



EO Satellites for NSDI

Korean EO Satellites

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Moongyu KIM

CEO

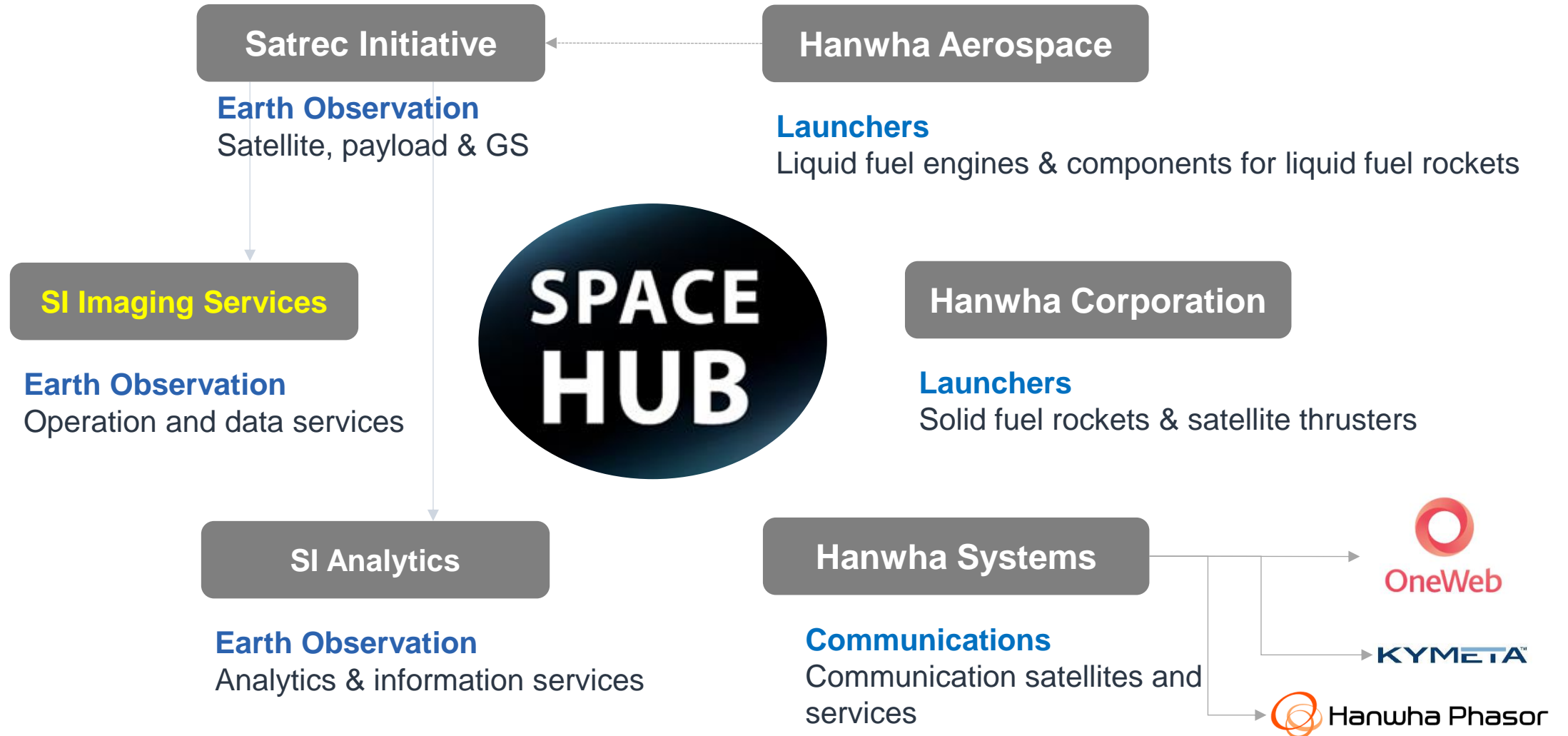
November 6, 2024



SI Imaging Services

SI Imaging Services (SIIS)

SI Imaging Services : SI Group : Space Hub

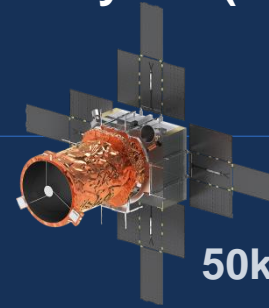


Mother Company: Satrec Initiative (SI)

Satellite Systems

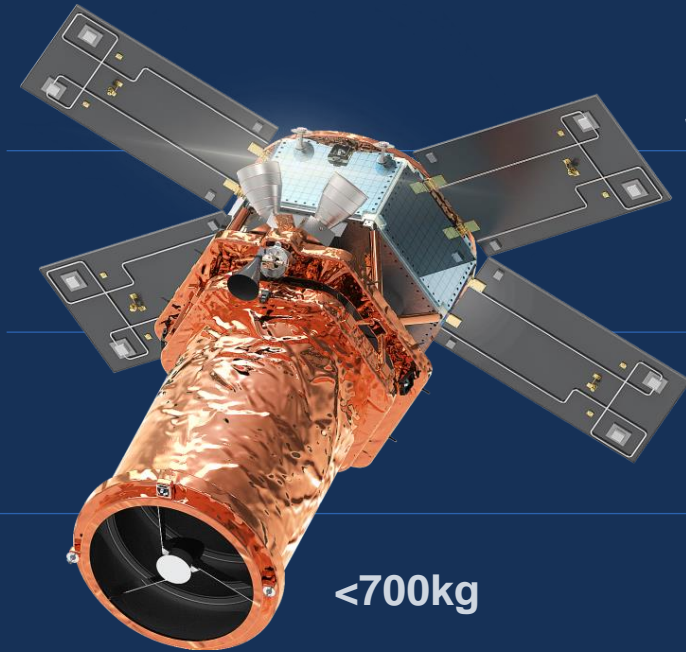
Satellite Manufacturer 

SpaceEye-M (1.0 m)



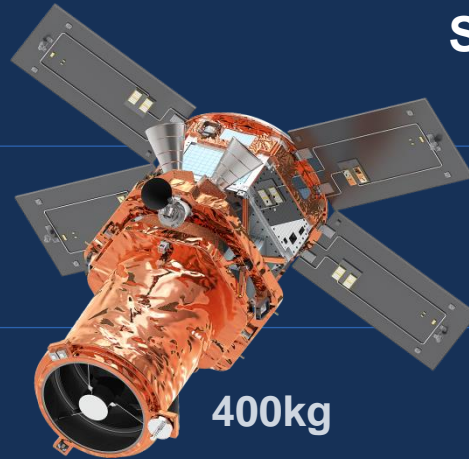
50kg

SpaceEye-T (<0.3 m)



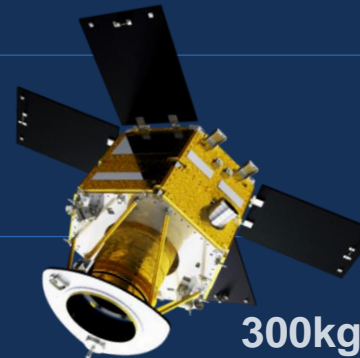
<700kg

SpaceEye-X (0.5 m)



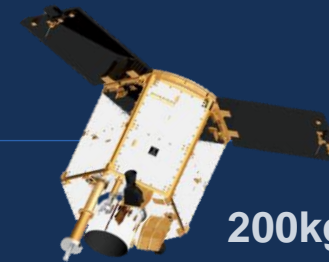
400kg

SpaceEye-1 (1.0 m)



300kg

SpaceEye-2 (2.5 m)



200kg

SpaceEye-W (5.0 m)



100kg

Launch in 1st Q of 2025

Confidential ('22)

KhalifaSat ('18)
TeLEOS-1 ('15)
Deimos-2 ('14)
DubaiSat-2 ('13)

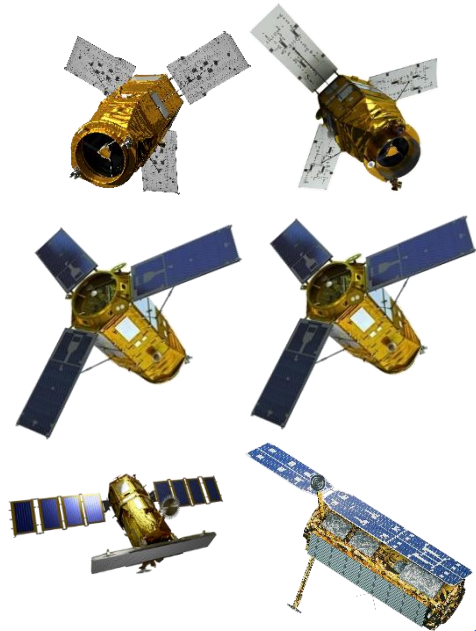
Confidential ('12)
DubaiSat-1 ('09)
RazakSAT ('09)

NeuSAR ('21)
Confidential ('15)
RASAT ('11)
X-SAT ('11)

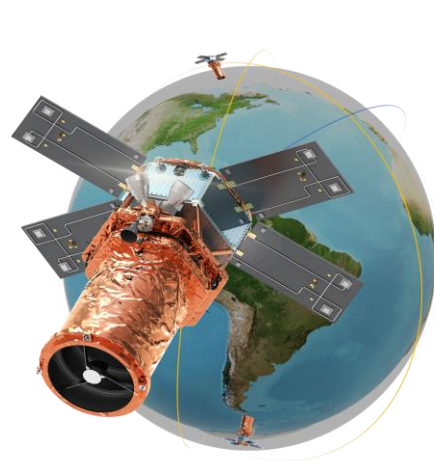
SI Imaging Services

Satellite imagery & service provider

KOMPSAT



Own Constellation



SpaceEye-T Constellation

Partners' Constellations

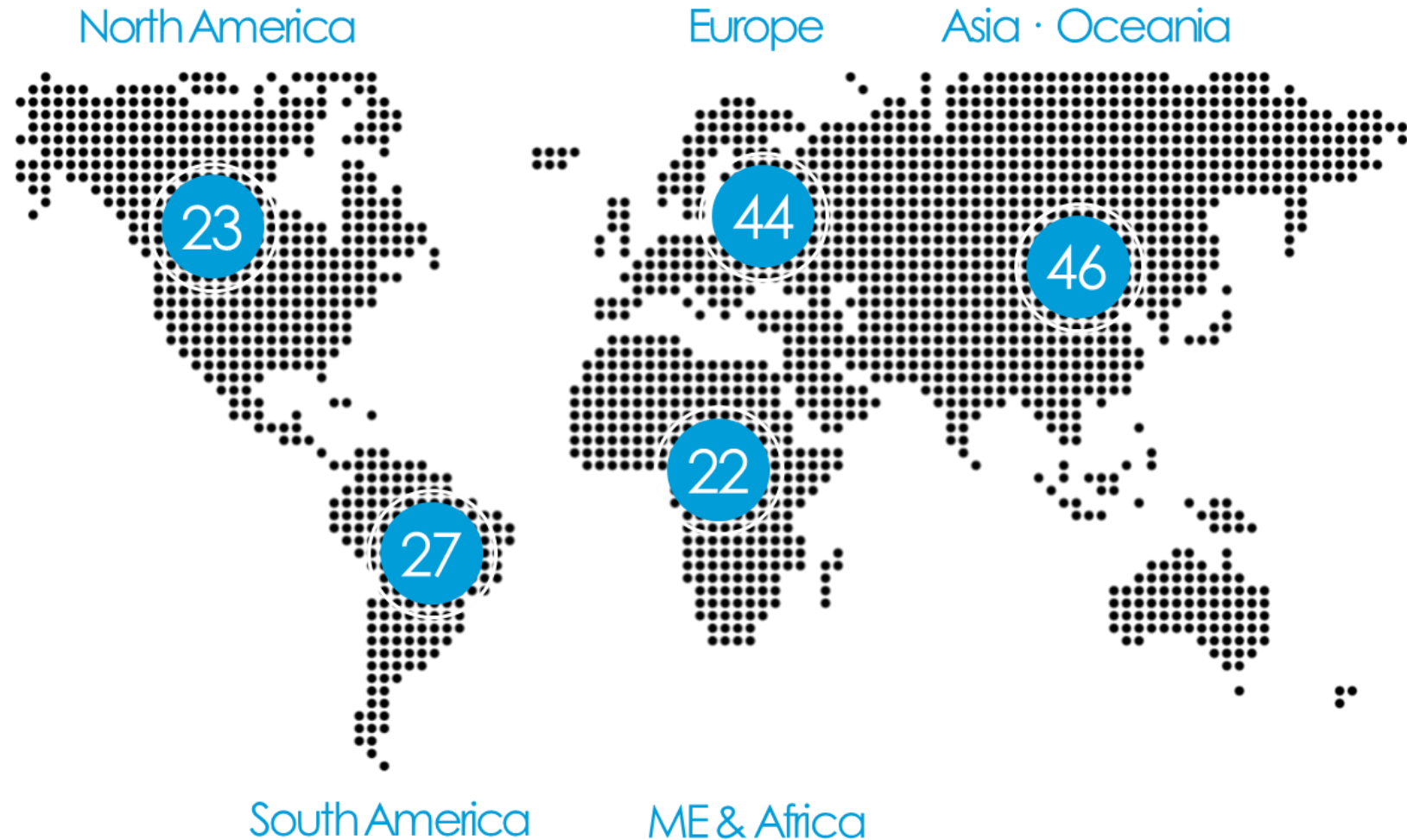


Partners' Services



SI Imaging Services

Partner Network



162 Partners, 65 Countries
(2022. 7)

Sister Company: SI Analytics (SIA)

AI-based geospatial analytics on satellite/aerial imagery

Data & AI Analysis

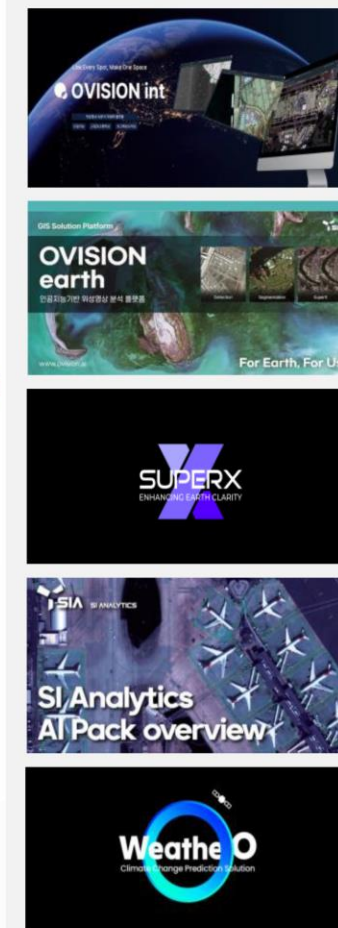


Key Tech



- 객체 탐지
Object Detection
- 객체 분류
Segmentation
- 초해상화
Super-resolution
- 변화탐지
Change Detection
- 강수량 예측
Weather Prediction

Product & Solution



- OVISION Int**
(국방, 이상징후 변화사항 자동 탐지 지원)
- OVISION Earth**
(지구 관측 데이터 분석으로 글로벌 환경 문제 분석 및 예측)
- SuperX**
(위성 하드웨어 발전 속도를 초월한, 고품질 위성 영상 제공)
- AI Pack**
(탐지, 분할, 분류 등을 가능하게 하는 AI모델)
- WeatheO**
(지구의 날씨·기상·기후 변화로 발생하는 사건 예측 및 대응 솔루션)

A satellite image showing a coastal region. The water is a vibrant blue, with lighter blue areas indicating shallow depths or sediment. The land is a mix of green and brown, suggesting vegetation and bare earth. A semi-transparent white box is overlaid on the image, containing the title text.

