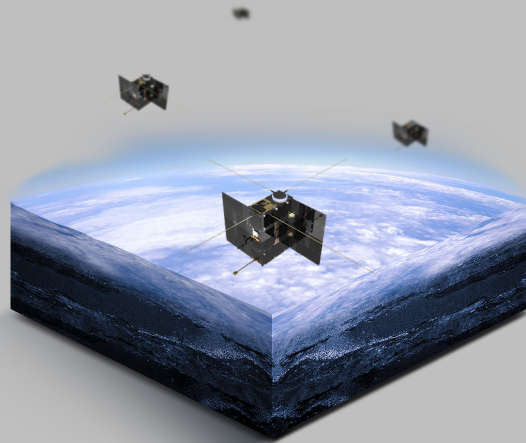




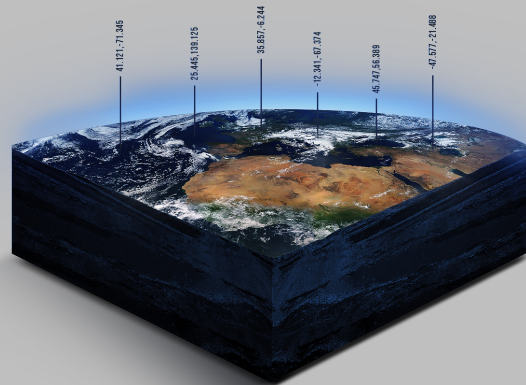
SPACE POWERED SIGNAL & GEOSPATIAL INTELLIGENCE

CORPORATE BROCHURE



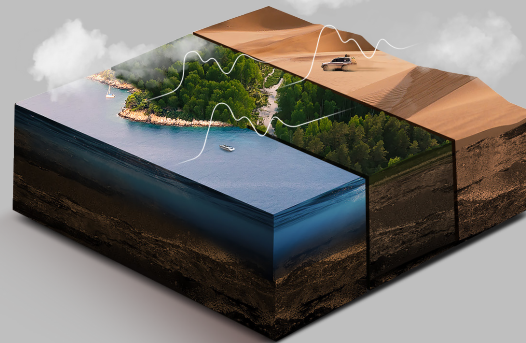
COLLECT

Constellation of satellites collecting RF signals over critical areas of interest.



LOCATE

Signals are processed, precisely geolocating RF transmitters.



INFORM

Delivering actionable, analytic-ready data of hidden radio activity.

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KLEOS IS A SPACE-POWERED RF EARTH OBSERVATION COMPANY WITH OPERATIONS IN LUXEMBOURG, THE US AND UK.

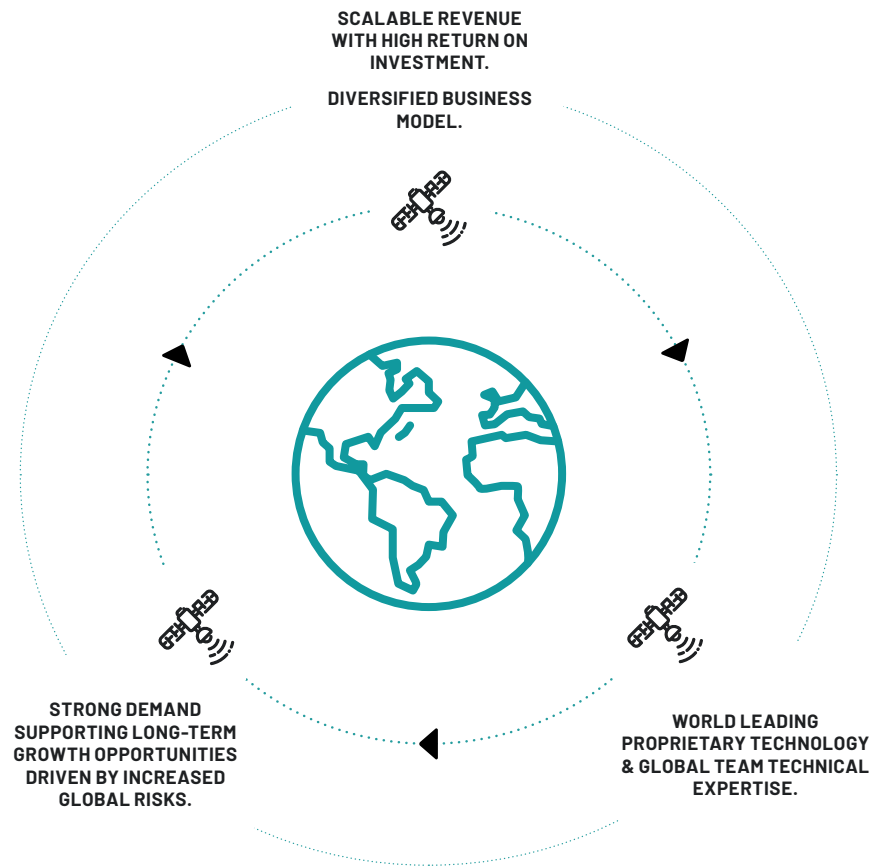
Kleos uses Space technology to locate radio transmissions in key areas of interest around the globe, efficiently uncovering and exposing activity on land and sea. Using clusters of satellites, RF data is collected, transmitted to the ground, processed using proprietary technology, and delivered to customers worldwide.

