
GWF
GEOSPATIAL WORLD FORUM
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SATLANTIS
Your Sustainable Partner
For High End EO small sat solutions
Providing full support to your goals
Worldwide
October 9th 2023

SATLANTIS: from Light to the Customer

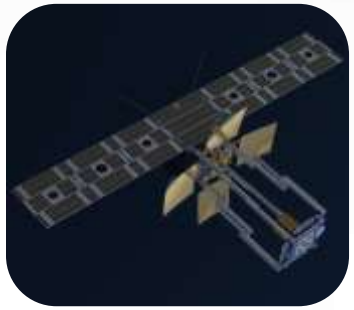
- SATLANTIS is a Medium Polinational group founded in 2014, counting with 120+ people in 4 countries.
- We develop HR and VHR Earth Observation solutions.
- 6 missions have successfully flown and provided imagery since 2020. and 4 more missions contracted for 2024.
- Software defined Missions.

Satlantis Microsats
Bilbao - SPAIN

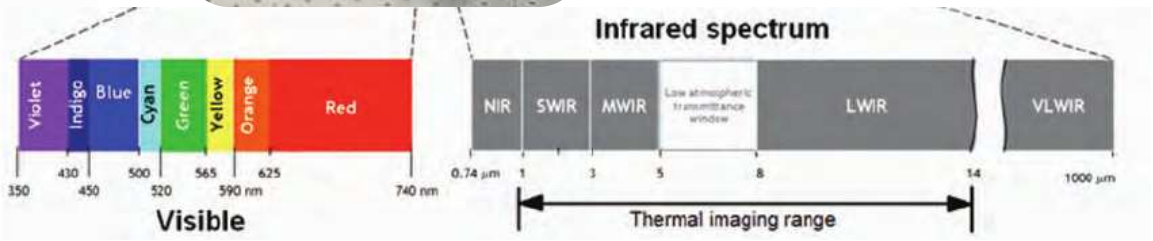
Satlantis, LLC
Gainesville, FL - USA

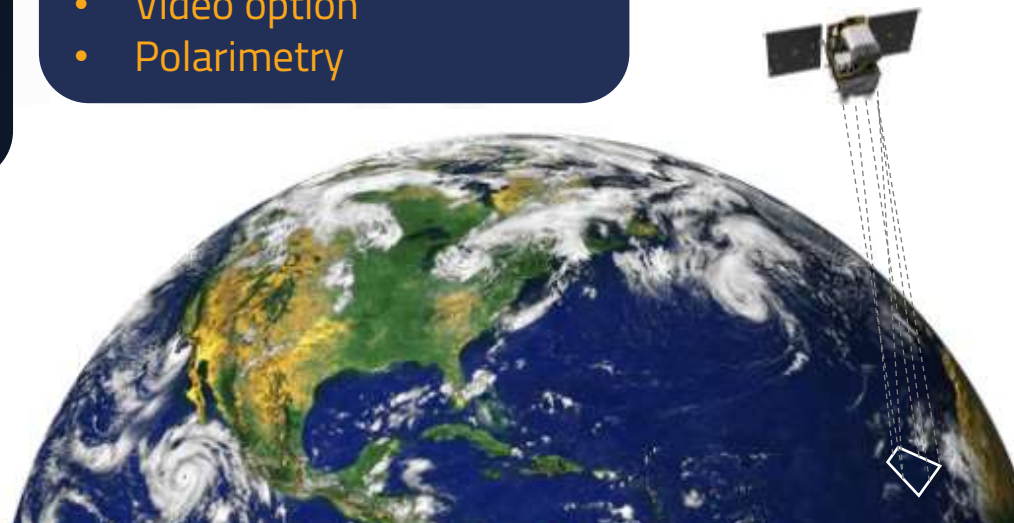
SuperSharp
Cambridge - UK

Satlantis France
Bayonne - FRANCE

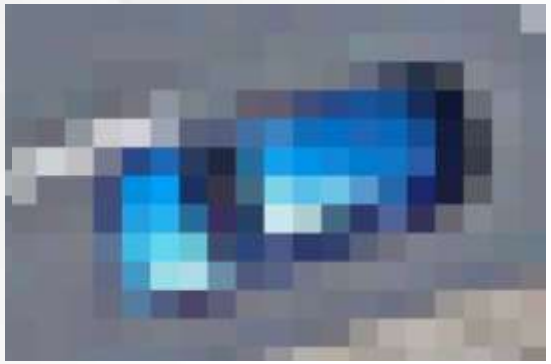


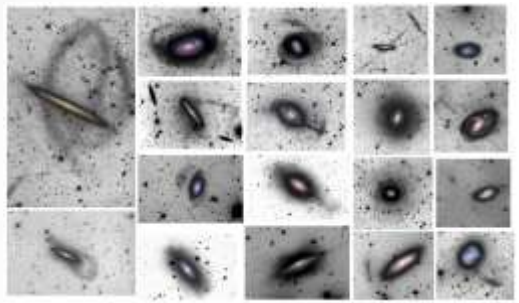
Spatial Resolution
- 2 to 0.5m in VNIR & SWIR
- 6 to 3m in TIR
- Video option
- Polarimetry



