

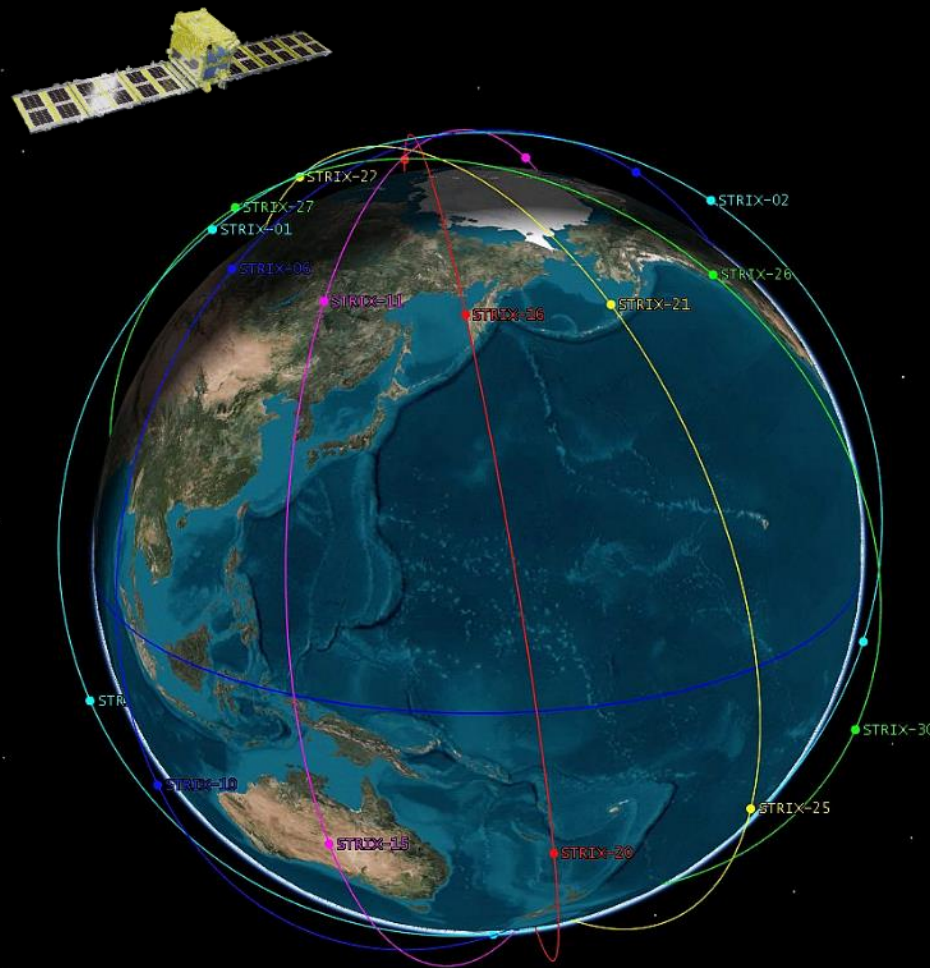


SAR Satellite Data Solutions for Disaster Management

December 16, 2021

Joint Webinar of the EU-Japan Innovation Day

Akifumi Sumiya (角屋 暁史)
Manager, Marketing & Sales Dept.
Flood Damage Assessment Manager
Synspective Inc.



Synspective Inc.

Founded Feb.22, 2018

CEO Dr. Motoyuki ARAI

Address 3-10-3 Miyoshi, Koto-ku,
Tokyo, JAPAN

Business

- Solution services with SAR satellite data
- Development and operation of small SAR satellites

SG Office Synspective SG Pte. Ltd.



