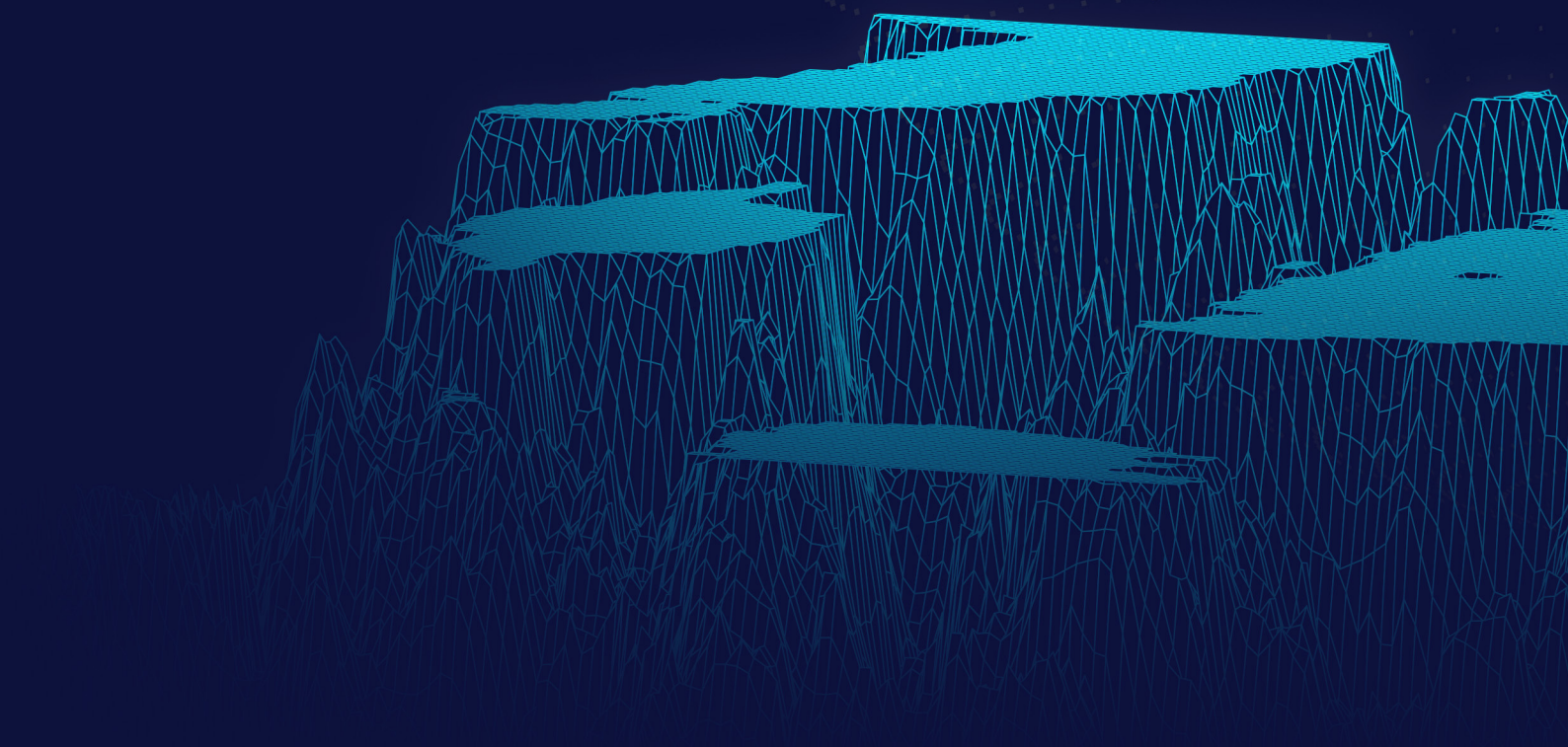
Synspective

SOLUTIONS

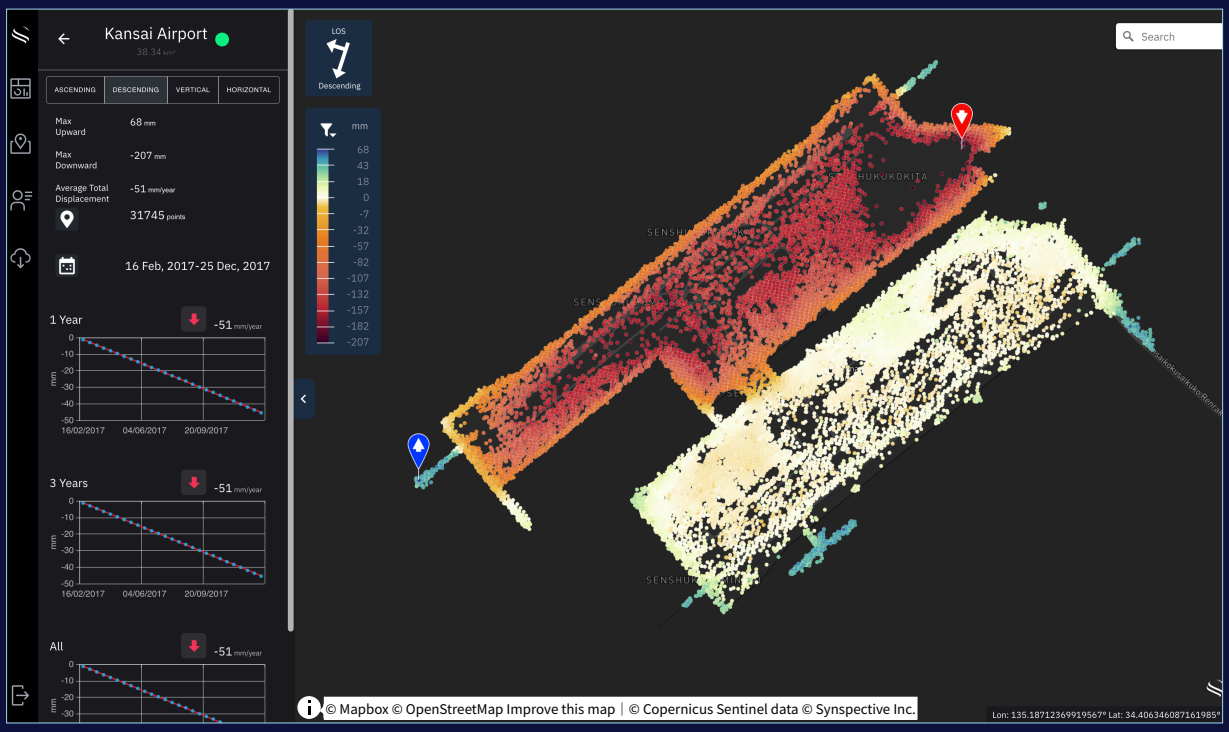
LAND DISPLACEMENT MONITORING



Our Solution

There is a problem that it takes a lot of time and labor to understand the risk of land subsidence and landslides over a wide area.

By leveraging this service, you can reduce the cost and time of traditional observation or control techniques associated with these ground change risks. It can also be expected to conduct field surveys in places where it is difficult for people to enter in the event of a disaster. This service can be also expected to be used in many land risk management projects.



Synspective Land Displacement Monitoring Service originated from InSAR* analysis that is capable of detecting timely vertical land displacement, in millimeters, over a wide area. This Service enables periodical observation and understanding of land subsidence and deformation.

* InSAR (Interferometric Synthetic Aperture Radar) A technical method for investigating changes in the ground surface. Changes in the ground surface can be detected by processing the observation data of the AOI multiple times under the same conditions. This makes it possible to detect millimeter-scale deviations on the ground surface over a wide area without installing a device onsite.