Satellite Images for NSDI

Satellite Data for NSDI enables

- Large area mapping when aerial images are not available
- More frequent updates for small area
- Disaster management for non-accessible area
- Infrastructure monitoring for remote area
- Natural resource monitoring / precision farming
- Digital twin

Mapping Topographic Map

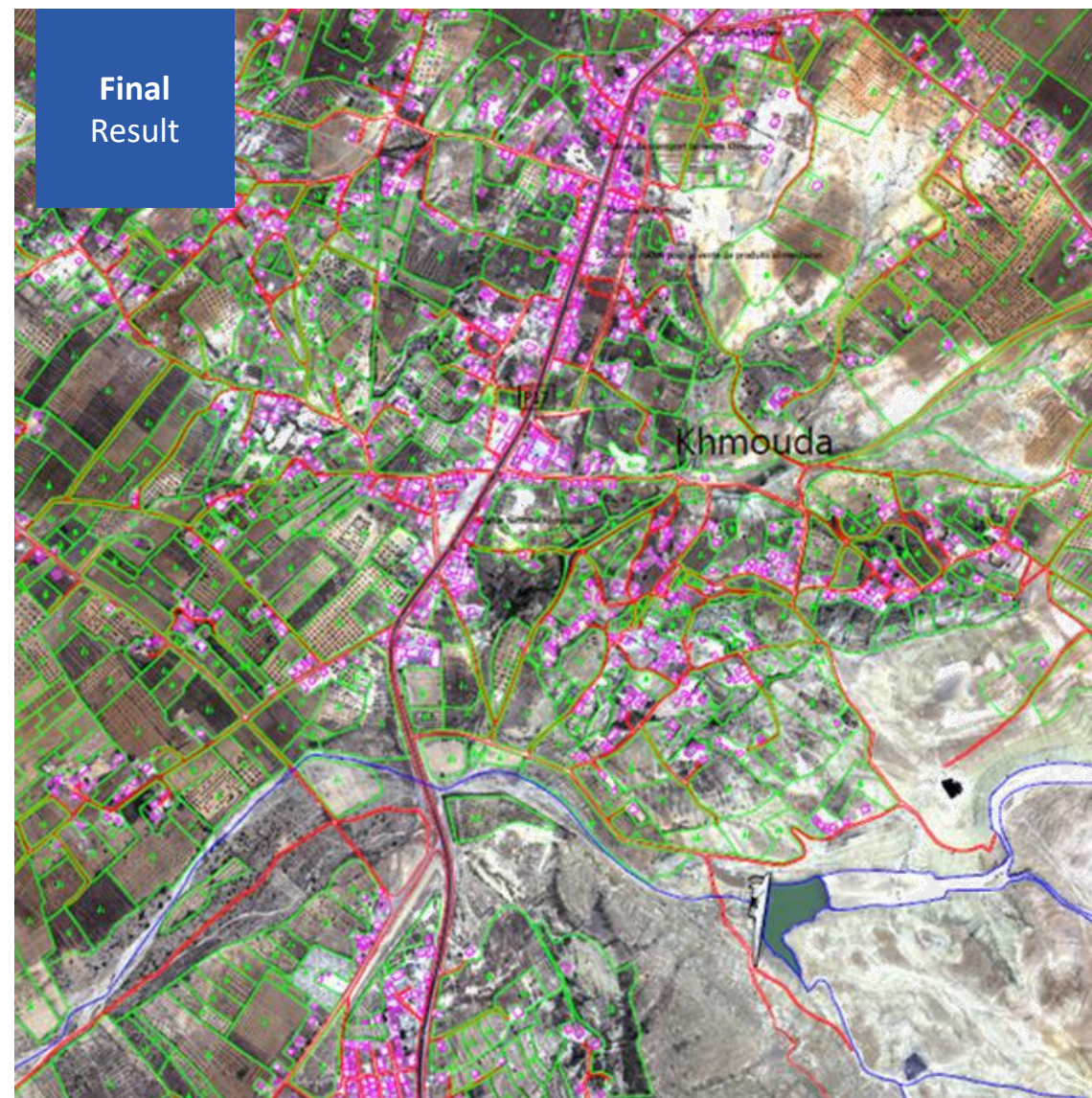
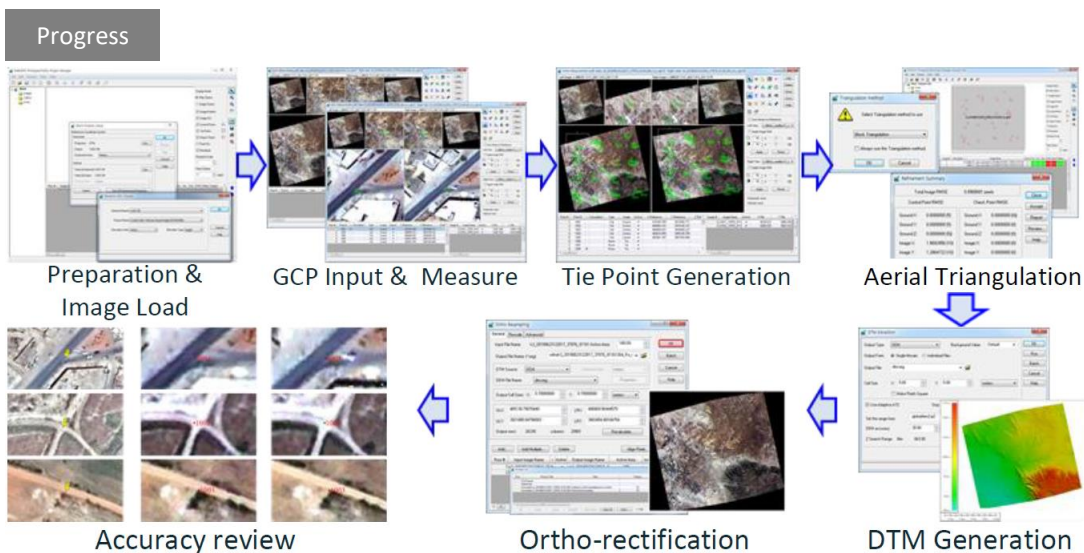
Satellite: KOMPSAT-3

Region/Area: Tunisia

Purpose: Topographic map generation

Remarks:

- ERDAS Imagine software were used for orthorectification
- GCPs could not be obtained on-site; instead, five clearly identifiable points in Google Earth were selected and used as GCP data
- Despite the GCP limitation, the result shows KOMPSAT-3 stereo imagery satisfies the requirements for 1:5,000 scale of terrain feature extraction
- Green line shows agricultural land, pink line show urban area, blue line shows water resource



DEM / DSM Mining

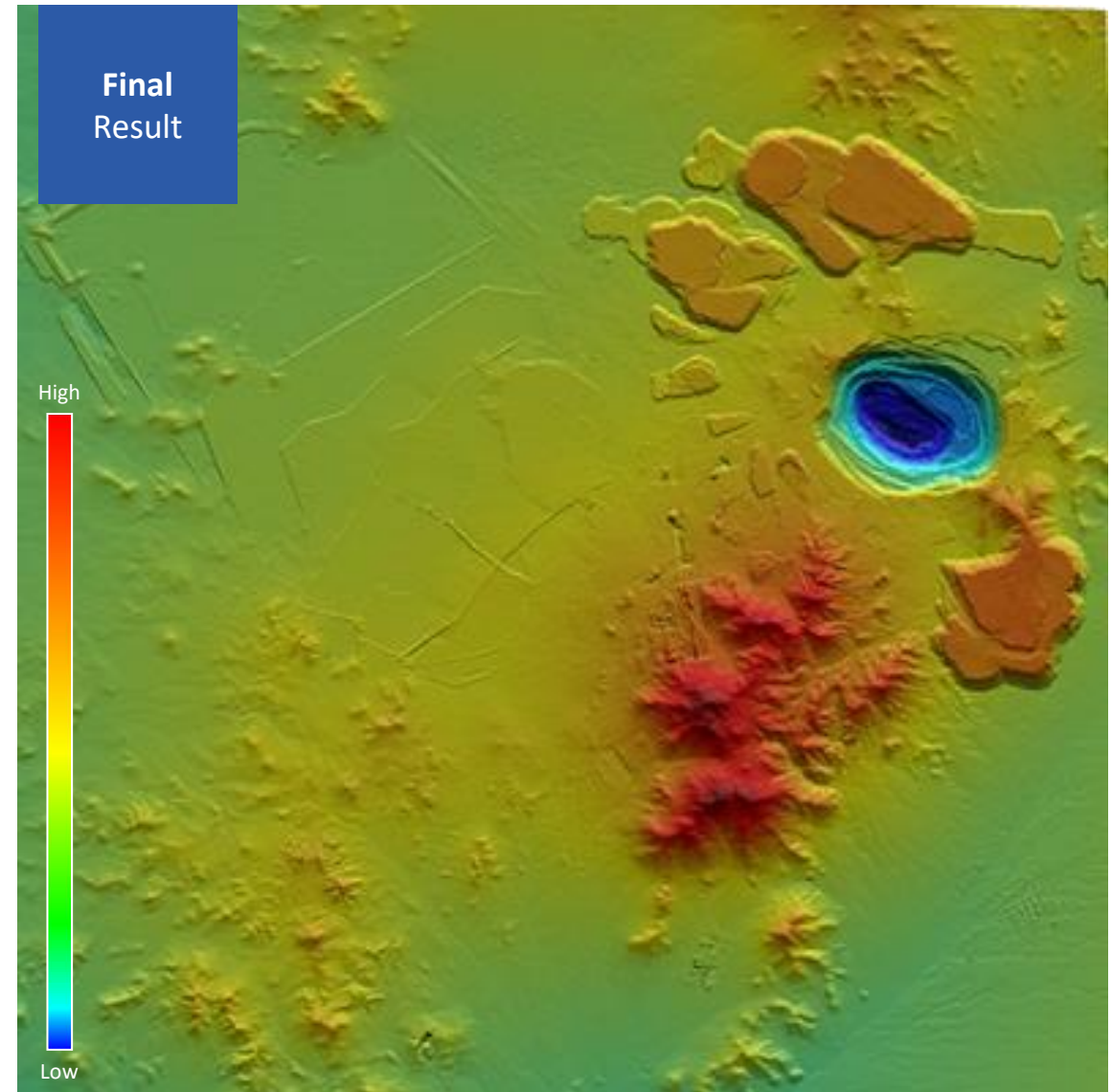
Satellite: **KOMPSAT-3A**

Region/Area: Sierra Gorda, Chile

Purpose: To investigate Copper Mine

Remarks:

- A Digital Elevation Model (DEM) has been generated using KOMPSAT-3A stereo images.
- In the result, higher altitudes are represented by red, while lower altitudes are indicated by blue.
- DEM derived from KOMPSAT-3A stereo data provide a cost-effective solution for customers when compared to traditional aerial surveys



Change Detection Urban Construction

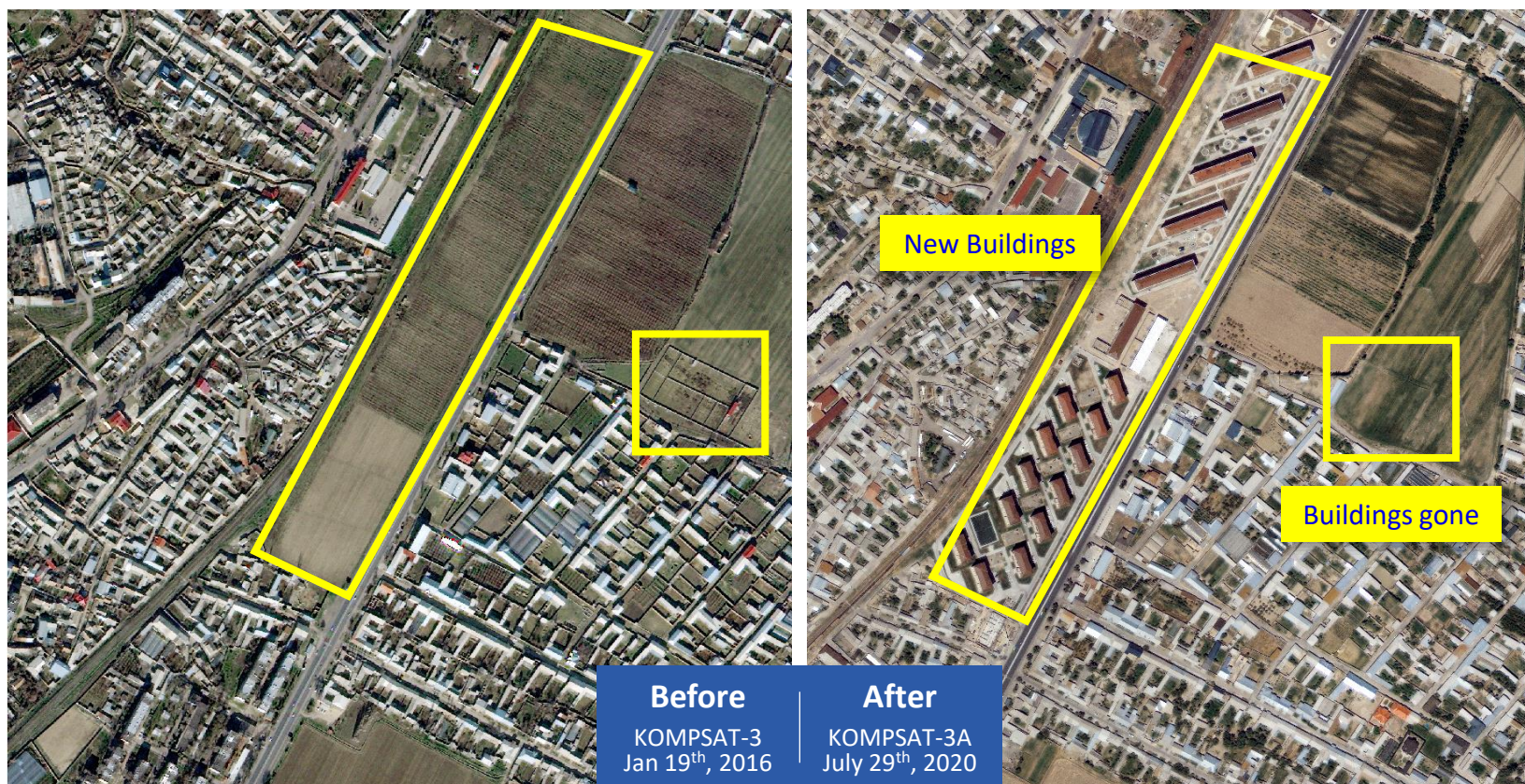
Satellite: KOMPSAT-3, 3A

Region/Area: Yangiyul, Uzbekistan

Purpose: Change Detection

Remarks:

- Change of Building's status can be seen through satellite images from different periods/dates
- Satellite imagery can detect changes through periodic captures, and it could help in urban planning and identifying illegal buildings