**Over 100M USD
Capital raised***1
*1: world's fastest fund-raising
in 1.5 year after founded

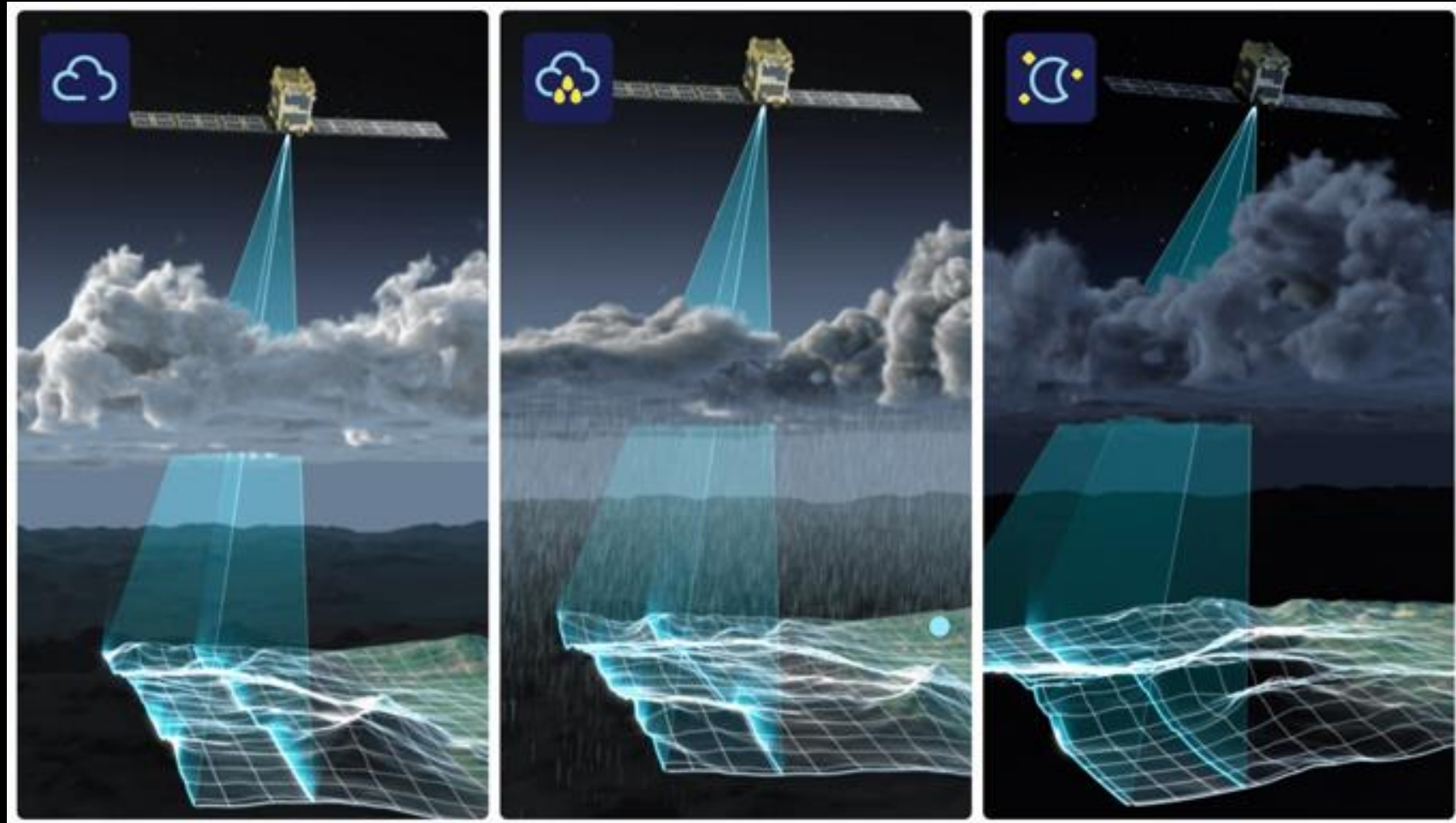
**Linkedin 2021
Top10 Japan Startups**



123members,
21 countries

What is SAR(Synthetic Aperture Radar) satellite

ANY TIME in ANY WEATHER



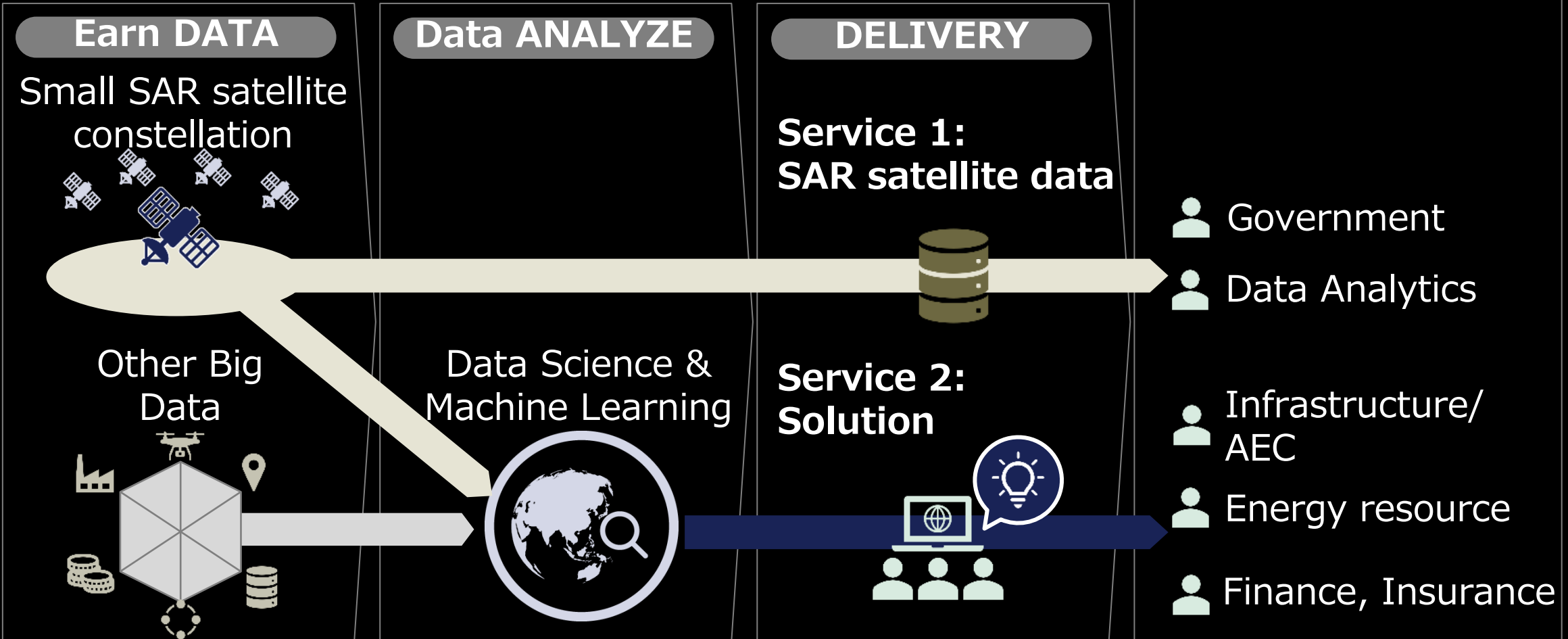
Our Business Model (Data Creation & Data Understanding)



