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GEOSPATIAL WORLD FORUM
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WeatheO: AI-Driven satellite analysis for climate change mitigation and adaptation

2024. 05. 15.

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SIA SI ANALYTICS

Environmental issues are increasing dramatically.

We need to understand Earth better than before
Past data can not predict current up-coming event.

USA, Flood (2023. 7)

Italy, Flood (2023. 5)

Peru, Landslide (2023. 2)

India, Heat wave (2023. 5)

Australia, Cold wave (2023. 5)

Providing **Key Solutions** for **better Decision**
through **Earth Observation** and **AI**
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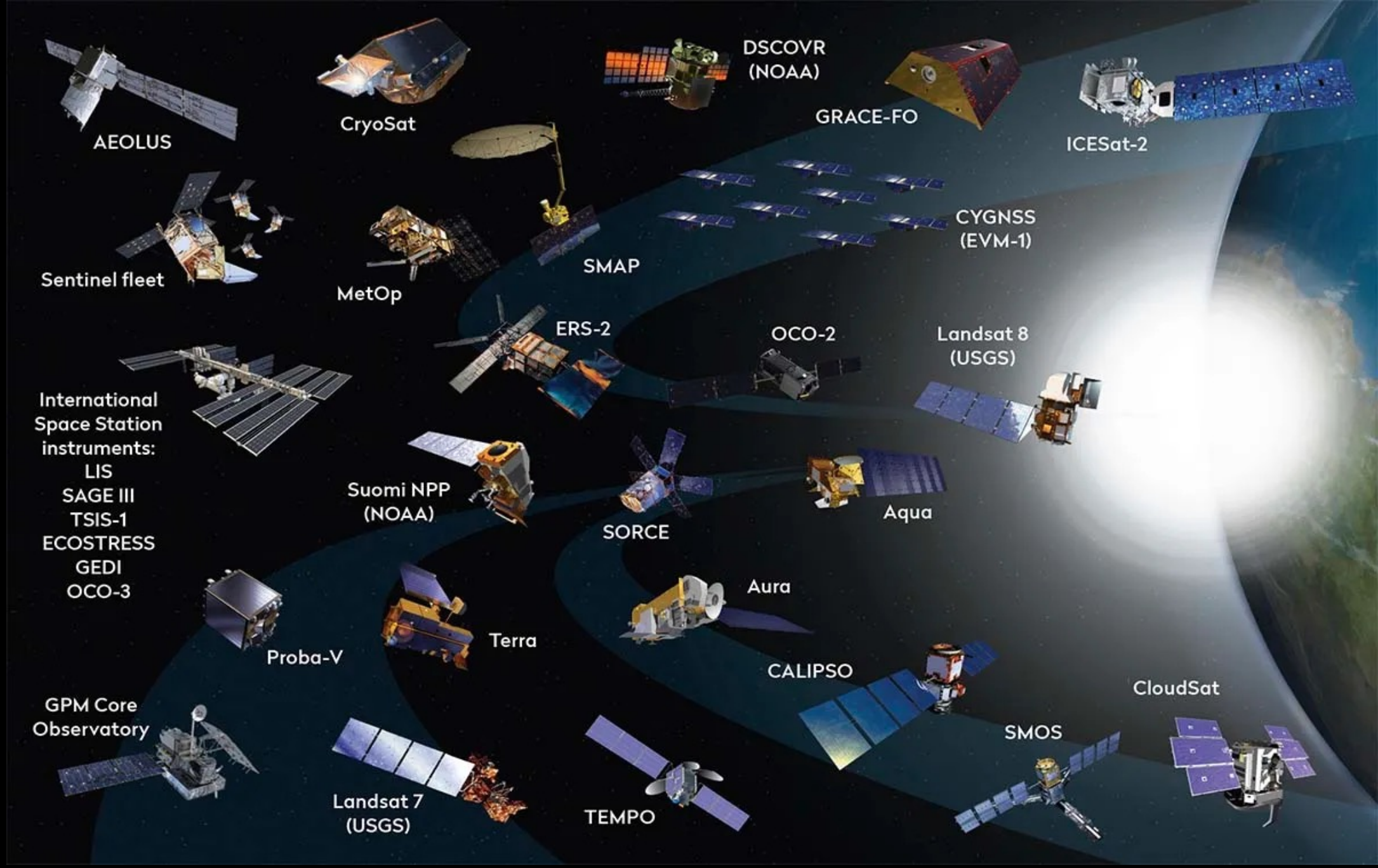
Earth Observation from space



Artist's illustration of satellites monitoring climate change from Earth orbit. Credit: Paul Wootton

We monitor the Earth with satellites and AI, and solve humanity's challenges.

Taking a long time

Reduce time to analyze satellite imagery.
Enable a person to analyze more images.

Missed by a person

Less monitored regions.
Uninterested regions.

Too large

Monitor state/city-level targets.
Analyze more than 100 regions.

Hard to access

Troubled regions.
Regions requiring high exploration costs.