Natural Disaster Wild Fire

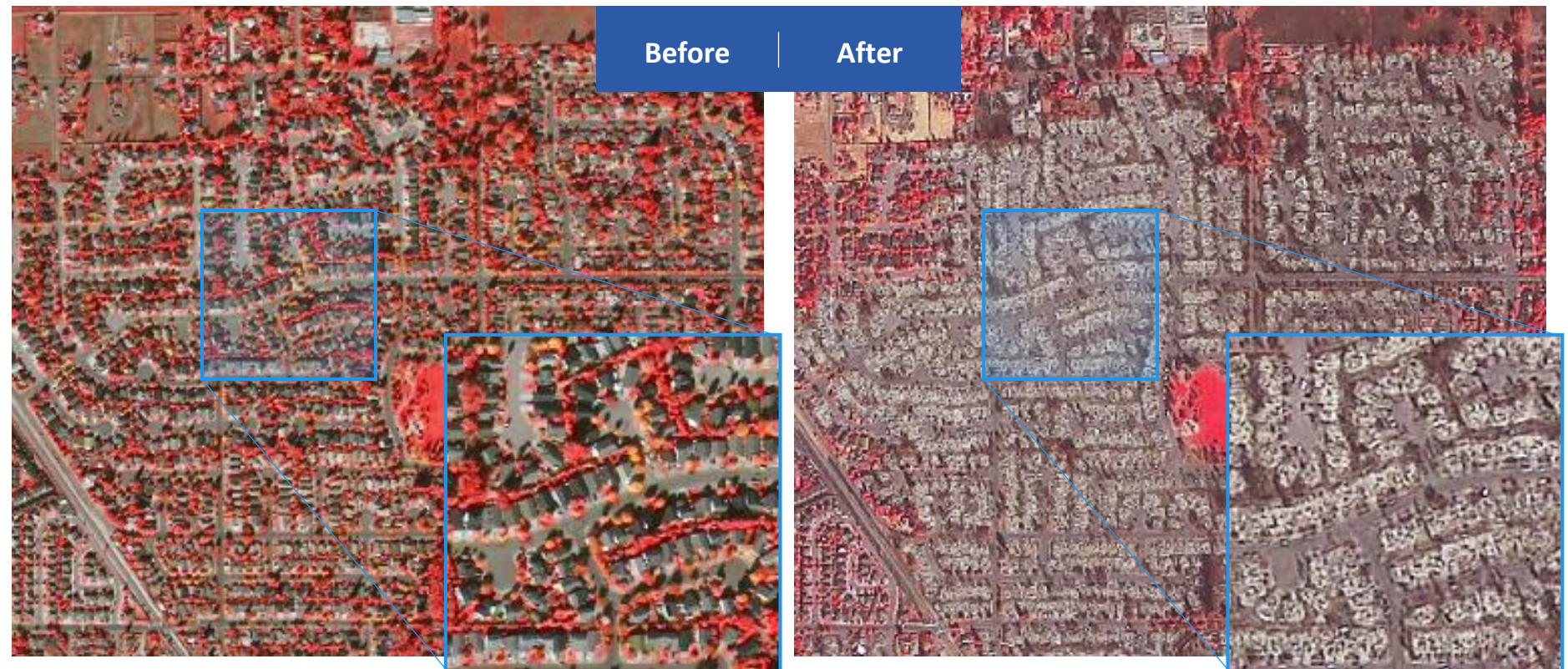
Satellite: KOMPSAT-2, 3

Region/Area: Santa Rosa, California

Purpose: Assessing Damage

Remarks:

- The After image shows that most seem gray compared to the Before image in red, which means that vegetation is not found due to wildfire



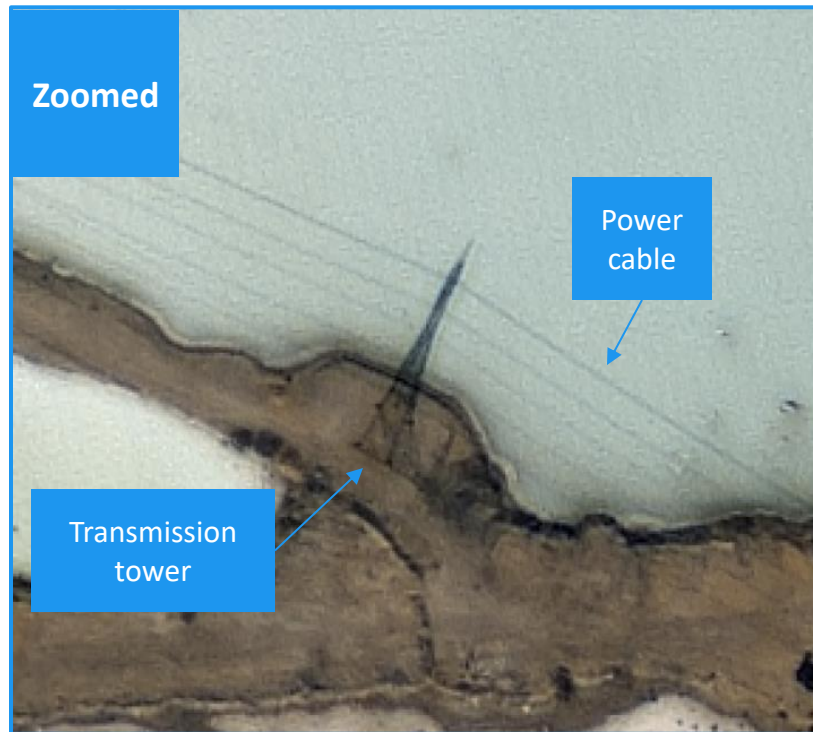
Infrastructure Transmission Tower & Power Cable

Satellite: **KOMPSAT-3A**

Purpose: Transmission tower cable's condition Monitoring

Remarks:

- Transmission towers are often located in remote or challenging terrains, making it difficult for maintenance crews to access them quickly
- Harsh weather conditions, rough terrain, and lack of infrastructure can hinder timely inspections and repairs
- KOMPSAT-3A could help to observe transmission tower with its very high-resolution



Construction Site Nuclear Power Plant

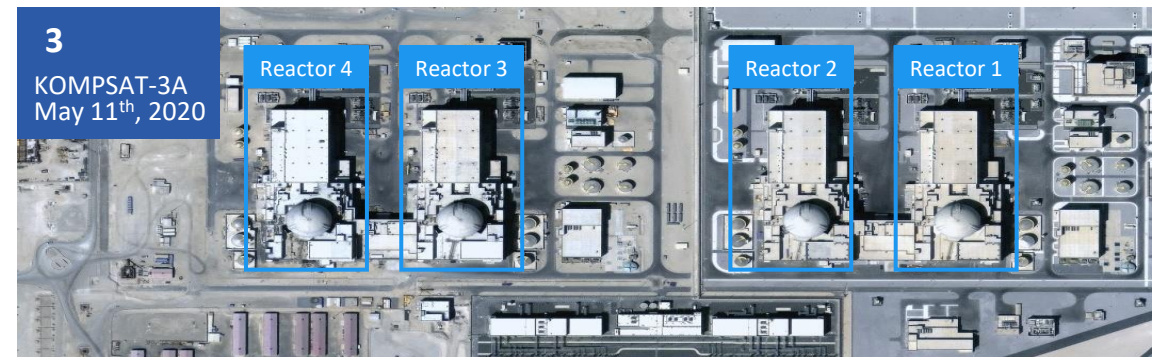
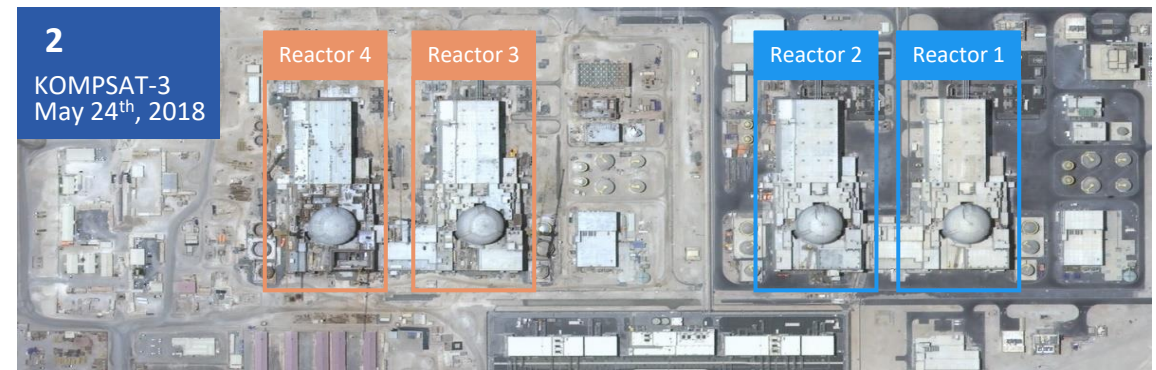
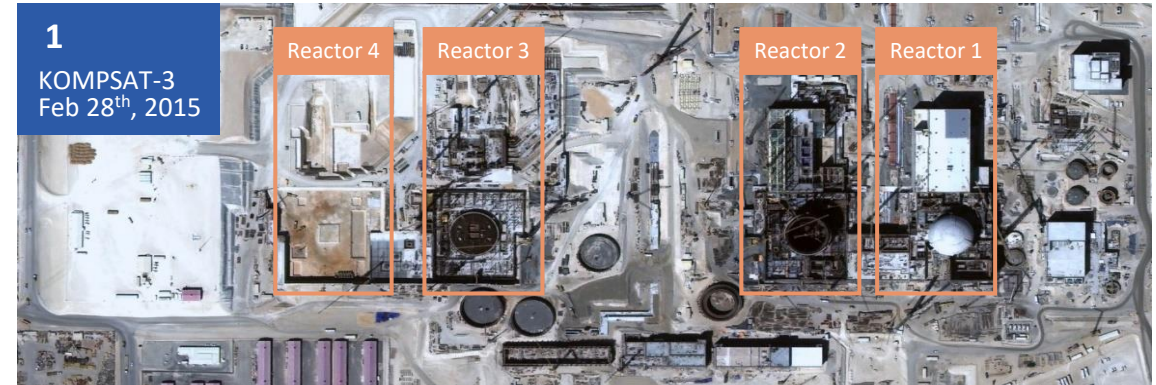
Satellite: KOMPSAT-3, 3A

Region/Area: Barakah Nuclear Power Plant, UAE

Purpose: Construction progress monitoring

Remarks:

- Tracking environmental changes in areas around power plants
- Satellite imagery is useful for supporting decisions regarding plant constructions and safety precaution policies



■ Under construction
■ Completed

Natural Resource Forestry

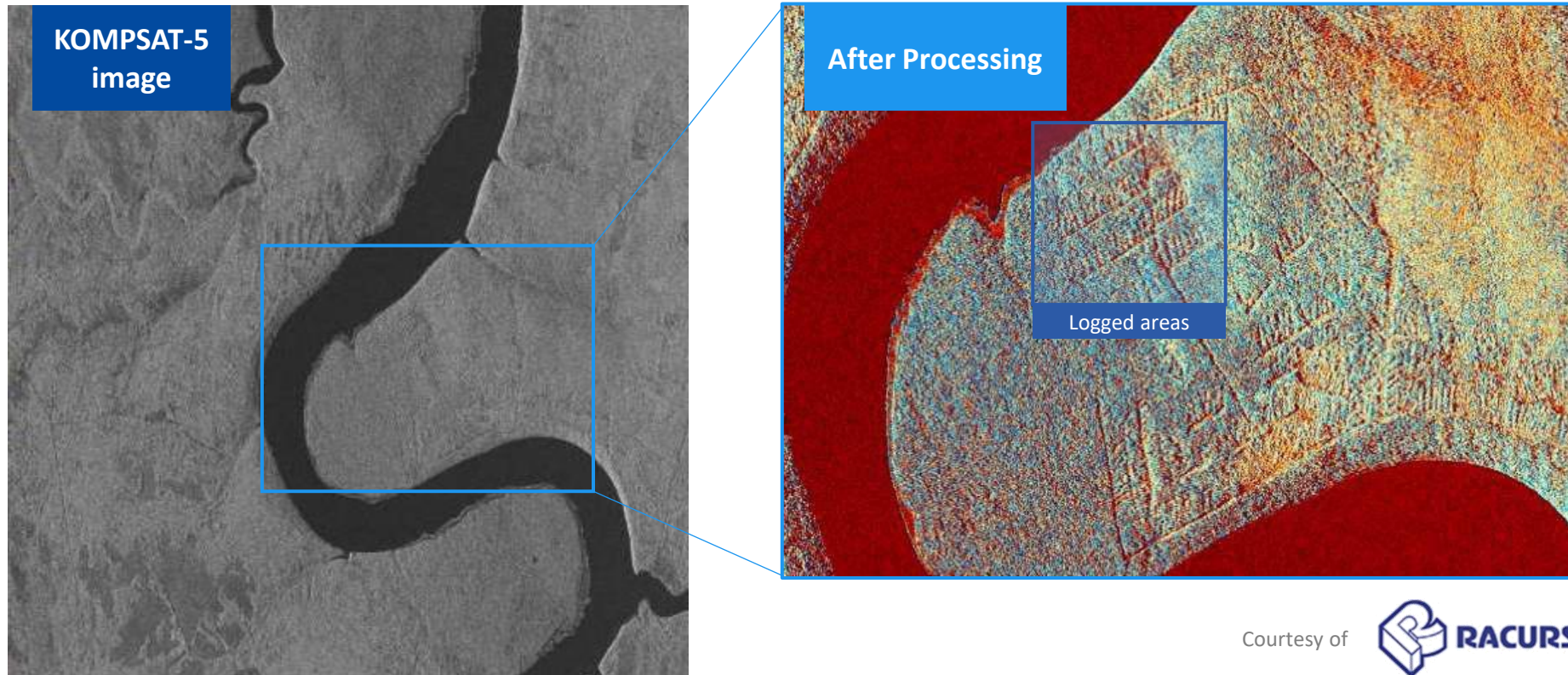
Satellite: **KOMPSAT-5**

Region/Area: Irkutsk Region, Russia

Purpose: Detecting Illegal Logging

Remarks:

- Logged areas can be seen when analyzing the SAR image
- SAR technique is useful for monitoring large areas that are difficult to access by capturing images regardless of cloud and darkness



Courtesy of  RACURS

Natural Resource Forestry: Canada National Forest Inventory

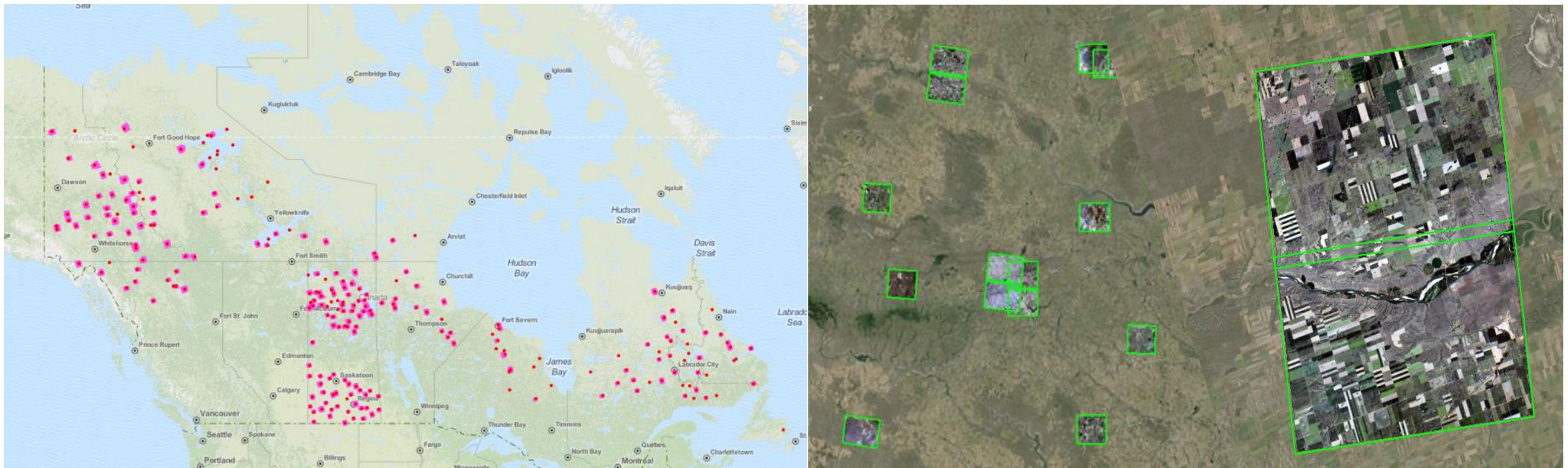
Satellite: **KOMPASAT-3**

Region/Area: Canada, 400~500 widely spread AOI

Purpose: Monitoring the Sustainability of Canada's Forests

Remarks:

- KOMPSAT-3 covered around half in 2015 as a speculative tasking
- Satellite imagery is a reliable source that helps to monitor the environmental impacts of deforestation and forest degradation
- Frequent use of high-resolution satellite imagery can help to monitor the changes remotely over time, and manage the forest health



A satellite image showing a coastal area with blue water and green land. The water is a deep blue, and the land is a mix of green and brown. The image is partially obscured by a semi-transparent white box containing the title.

