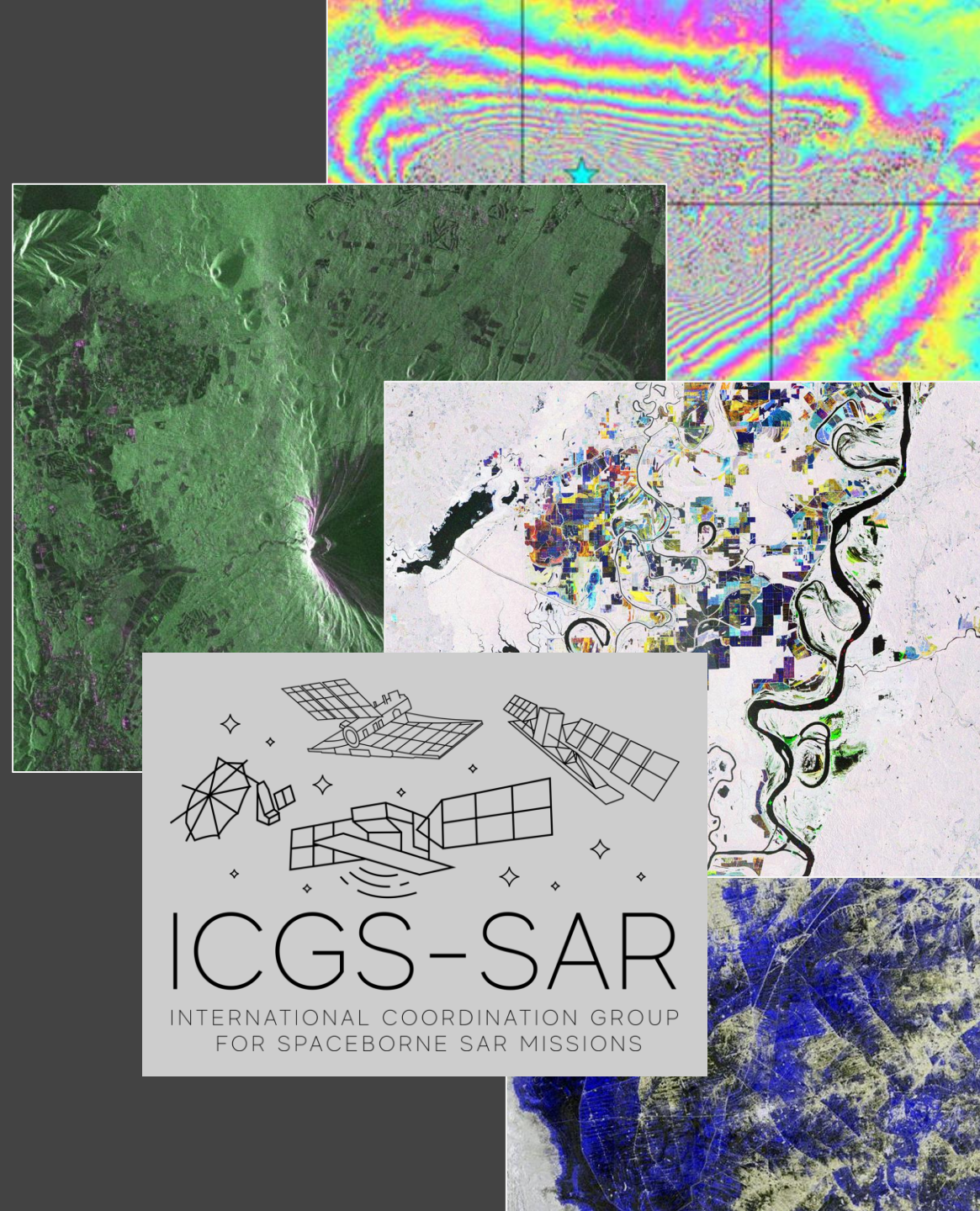
Third International SAR Workshop



Moto ARAI, Synspective
Agenda item 5.2

3rd International SAR Workshop
Saga Prefecture, Japan
6-8 November, 2024

Synspective

Create a new infrastructure that enables the next generation to understand our Earth and achieve a resilient future.

Against the risks in;

- Disaster
- Security
- Environment

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Synspective

Synspective was established by Dr. Arai and Prof. Shirasaka in 2018.

