



# astrocast

Taking IoT Further

Company introduction

Tuesday, 14 February 2023



# Astrocast at a glance

Swiss Satellite operator disrupting the IoT market



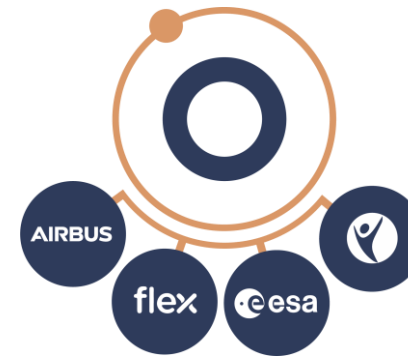
**Only 15%** of the planet is covered by terrestrial IoT connection.

Founded in 2014, Astrocast is disrupting the IoT market with a fully operational **satellite constellation**.



Global market of **5.2 billion** connected devices by 2025.

**Astrocast-based devices** deployed in over **25 countries**.



**Commercial operations** started in February 2022.

Multiple strategic partners : Airbus, Flex, ESA, Thuraya.



2022, Astrocast recognized as the **Most Innovative Satellite IoT Communication** Company by the World Finance magazine.

# Our partners

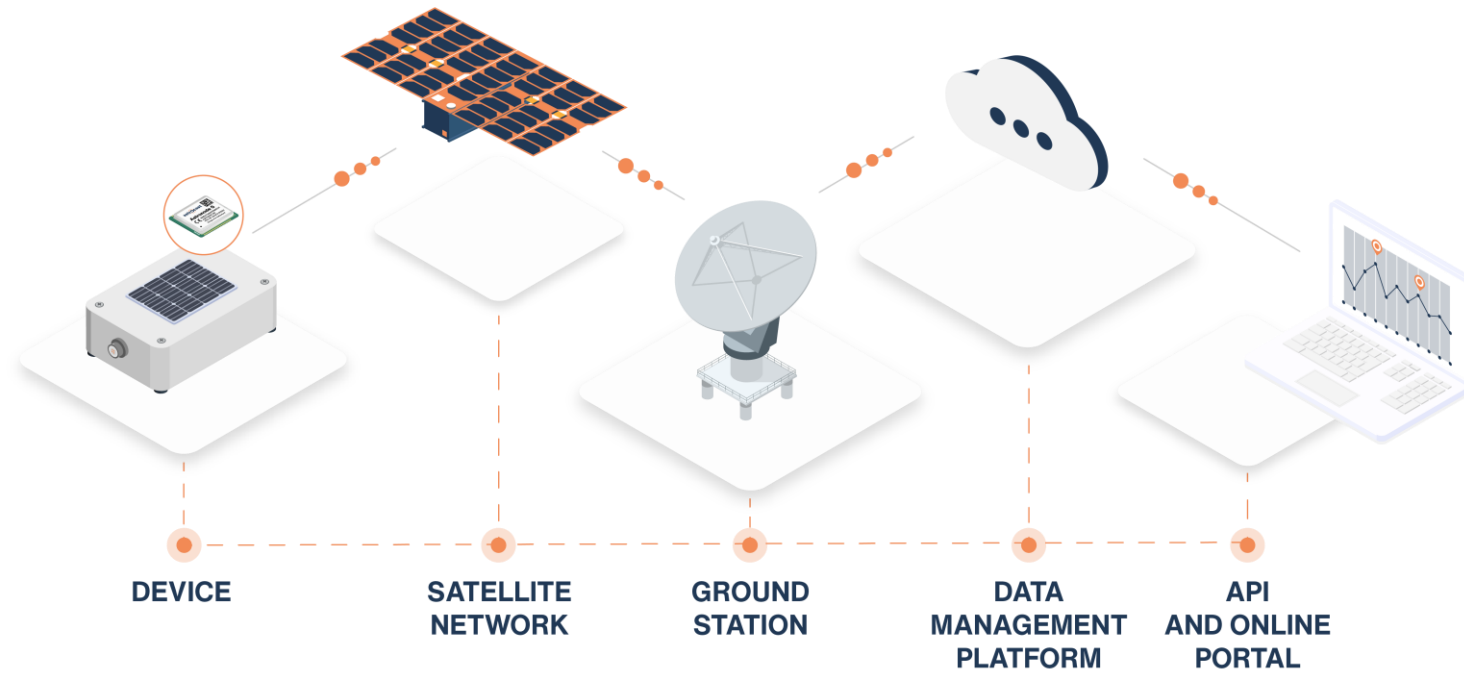
Well-established, high-quality partner ecosystem allows Astrocast to focus on its core competencies