Korean EO Satellites

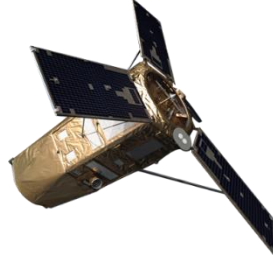
Korean Government Satellites

In orbit



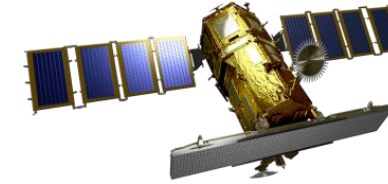
KOMPSAT-3

- Launched in May 2012
- Optical
- LT: 13:30
- 1 PAN + 4 MS (R/G/B/NIR)
- PAN: 0.7 m / 0.5m (16 km)
- MS: 2.8 m (16 km)



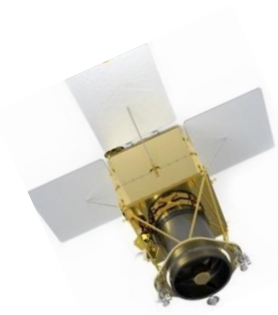
KOMPSAT-3A

- Launched in March 2015
- Optical / IR
- LT: 13:30
- 1 PAN + 4 MS (R/G/B/NIR)
- PAN: 0.54 m / 0.40m (13 km)
- MS: 2.16 m (13 km)



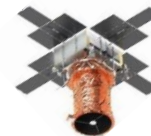
KOMPSAT-5

- Launched in August 2013
- X-band SAR
- LT: 06:00/18:00
- Spotlight: 0.85~1 m (5 km)
- Strip: 2.5~3 m (30 km)
- ScanSAR: 20 m (100 km)



CAS500-1

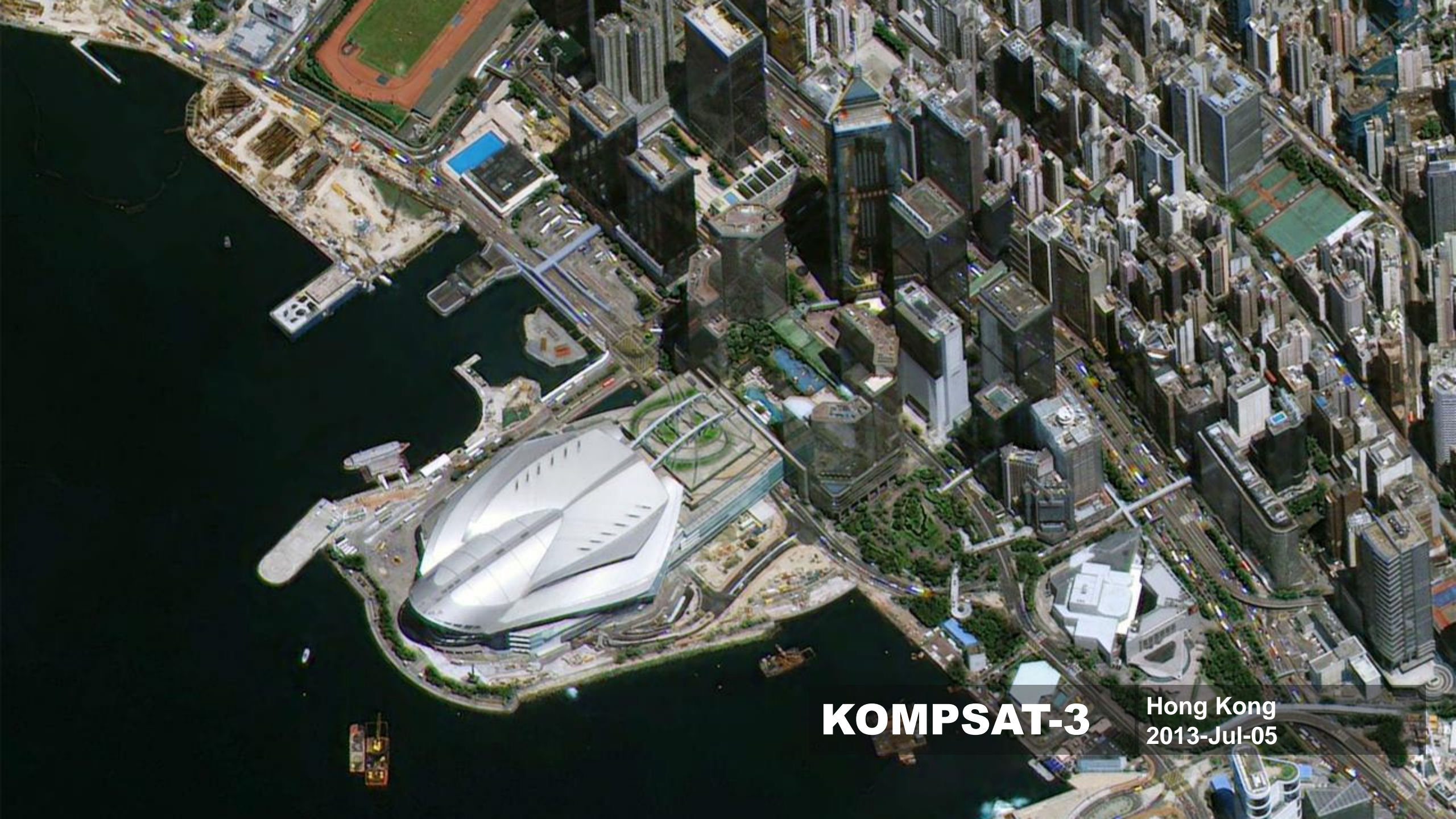
- Launch in 2021
- Optical
- 1 PAN + 4 MS (R/G/B/NIR)
- PAN: 0.5 m(12 km)
- MS: 2.0 m (12 km)



NEONSAT 1

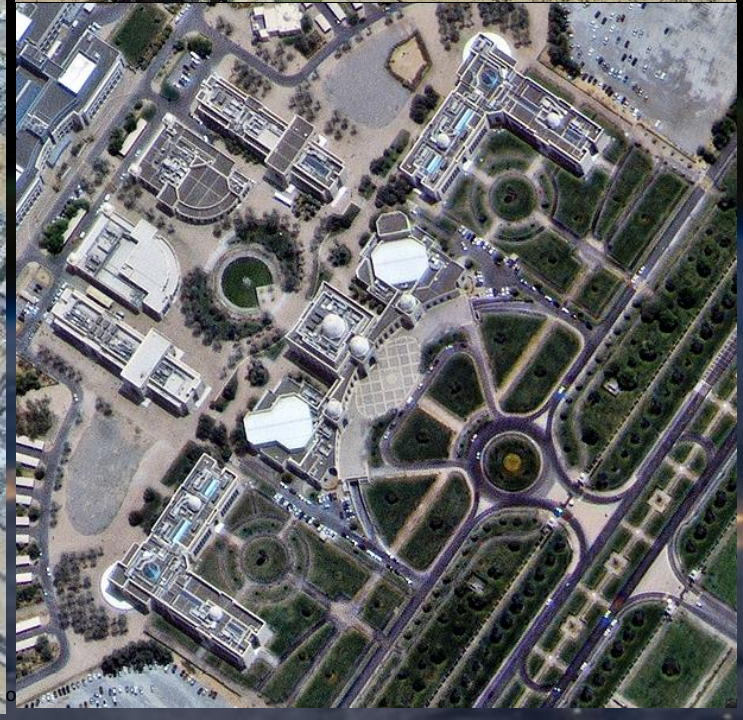
- Launch in 2024
- Optical
- 1 PAN + 4 MS (R/G/B/NIR)
- PAN: 0.8 m
- MS: 3.2 m

Ministry of Land, Infrastructure and Transport

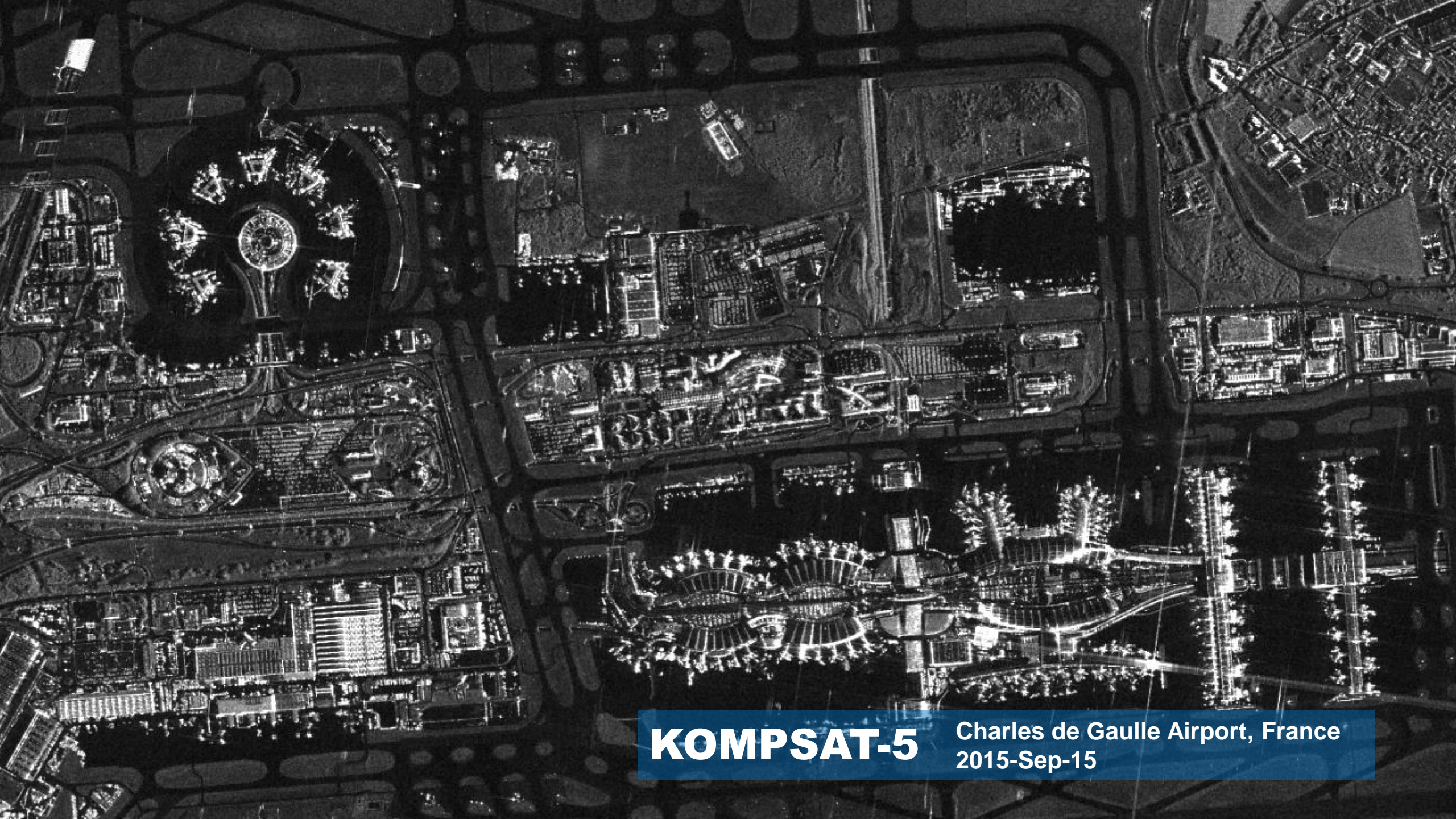


KOMPSAT-3

Hong Kong
2013-Jul-05



KOMPSAT-3A University of Sharjah, UAE
2018-Apr-25



KOMPSAT-5

Charles de Gaulle Airport, France
2015-Sep-15

JRC TECHNICAL REPORTS

New sensors benchmark report on Kompsat-3

Geometric benchmarking over Maussanne test site for CAP purposes

Blanka Vajsova
Agnieszka Walczynska
Samuel Bärtsch
Pär Johan Astrand
Susanne Hain