Overview

Company	Synspective inc.
Established date	22. Feb., 2018
HQ location	Tokyo
Subsidiaries	Synspective SG Pte. Ltd. (Singapore) Synspective Japan
Members	199（as of Sep, 2024） 24 nationalities
Service	• SAR data sales • Solution sales with SAR data

HQ／Synspective Japan





Synspective SG Pte. Ltd



Yamato Technology Center



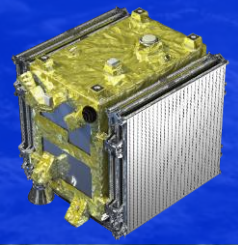
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StriX



Item	StriX constellation	
Orbit	SSO & Inclined	
LTAN	21:00	15:00
Centre frequency	9.65GHz (X-band)	
PRF	7kHz	
Band width	300MHz	
Max power	1kW	
Polarization	V V	
Off-nadir angle	15 – 45°	

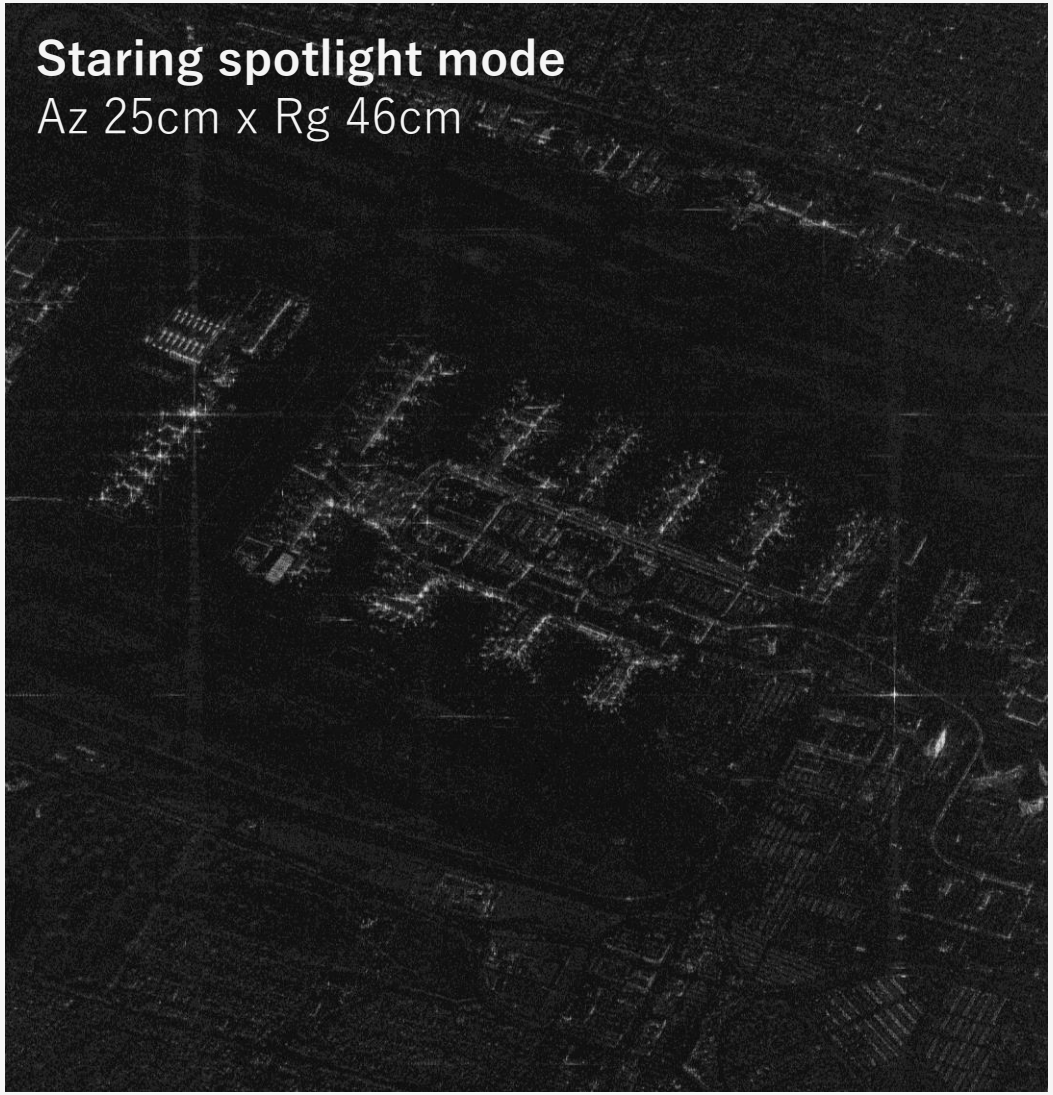


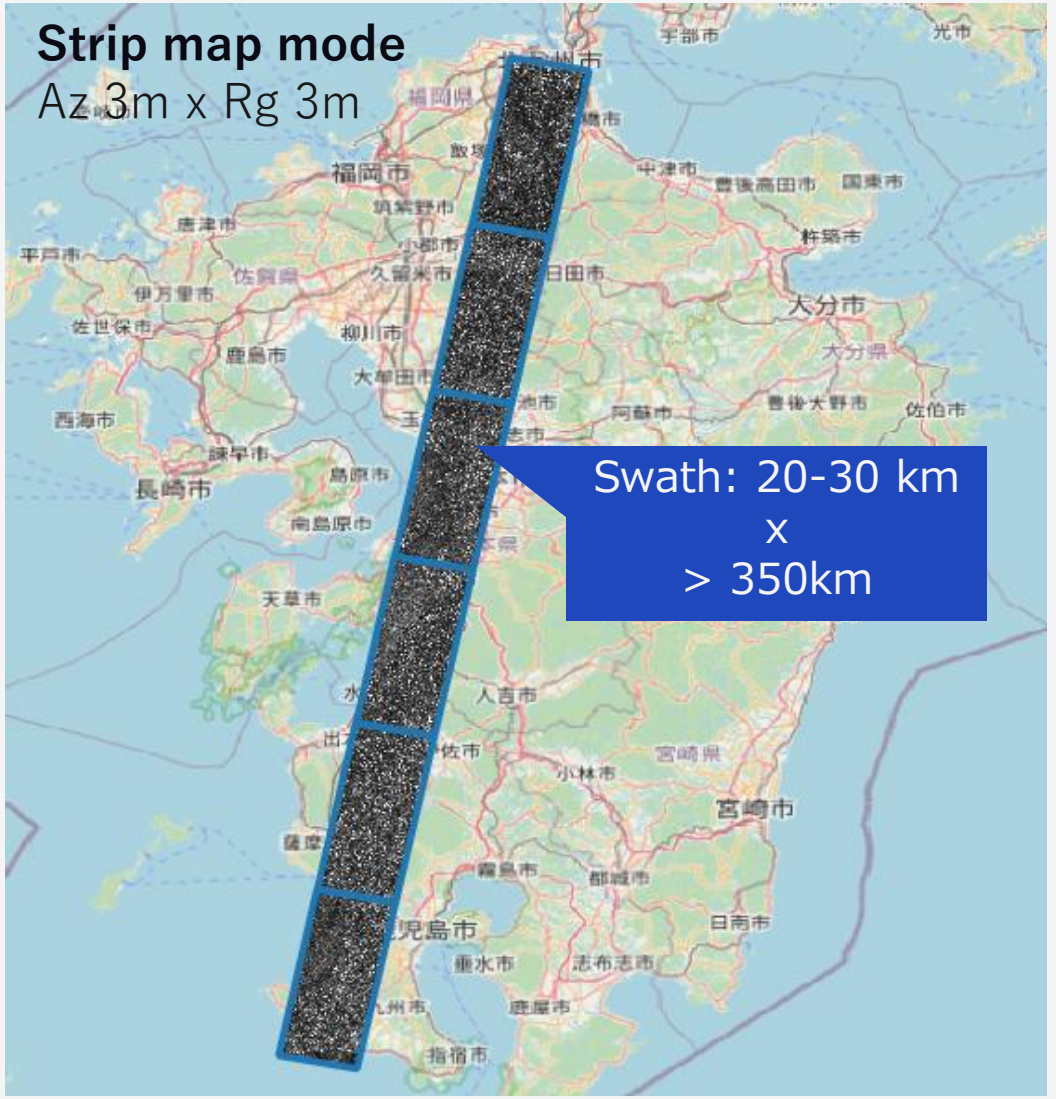
Deployable slot-array antenna
Mass: 150kg class
Size: 5 x 0.8 x 0.8m (in the orbit),
Cubic with 0.8m side (in a rocket)

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StriX can provide both of broader coverage and high-resolution imagery data.