Customers, including analytics and intelligence entities, license data on a subscription basis (Data-as-a-Service, DaaS) or by buying dedicated satellite capacity (Mission-as-a-Service, MaaS). The provided data is applicable to government and commercial use cases, aiding better and faster decision making.

KLEOS' UNIQUENESS IS BASED ON THE FOLLOWING ELEMENTS:

- Clusters of satellites fly in formation, 3 clusters in orbit.
- Kleos ground-based technology designed for precision location, and collection volumes.
- Rapid development cycles allow for most up-to-date technology onboard with each new deployment.
- All collection RF data is downlinked, providing rich source for analytics.
- Data-as-a-Service and Mission-as-a-Service data is delivered via API.
- Significant pipeline of global, industry leading data fusion & integration entities.

KLEOS IS A WORLD LEADER IN RF EARTH OBSERVATION, UNCOVERING PREVIOUSLY HIDDEN HUMAN ACTIVITY ON LAND AND SEA.



SINCE LAUNCHING ITS FIRST SATELLITES IN Q4:2019, THE COMPANY HAS ACHIEVED MULTIPLE MILESTONES



MID 2017

Spun out of Magna Parva; A space engineering company



AUG 2018

IPO



NOV 2020

Launch of first demo satellites - Scouting Mission



APRIL 2022

Launch of 3rd cluster; Patrol Mission



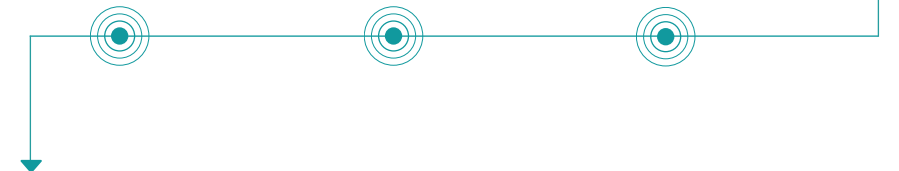
JUNE 2021

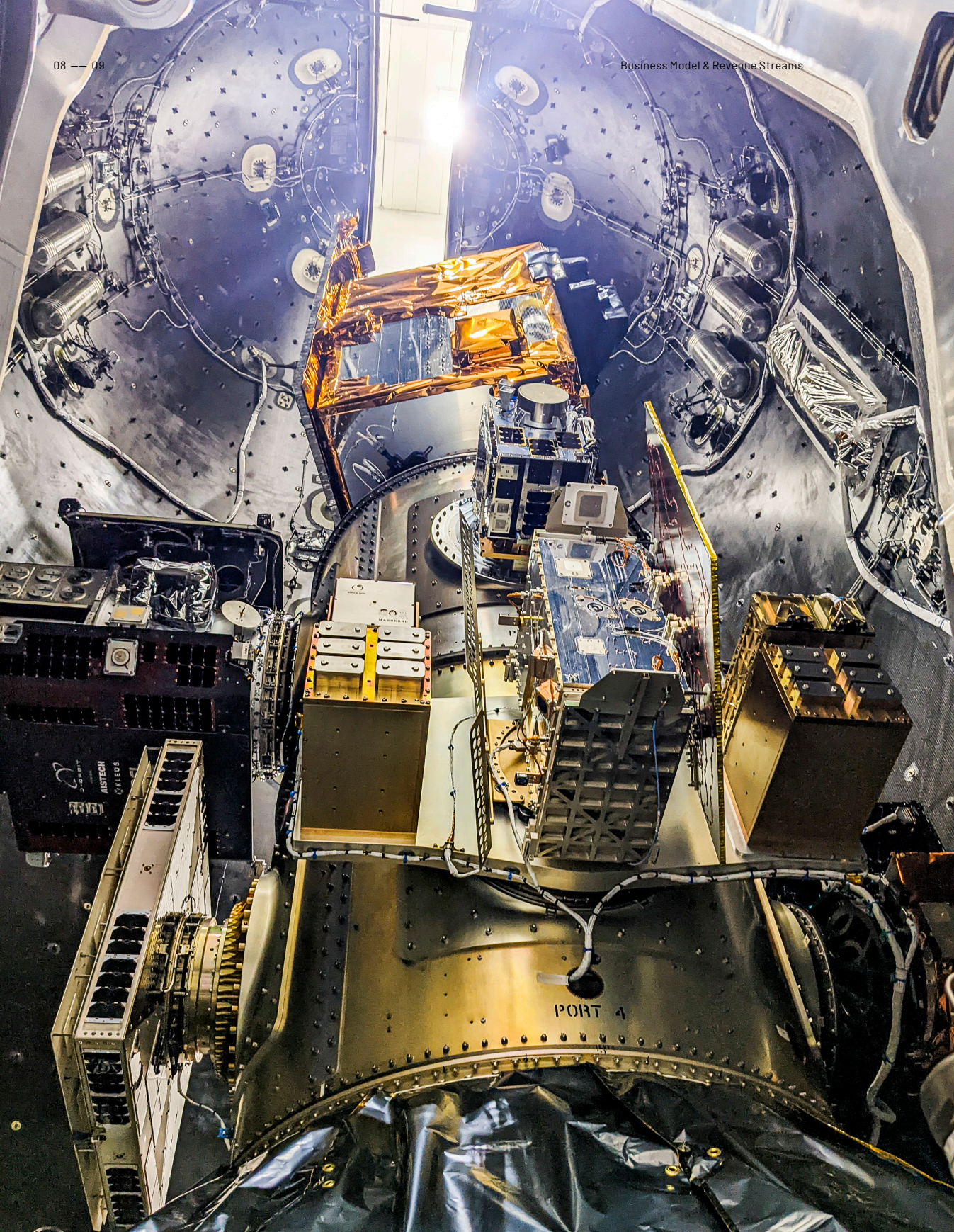
Technology validated in orbit; Vigilance Mission launched



EARLY 2023

Launch of 4th cluster; Observer Mission





KLEOS IS GROWING A CONSTELLATION OF SATELLITE CLUSTERS FOR OPTIMAL GLOBAL COVERAGES FOR ITS DaaS AND MaaS OFFERINGS.