2014

Report EUR 27064 EN

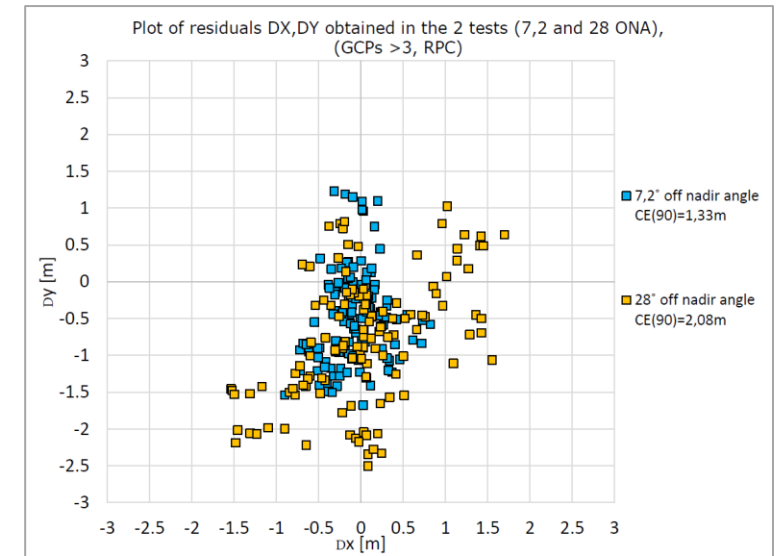
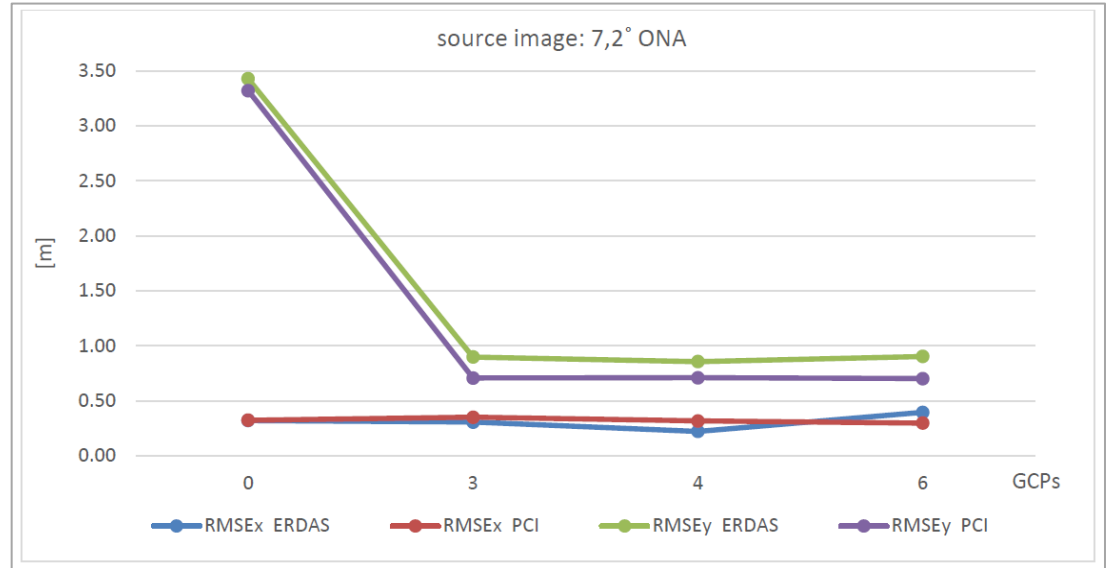
JRC TECHNICAL REPORTS

New sensors benchmark report on KOMPSAT-3A

Geometric benchmarking over Maussanne test site for CAP purposes

Blanka Vajsova
Agnieszka Walczynska
Samuel Bärtsch
Pär Johan Astrand
Melanie Rankl

2018



GIS Land Information Management System

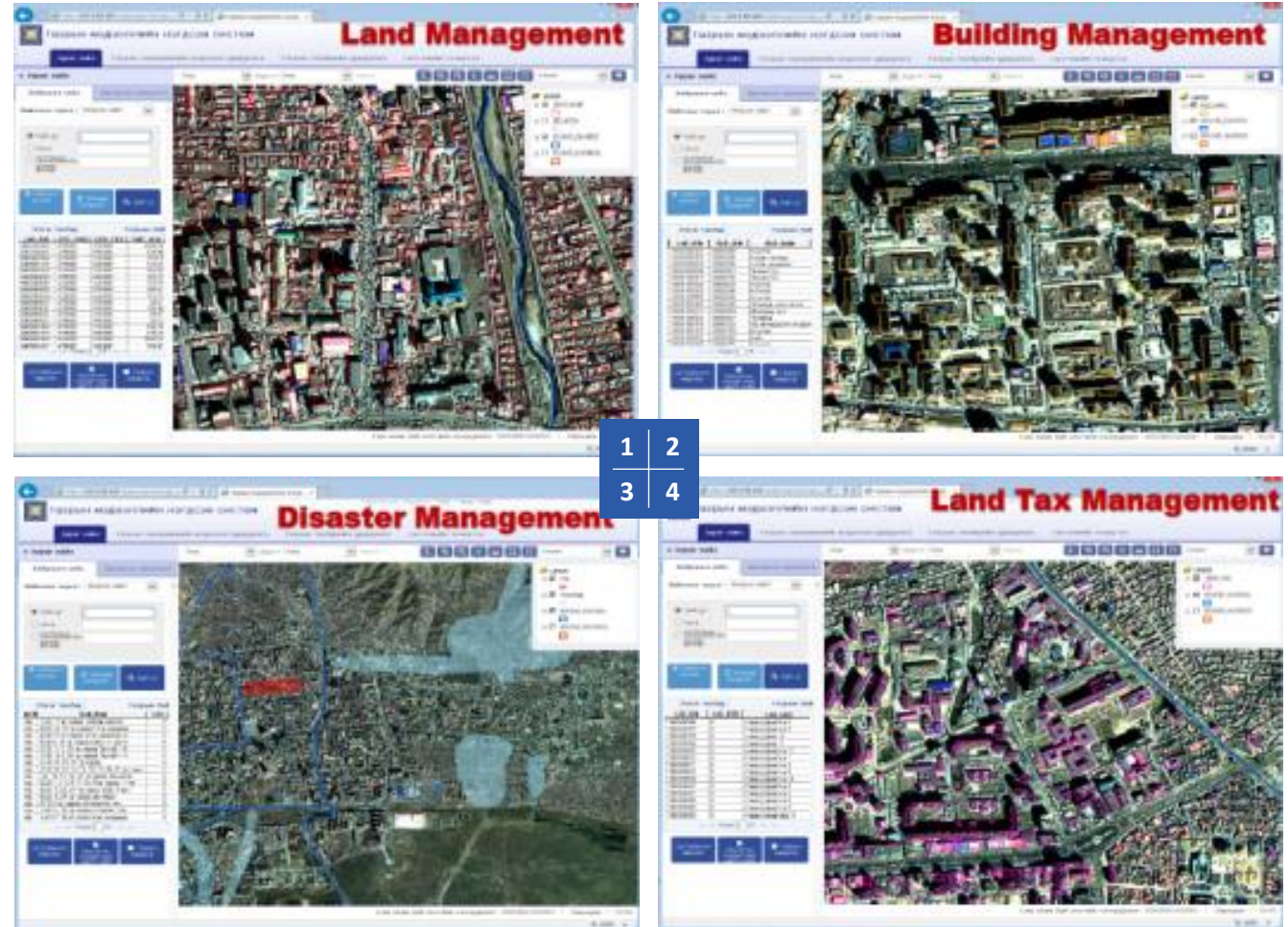
Satellite: **KOMPSAT-2**

Region/Area: Ulaanbaatar, Mongolia

Purpose: Nation management

Remarks:

- Periodical satellite imagery acquisition enables to be utilized for urban infrastructure management, long-term urban planning, disaster management and taxation



GIS National Geospatial Information System

Satellite: KOMPSAT-3, 3A

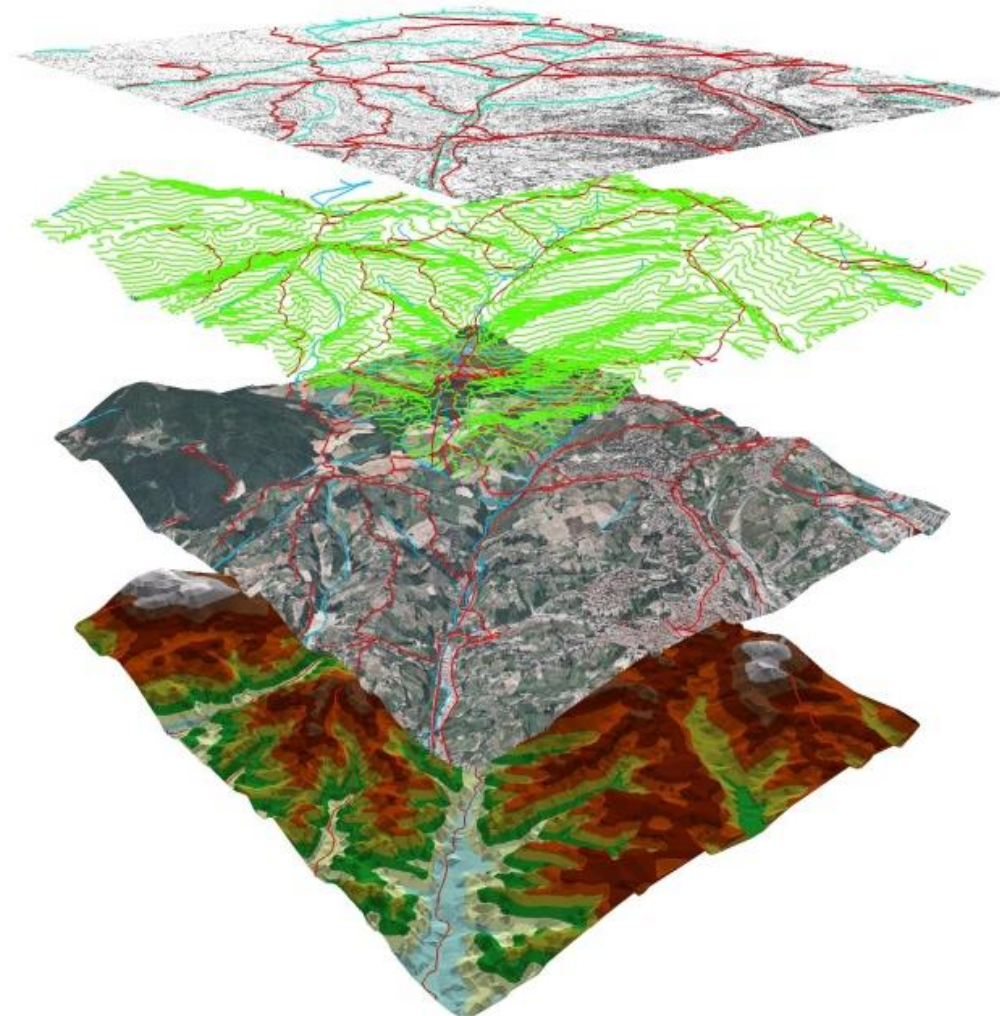
Region/Area: Uzbekistan

Purpose: Nation management

Remarks:

- Both Mono & Stereo images used
- Creation of National Geospatial Information System to create high scale map of the urban and rural area

KOMPSAT coverage



GIS Production of Basemap

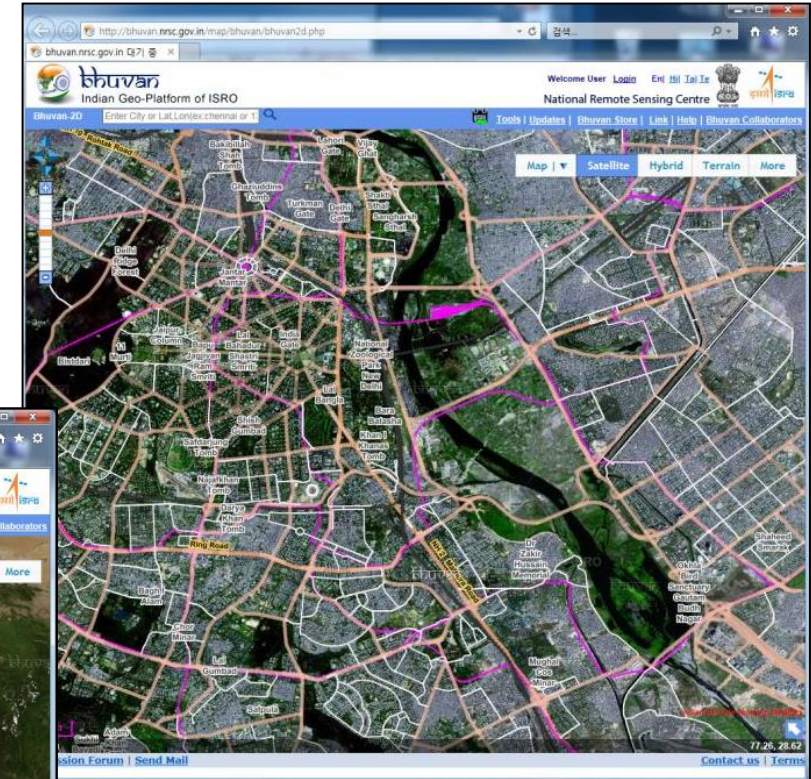
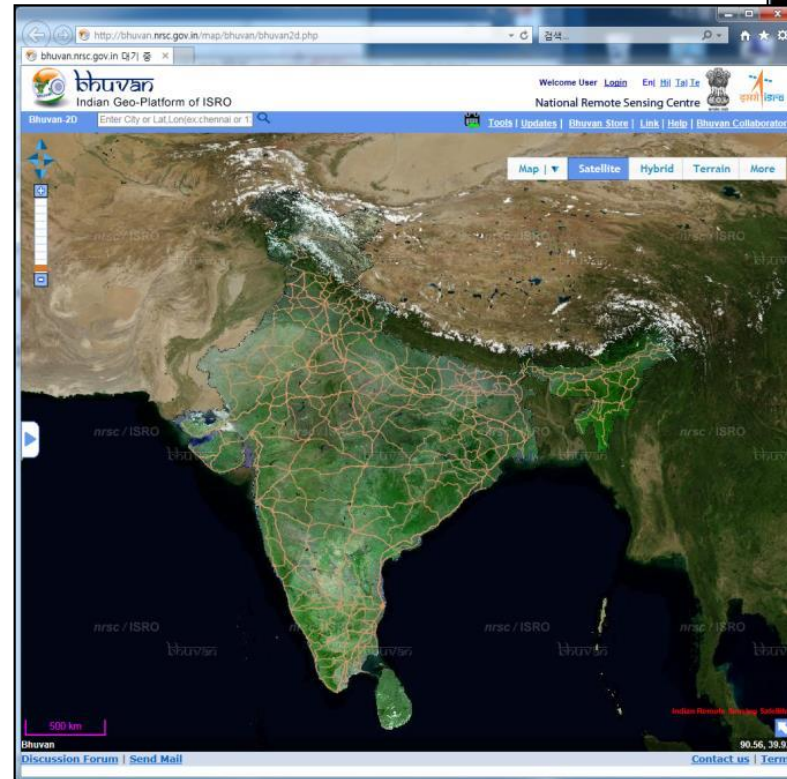
Satellite: **KOMPSAT-2**

Region/Area: India

Purpose: Geo-info portal update

Remarks:

- Creation of a Geo-Portal called Bhuvan (Indian version of Google Maps)
- Providing a national wide base map and several GIS layers
- KOMPSAT-2 imagery were used for HR layer



