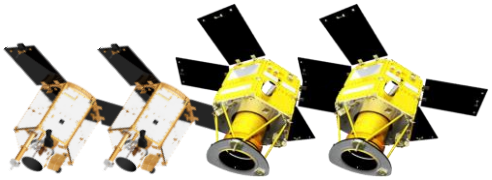
Challenging Space Smart



Satrec Initiative

Satellite Image Application

Feb. 2015

Satrec Initiative at a Glance

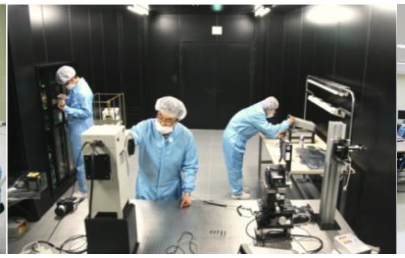
satrec initiative

Leading Small EO Satellite Manufacturer

180 full-time staff (60% with MSc or higher degree)
Over 20 Years Space Experience
Over 20 International & National Space Programs
Exclusive Worldwide Distributor of KOMPSAT-2/3/5
Listed on KOSDAQ Exchange Market
AS9100 & ISO 9001 certified



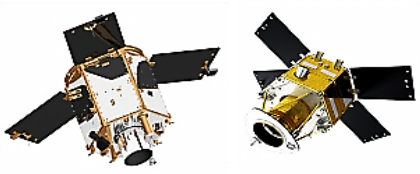



Business Portfolio

Space

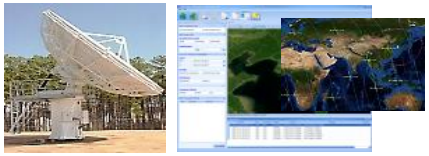
Satellite Platform



Payload



Ground Station



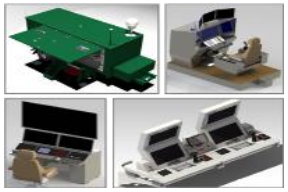
Core Business

Defense

Mobile Ground Station



UAV Ground Station



Satellite



Adjacent Business

Satellite Imagery

Satellite Image



Value-added Service



Integration of Value-Chain

Radiation Safety

EFRD 3300



EFRD Metro



Spin-off Products

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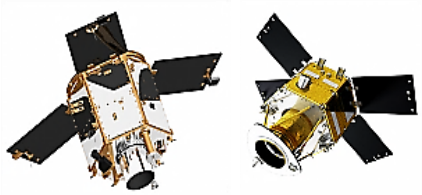
Satellite Systems

