built by Ball Aerospace.

Spacecraft provided by Blue Canyon Technologies

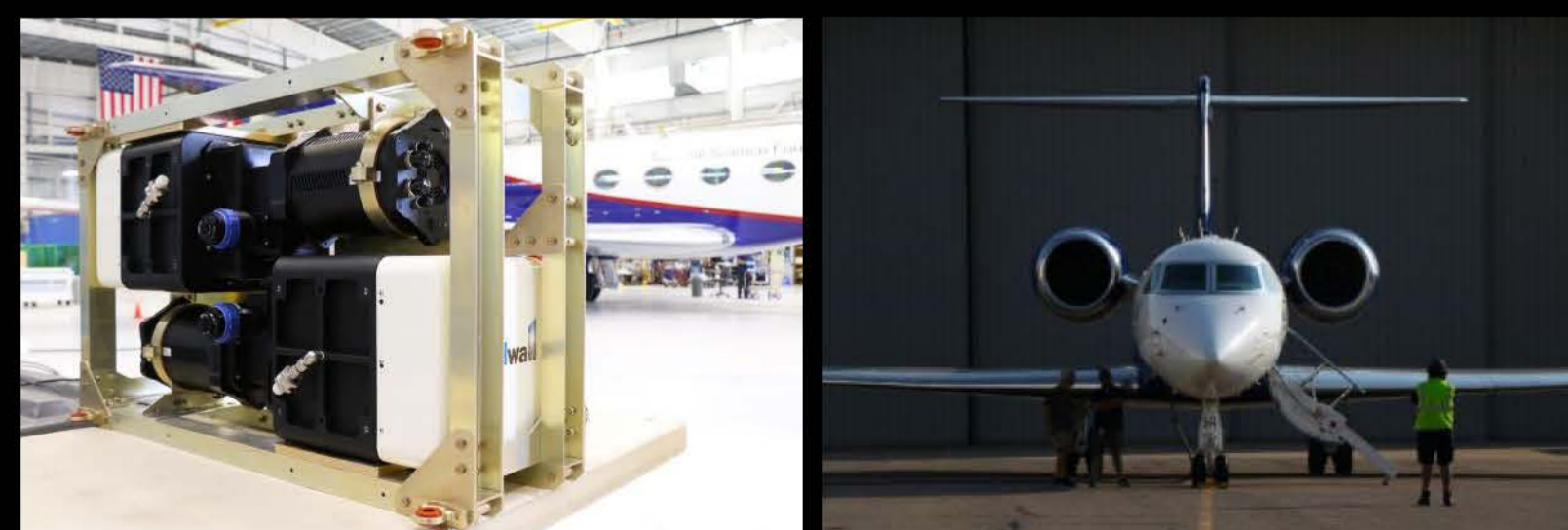
Mission Progress

- O₂ and CH₄ sensors have both been assembled, integrated, and tested under TVAC & meet or exceed all requirements
- Integration with platform bus will commence in Q3 2022 followed by flight-system level characterization and calibration activities. Launch ready in Q2 2023



Photos by Ball Aerospace

- An airborne precursor instrument, MethaneAIR, was successfully deployed in Jul/Aug 2021 aboard the NSF/NCAR Gulfstream V. An additional campaign on the same platform will commence in Sep/Oct 2022 to continue mapping O&G production areas in the USA



Photos by Leslie von Pless, EDF

Additional Information at IWGGMS

- MethaneAIR data has enabled development and testing of our data processing algorithms & we are presenting our progress in a talk and in multiple posters at IWGGMS-18
 - 6-3 – Point source quantification & control release
 - 1-P02 – XCH₄ retrievals using CO₂ proxy
 - 1-P08 – XCH₄ & XCO₂ retrievals using O₂ proxy
 - 2-P06 – MethaneSAT OSSE development
 - 2-P08 – MethaneSAT cloud and aerosol filter
 - 3-P05 – MethaneSAT L0-1B processor
 - 3-P17 – Airglow in the ¹Δ O₂ band

MethaneSAT data (including a Level 4 CH₄ emissions product) will be made available at no-cost

For more information on the project please visit:

methanesat.org

J. Franklin will be available from 1030-1200 JST on 12&13 July 2022 or at jfranklin@g.harvard.edu