Land Cover Mapping Project: EU VHR Coverage 2018, 2021

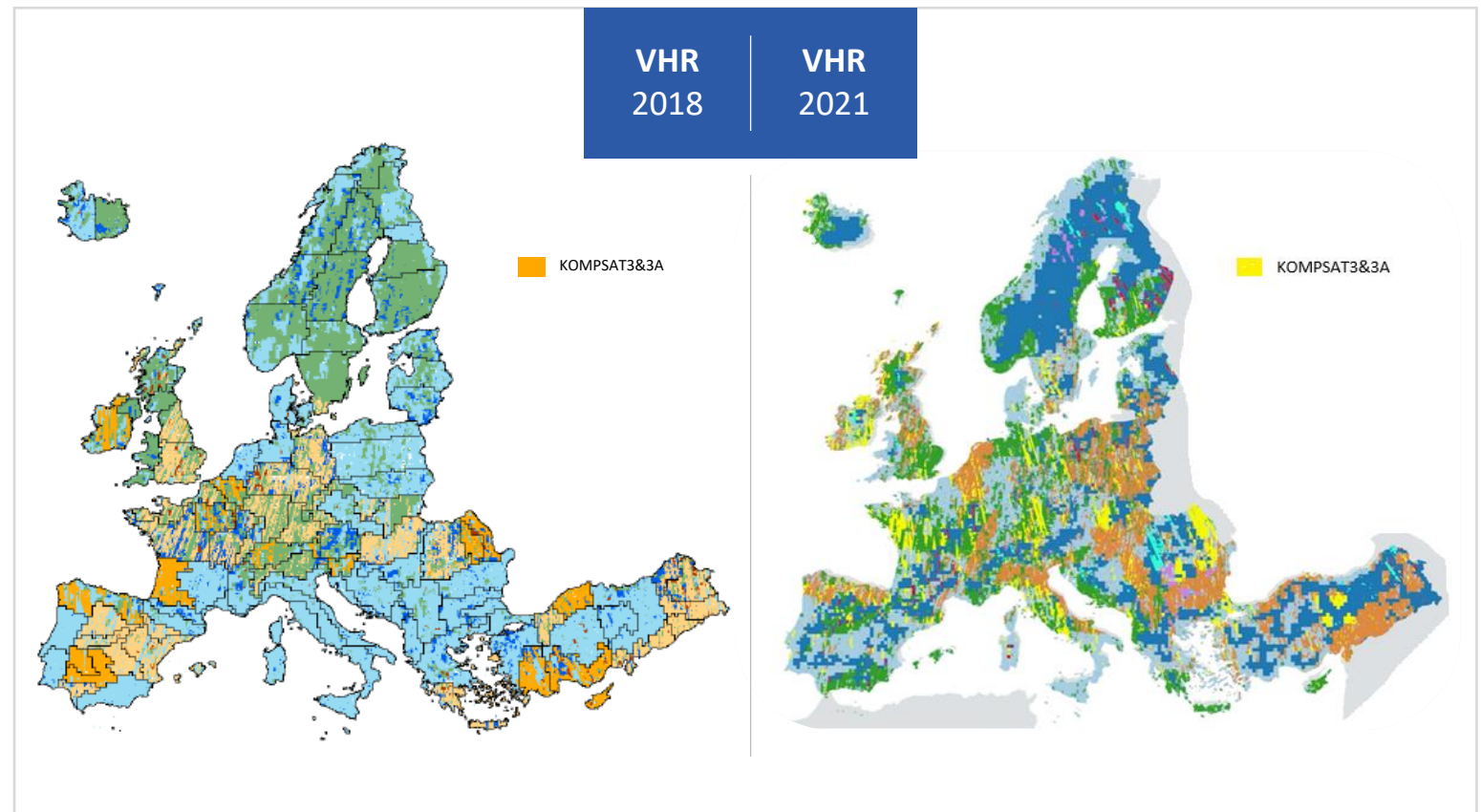
Satellite: KOMPSAT-3, 3A

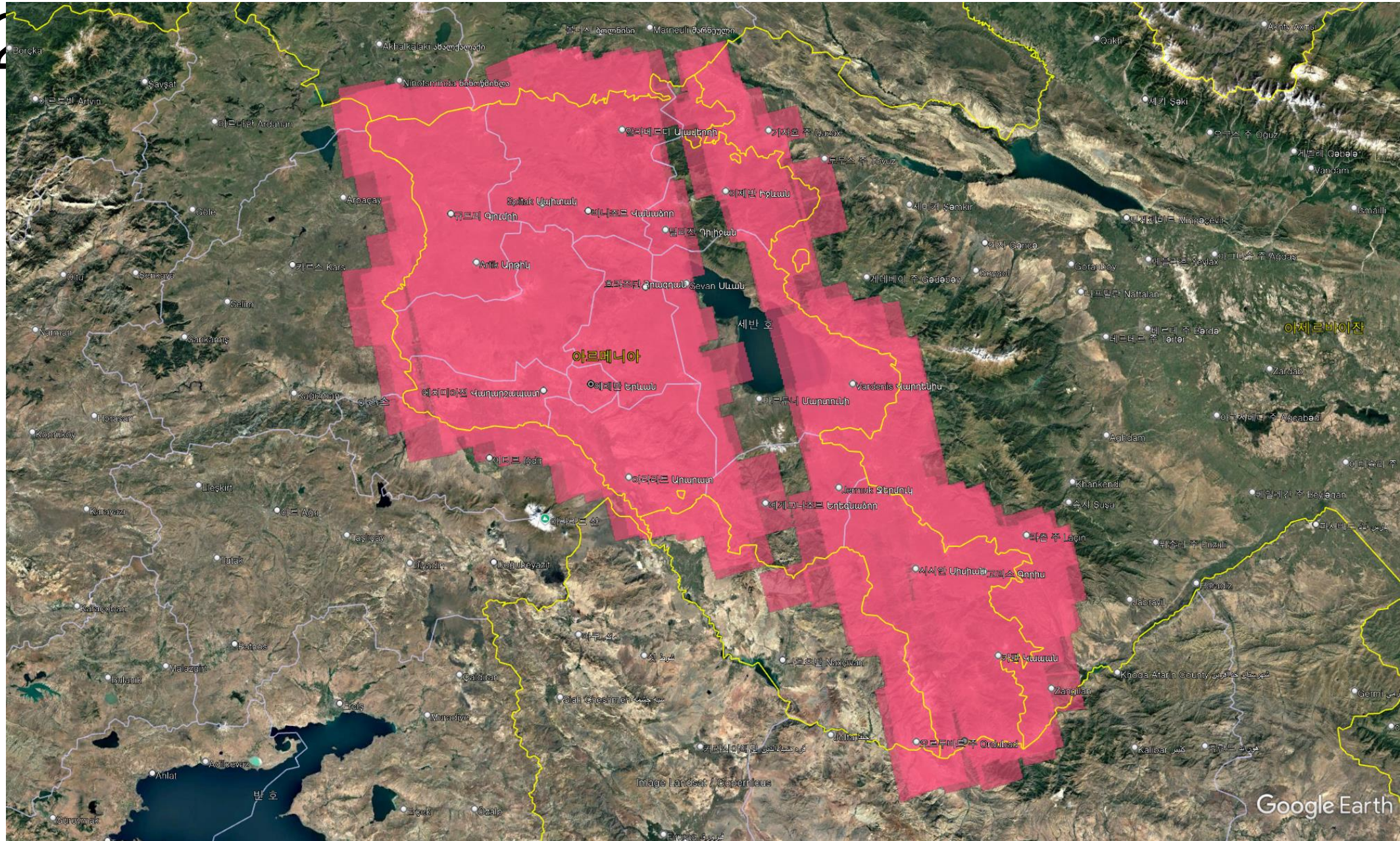
Region/Area: Europe

Purpose: Mosaic Mapping

Remarks:

- KOMPSAT imagery was supplied for the VHR2018 and VHR2021 projects
- KOMPSAT participated as a Consortium with other VHR satellite missions
- KOMPSAT imagery met the challenging project conditions required by ESA
 - Cloud, Cloud Shadow, and Haze free
 - Resolution of 50cm or Better
 - Homogeneous in temporal, spectral, and spatial aspects





아르메니아

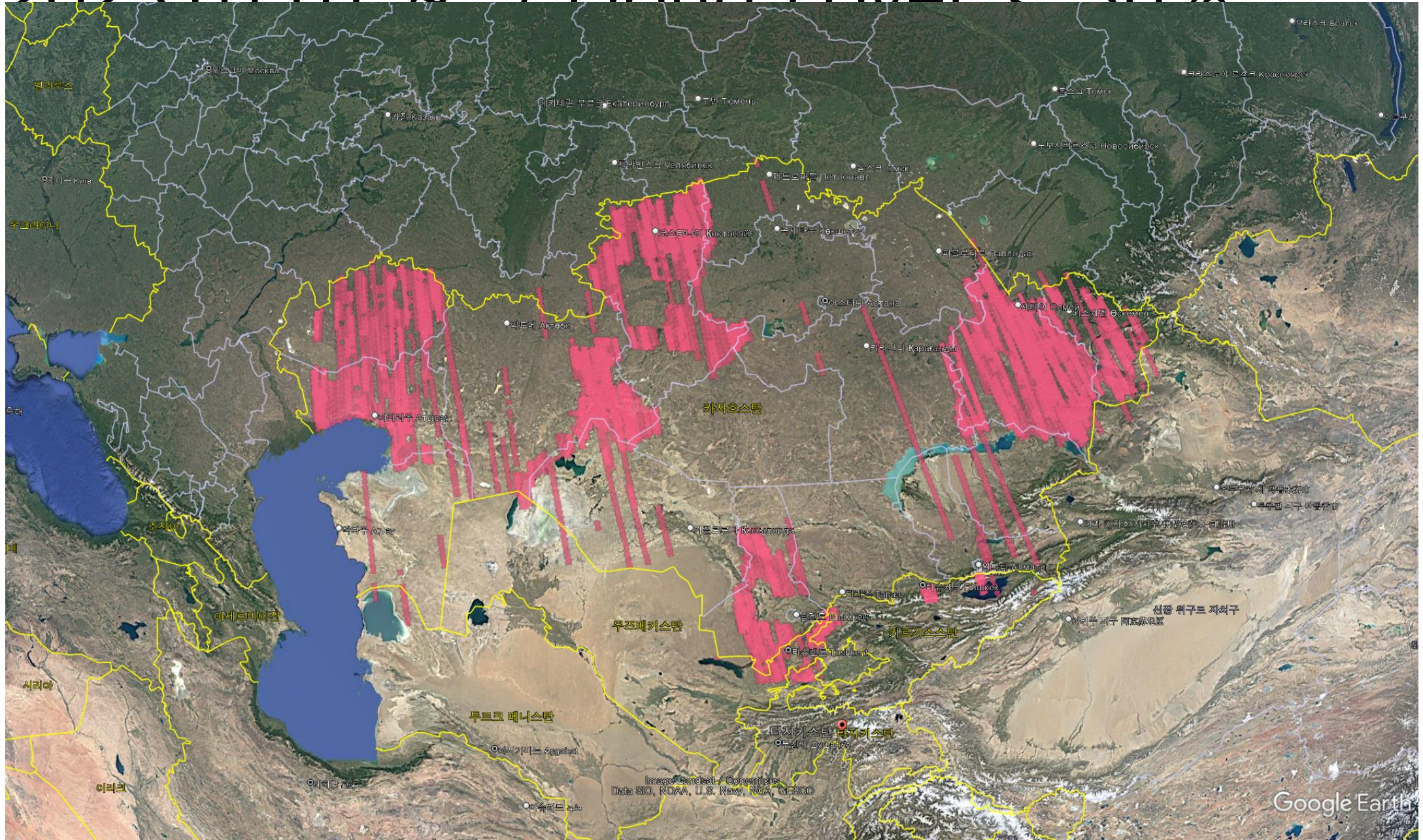
아제르바이잔



KOMPSAT-3A

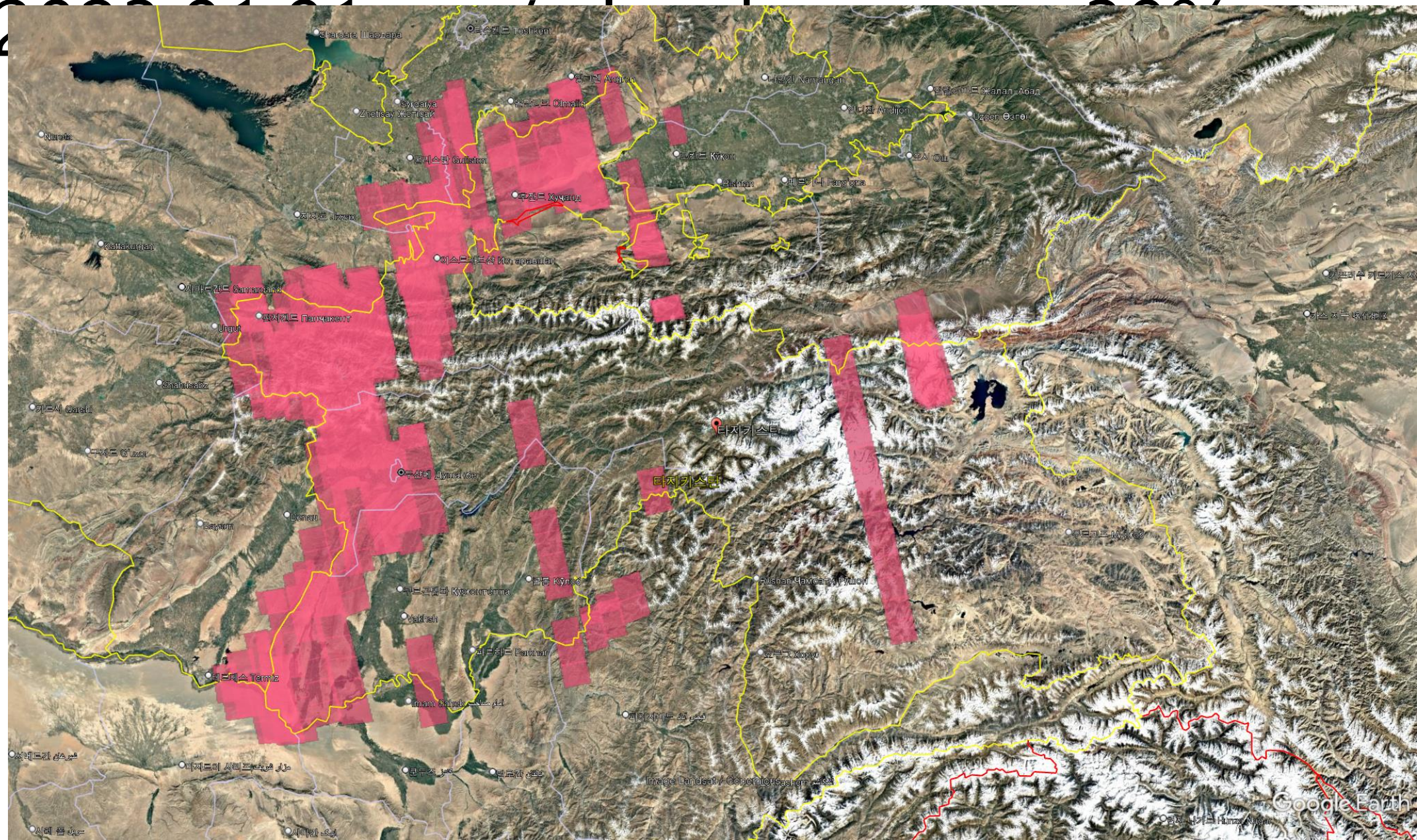
Zvartnots Int. Airport, Armenia
2020-Jun-06