# Astrocast IoT connectivity solution



Direct-to-satellite IoT connectivity transporting data between remote locations and your backend



**ULTRA-LOW POWER  
MODULES**



**BIDIRECTIONAL  
PROTOCOL**



**COST-EFFICIENT  
SOLUTION**

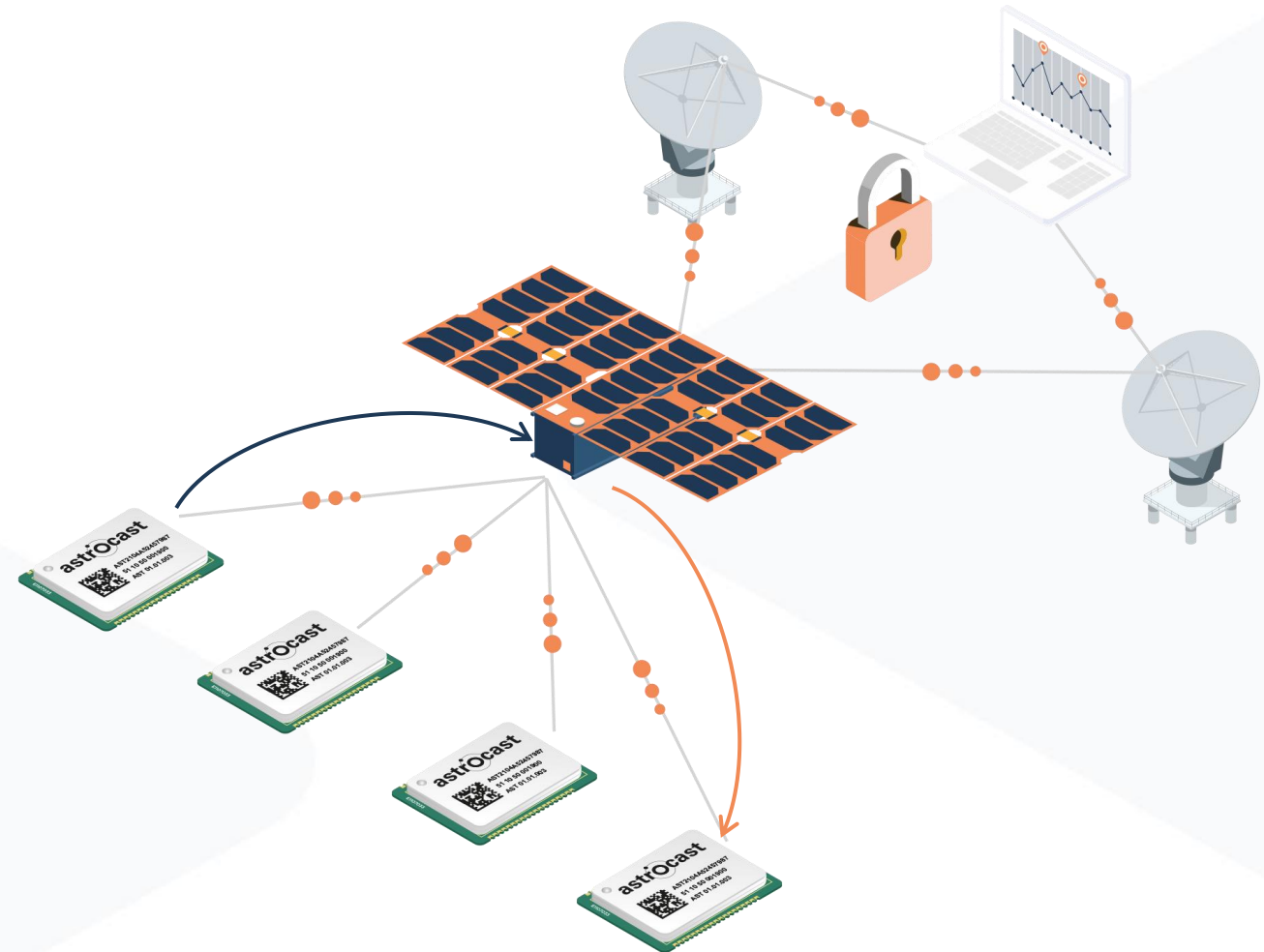


**CUSTOMER-CENTRIC  
SERVICE**

# Data protocol for two-way communication



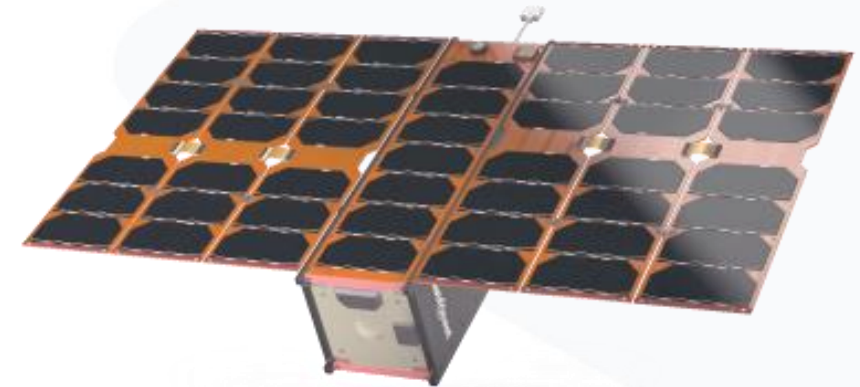
- Optimized for LEO satellites network
- Bidirectional communications enabling your devices to send and receive:
  - Uplink messages (up to 168 bytes)
  - Acknowledgments
  - Downlink commands (8 or 40 bytes)
- Industry standard multilevel encryption: 256-bit AES
- Ultra-Narrow-Band (UNB) in licensed L-Band
  - Smaller antenna and Low-cost RF components
  - Better propagation (no rain fade, lower power requirements)
  - Fewer interference risks than other bands
- Developed with





# Swiss-made satellites to ensure the most optimal quality and robustness for your service

- Constellation today :
  - 18x 3U CubeSats
  - LEO (~500-550km), sun-synchronous orbits, 4 orbital planes
- Complete constellation:
  - 80 Nanosatellites + spares
  - In 10 orbital planes
- Active attitude determination & control for accurate antenna pointing.
- Propulsion for orbital maneuvers for debris avoidance, constellation management and increasing speed of deorbiting at EOL.
- Redundancy of critical satellite components and spares satellites in orbit to guarantee service reliability and availability.
- Programmed lifetime of 3-5 years
  - To keep the best performance in orbit
  - To allow new features to be added to the network
- **We design, manufacture and operate our own satellites.**



# Products overview



## ASTRONODE S

Price: USD \$49

Bidirectional satellite communication module with a serial interface and a compact, surface mount form factor

Sends messages, gets them acknowledged and receives commands



## ASTRONODE PATCH ANTENNA

Price: USD \$3.90

Compact ceramic patch antenna optimized for operation on the Astrocast network

Bidirectional communication in the L-Band and GNSS reception for tracking purposes



## ASTRONODE S+

Price: USD \$79

Certified industrial satellite communication device, ready to install and connect

Does not require resources in electronic and RF design, enabling short time to market



## ASTRONODE DEVKIT

Contains items needed to connect assets to the Astrocast nanosatellite IoT network