Data creation

Data understanding

Customers



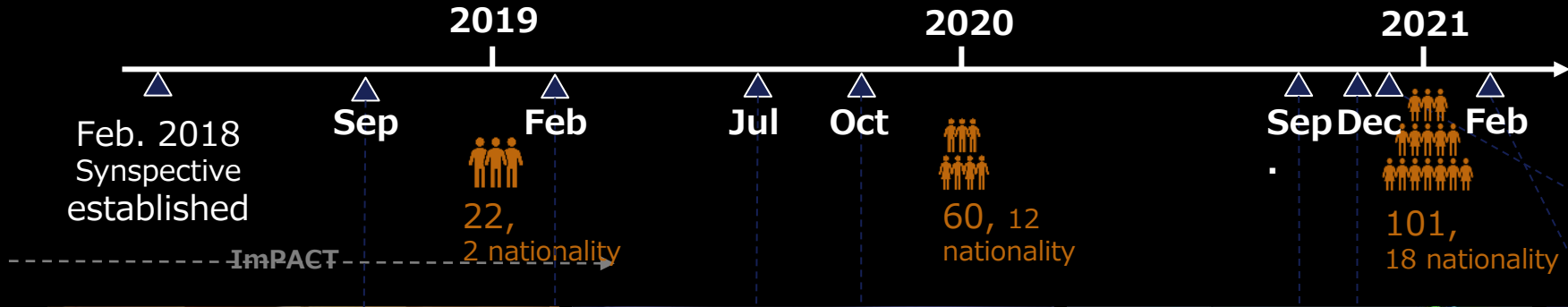
Development by Market Driven



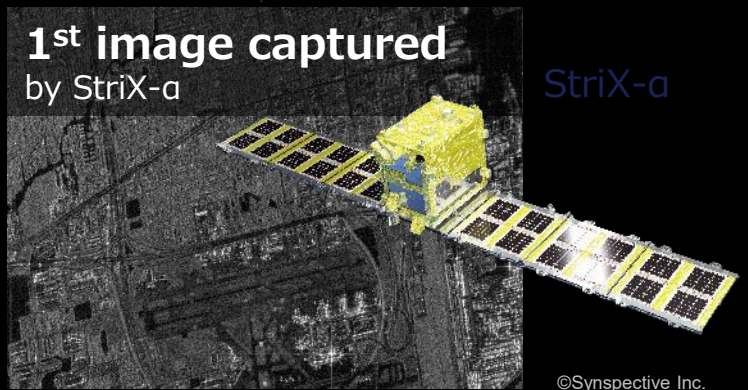
Strength

Sustainable service provide

Our Journey from 2018 and beyond



30 Sats. To be an information infrastructure for international social issues by 202X



SAR Satellite Data Image (by StriX-α, our first satellite)



Data Creation
by SAR satellite

Tokyo, Japan
Taken in April 2021



StriX-α
X-Band SAR satellite



© Synspective Inc.

SAR Satellite Data Image (by StriX-α, our first satellite)



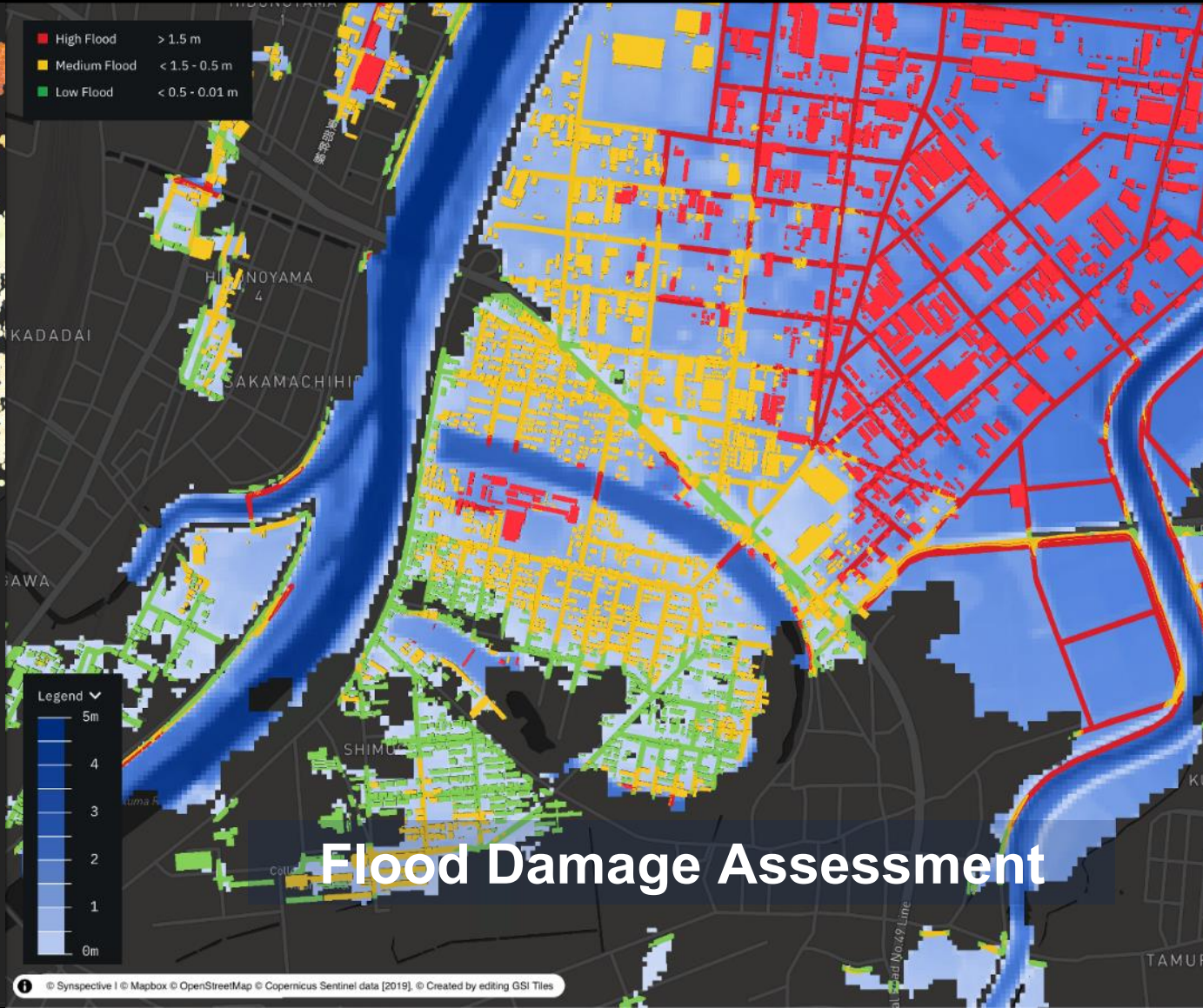
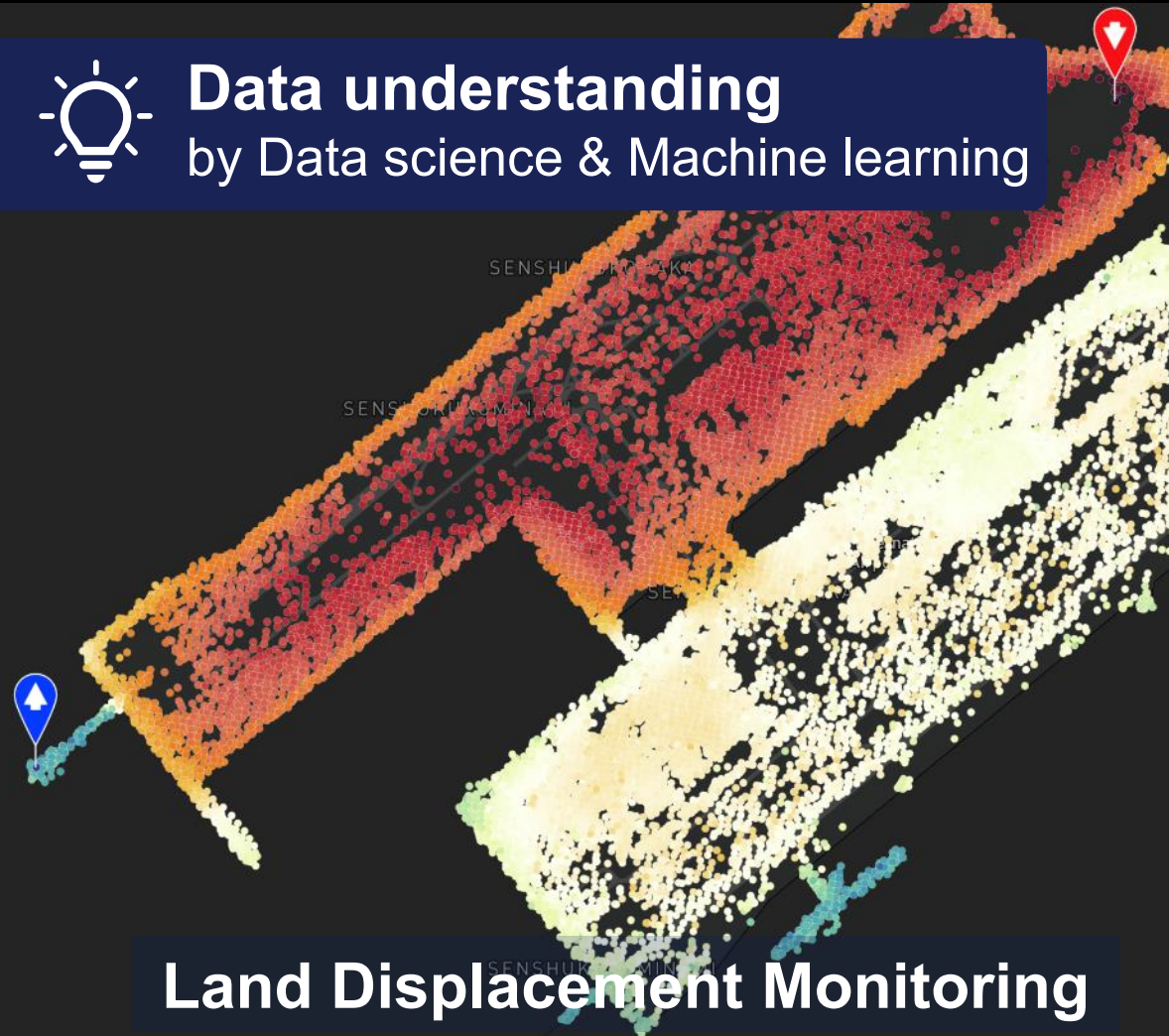
TOKYO HANEDA Airport