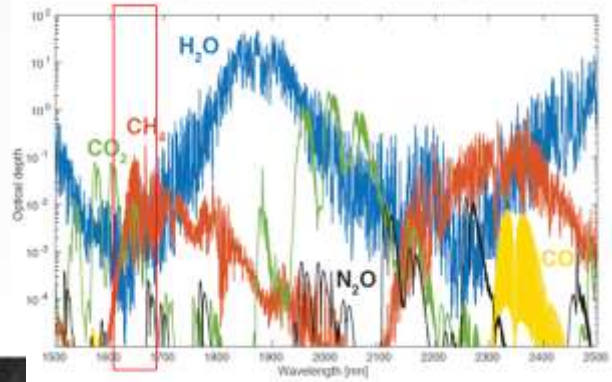


Deep-Tech power





Optical depth of major trace gases between 1.5-2.5µm
(Jacob et al. 2016, Atm. Chem. & Phys.)



Portfolio: iSIM INDUSTRIAL family

HERITAGE

SATELLITE

PAYLOAD

SENSOR-BUS [3]

iSIM-SAT 16U

Validation in space in Q2 2022

16U CubeSat (17.9 kg)

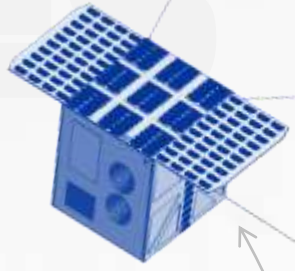
iSIM-90

Agility: 1°/s in 30° off-nadir

Downlink: 98 Mbps

LEAD TIME
6-12 months

iSIM-SAT Micro



MicroSat (~60/80 kg)

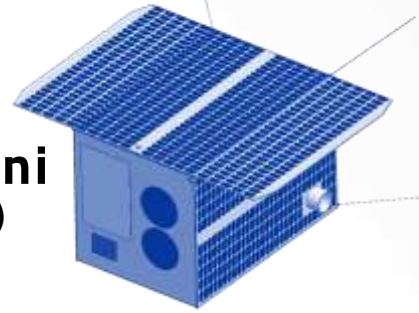
iSIM-170

Agility: 1°/s in 30° off-nadir

Downlink: 500 Mbps

LEAD TIME
12-16 months

iSIM-SAT Mini



MiniSAT (~ 120 kg)

iSIM-300

(1) Including payload electronics
(2) At 500km reference altitude
(3) Capabilities are upgradable by sensor-bus specification improvement
(4) Panoramic configuration

LEAD TIME
24 months

HERITAGE

DUAL-CHANNEL [1]

SINGLE-CHANNEL [1]

IMAGING [2]

SWATH [2]

iSIM-90

Validated in space in Q4 2021

< 4 kg mass - targeted for **12/16U CubeSats**

< 3 kg mass - targeted for **12/16U CubeSats**

PAN & VNIR: **2m**
SWIR: **4m**

PAN & VNIR: **13 – 23.5 km** [4]
SWIR: **8.2 km**

iSIM-170

Validated in space in Q2 2020

< 15 kg mass - targeted for **MicroSats**

< 8 kg mass - targeted for **MicroSats**

PAN & VNIR: **<1m**
SWIR: **2m**

PAN & VNIR: **7.5- 13.5km** [4]
SWIR: **4.2 km**

30/50/70

Under development

< 40 kg mass - targeted for **MiniSats**

< 20 kg mass - targeted for **Micro/MiniSats**

PAN & VNIR: **0,50 m** [2]