Space

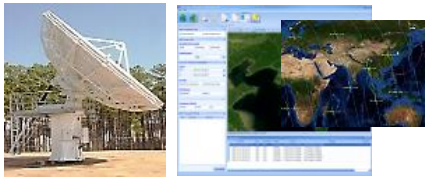
Satellite Platform



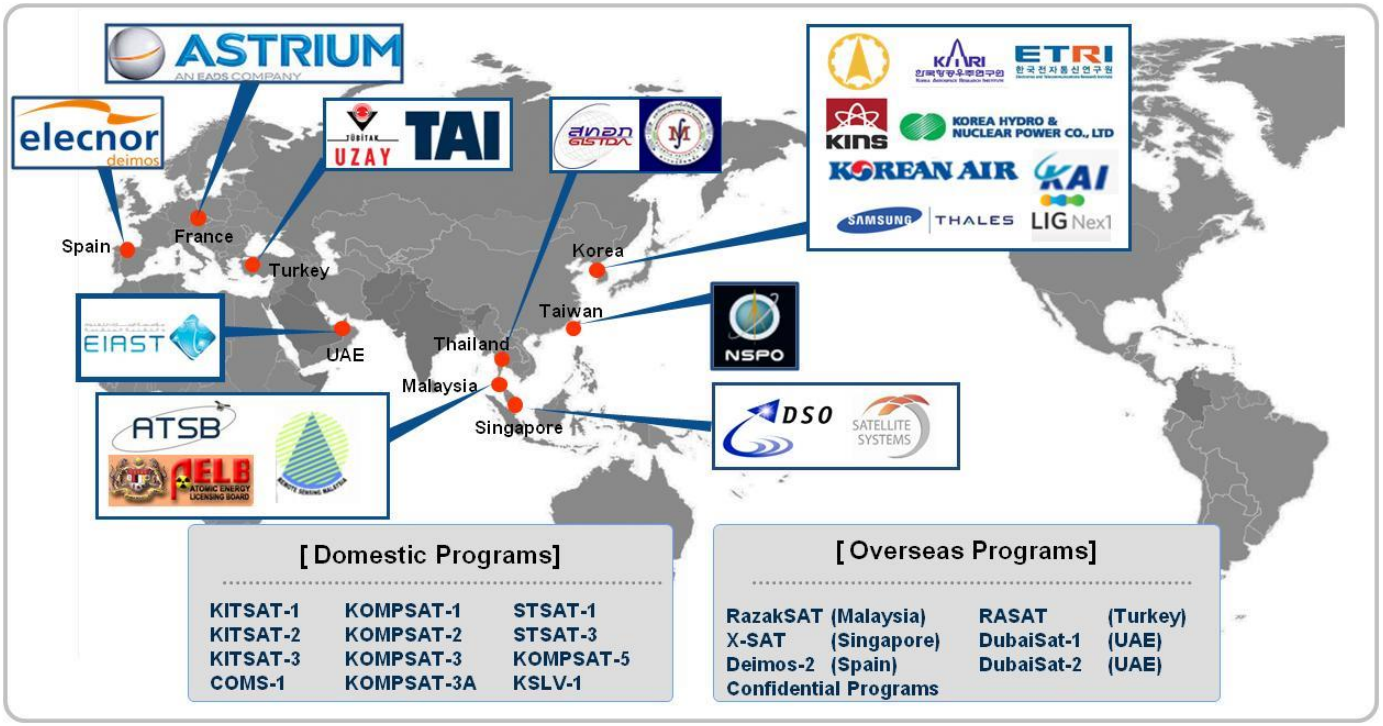
Payload



Ground Station



- Cost effective EO satellites
- Proven systems
- Technology transfer: Success story with UAE
- Turn-key or components



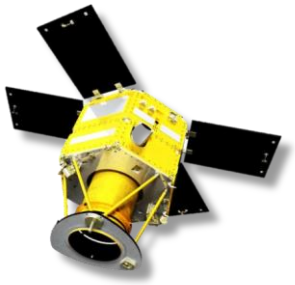
Satellite Systems

Future System (< 1 m)



TBD (2019)

SpaceEye-1 (1 m)



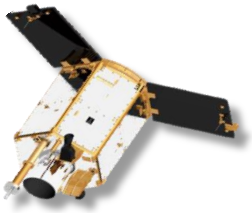
DubaiSat-3 (2017)

Deimos-2 (2014)

Confidential (2015)

DubaiSat-2 (2013)

SpaceEye-2 (2.5 m)



Confidential (2012)

DubaiSat-1 (2009)

RazakSAT (2009)

SpaceEye-10 (10 m)



Confidential (2015)

RASAT (2011)

X-SAT (2011)

2005 2010 2015 2020

satrec initiative

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KARI 한국항공우주연구원

Satellite Imagery

Satellite Imagery

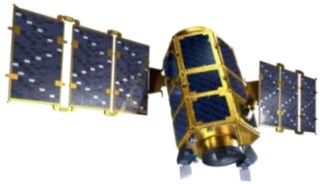
Satellite Image



Value-added Service

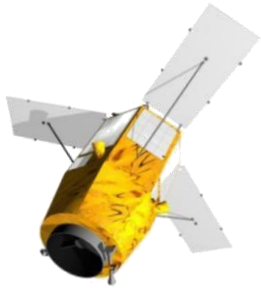


- KOMPSAT Constellation
- Integrated solution for optical and radar
- Unique combination for imaging time (10:50, 13:30, 06:00/18:00)
- Korean government's long term commitment ➔ data continuity
- Direct access or imagery supply



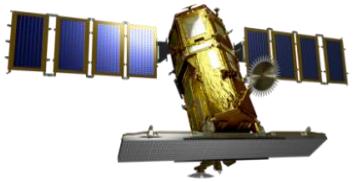
KOMPSAT-2

- Launch in July, 2006
- Optical
- LT: 10:50
- 1 PAN + 4 MS (R/G/B/NIR)
- PAN: 1 m (15 km)
- MS: 4 m (15 km)