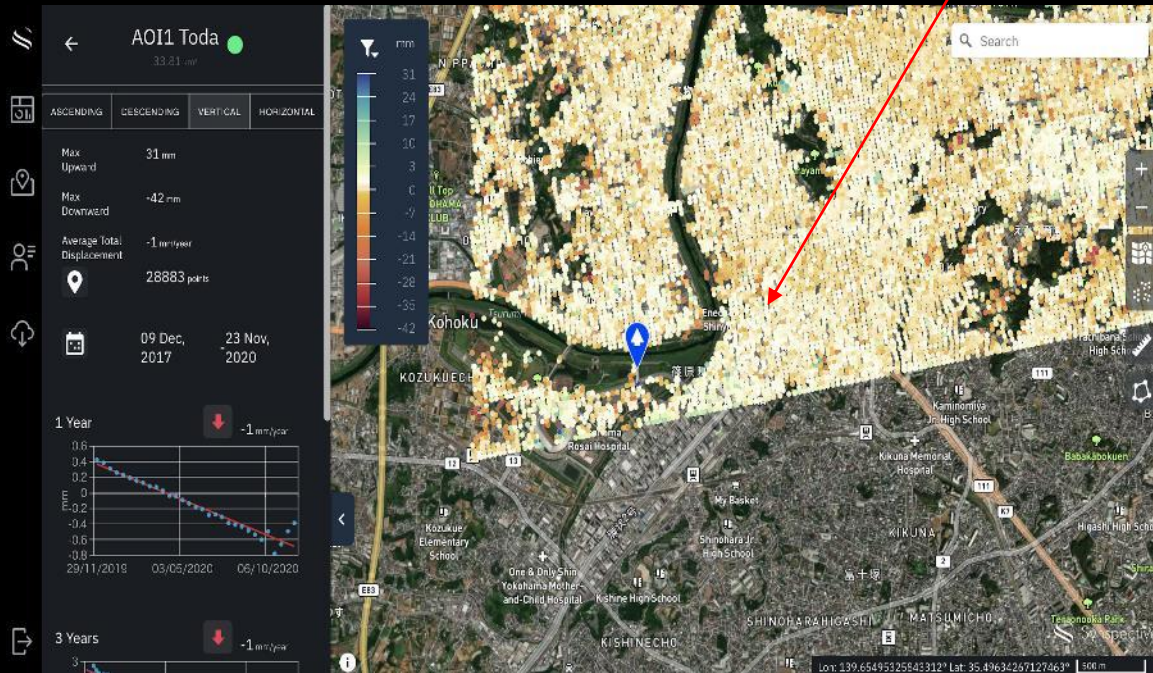
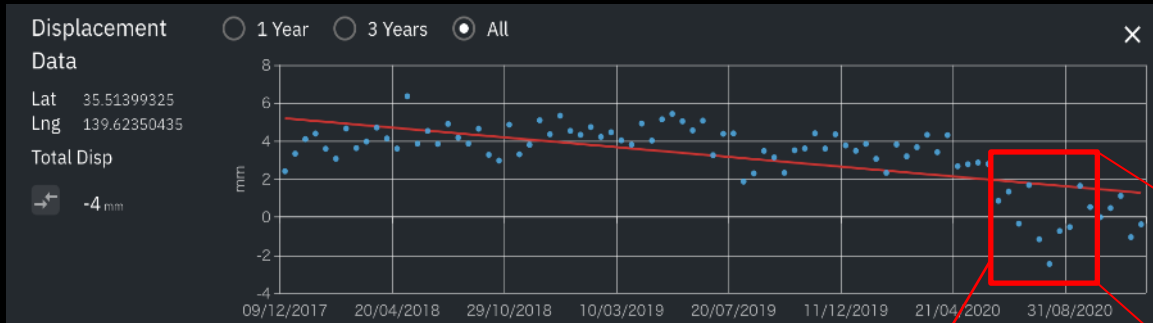
Using data science and machine learning, we provide cloud-based solutions for various approach, including disaster management