PAN & VNIR: **7km** [4]

iSIM-90 Armsat1

Suez Canal

SATLANTIS

iSIM Payloads: Key features

Seven reasons to select iSIM

Agility

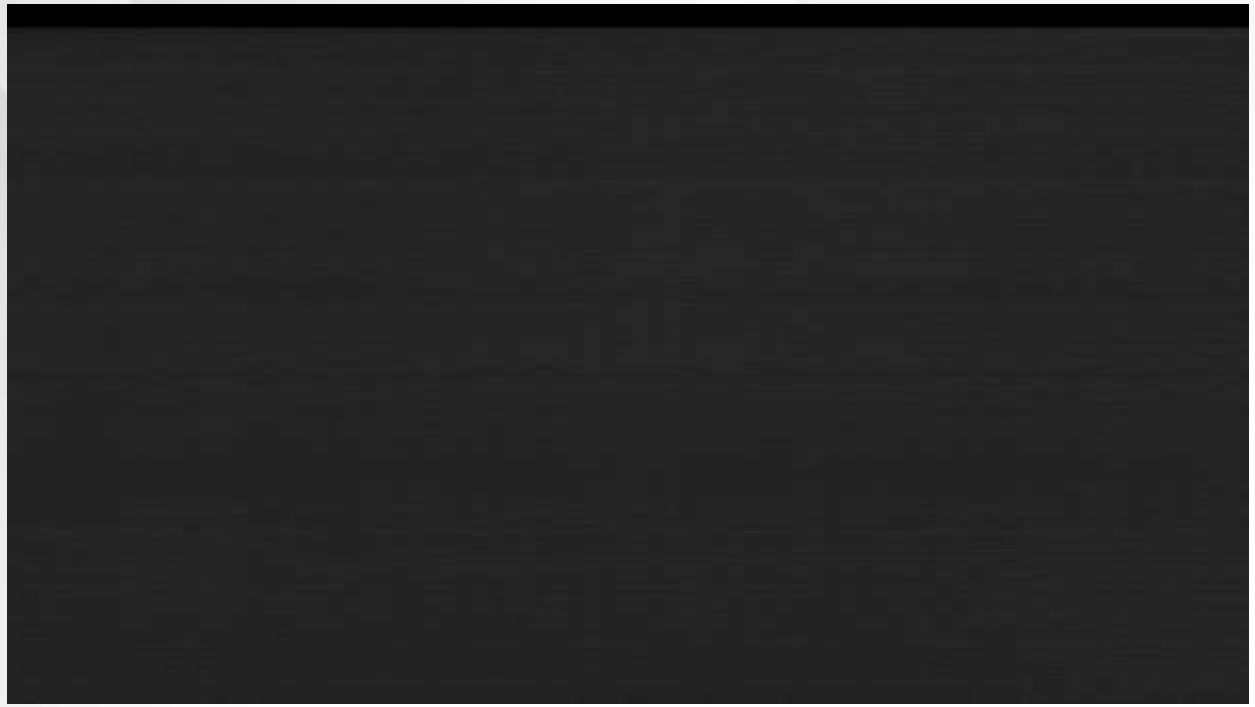
Unique capability in the market.

- Allows capturing high quality images **continuously** while satellite observes along and across its orbit, following irregular trajectories

Agility capability

- ✓ **Backscanning –** Backscanning manoeuvre reduces sensors on ground velocity improving the image quality