Provides end-to-end connectivity with the Astrocast network in under 20 minutes





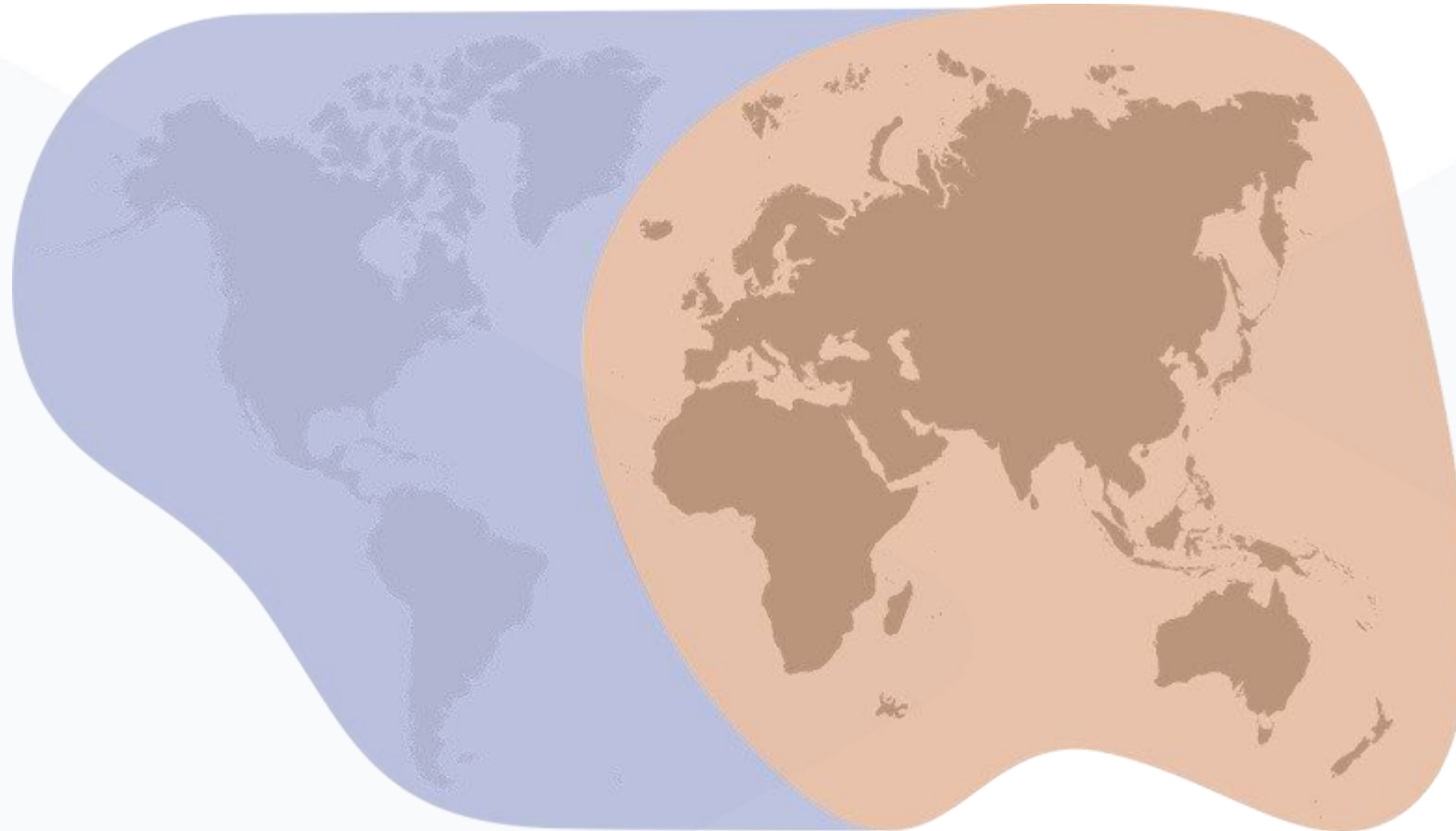
# Astronode S



<b>Dimensions</b>	35mm x 31mm
<b>Supply voltage nominal</b>	3.3V DC $\pm 5\%$
<b>Peak power consumption (in TX mode)</b>	<0.35W
<b>Deep sleep current</b>	<500nA (LPUART deactivated, wake up pin available)
<b>Operating environmental range</b>	-20°C to 70°C / -4°F to 150°F
<b>Serial interface</b>	UART
<b>Encryption</b>	2-level 256-bit AES with unique device keys
<b>Variable user payload size per message (Total messages no. subject to data plan)</b>	1-160 Bytes