Data understanding
by Data science & Machine learning



Land Displacement Monitoring (LDM) Analysis Example



Millimeter scale

Wide Coverage

Periodical update

Risk area detection

By our LDM, we confirmed a **rapid sinking trend before and after the occurrence, with matching of sink hole risk area detection function.**



©日経Xテック



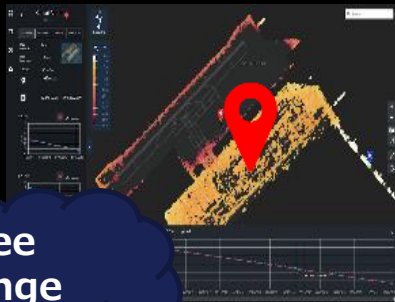
- ✖ : Actual sink hole occurred
- : Sink hole risk detection area

Land Displacement Monitoring (LDM) Use Case Image

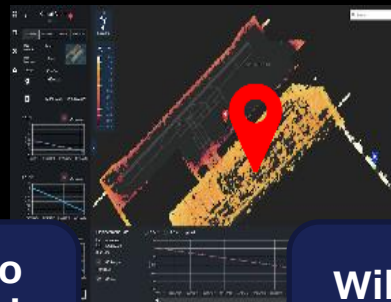
Wide & Periodical SAR observation

Smooth evaluation of Potential Risks

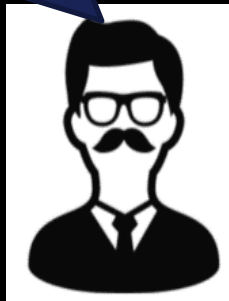
Risk management & Preventive Maintenance



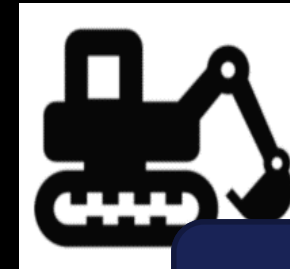
I see strange movement



What do you think of it?



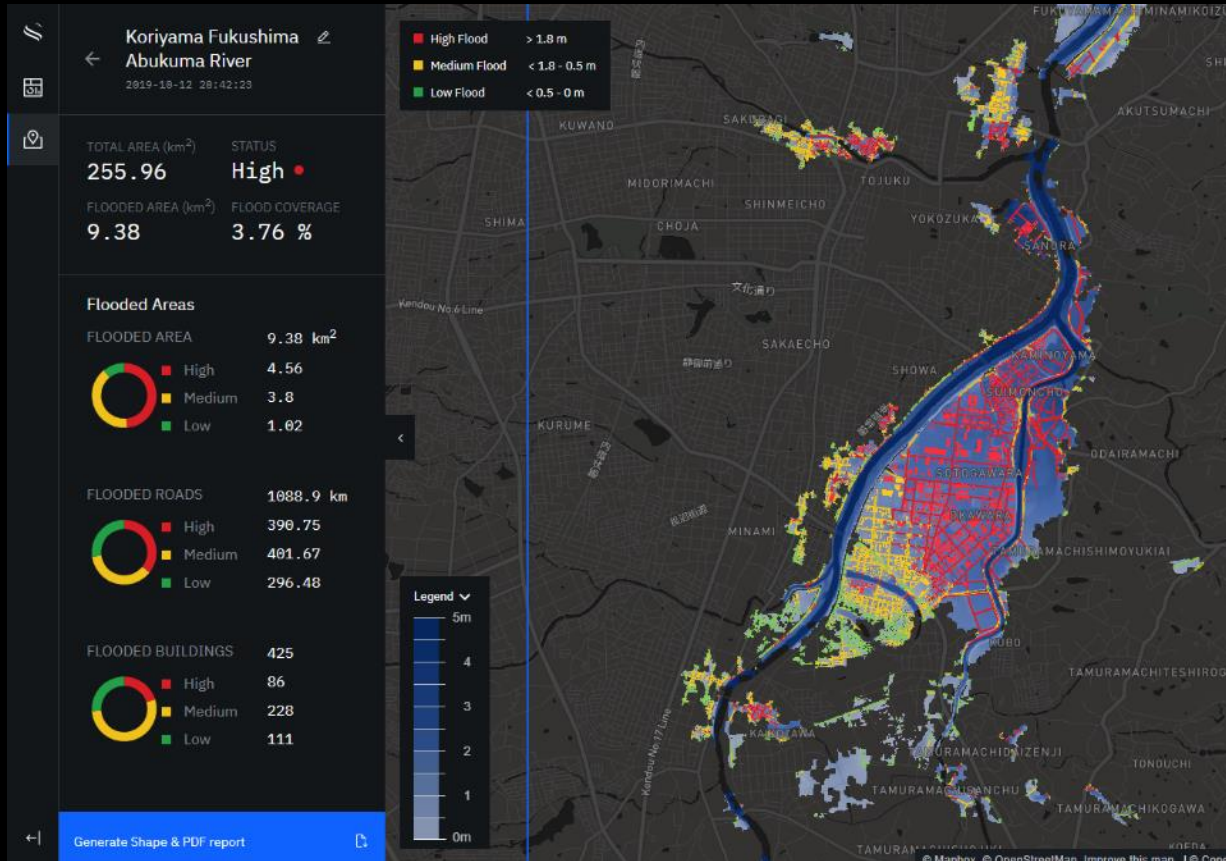
Will quick check it!