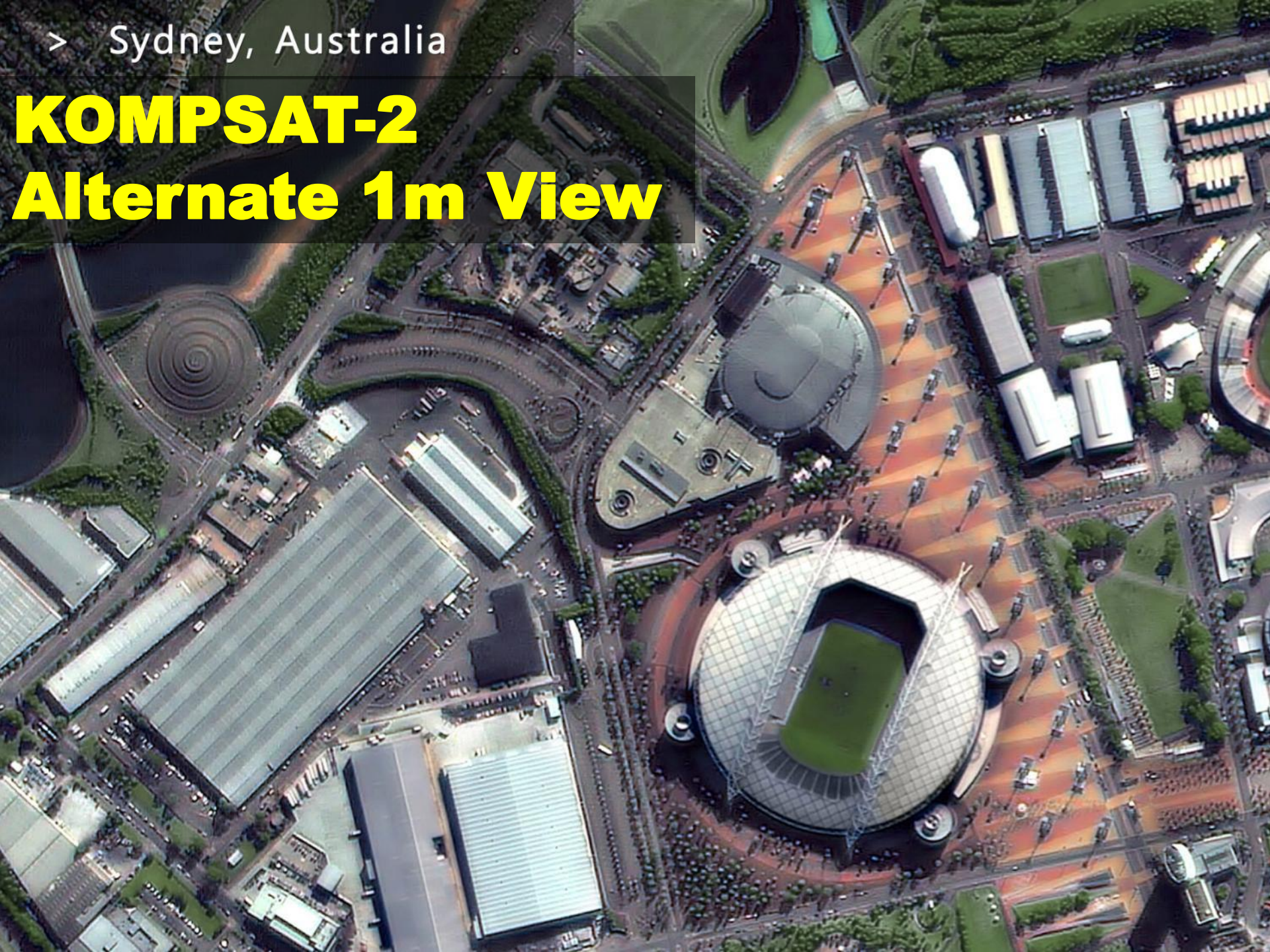
KOMPSAT-3

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

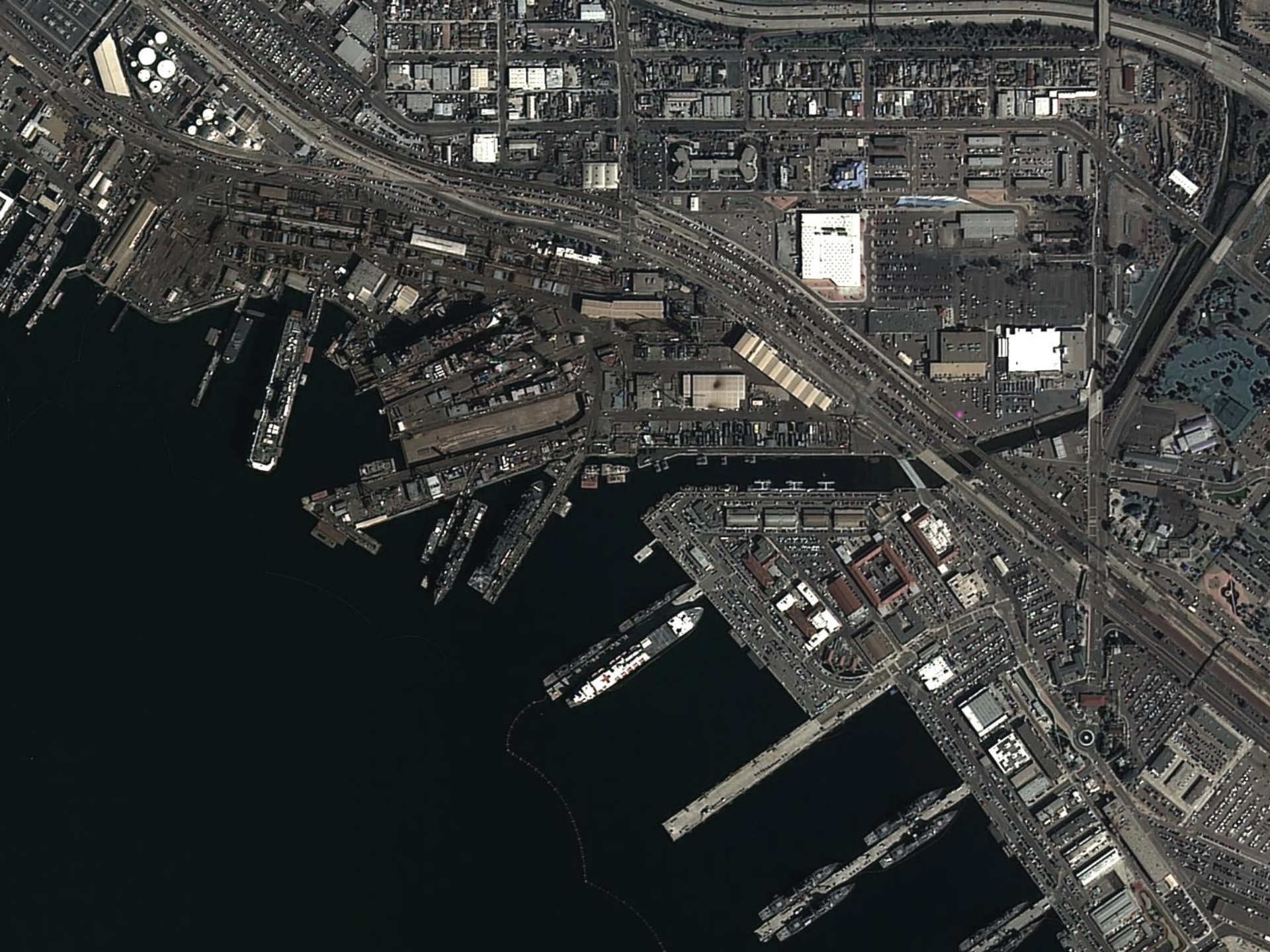


KOMPSAT-5

- Launch in August, 2013
- Radar
- LT: 06:00/18:00
- Spotlight: 1 m (5 km)
- Strip: 3 m (30 km)
- ScanSAR: 20 m (100 km)