<b>End-to-end network latency</b>	15min, location dependent, with full network deployed
<b>Data access</b>	API or online portal
<b>Certified</b>	CE & FCC RoHS & REACH



# Frequency Coverage



● Current coverage

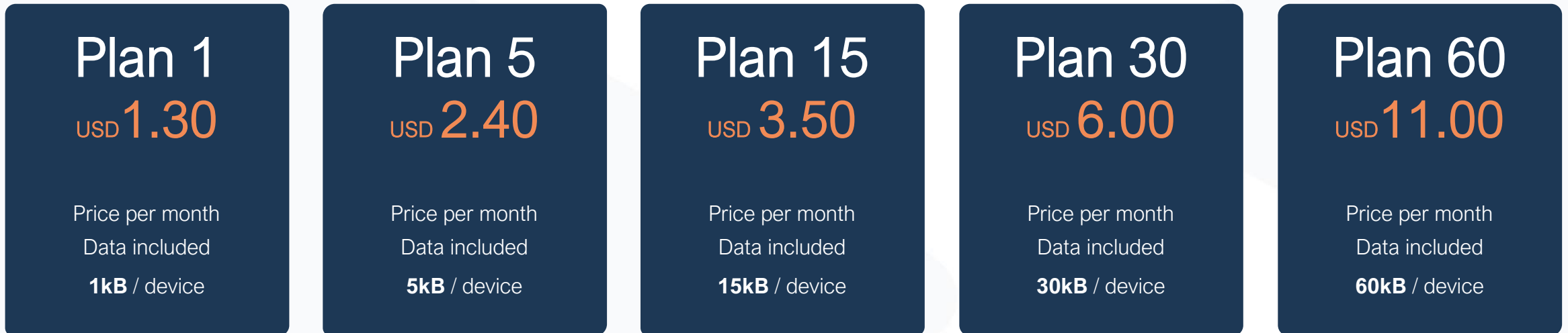
● 2024

# Our pricing



## Data plans

Dynamic, automatic, cost-effective and degressive rates.



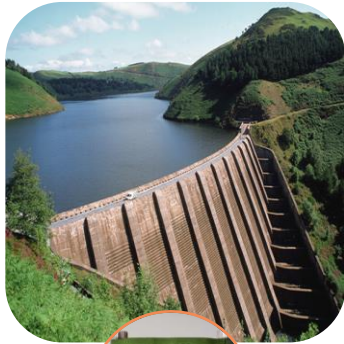
No activation fee, no hidden fee.

# Supporting various use cases

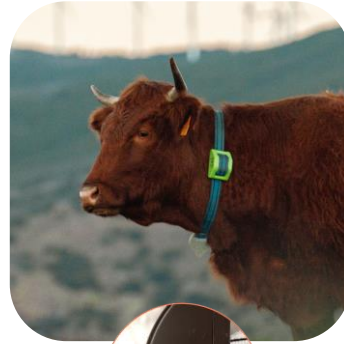
Astrocast integrated in numerous partners' IoT devices