Kleos' constellation roadmap includes the deployment of new clusters in a short timeframe, increasing accuracy, improving latency and supporting a range of intelligence, defense, security, and commercial missions through enhanced situational awareness.

DATA-AS-A-SERVICE

- We sell data to customers, including analytics and intelligence entities, licensing data on a subscription basis with limited data usage rights.
- Multiple customers can access the same commercial dataset. The DaaS data sets enable the opportunity to monetise the high volume, lower value contract market.
- Higher risk, scalable revenues with unlimited upside potential over commercial areas of interest.

MISSION-AS-A-SERVICE

- We provide dedicated capacity to a single customer for a specific mission / Area-of Interest (AOI); customer tasks the satellites and receives data from the satellites with unlimited data usage rights.
- Each Mission-as-a-Service contract will be tailored to suit the customer requirements with the associated revenue based on the percent of satellite capacity needed, level of taskability required (i.e., how bespoke the mission is) and associated data rights (i.e exclusivity). Pricing is set to achieve the company's goals for profitability and returns. MaaS offering to deliver dedicated, high value contract opportunities.
- Low risk fixed revenues, fixed profitability, long contracts over strategic areas of interest.

DATA-AS-A-SERVICE

Guardian LOCATE

A data set processed to deliver geolocated RF activity. This data product is ready for further analytics by the customer within the GEOINT and data fusion platforms.