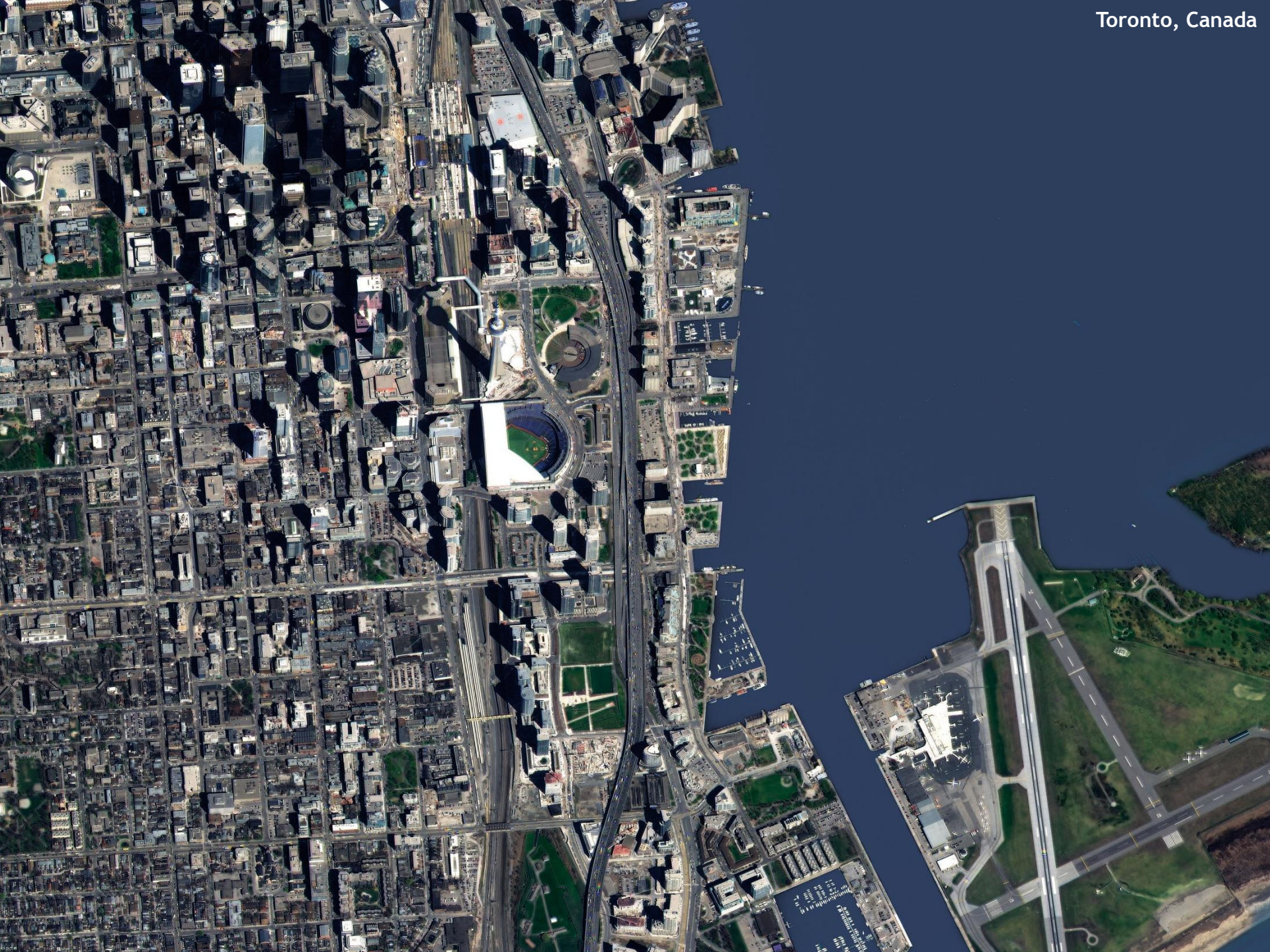

> Sydney, Australia
KOMPSAT-2
Alternate 1m View



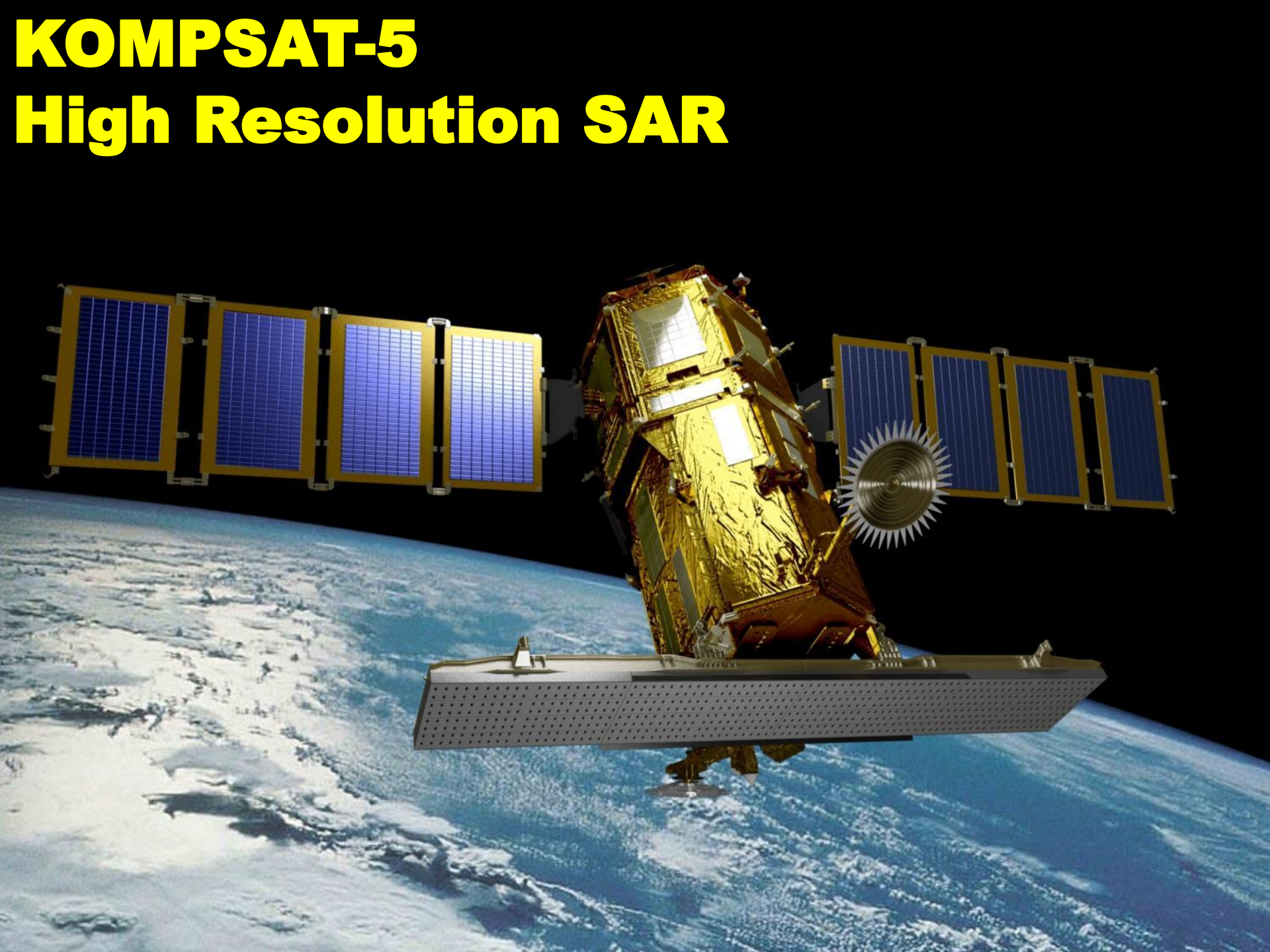



KOMPSAT-3
Sub-meter
in the Afternoon


Sydney, Australia

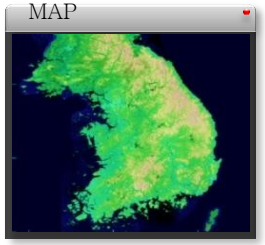

Toronto, Canada