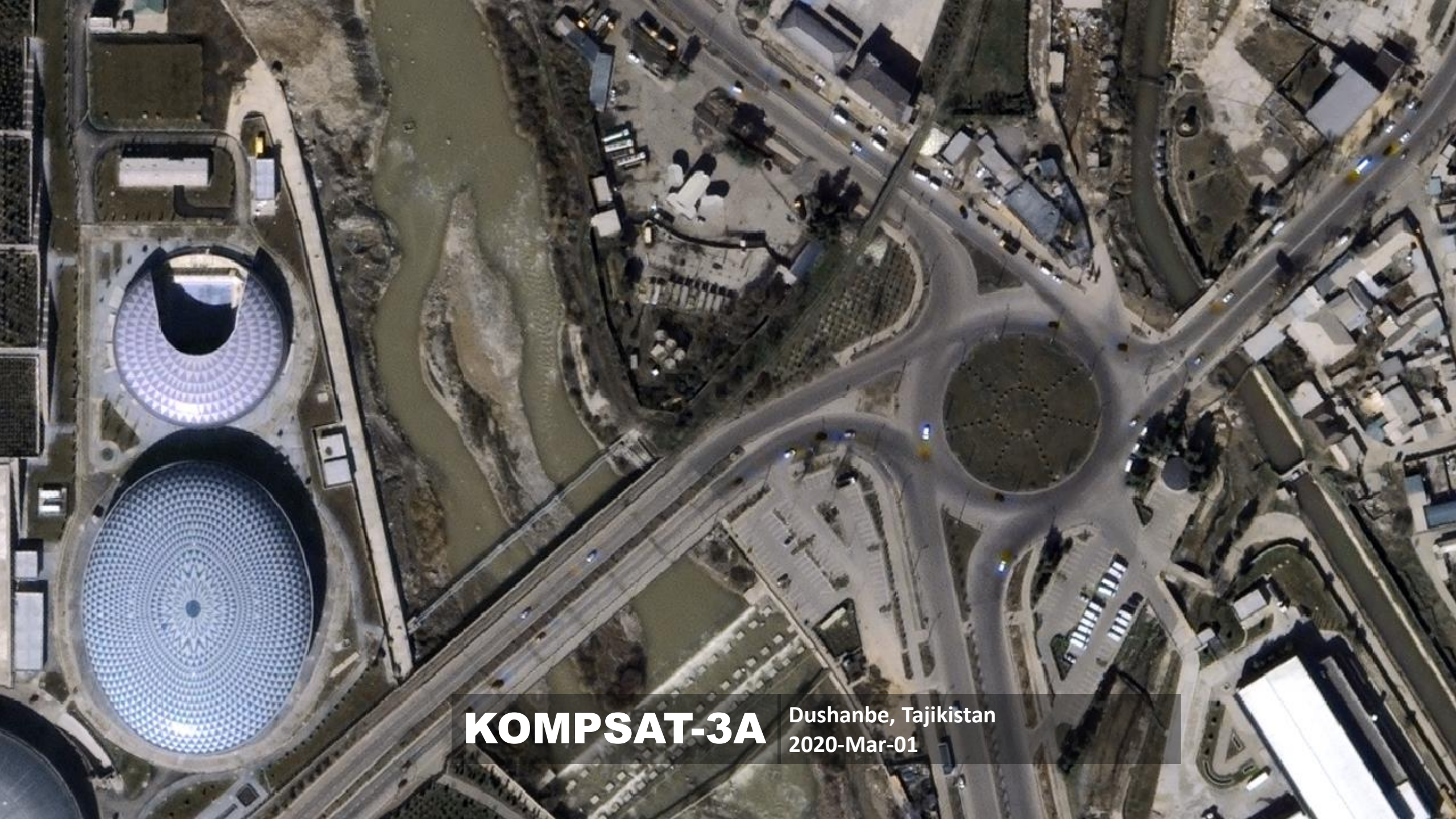
2023 01 01 ~ / cloud cover < 30%



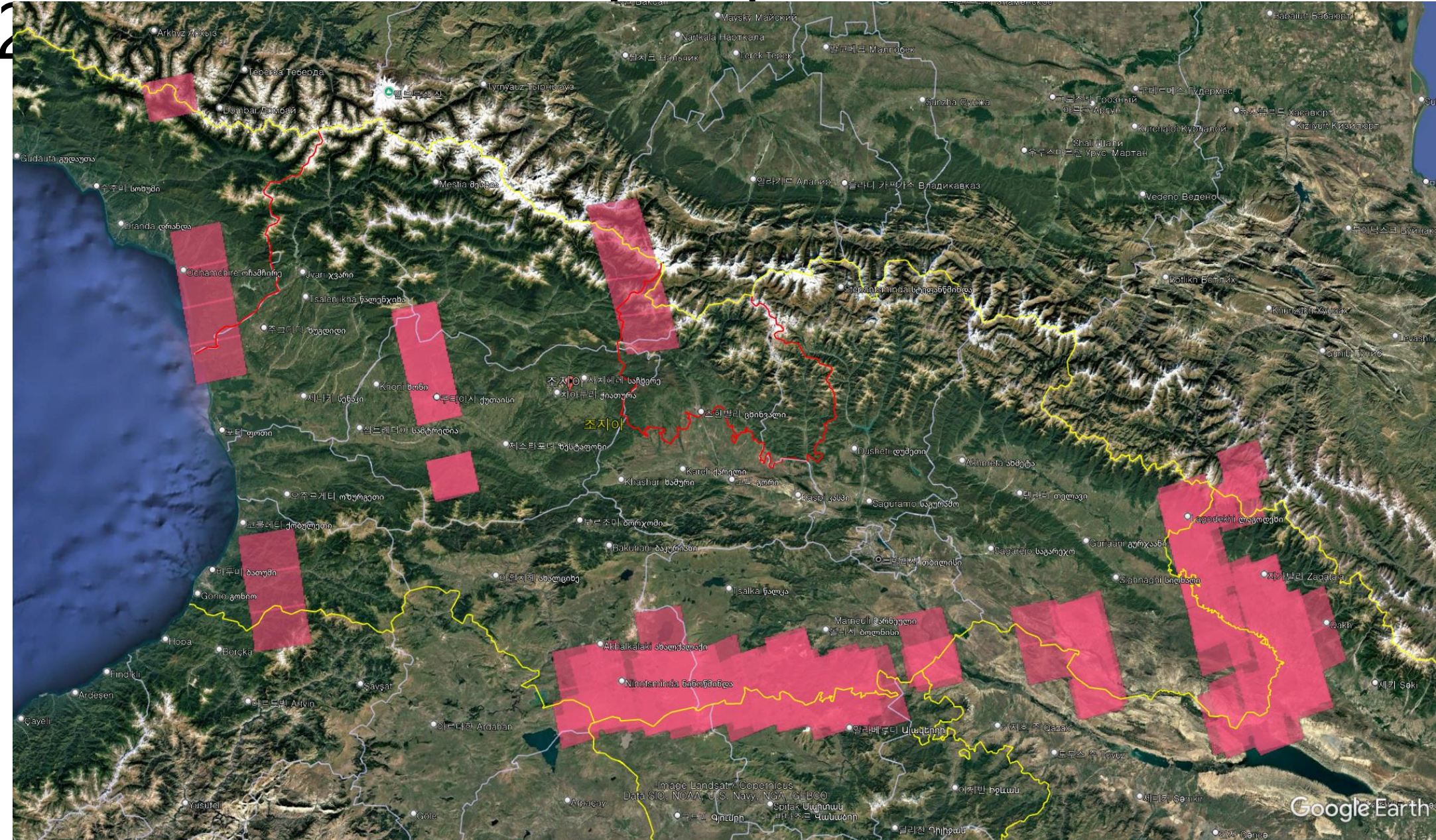


KOMPSAT-3A Astana, Kazakhstan
2019-07-08





KOMPSAT-3A Dushanbe, Tajikistan
2020-Mar-01



조지아

Image Landsat / Copernicus
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Spatk Satkhuas
მთაწარმე ქალაქი

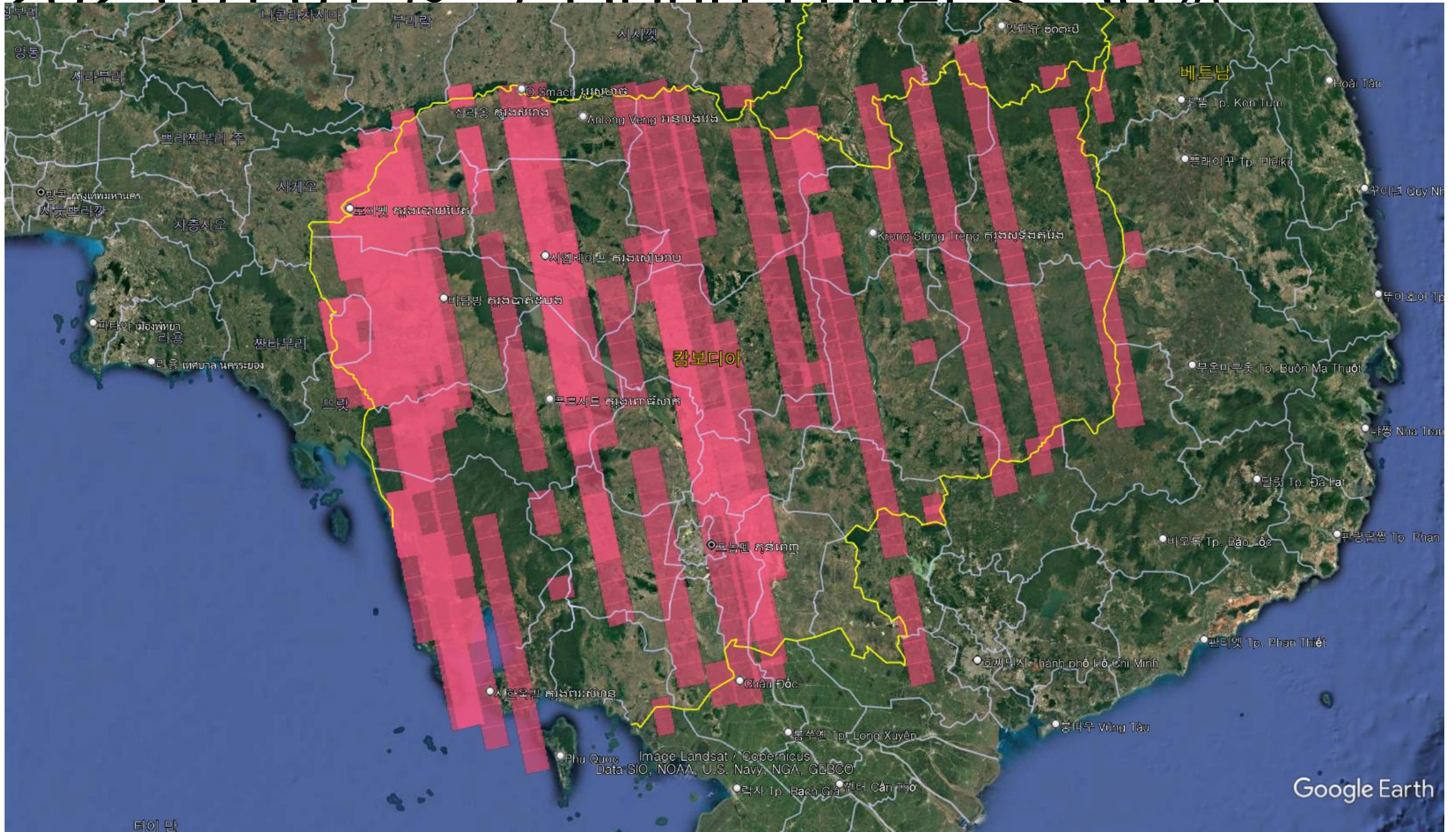
Google Earth



KOMPSAT-3A

Tbilisi, Georgia
2019-Oct-19

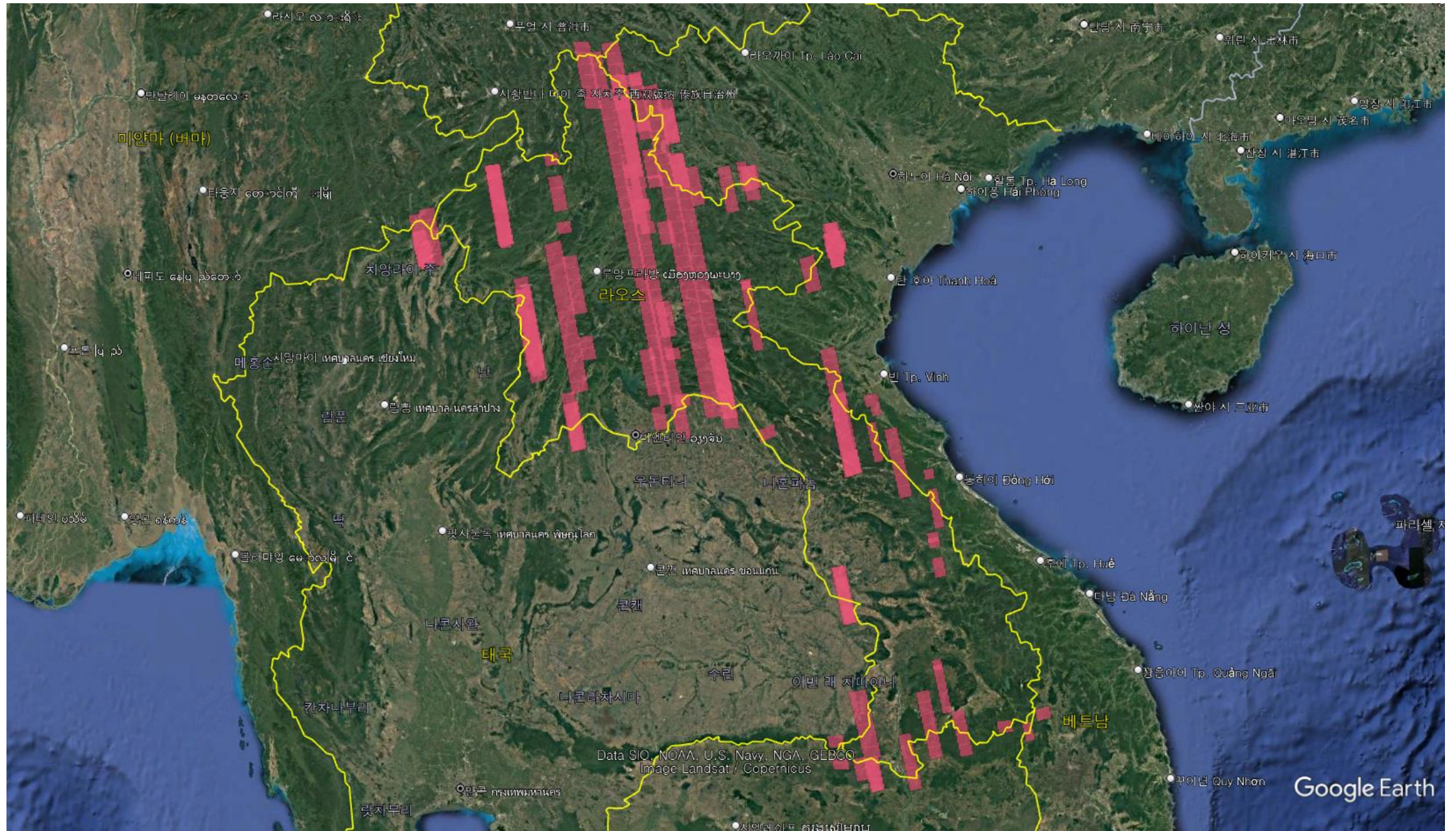
2023 01 01 ~ / cloud cover < 30%





KOMPSAT-3A

Phnom Penh, Cambodia
2017-02-12



미얀마 (버마)