OVISION Earth

For Earth, For Us

To provide solutions for global environmental issues through Earth observation data analysis

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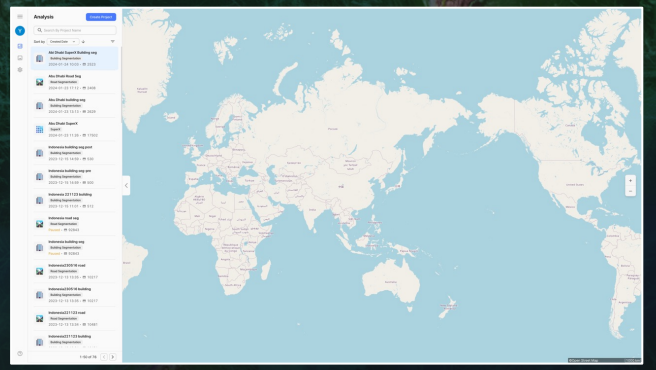
Features

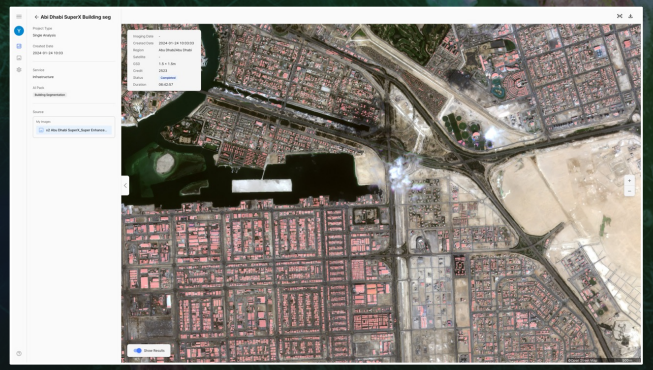
- A Web-based GIS Intelligence Platform
- Easy satellite image data upload
- Automatic integration of massive satellite images with GCP buckets
- Support for AI Packs tailored to analysis purpose (SuperX, Detection, Segmentation, WeatheO)

Service Type

- SaaS



Base map image upload support



AI Pack support for analysis purposes

SIA SuperX

Enhancing Earth Clarity

Providing high quality satellite imagery that outpaces the development of satellite hardware.

Features

- Can process 10,000 km² in approx. 4,390 seconds (0.43 sec/ km²)
- Daily 177K km² Capability (1 DGX A100 server)

Original (GSD: 3.8m-4.2m)

SIA SuperX (GSD ≈1.9m-2.1m)

Original (GSD: 3.8m-4.2m)

SIA SuperX (GSD ≈1.9m-2.1m)

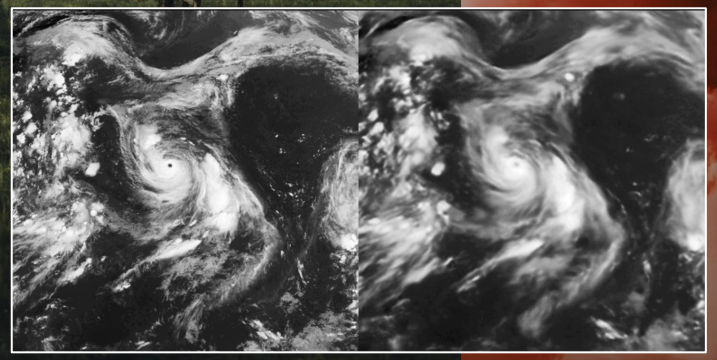
WeatheO

Climate Change Prediction Solution

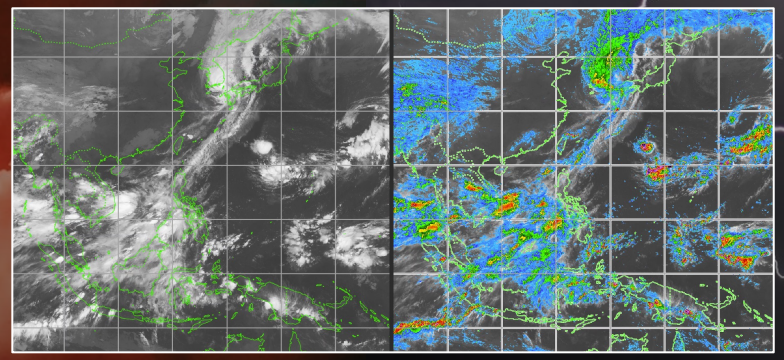
A solution for predicting and responding to events caused by climate changes.

Features

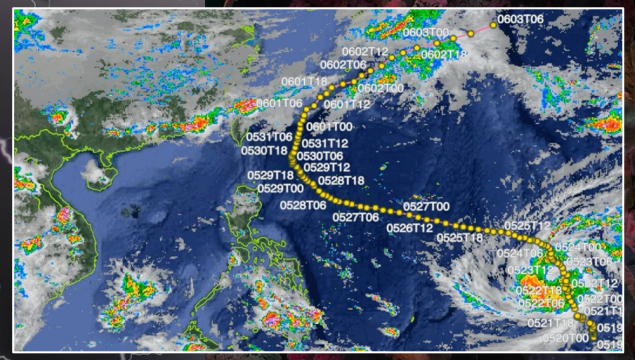
- Collecting diverse weather and climate information based on satellite imagery
- Rapid assessment and support for natural disasters, large-scale fires, typhoons, floods using satellite imagery
- Providing weather forecasts and supporting the productivity improvement of the agricultural and marine industries