Now its SAFE!!



Flood Damage Assessment (FDA) Analysis example



Flooded Areas

Flood Depth

Flooded Roads

Flooded Buildings

Flooding damage analyzed by SAR satellite data will be shown on the WEB platform. Grasp damage status for a given area, **contribute to quick and appropriate actions** in the event.

SSTL X The World Bank
HADR Challenge Pitching Session

Shortlisted Finalists

Top 4 of HADR

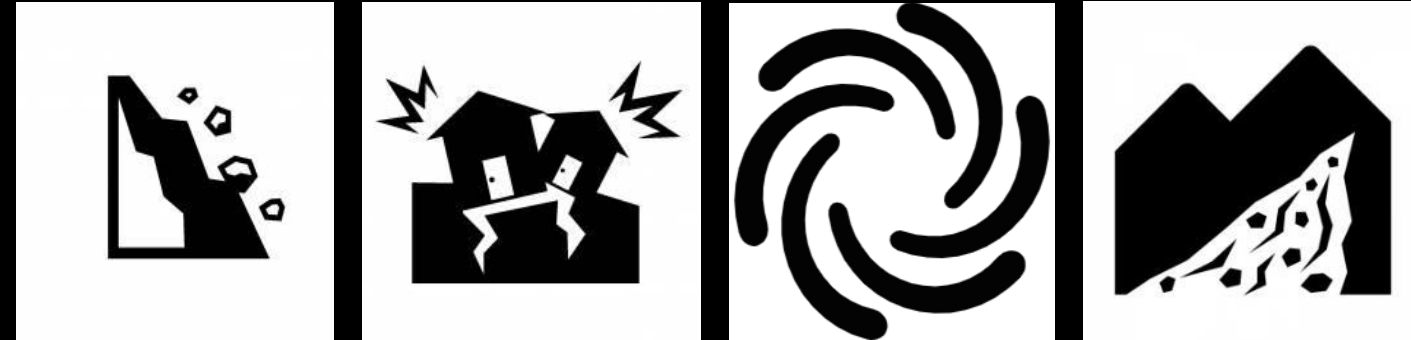
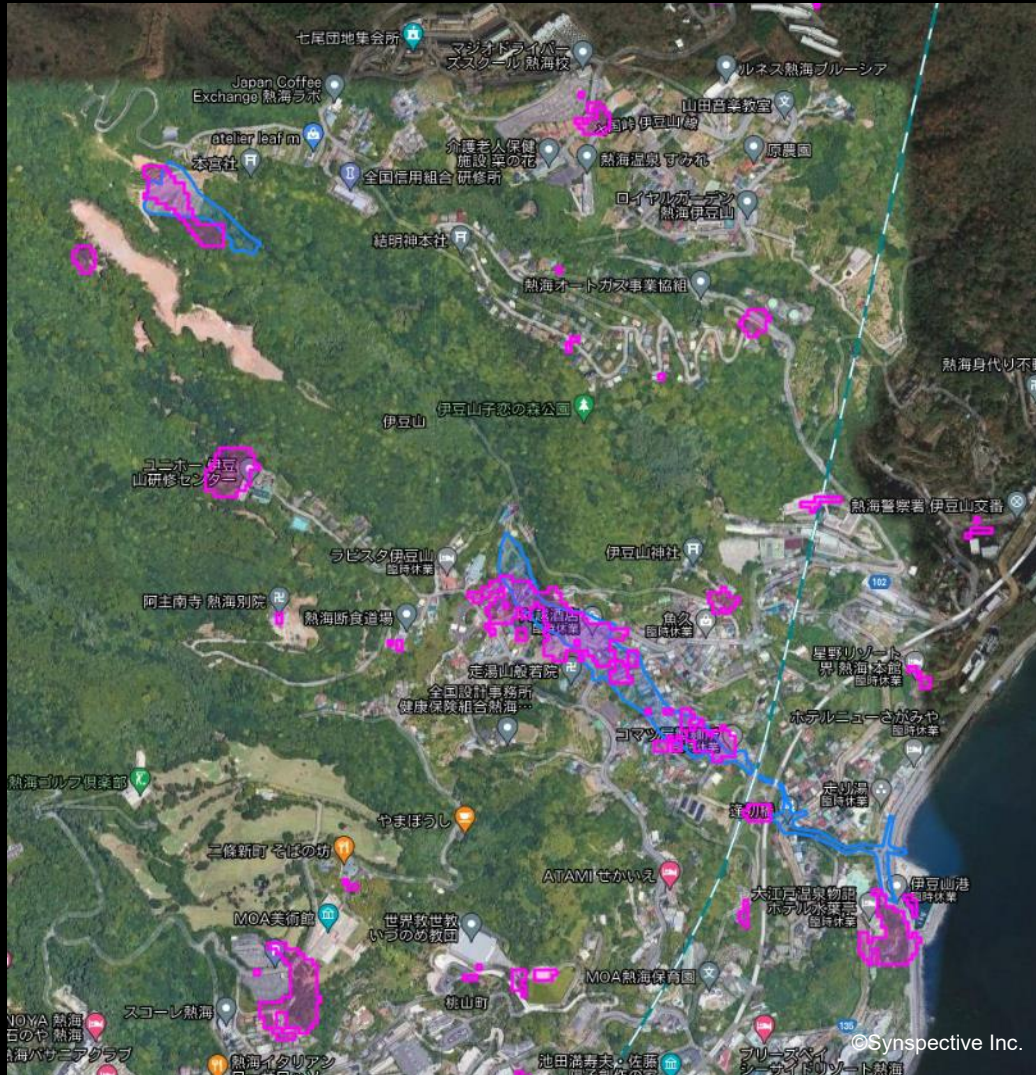
Organised by

SSTL Disaster Risk Financing & Insurance Program
WORLD BANK GROUP

Logos: EARTH ANALYTICS India, KAYRROS, SatSure, Synspecive

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

Disaster Damage Assessment (DDA) Change Detection



By using multiple SAR satellite data of before and after the disaster event, easy to grasp areas **where any change or damage** has occurred.