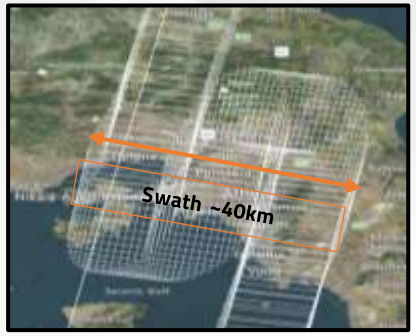
Nominal scan

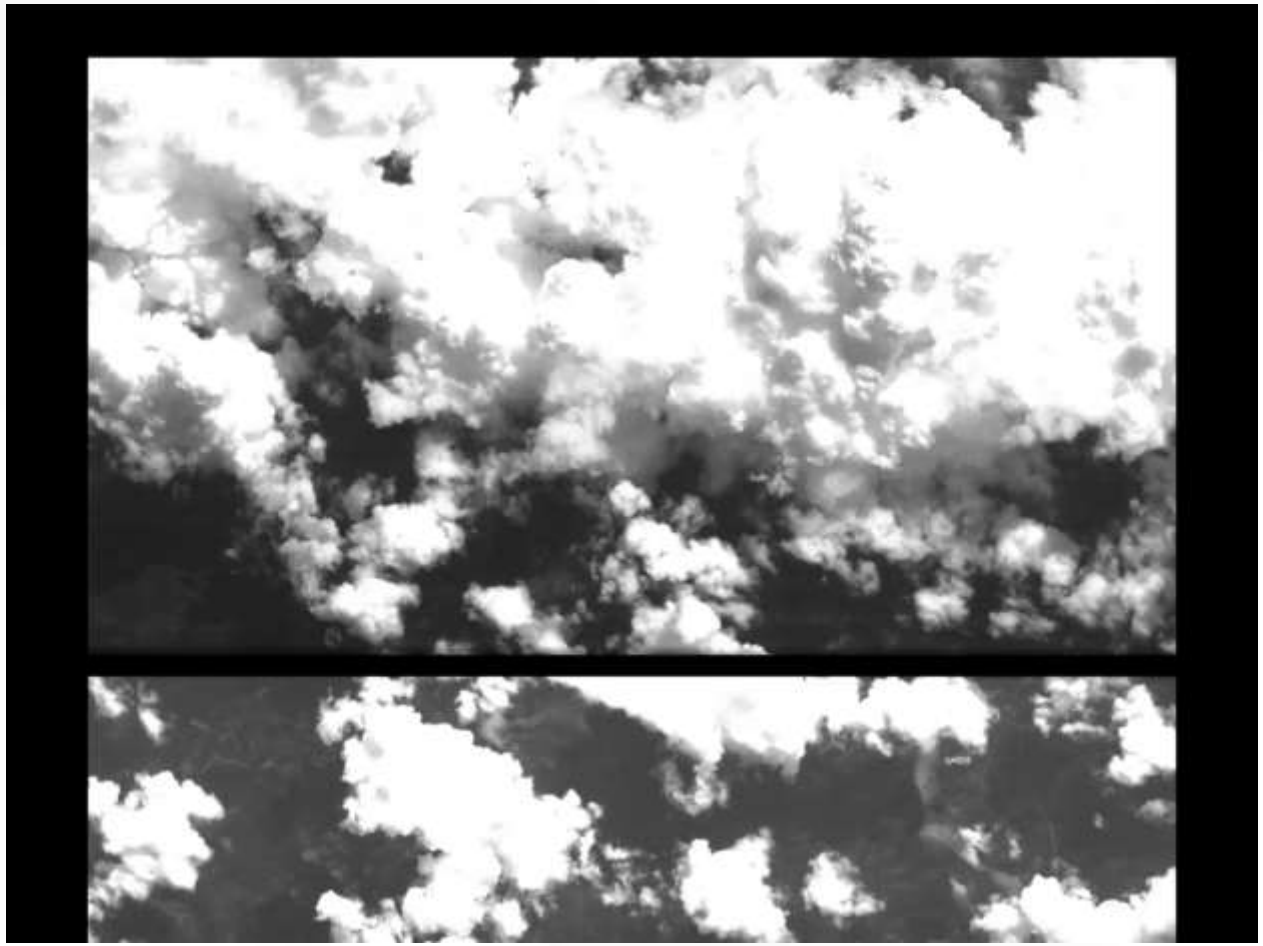


Backscannin

Agility capability

- ✓ **Enhanced Swath–** Agility allows for the improvement of many aspects. For instance, allowing acquisitions of x2 or x3 of the swath