WeatheO_Cloud



WeatheO_Rain

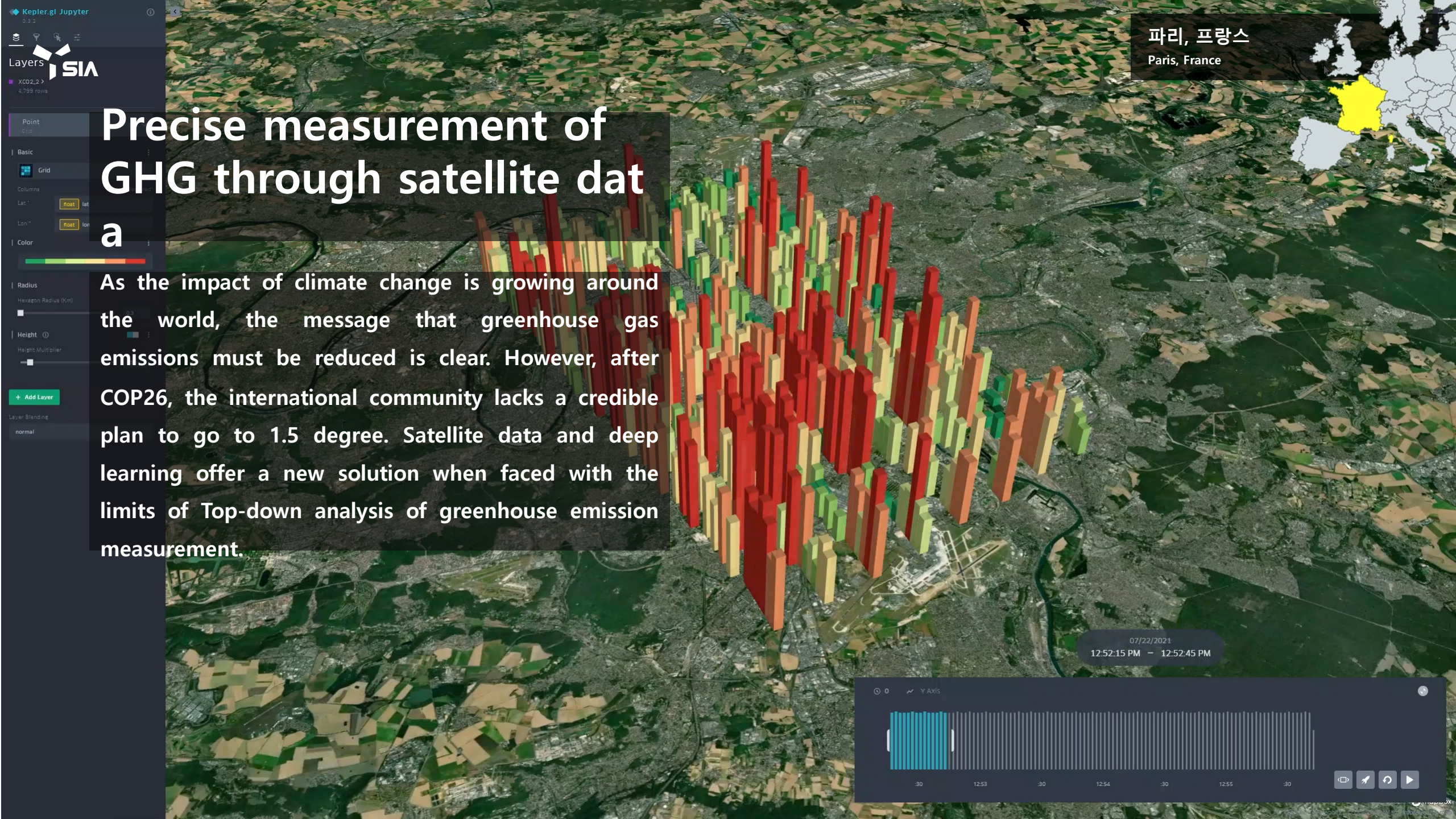


WeatheO_Typhoon

SIA TECH

Providing **Key Solutions** for **better Decision** through **Earth Observation** and **AI**