 Damaged area(including embankment)

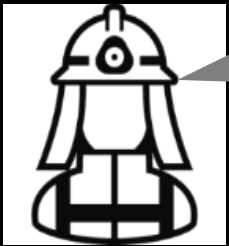
 SAR satellite analysis change detected area

Flood/Disaster Damage Assessment (FDA/DDA) Use Case Image

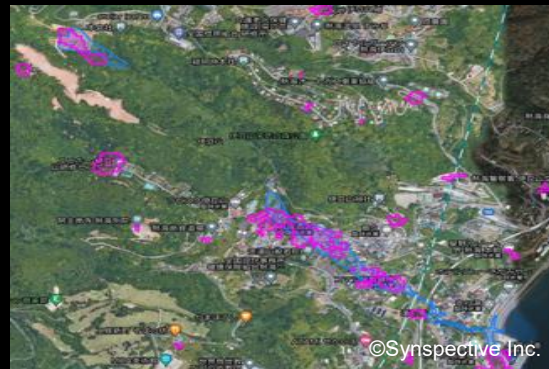
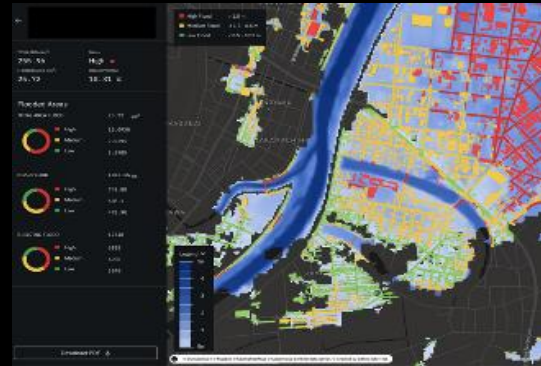
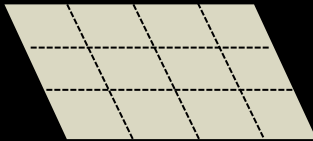
BEFORE without SAR satellite



Can't figure out what's happening out there...



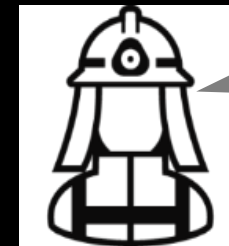
From where to start the rescue is necessary...



AFTER with SAR satellite



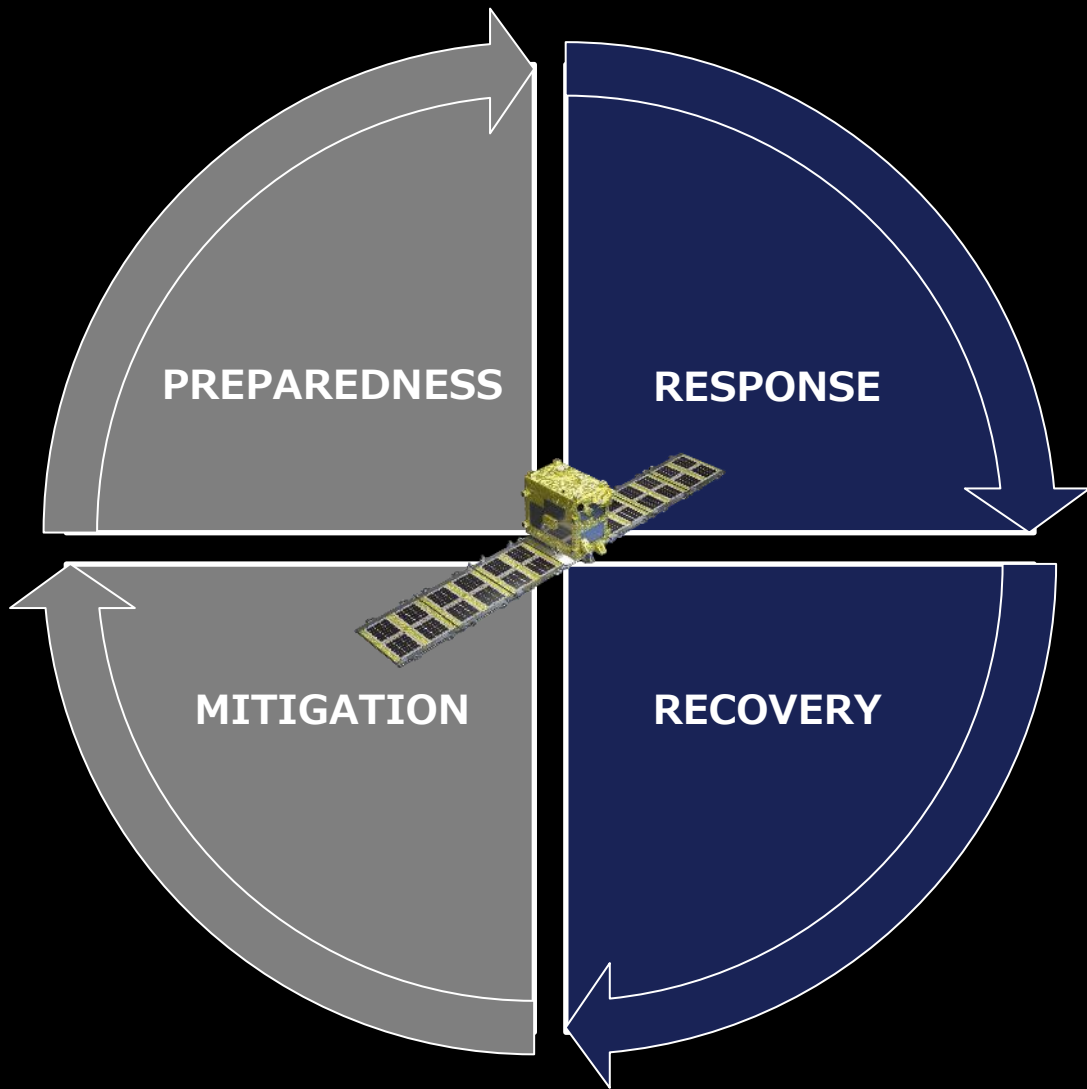
Understand situation more clearly!



Able to prioritize rescue, where to use drones for detail investigation!