**MULTI-CONNECTIVITY  
DEVICE FOR CONTAINER  
TRACKING**



**WATER  
MONITORING**



**LIVESTOCK TRACKING  
& MONITORING**



**DATA DRIVEN  
FARMS**

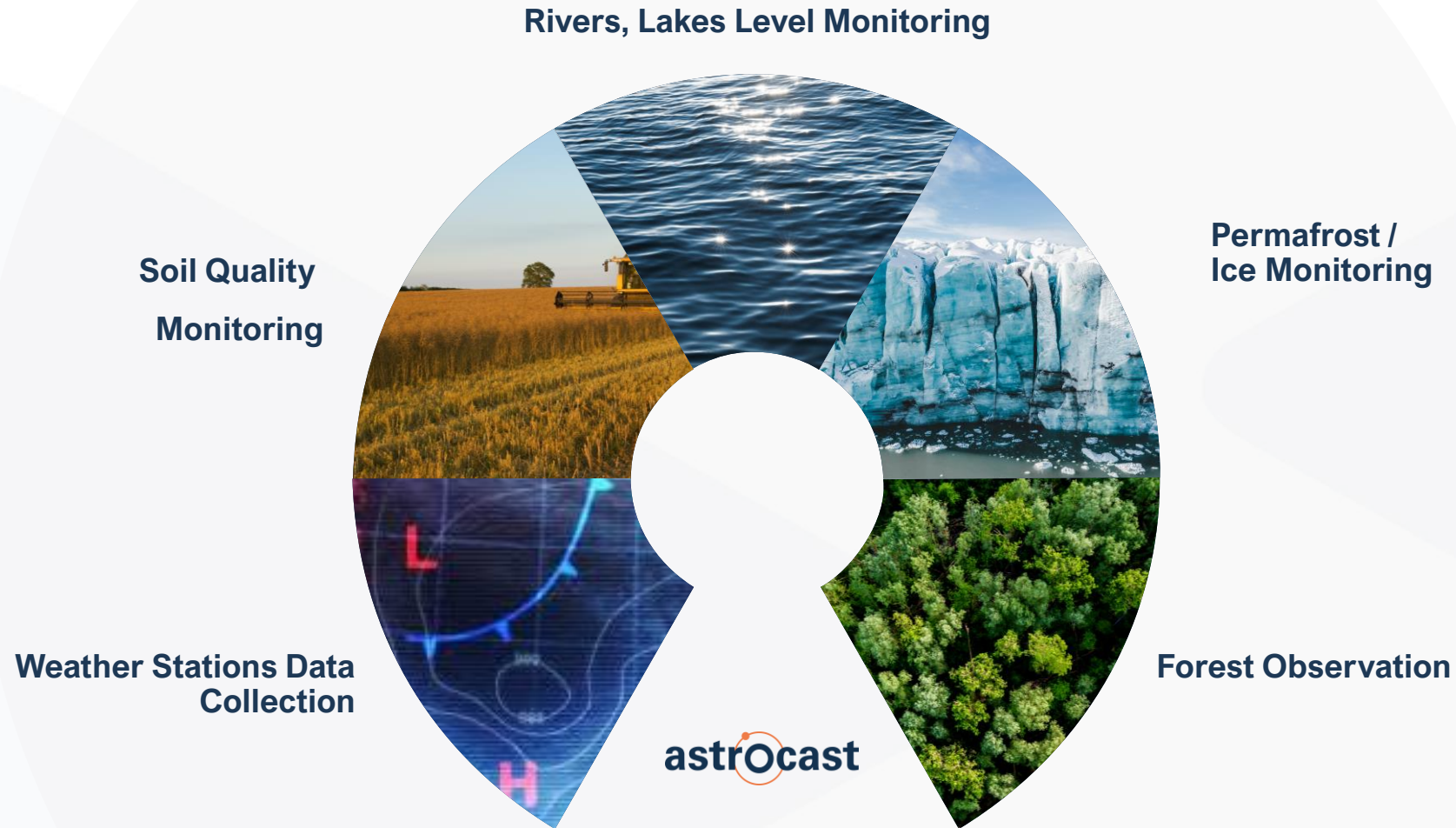


**DRONE  
RECOVERY**



**TRAFFIC  
COUNTER**

# Astrocast integrated for Earth Observation





For more information visit:  
[astrocast.com](https://astrocast.com) or contact [sales@astrocast.com](mailto:sales@astrocast.com)