CHAPTER 1

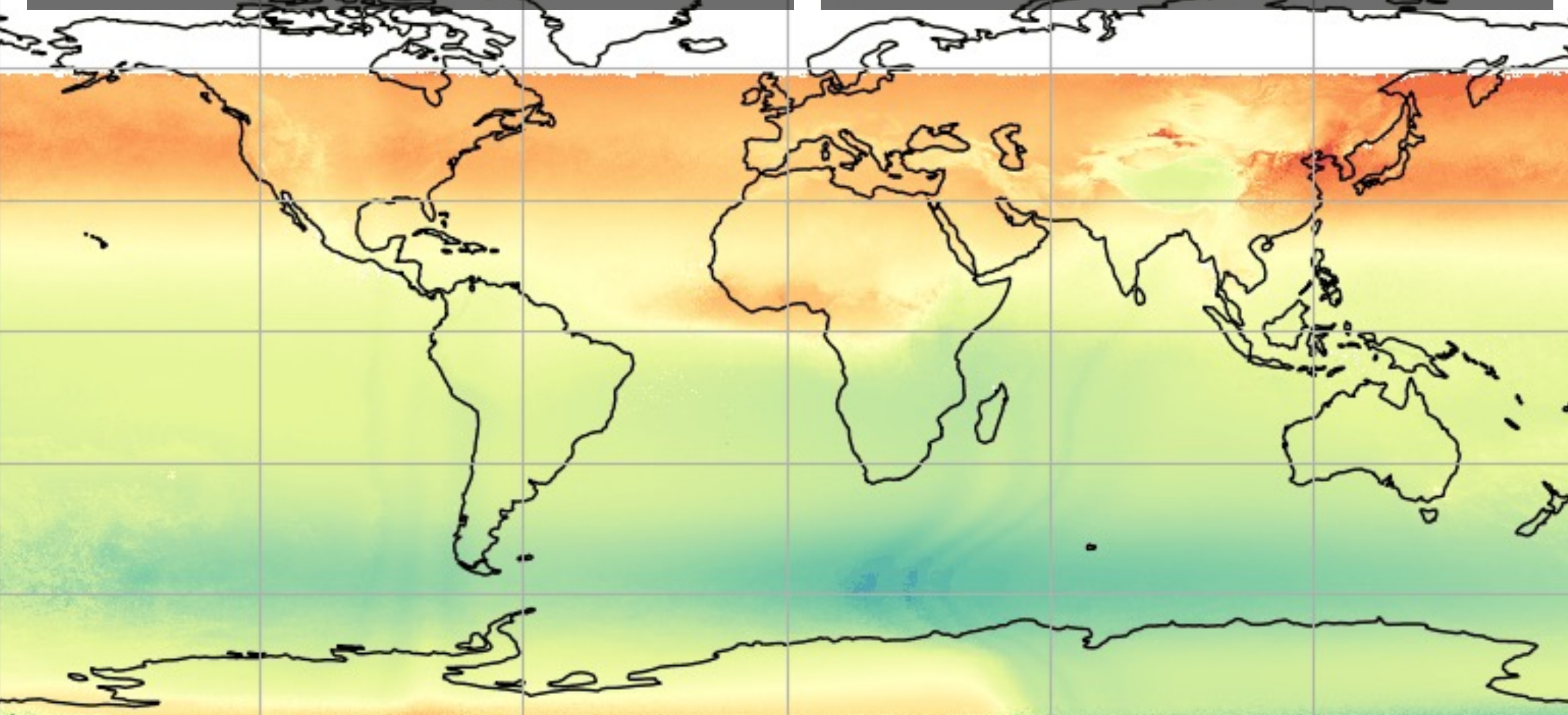


Precise measurement of GHG through satellite data

As the impact of climate change is growing around the world, the message that greenhouse gas emissions must be reduced is clear. However, after COP26, the international community lacks a credible plan to go to 1.5 degree. Satellite data and deep learning offer a new solution when faced with the limits of Top-down analysis of greenhouse emission measurement.

Generate GHG global monitoring map from satellite data

SI Analytics will provide carbon concentration data and a visualization map of global carbon concentration on a regional scale for the government, businesses, and the public.



Our Products with **Weather Intelligence AI** Solution

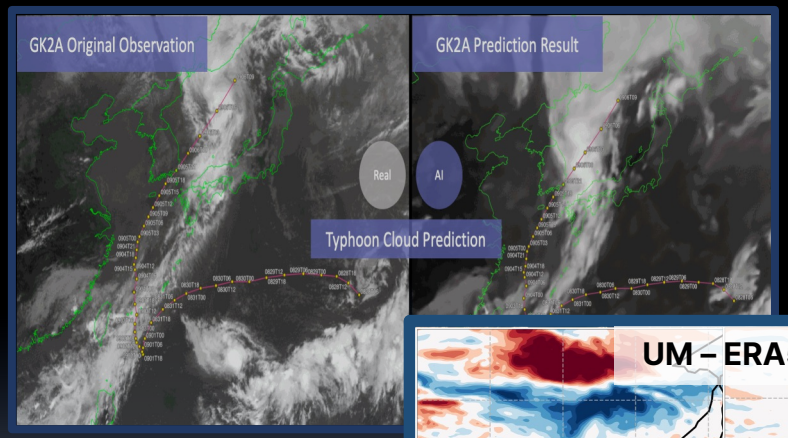
Forecasting clouds movement (Geocloud)

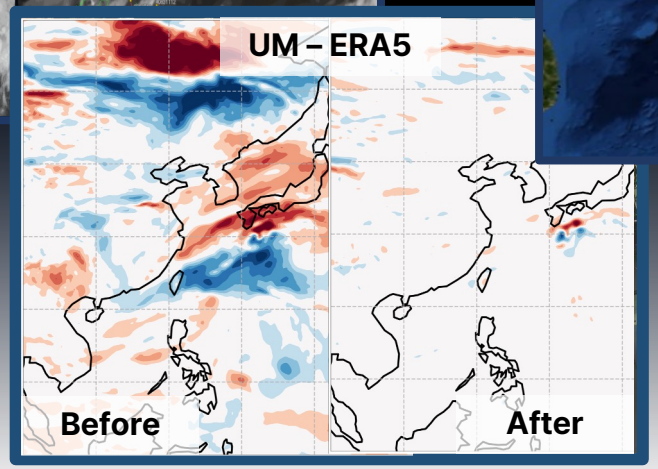
NWP forecast field
Bias correction

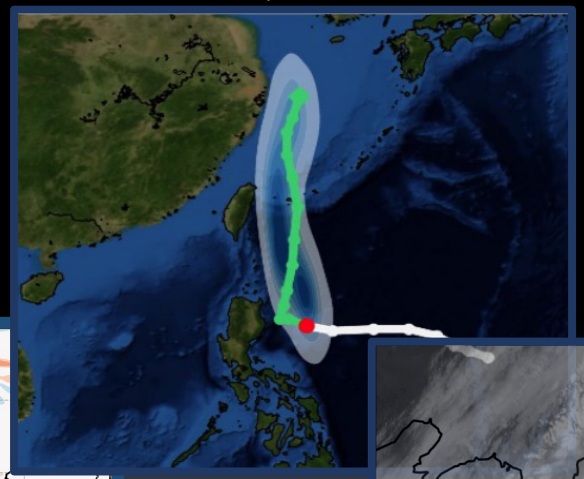
Typhoon trajectory prediction

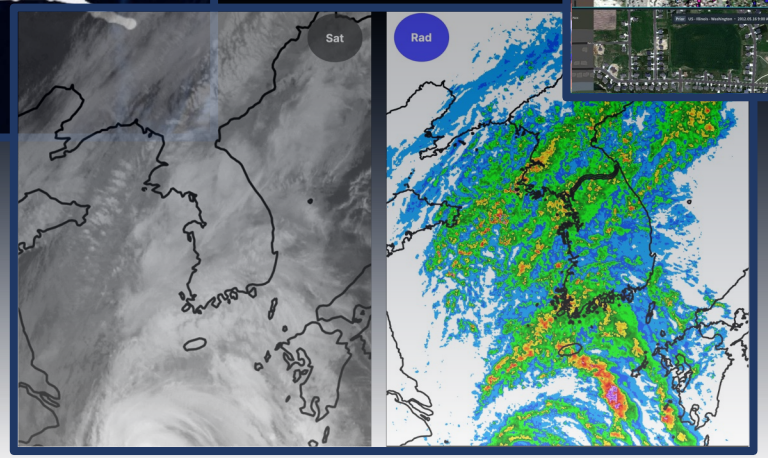
Monitoring rainfall (GeoRain)