GEOLOCATION OF RF SOURCES	Provides frequency, time, Latitude and Longitude, and ECEF Coordinates of observed signals with accuracy within 300 m depending on conditions.
GEOLOCATION TECHNOLOGY	Satellite clusters flying in formation. Proprietary multilateration algorithms.
API SPECIFICATIONS	Kleos provides a simple to use RESTful API to enable access to recent and archival data products in JSON format.
FREQUENCIES COVERED	VHF (155-165 Mhz). Tunable frequency range. Coming Soon: X-Band (9Ghz).
OBSERVATION AREA	Daily revisits of Area of Interest (AOI) anywhere on Earth.
PRICING OPTIONS	Monthly or annual subscription based on AOI.

OUR MISSION

Enhancing Geospatial Intelligence

Kleos delivers RF geolocation intelligence, surveillance, and reconnaissance (ISR) data internationally through a Data-as-a-Service (DaaS) to government agencies, the intelligence community, end users, and businesses interested in locating threats, assets, targets, or those in distress.

CUSTOMER TYPE	USE CASES
GOVERNMENT DEFENSE	National Security (intelligence). Counter-Terrorism. Anti-Jamming. Border Security / Immigration. Sanction Prosecution.
GOVERNMENT CIVIL	Illegal Commercial Fishing. Search & Rescue. Piracy. Coast Guard Monitoring & Smuggling. Exclusive Economic Zone Protection.
INTEGRATOR	Tool and analytics providers, fusing Kleos data with other sources to provide a more comprehensive view of human activity.
RESELLER, CHANNEL PARTNER	Kleos leverages resellers and channel partners to deliver solutions to international and specialized markets.

MISSION-AS-A-SERVICE

Exclusive Data & Satellite Cluster Tasking

On completion of mission specific testing, each of the cluster of four satellites will be able to deliver a maximum of 9 minutes per orbit or 70 minutes per day of VHF data. Complete or partial capacity tasking available.

TASKABLE DATA SETS	Multi-satellite sensor output. Processed Geolocation Feed.
TASKABLE RF GEOLOCATION CAPABILITY	Provides frequency, time, Latitude and Longitude, and ECEF Coordinates of observed signals with a best case accuracy of 300 m depending on conditions.
TASKABLE SATELLITE CLUSTER	4 Satellites in a polar orbit equipped with propulsion for formation flying.
TASKABLE PAYLOAD	VHF (155-165Mhz). Tunable frequency collection range. X-Band (8500-9500 Mhz). Automatic Identification System (AIS) messages.
TASKABLE CAPACITY	Maximum of 9 minutes per orbit or 70 minutes per day of VHF data per satellite. Actual mission capacity is highly dependent on AOIs.
OPTIONS	Direct to User ground station downlink (instead of baselined Kleos commercial network). On User premises / cloud Geolocation system (instead of baselined Kleos hosting).
MISSION RIGHTS	Exclusive, full or partial tasking with unrestricted data rights.

Enhancing Your Intelligence Mission

Access to exclusive, taskable assets in orbit, dramatically reduces time to data that can enhance other mission data sets, enabling tipping & cueing of other EO assets and adding additional situational awareness, even when traditional GEOINT sources are compromised by weather, distance or sea-state.

CUSTOMER TYPE	USE CASES
GOVERNMENT DEFENSE / SECURITY	National Security (intelligence). Counter-Terrorism. Anti-Jamming. Border Security / Immigration. Sanction Prosecution.
GOVERNMENT CIVIL	Illegal Commercial Fishing. Search & Rescue. Piracy. Coast Guard Monitoring & Smuggling. Exclusive Economic Zone Protection.
INTEGRATOR	Data Fusion. Data Overlays. Tipping & Queuing. Patterns of Behavior Modeling. Maritime Domain Awareness. Unclassified RF Geolocation Source Data for Advanced Analytics.



SCOUTING

LAUNCHED NOV 2020

Four satellites in a 37-degree inclined orbit equipped with AIS & VHF collection payload. Demonstrating and validating the technology. Mission complete.

VIGILANCE

LAUNCHED JULY 2021

Four satellites launched into a 510-530km Sun Synchronous Orbit, covering the entire globe. Equipped with AIS & VHF collection payload.

PATROL

LAUNCHED APRIL 2022

Four satellites launched into a 508-530km Sun Synchronous Orbit, covering the entire globe. Equipped with AIS, VHF & X-band collection payloads.