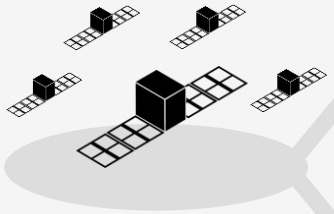




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Currently data sales makes revenue mainly, but we expect that solution will be profit source.

SAR data capturing



Service

Data sales

- Selling SAR data

Solution sales

- Reporting detected information with automated analytics

Customer

Government

with SAR analysis capability

- Ministries
- International entities

Steady monitoring
- ✓Defense
- ✓Disaster
- ✓Infrastructure/ land-use

Private companies

without SAR analysis capability

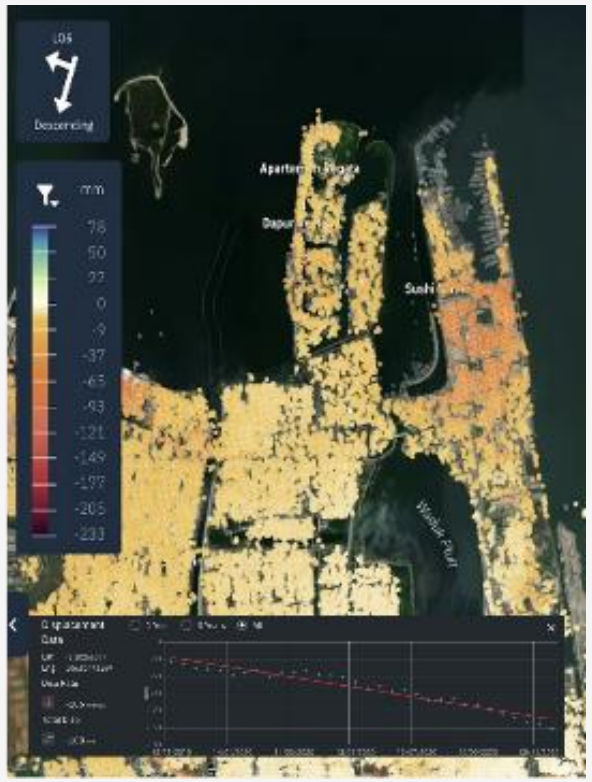
- Insurance
- Civil engineering
- Energy/ resources dev.

Time-series analysis
- ✓Disaster risk/ assess.
- ✓Asset management & maintenance
- ✓Environment research

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We use not only StriX, but also other SAR satellites for providing value and useability to customers.

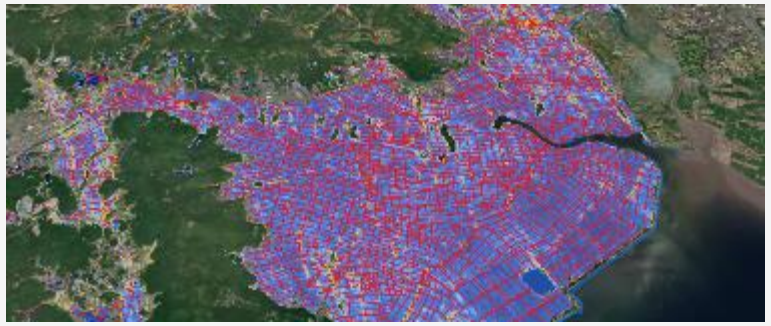
Ground / Infrastructure



Land Displacement Monitoring with InSAR

© Mapbox, © OpenStreetMap and Improve this map, ©Copernicus Sentinel data [2019 - 2020], ©Synspective Inc.