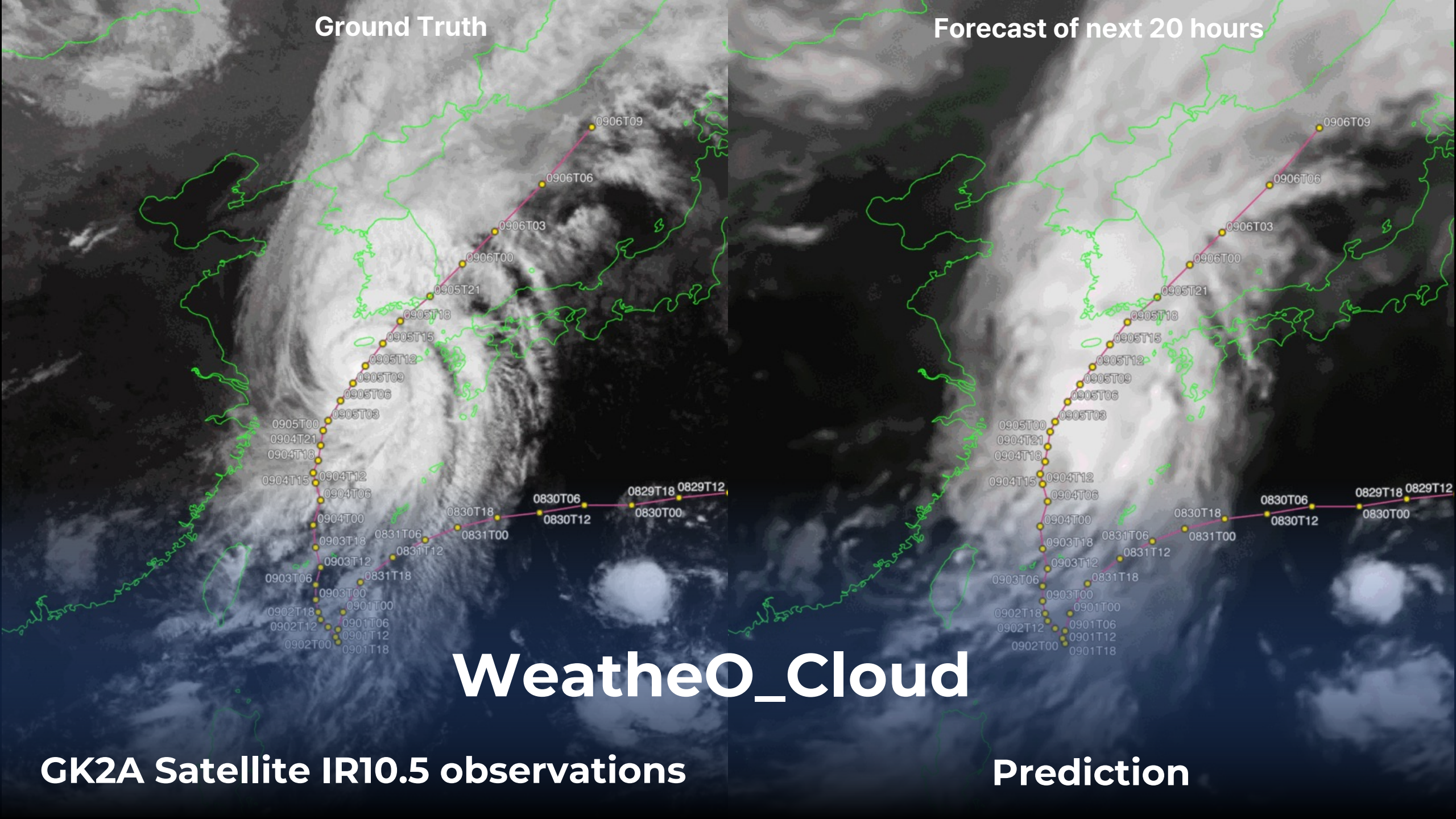
Damage assessment





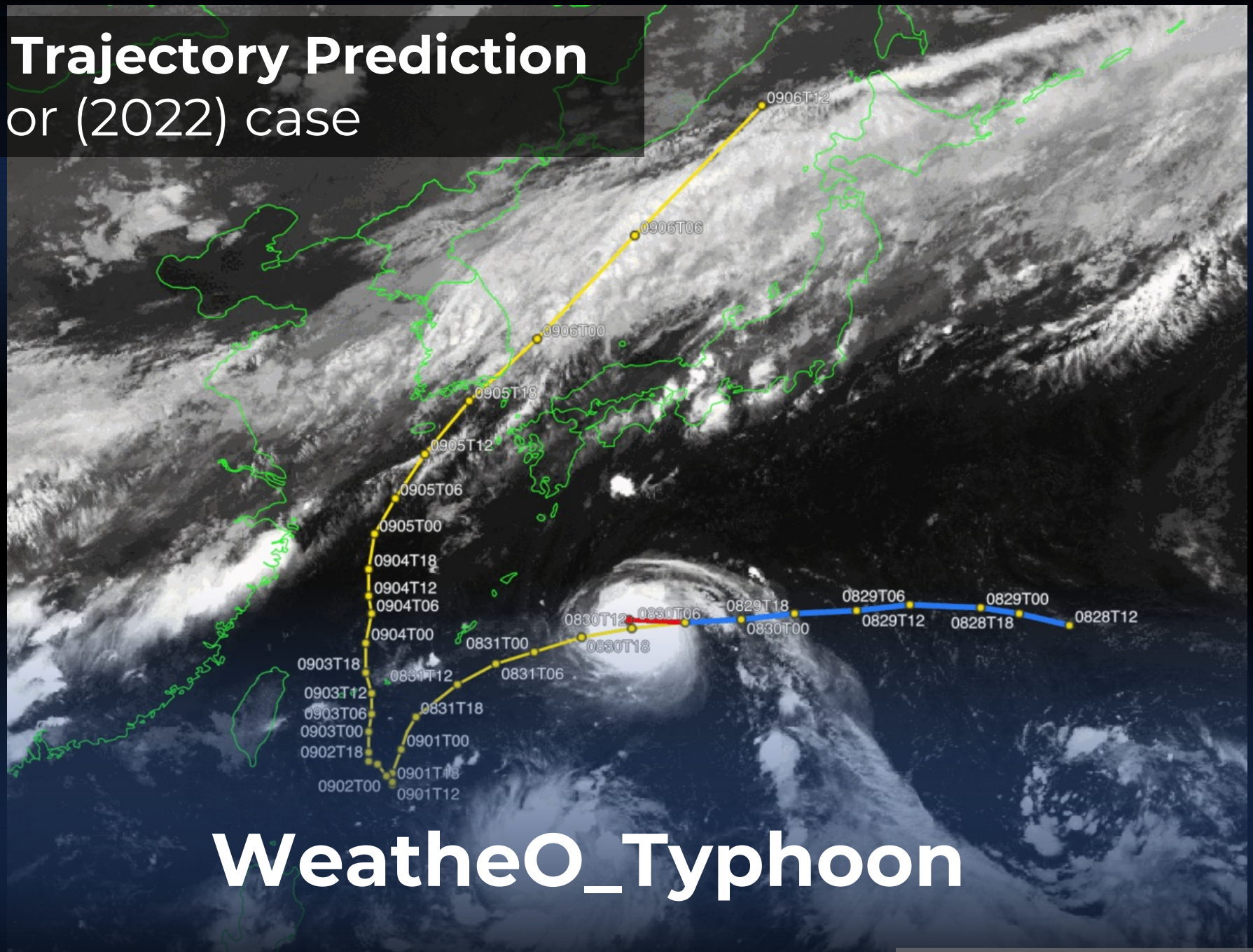





Ground Truth
Forecast of next 20 hours
0906T09
0906T06
0906T03
0906T00
0905T21
0905T18
0905T15
0905T12
0905T09
0905T06
0905T03
0905T00
0904T21
0904T18
0904T15
0904T12
0904T06
0904T00
0903T18
0903T12
0903T06
0903T00
0902T18
0902T12
0902T00
0901T00
0901T06
0901T12
0901T18
0831T06
0831T12
0831T18
0831T00
0830T18
0830T06
0830T12
0830T00
0829T18
0829T12
WeatheO_Cloud
GK2A Satellite IR10.5 observations
Prediction