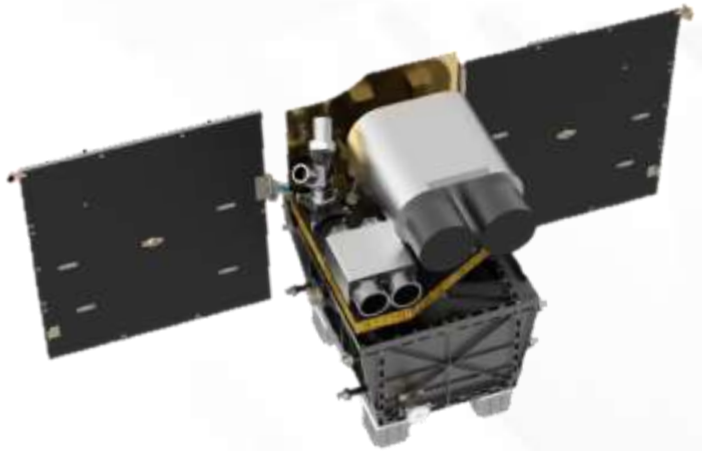
Agility capability

- ✓ **Non-linear tracking –** Portugal Coast Example with Armsat1

GARAI A&B Satellites

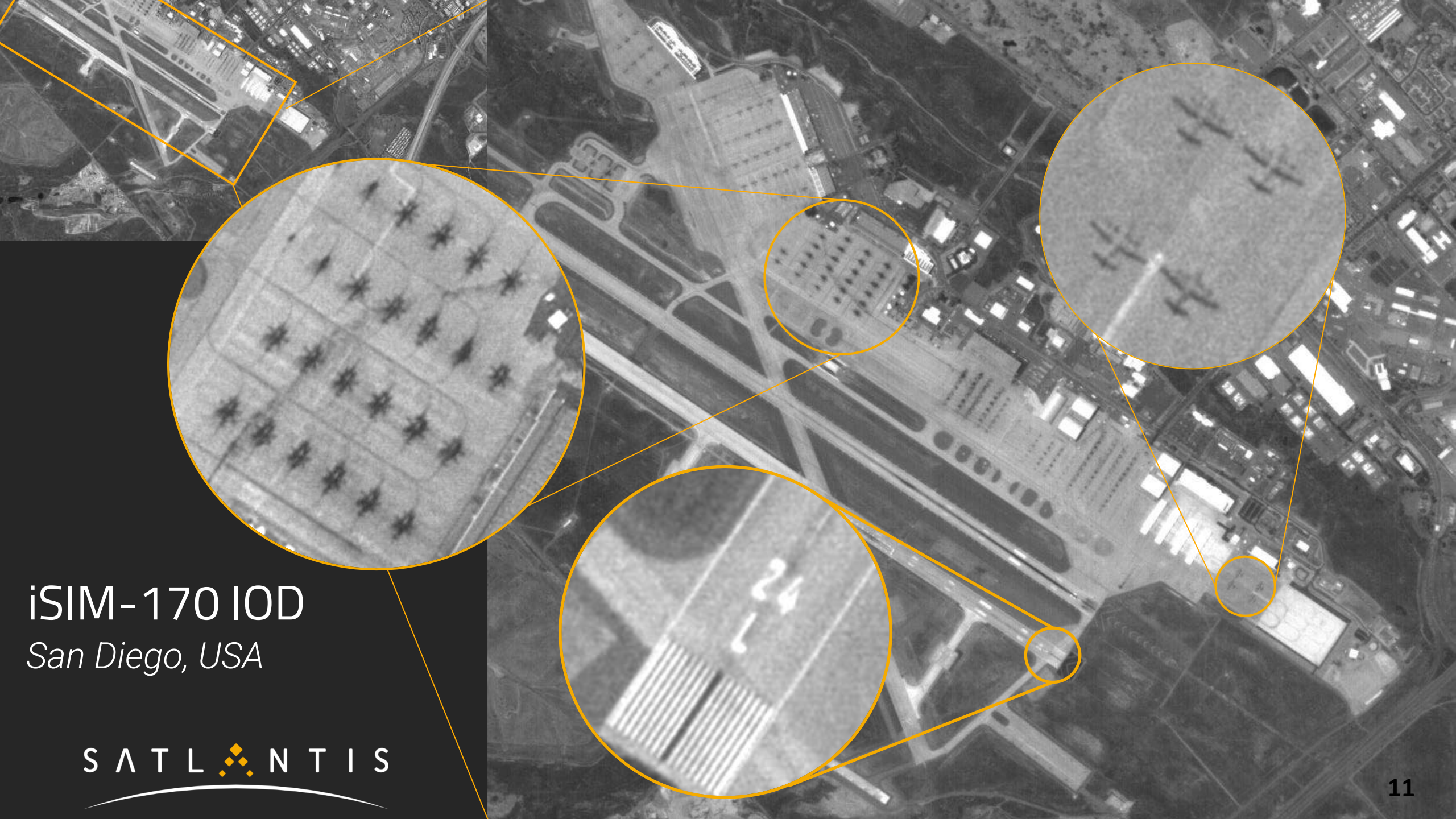
General	
Mass	~115 kg
Lifetime	> 5 years
Orbit & Revisit	SSO 500-550 km, 3-day revisit at mid-latitudes
Communications (S + X Band)	
Nª of links / day	>15 nominally
X-Band download rate	580 Mbps
Encryption	AES-256, Authentication, TC + Payload Data
Unscheduled TC (best responsiveness)	S-Band isotropic
Power	
Deployable Solar Arrays	>130W OAP with up to ~ 300 W generation
Agility + Payload	
Multispectral observation	• 5 bands VNIR + 5 bands SWIR + Polarimetry • All channels (payloads) can be operated simultaneously or independently.
Scan Off-Nadir	Continuous or Discontinuous observation up to 15 (min) i.e., 6000 (km) per orbit, while maneuvering at 1 deg/s between targets and/or to track infrastructures and/or irregular profiles like coastlines, borders, pipelines or roads
Agility: Backscanning	
Agility: Video	
Agility: Non-Linear Tracking	
Propulsion system - Electric	
Insertion Orbit correction, Housekeeping and End Of Life disposal	• ~200 m/s • LTAN, Inclination and Altitude correction and Collission Avoidance • FCC <5-year Reentry Rule compliance