Disaster



Flood Damage Assessment



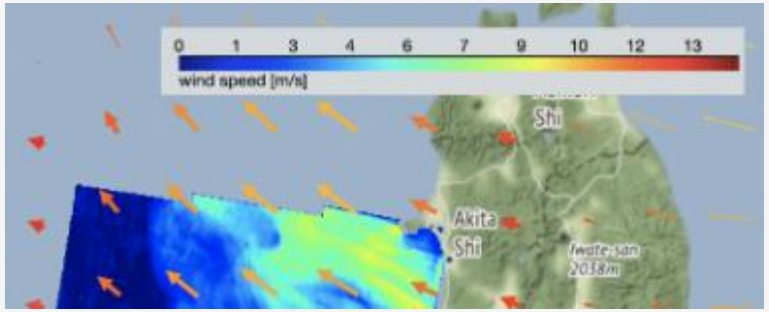
Disaster Damage Assessment

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Environment



Forest Inventory Management

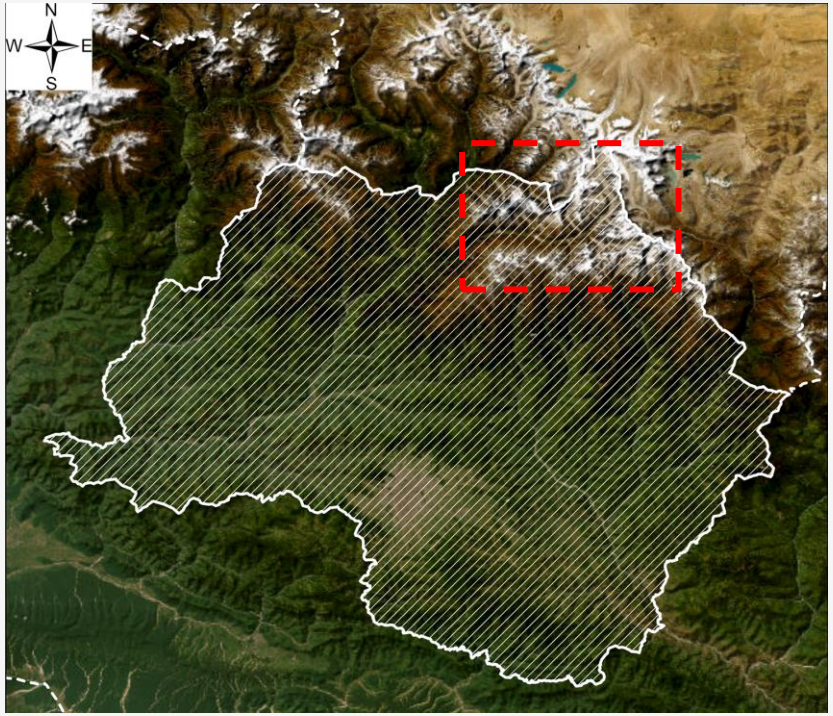
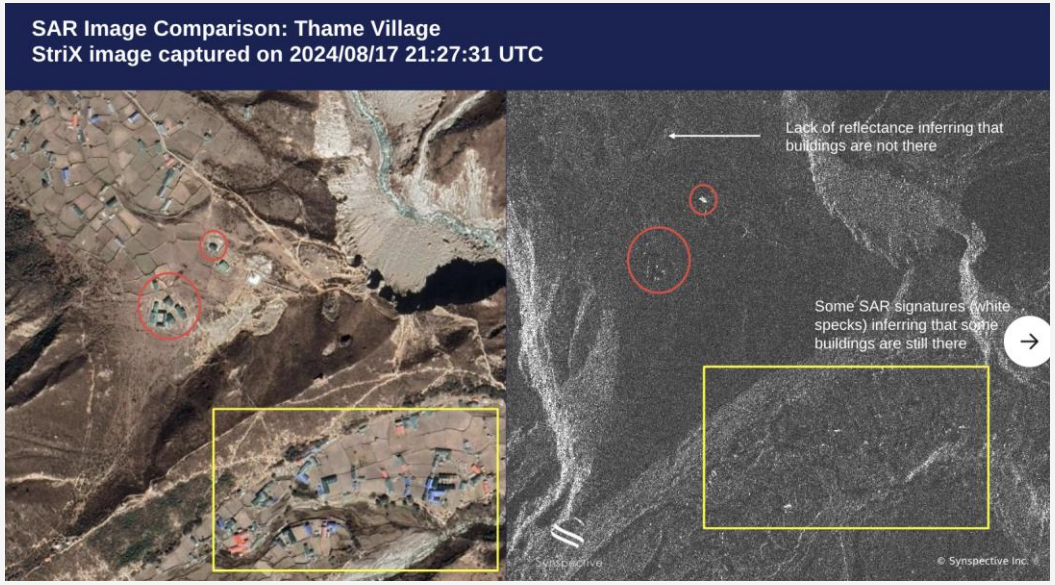


Offshore Wind and Wave

©Mapbox ©OpenStreetMap © kepler.gl Improve this map by ©Synspective Inc.