OBSERVER

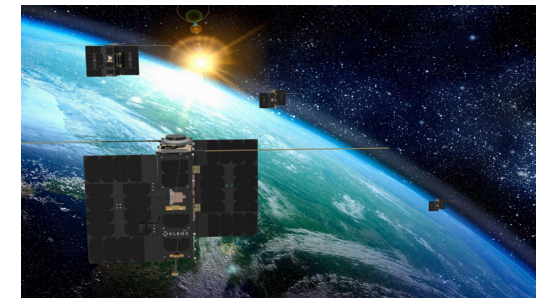
LAUNCHED JAN 2023

Four satellites launched into a 500-600km Sun Synchronous Orbit, covering the entire globe. Equipped with AIS, VHF & X-band collection payloads.

FUTURE GROWTH

Targeting a constellation of up to 20 clusters of 4 satellites each, to be launched in the coming years.

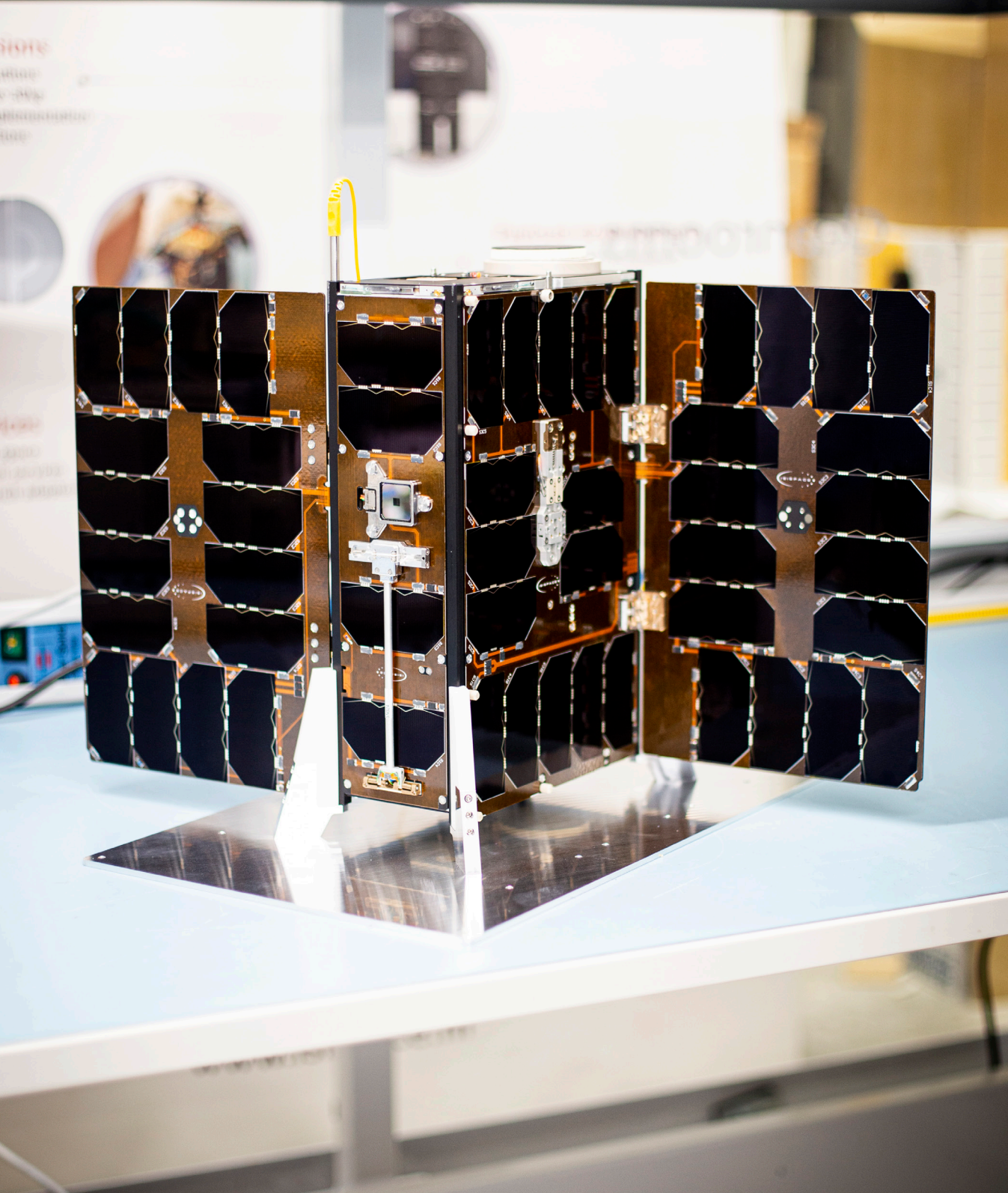
Every new cluster provides increased capacity and capabilities.