iSIM-170 Payload		
Resolution at 500km	PAN, VNIR: < 1 [m]	
Filters	PAN, R, G, B, NIR.	450-900 (nm)
Swath at 500km	7,5 [km]	
iSIM-90 Payload		
Resolution at 500km	SWIR 4 [m], Polarimetry: ~ 3.5 [m]	
Filters	SWIR 5 Bands A1-A5 Polarimetric VNIR	700-1700 (nm) 450-900 (nm)
Swath at 500 km	SWIR: 8,3 km, Polarimetry: 13 km	
General Payload		
Storage Capacity	2.56 TB (half cold redundant)	
Geolocation	Goal 75m CE90. Optical Bench with star-trackers and payloads integrated and aligned, with dedicated TCS for each element	
Thermal Control		



iSIM-170

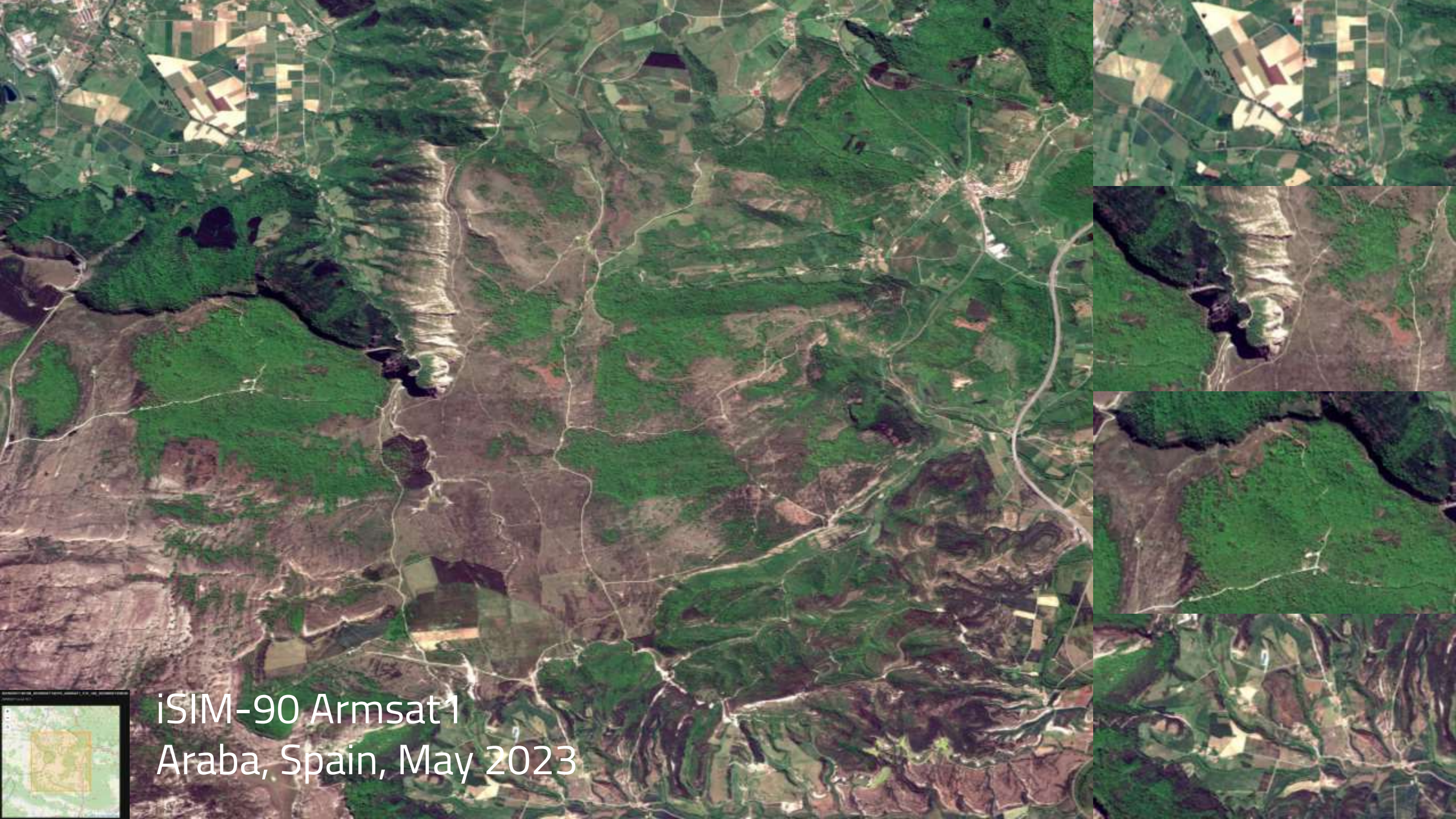
iSIM-90

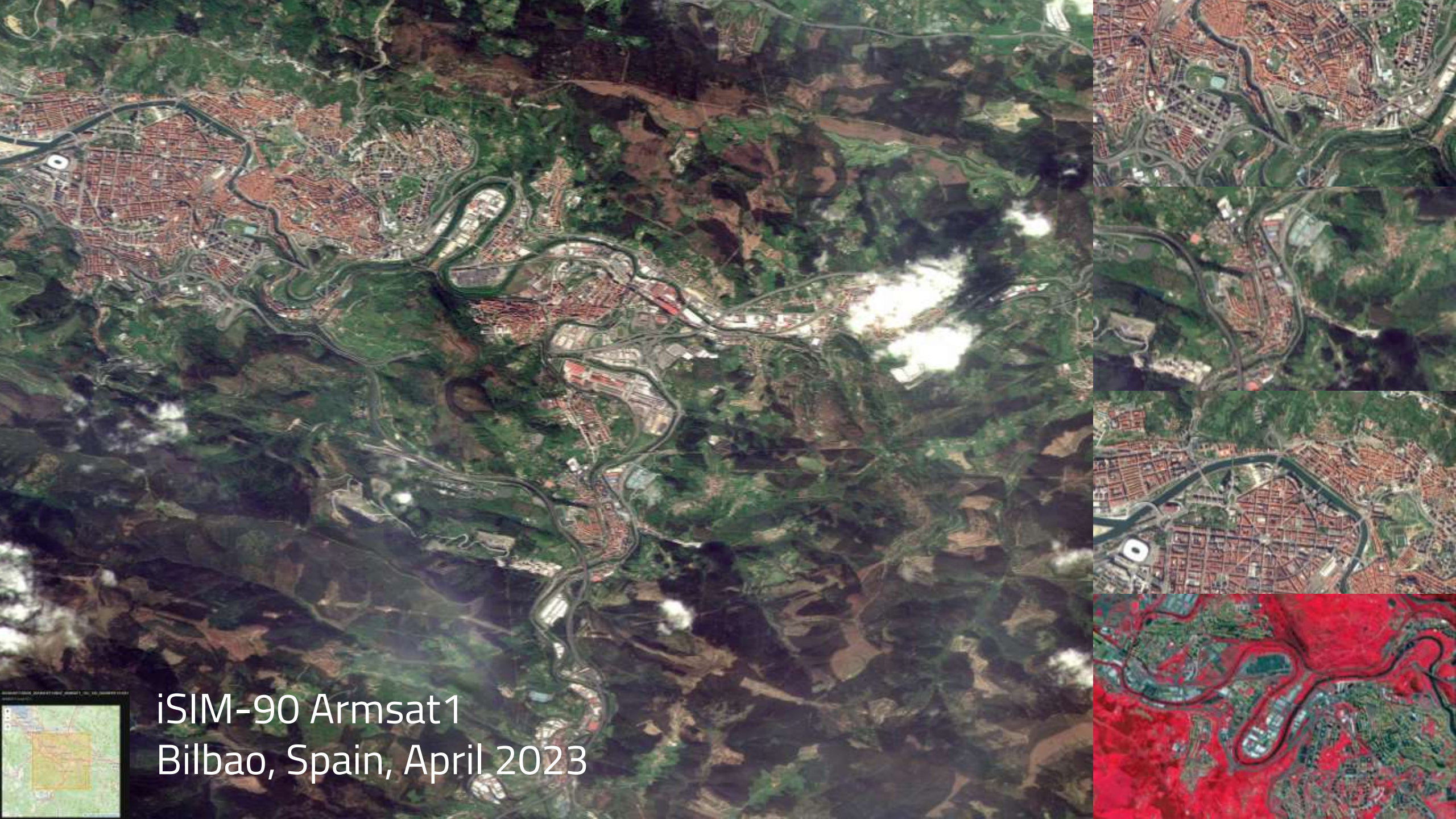


iSIM-170 IOD

San Diego, USA

SATLANTIS


iSIM-90 Armsat1
Araba, Spain, May 2023

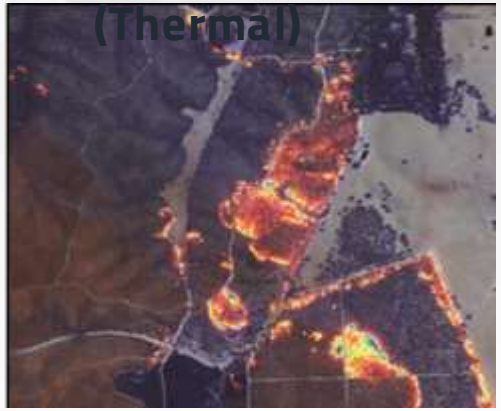


iSIM-90 Armsat1
Bilbao, Spain, April 2023

Applications GARAI A&B

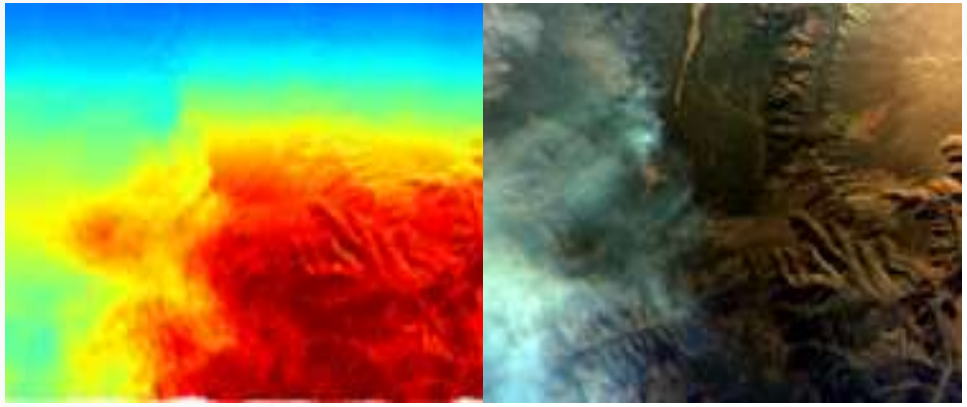
VNIR (Visible)

SWIR (Thermal)



PAN (Video)

Polarimetry

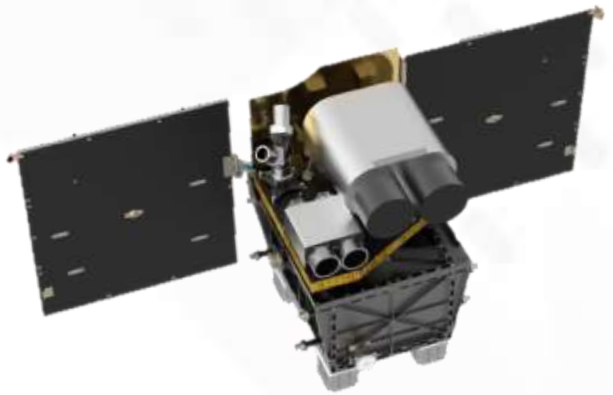