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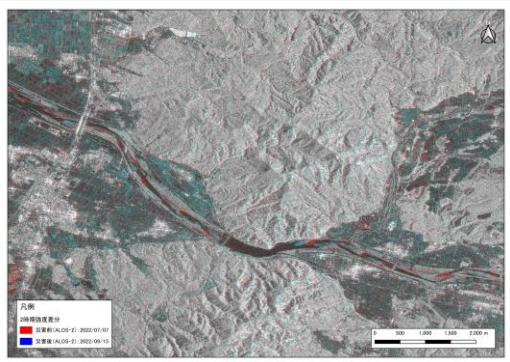
Packaged service for disaster risk management with ALOS-2 & StriX. Collaborative value among RF penetration, wide coverage & accumulated data, and frequency.

Land sliding risk assessment (Usual/L-band)	Disaster damage assessment (Emergency/X-band)
AOI: Himarayas in Nepal ※500㎢ Period: Jan, 2023 – Dec, 2023 Sat.: ALOS-2 (ScanSAR) 	AOI: High risk area, damaged area Sat.: StriX (Stripmap)  https://www.linkedin.com/posts/synspective_strix-satellite-sar-activity-7231540472102461440-GOyL

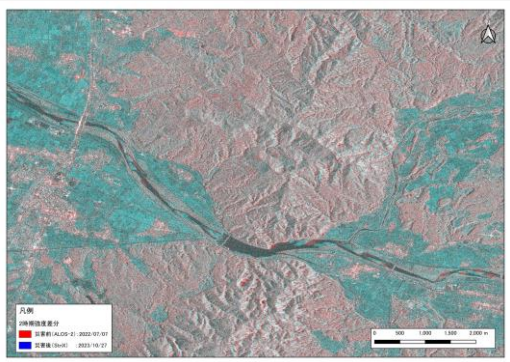
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Archived data set with close condition is significant for the urgent damage assessment.