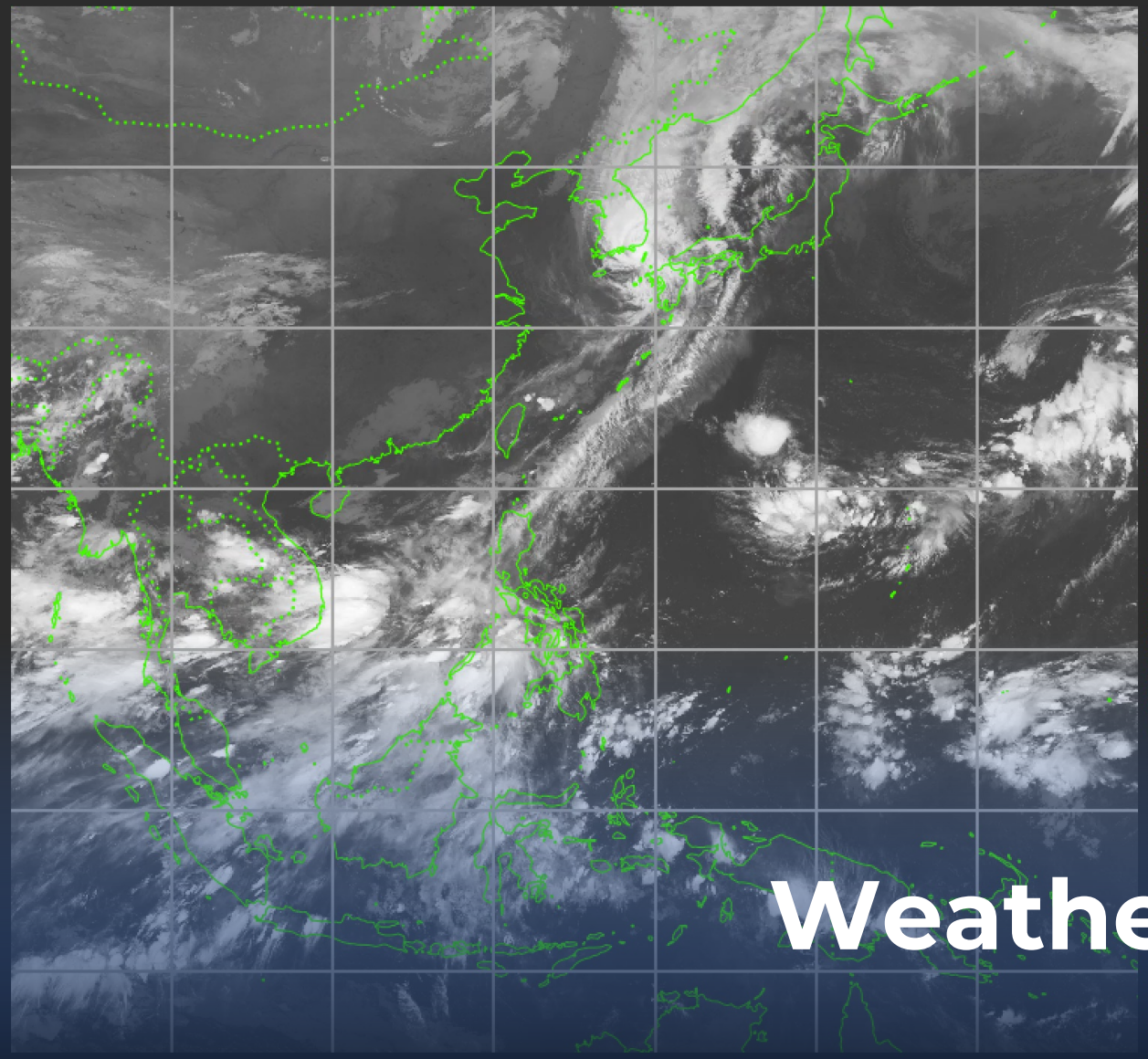
Typhoon Trajectory Prediction

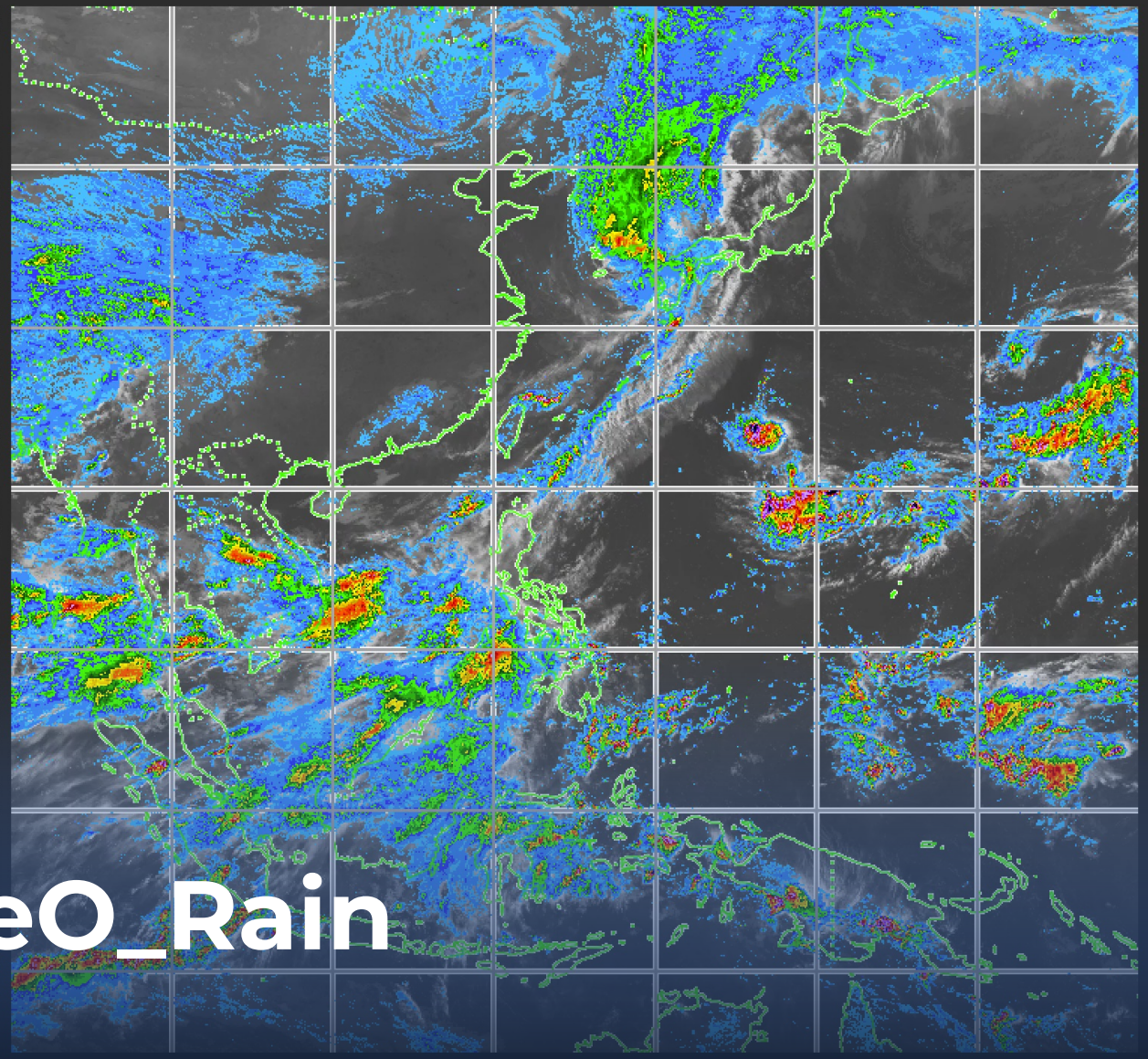
Hinnamnor (2022) case



WeatheO_Typhoon

2023.08.30 12:00 – 2023.09.06 12:00



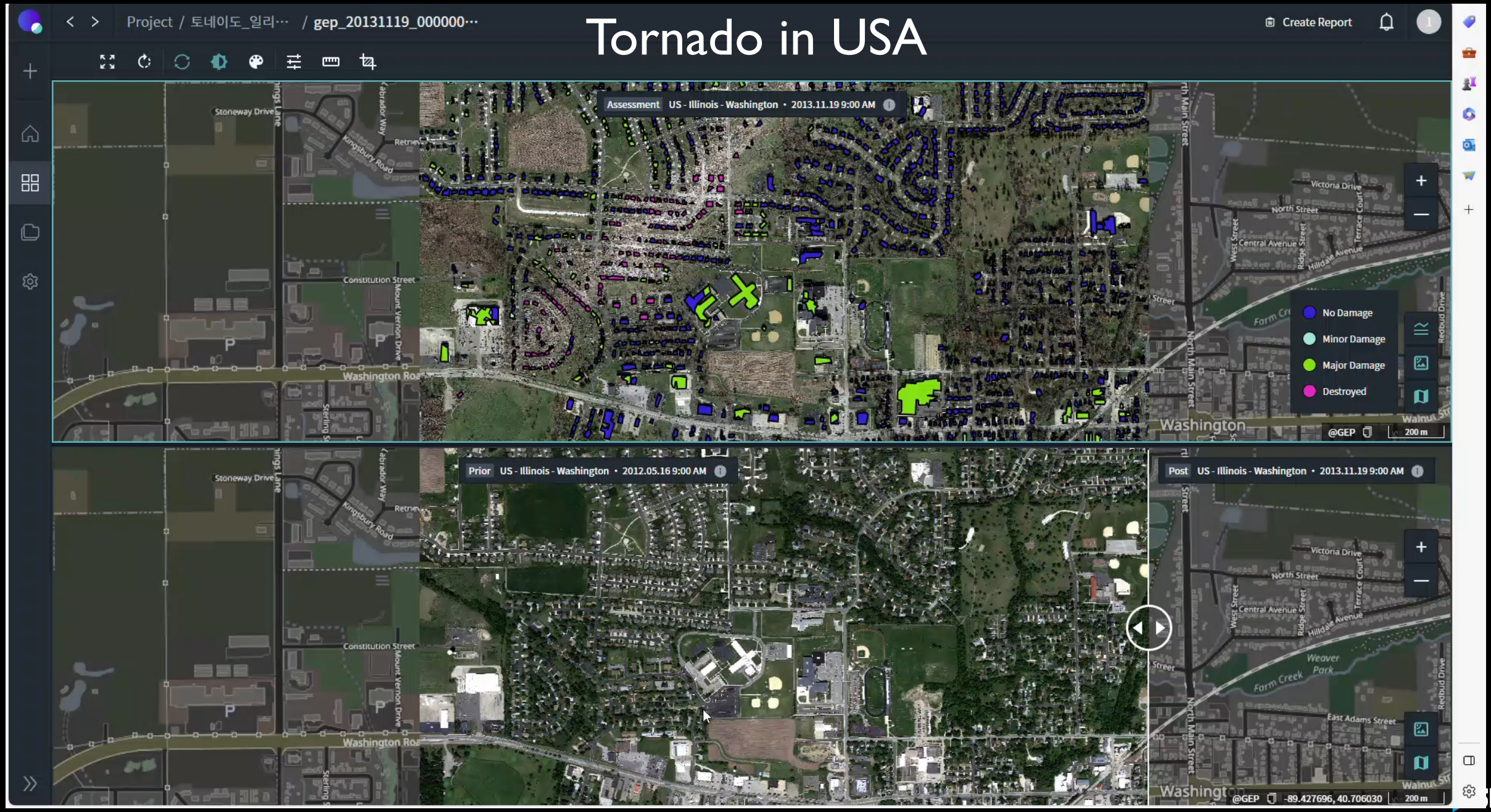


WeatheO_Rain

GK2A Satellite IR10.5 observations

Generated Radar Map (rain rate)

Tornado in USA



Through SIA SuperX, we improve data quality and enhance the analysis capabilities of AI packs