Industries that can use Land Displacement Monitoring

MINING

CONSTRUCTION

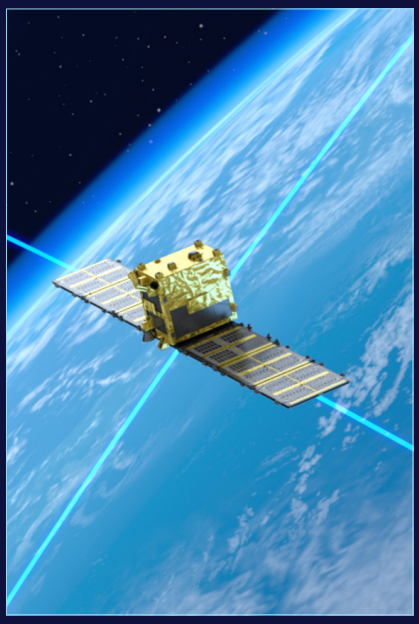
INFRASTRUCTURE

URBAN PLANNING

GOVERNMENT

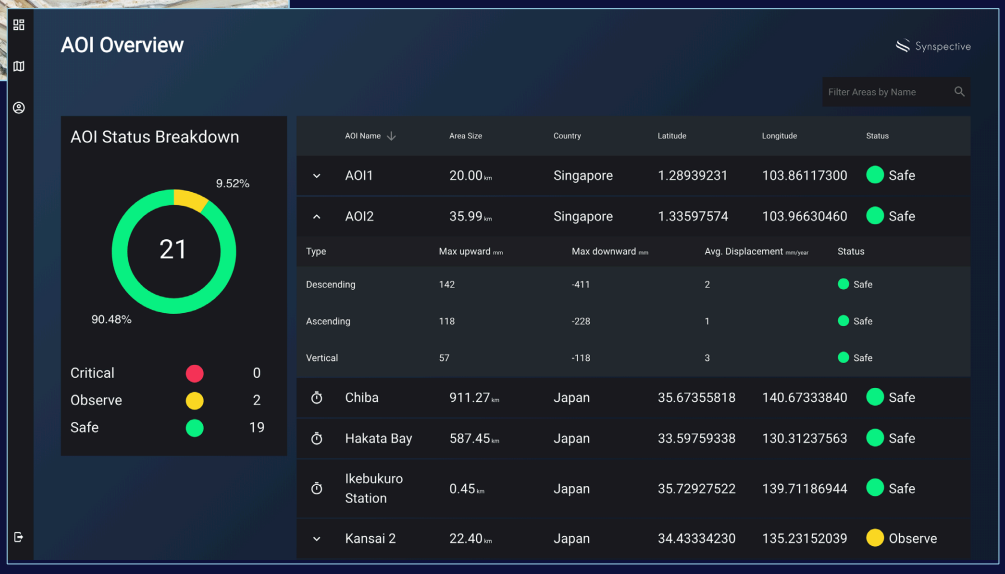
Benefits And Outputs

- Cost reduction compared to existing methods can be considered
- Cost can be reduced as you can purchase any area you want
- Greatly reduce the lead time for the survey
- Improving the frequency of maintenance and management



This solution would support

- Road, Tunnel and railway construction: Land subsidence/ uplift, Landslide
- Construction management: Landfill, Cutting, Land elevation, Soil improvement
- Public facility management: Port, Airport
- Disaster prevention facility management: Dike, Breakwater, Seawall
- Energy and resource development: Dam, Electricity, Oil, Gas, Mineral



Deliverables of our solution

In midst of rapid socioeconomic changes, society demands dynamic innovation even in AEC* sector. By leveraging digital transformational technologies and Big Data such as AI and IoT, we can develop technological innovation in the field, provide accident, disaster or facility anti-aging countermeasures.

Land Displacement Monitoring (LDM) will fulfill such requirement in various market segments.
*Architect Engineering Construction

Use case 1: A safety monitoring for tunnel construction around urban areas (patent pending)

It has been difficult to predict the areas of concern where roads might sink in tunnel construction works. And it is evident that, once collapse takes place, construction duration period prolongs, which then prompts inspections needed for safety with even more resources and manpower.

LDM solution helps visualize areas of potential collapse around the construction site, from the designing phase prior to construction, to the phase of safety maintenance following the construction. This enables you to provide adequate countermeasures to the areas that pose the highest risk of land subsidence.

Data will automatically run its analysis and updates. Users without any training nor technical knowledge can interpret the data. Thus, LDM can be used to improve the efficiency at construction sites, to improve safety, or to increase the value of the bidding item for the project.

Use case 2: A displacement monitoring for site preparation and condition assessment

In a large-scale site preparation or areas surrounding such sites, periodical ground risk monitoring is essential for safety. Safety measures based on data are critical particularly in soft grounds or reclaimed lands.

Ground monitoring of land using GNSS* is fruitful however, as the area of land grows and number of devices increases, it becomes inconvenient to measure efficiently. (* Global Navigation Satellite System)

LDM solution allows monitoring the site not only during the construction phase, but also following the completion phase providing the periodical and quantitative ground risks. This means the data can be used for construction evaluation purposes or for presentation purposes aimed at surrounding residents.

Because LDM provides chronological data, it makes it possible to determine quantitatively whether the land originally had subsidence trends, or the deformation was caused by the construction. Satellites can monitor the vast area at once, to understand the conditions quantitatively.

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2021.2/VER.1.0