10 Multispectral Bands + Polarimetry

4 Observation Modes with Agility

Agility

(Coastline, border, pipeline, road monitoring)



Non Linear Tracking

ESG CONTRIBUTION: METHANE

GEISAT Precursor

THE MISSION

- **GEISAT Precursor** is the second satellite mission designed by SATLANTIS. The mission was successfully launched on **12th June 2023** to 500-550 (km) SSO orbit onboard SpaceX in Falcon 9 Transporter 8
- GEI-SAT Precursor is a **16U CubeSAT**, with **iSIM technology** optimized for simultaneous observation in **VNIR** and **SWIR** spectral ranges for detection, location, and quantification of **methane emission**.

iSIM TECHNOLOGY

- The GEISAT precursor's instrument is an **iSIM-90 camera** which utilizes the **certified core technologies already validated in space** for iSIM-170 and iSIM-90.
- The images is designed to provide **diffraction-limited images between 450 and 1700nm** over the entire 1.8° FOV in VNIR and SWIR spectral bands, **with a spatial resolution of 2 m in VNIR (13 km swath @500 km altitude) and 13 m in SWIR (8.3 m swath @500 km altitude).**

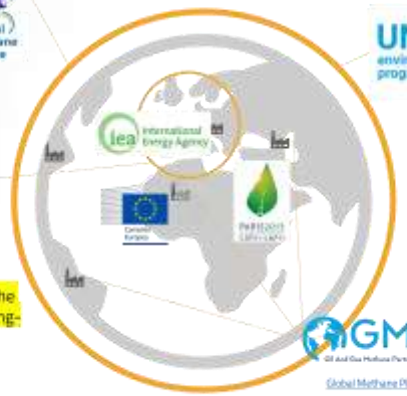
8

Regulation and international agenda

COP26
Conferencia de las Naciones Unidas sobre el cambio climático de 2021
Global Methane Pledge
30% CH_4 emissions reduction by **2030**

The EU **strict rules** to reduce GHG emissions and become **climate-neutral by 2050**

The US **Inflation Reduction Act** directs the U.S. EPA to **update** the current engineering-based reporting requirements **with measurement-based data.**



UN environment programme
IMEO
International Methane Emissions Observatory
Full public transparency on emissions
gather data from:
- OGMP 2.0 reporting
- Scientific studies
- **Remote sensing data**
- National inventories

OGMP (2.0)
Measurement-based **reporting framework**

3

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Williams®

Thanks

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