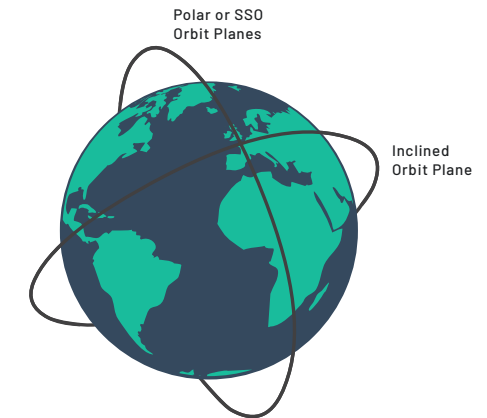


KLEOS' GUARDIAN LOCATE PRODUCT CONSISTS OF RF GEOLOCATED DATA DESIGNED FOR MAXIMUM COMPATIBILITY AND EASE OF INTEGRATION WITH EXISTING TOOLS AND PLATFORMS.

- Guardian LOCATE Data is provided in industry standard JSON format.
- Data is made available via secure, encrypted RESTful API.
- Detected signals are delivered as objects consisting of geolocated points with metadata including detected frequencies, and timestamps. Positional accuracy expressed as confidence ellipses.



- Kleos is deploying a satellite constellation as a distributed sensing and intelligence gathering capability. Satellites allow for cost-effective, wide area surveillance when compared to terrestrial based assets.
- Kleos' proprietary ground based algorithms deliver analytic-ready and easily ingested data product to users.
- Kleos owns and operates clusters of four satellites flown in formation. Three clusters (12 satellites) in orbit, and more in development.
- The satellites are equipped with sensitive radios that receive specific RF signals emanating from transmitters commonly used for communication or navigation such as VHF radios or X-band radar.



- The data collected by the satellites is downlinked via Kleos' network of ground station providers, processed by Kleos' Geolocation System, and stored at Kleos' secure data center.
- With collection by multiple satellites, Kleos' Geolocation systems precisely geolocation transmissions in three dimensions using advanced multilateration techniques.
- Kleos' geolocation is then transferred to Kleos' customers via API for use in their software, delivering insights that can be acted upon.
- Rapidly deployed technologies reduce risk and enable responsive solutions to evolving customer needs.



TYPES	USE CASES
GOVERNMENT DEFENSE	National Security (intelligence). Counter-Terrorism. Anti-Jamming. Boarder Security / Immigration. Sanction Prosecution.
GOVERNMENT CIVIL	Illegal Commercial Fishing. Search & Rescue. Piracy. Coast Guard Monitoring & Smuggling/ Exclusive Economic Zone Protection.
INTEGRATOR	Tool & Analytics providers are able to fuse Kleos data with other sources to provide a more comprehensive view of human activity.
RESELLER, CHANNEL PARTNER	Kleos leverages resellers and channel partners to deliver solutions to international and specialized markets.

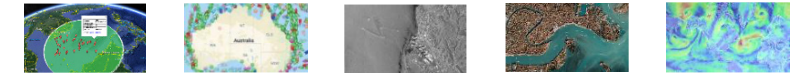
- Increasing global risks and conflicts drive demand growth.
- Delivering data to observe and track unfriendly activities.
- Actively being used by Government end-users in multiple regions.
- Disruptive data to provide new insights to customers.
- Large established addressable defence & security market opportunity.
- Data complements and enhances existing data/analytic products available from other providers.

KLEOS' DATA MAKES OTHER EO AND ANALYTICS ASSETS MORE EFFICIENT AND EFFECTIVE.

The Earth Observation (EO) sector is predominately serviced by companies working in sensor/data verticals delivering to the application a developer/integrator layer where data sets are layered, creating solutions for end users.

KLEOS DATA

- Adds value to other data sets
- Reduces time for analysts
- Reduces costs through efficient asset tasking



COMMERCIAL OPERATORS

KLEOS
Hawkeye360
Unseenlabs

Spire

Capella
IceEye

Maxar
BlackSky
Planet

Spire

DATA SEGMENT

RF Geolocation
High Growth

AIS / ADSB
Collection
Mature Growth

SAR Imagery
High Growth

Optical Imagery
Mature Growth

Weather
High Growth

TYPE OF DATA COLLECTED

Global radio spectrum wide area surveillance.