라오스

하이난 성

Google Earth

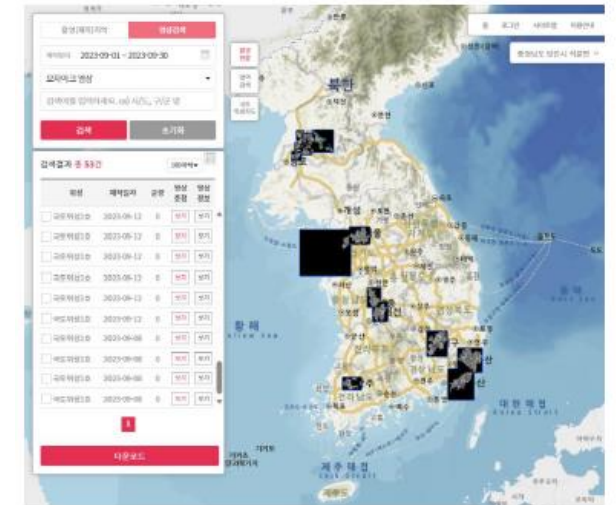
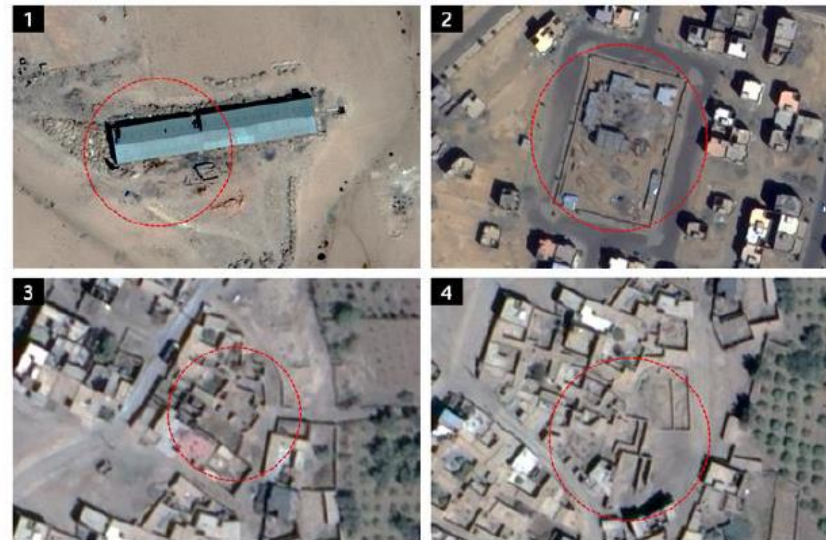
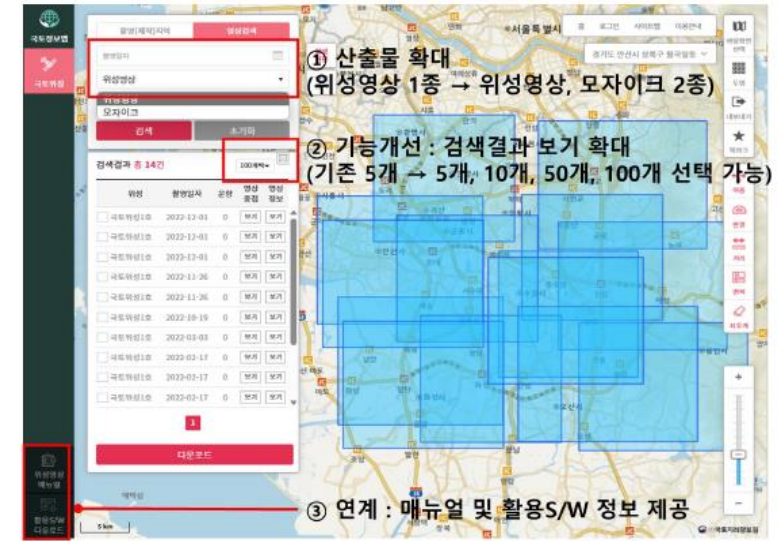
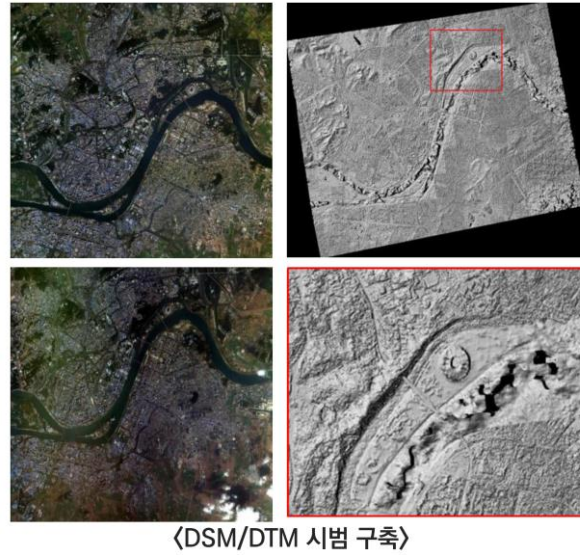
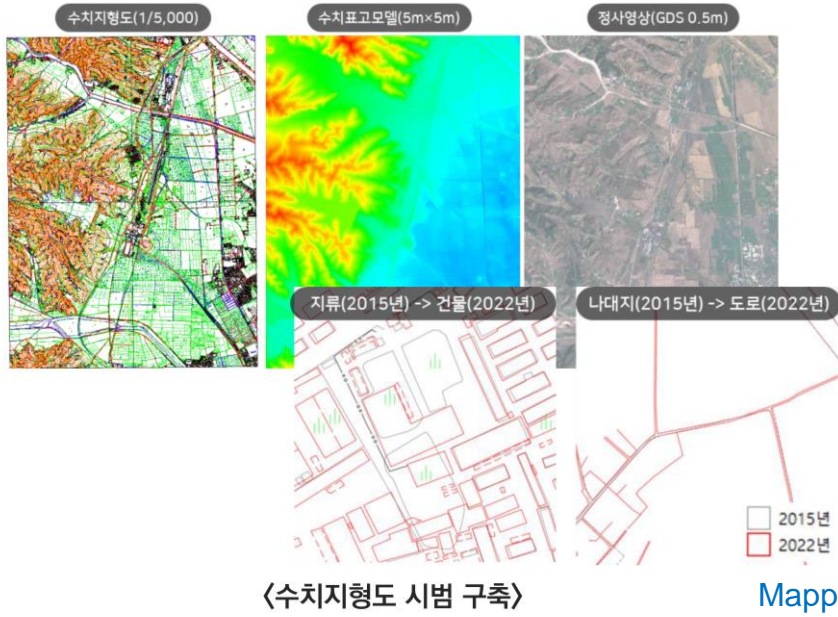


KOMPSAT-3

Vientiane, Laos
2022-01-31



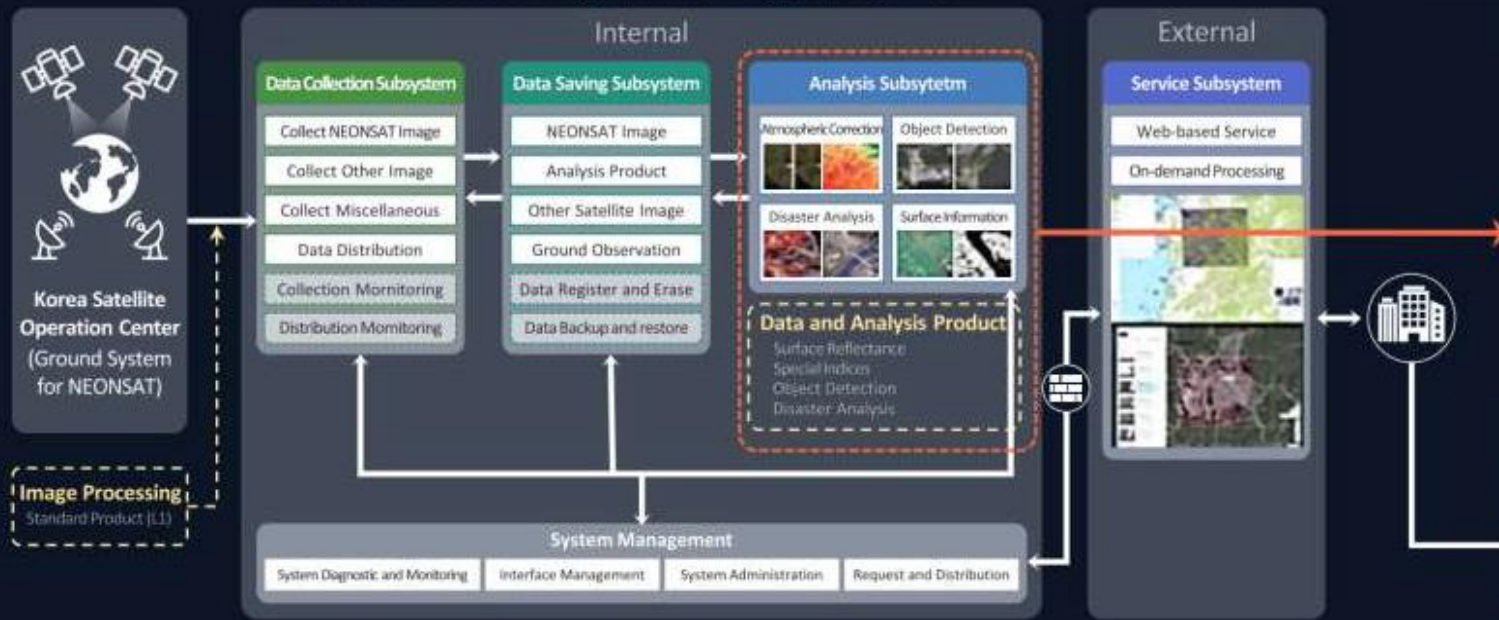




NEONSAT-based Earth Observation Data and Analysis Service



NEONSAT-based Application Support System



Technology Development for User Support

- Atmospheric correction for analysis ready data
- Value-added products such as spectral indices (NDVI, EVI, SAV, NDWI, etc.)
- Image processing for large area time-series analysis (gap filling, image fusion, etc.)
- AI-based object detection and segmentation

nation-wide short-period MONITORING

(Climate Change, SDGs, Disaster Reduction)

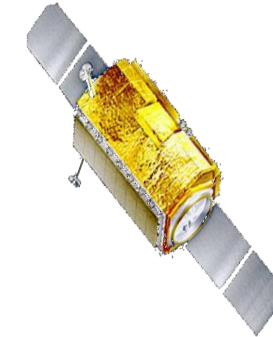
Korean Government Satellites

To be launched



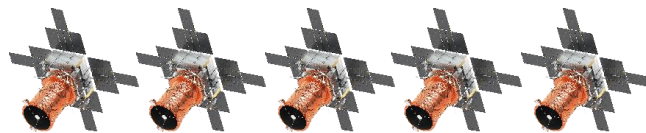
KOMPSAT-7/7A

- Launch in 2025/2026
- Optical
- 1 PAN + 4 MS (R/G/B/NIR) + IR
- PAN: ≤ 0.3 m
- MS: ≤ 1.2 m



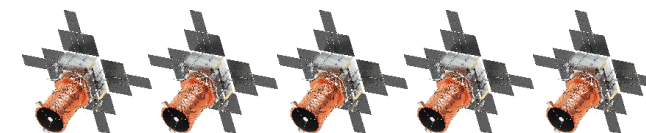
KOMPSAT-6

- Launch in 2025
- X-band SAR
- Spotlight: 0.5 m (5 km)
- Strip: 2.5~3 m (30 km)
- TOPSAR: 20 m (100 km)



NEONSAT 2-11

- Launch in 2026/2027
- Optical
- 1 PAN + 4 MS (R/G/B/NIR)
- PAN: 0.8 m
- MS: 3.2 m



Korean Government Satellites

To be launched



CAS500-2

- Launch in 2025
- Optical
- 1 PAN + 4 MS (R/G/B/NIR)
- PAN: 0.5 m (12 km)
- MS: 2.0 m (12 km)

*Ministry of Land,
Infrastructure and Transport*



CAS500-4

- Launch in 2025
- Optical
- 5 MS (R/G/B/RE/NIR)
- MS: 5.0 m (120 km)

*Ministry of Agriculture
Korea Forest Agency*



CAS500-5

- Launch in 2028
- X-band SAR
- Spotlight: 0.5 m (5 km)
- Strip: 2.5~3 m (30 km)
- TOPSAR: 20 m (100 km)

*Ministry of Environment
K-Water*

SpaceEye-T Constellation

Own the Best

VVHR Optical Systems

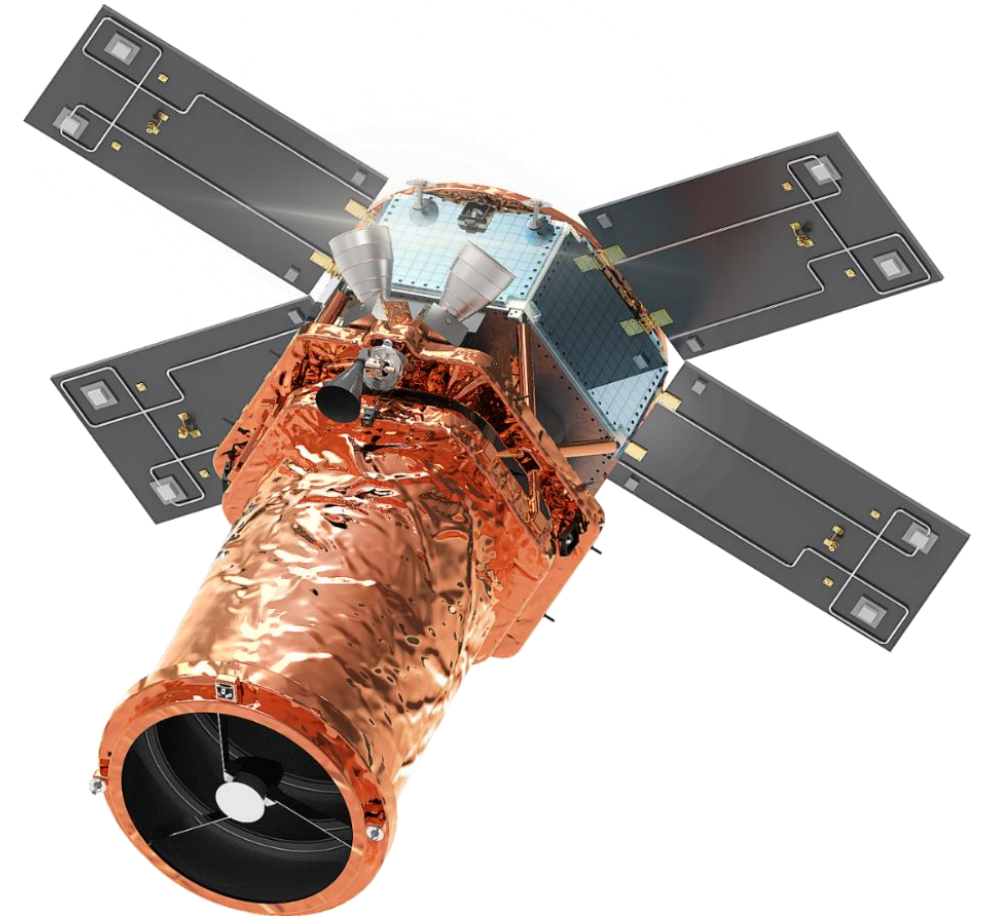
- Better than 30cm native
- PAN + 4 MS (RGBN)

100% commercial program

- Most flexible services

Constellation of 4+ satellites

- First launch: Q1, 2025
- Constellation to be launched by the end of 2028



More Information

SI Imaging Services



00. email

sales@si-imaging.com

01. Website

www.si-imaging.com

02. Catalog

<http://spaceeye.si-imaging.com/>

03. SNS



CONTACT

For more details, you can always

Connect with us.

Check our updated news on
Websites and SNS channels.