Original

SIA SuperX

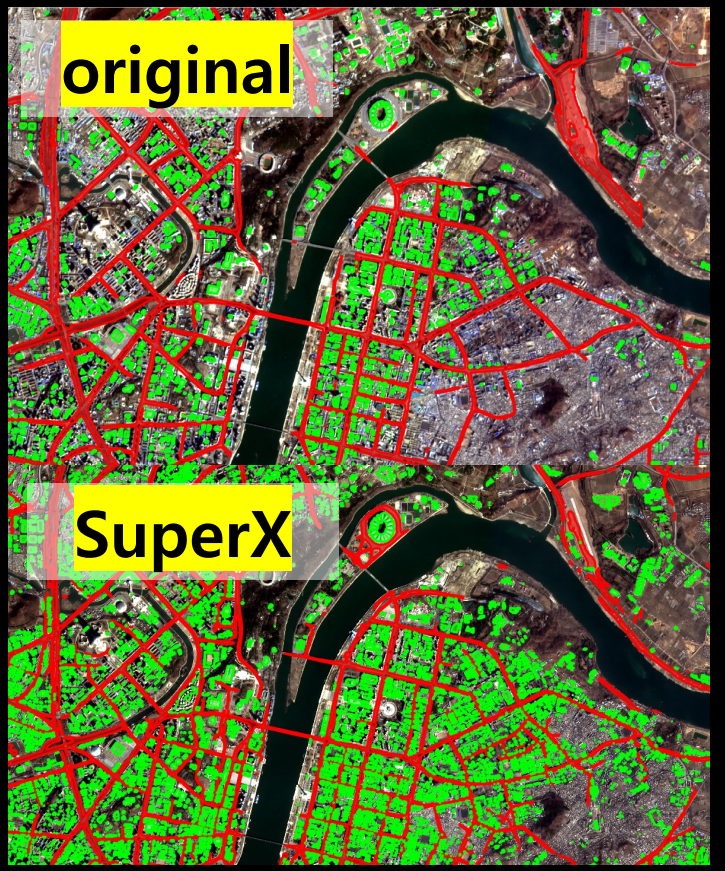
Super resolution technique

"SIA SuperX is a service that enhances the resolution of optical satellite images, making previously difficult-to-distinguish objects visible and enabling access to hard-to-acquire information

SIA AI pack

Segmentation / Change Detection

SIA AI pack is SIA's innovative analysis model for image analysis, enabling derivation of strategic insights in areas that require monitoring through object detection, classification, and identification.



“All people on Earth will be warned in advance to protect themselves through AI and Weather satellite data analysis”

감사합니다

Thank you for attention

2023. 12. 31.

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