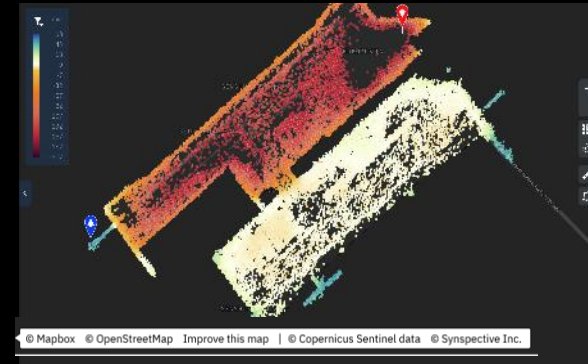


Disaster Management Cycle x SAR satellite solutions



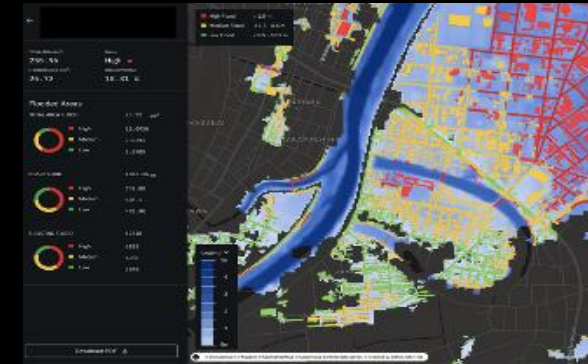
MITIGATION

PREPAREDNESS



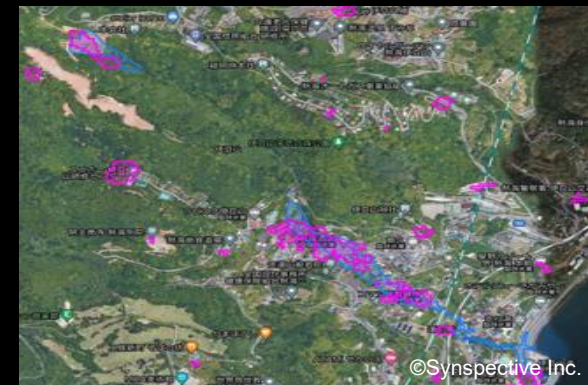
RECOVERY

RESPONSE



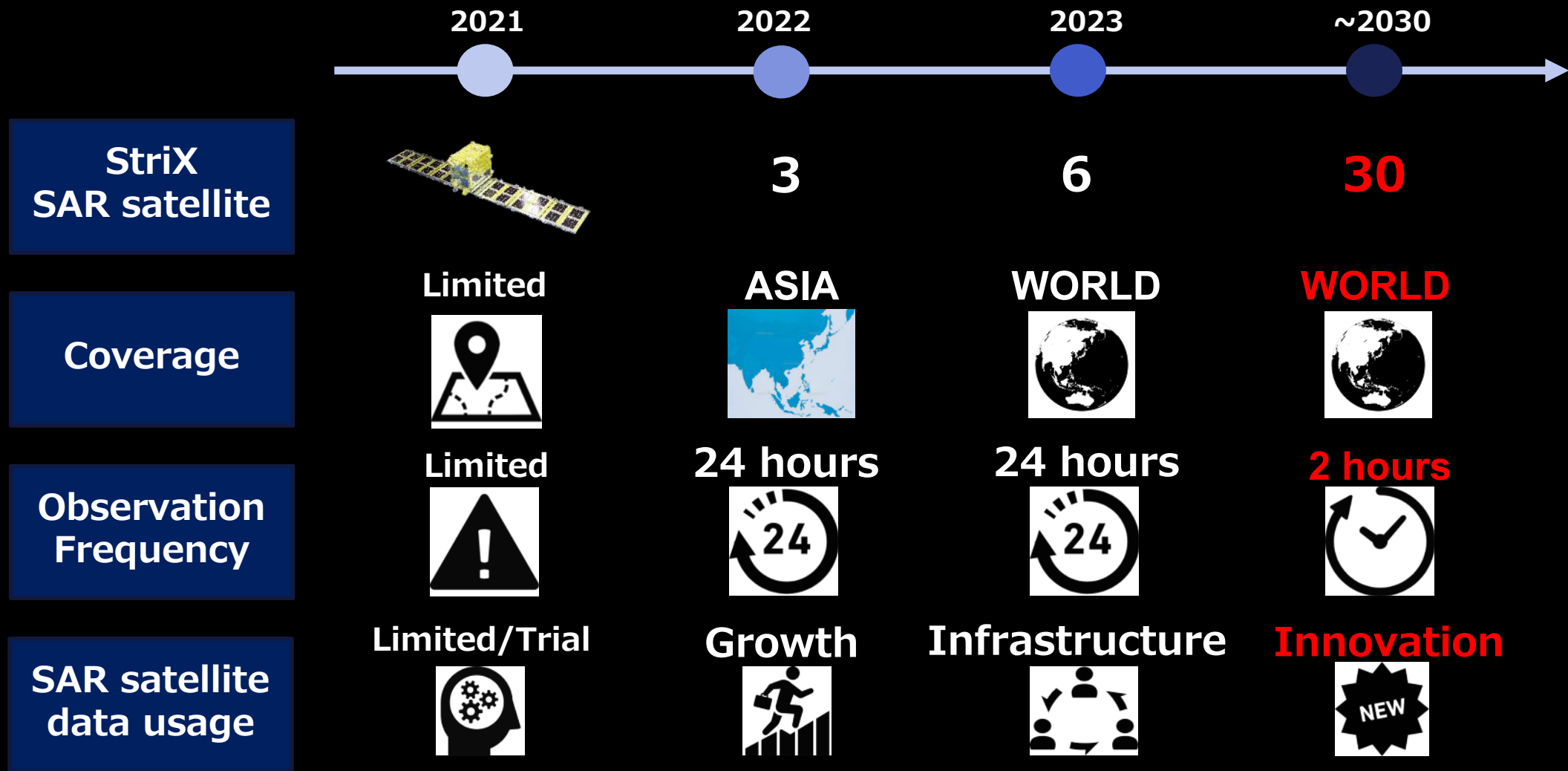
RECOVERY

RESPONSE



Disaster management by SAR satellite solutions

Our SAR Satellite Journey Road Map





Synspective

Synthetic Data for Perspective on Sustainable Development