Receiving tracking messages from Ships & Planes.

Active radar sensing, not restricted by cloud / daylight.

Photos/videos in the visible domain.

Commercial weather services

Location of dark transmitters.

Voluntary system not used by illegitimate operators .

Lower resolution than Optical.

Challenged by cloud cover and light .

APPLICATION DEVELOPER: DATA CONSUMER / ANALYST

High Growth

App Developers, Integrators, Intelligence and Analytics Providers – More data means more growth.

e.g(non-exhaustive): Palantir Orbital Insight Telespazio L3Harris AllSource Maxar etc.

END USERS

Government and Commercial Markets – Increasing global threats creating pull.



EXAMPLE OF APPLICATIONS FOR KLEOS GUARDIAN LOCATE DATA

Integration customers ingest the data and often layer it with other data sets to find hidden activity creating intelligence. Kleos works with a large number of integrators, commercial entities and Governments around the globe such as:

L3Harris, Carahsoft, Sypaq, AllSource, Geollect, MDA, Satellogic and many more.

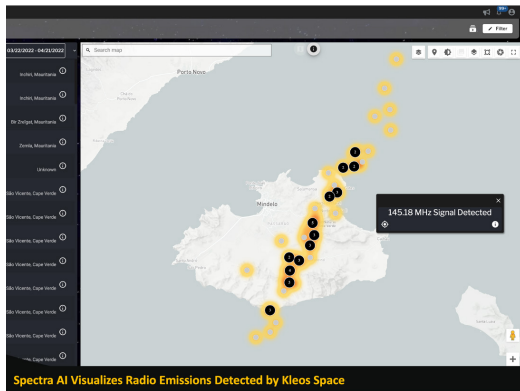
Two example applications are presented with platform partners:

BLACK|SKY

BLACKSKY SPECTRA AI
Tipping & Cueing Scenario

GSTS
Navigate Tomorrow Today

GSTS OCIANA
Risk Analysis Scenario

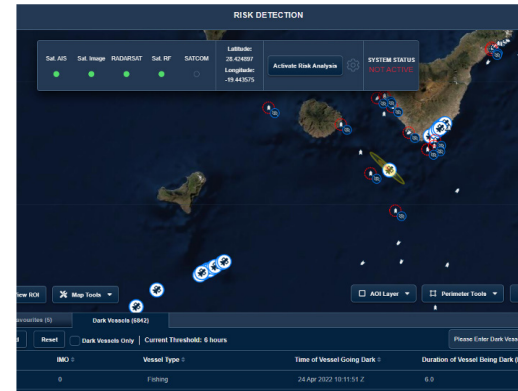


TIPPING & CUEING SCENARIO

A key use case is to help find the 'needle in the haystack' and better task (tip/cue) other data sets such as imagery.

In this application; BlackSky ingested Kleos' data into their AI platform, visualised the positions when Kleos identified the presence of VHF radio activity and used that information to task one of their satellites to take an image for further analysis.

The image on its own doesn't show the extent of communication activity in the area. Land-based intelligence is imperative in understanding areas of conflict.

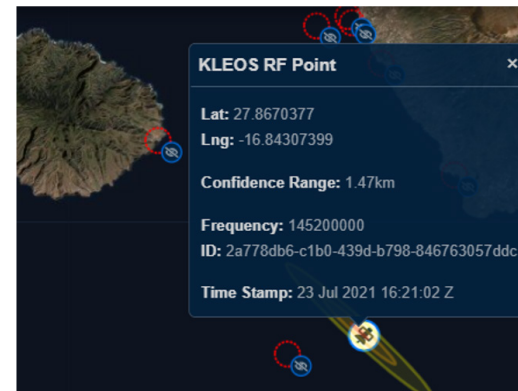


RISK ANALYSIS SCENARIO

A key use case is to help detect illegal maritime activity and reduce risks for insurers and operators.

In this application, GSTS ingested Kleos' data into their AI platform, to find suspected dark vessels. The detection was corroborated by Kleos Guardian LOCATE detection.

AIS data is used to detect legitimate maritime activity - but doesn't find hidden maritime activity such as illegal fishing, smuggling etc.



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