Two-period intensity gap analysis

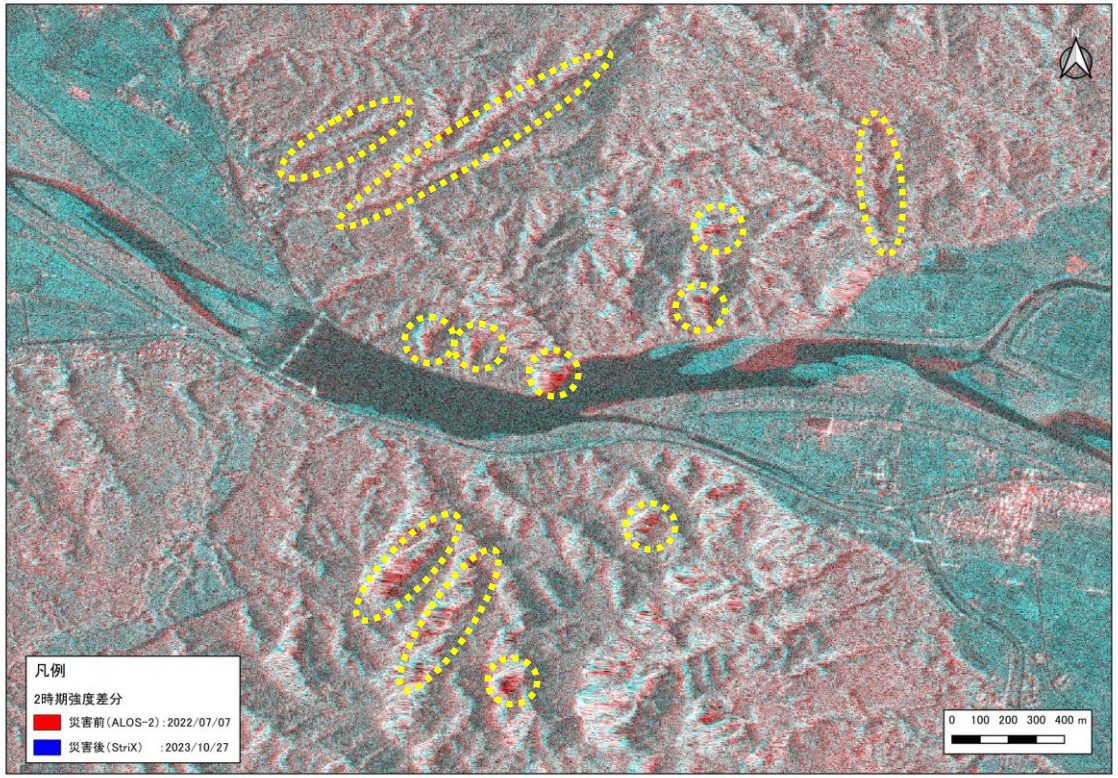


ALOS-2 – ALOS-2



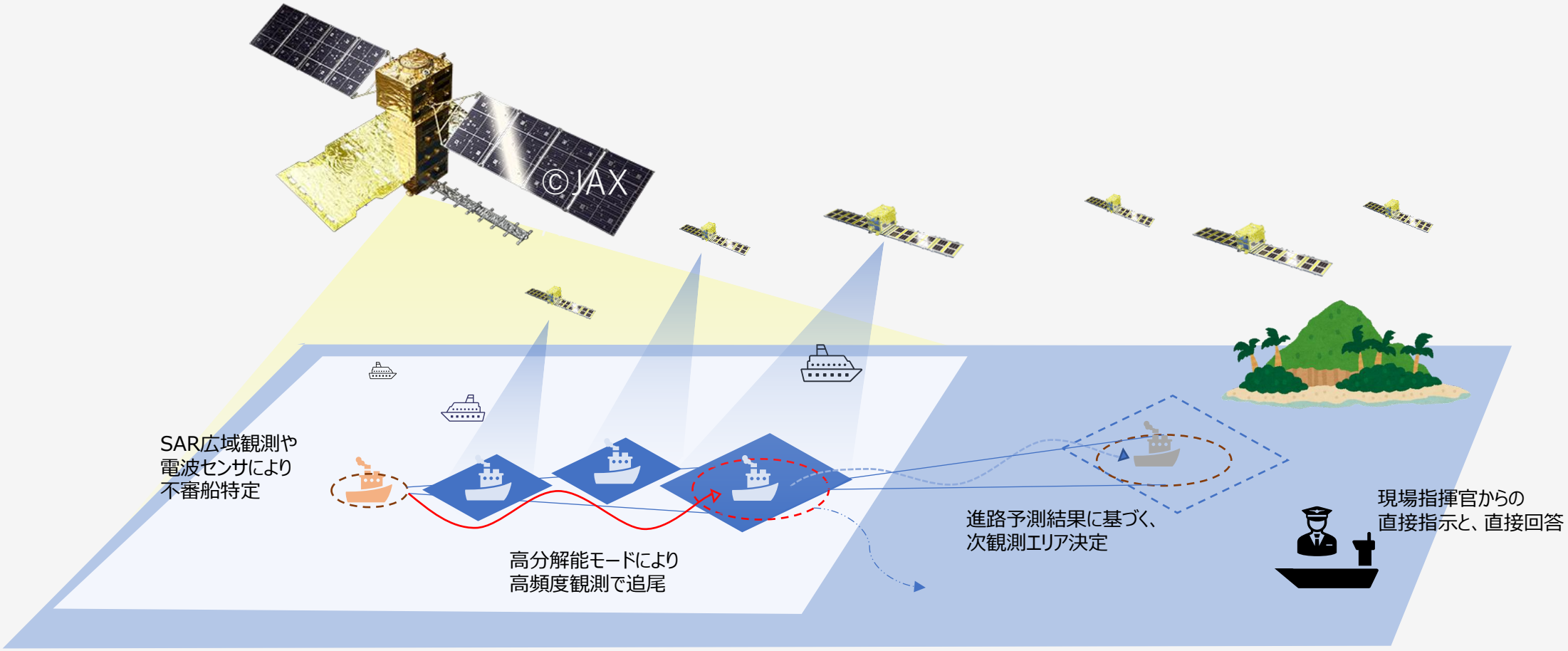
ALOS-2 – StriX

Sample analysis for land sliding with ALOS-2 - StriX



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Mobile object tracking: Wide data capturing by big sats and small sat constellation takes over the tracking role for an identified vessels with analytics.



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