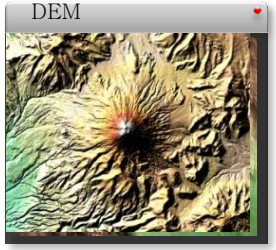
KOMPSAT-5
High Resolution SAR



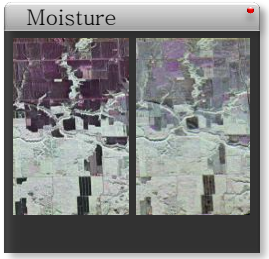
GOLDEN Mission

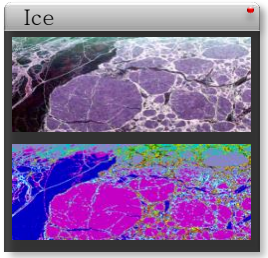
GIS (Geographic Information Systems)

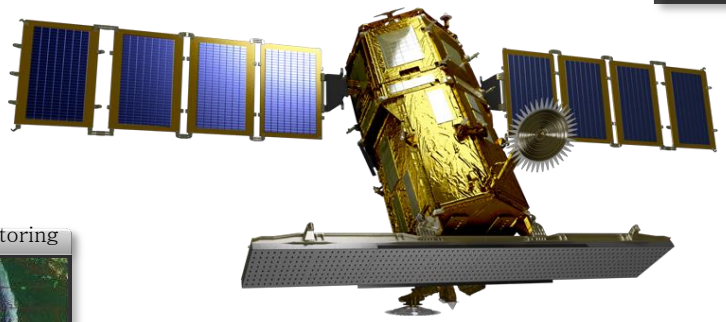




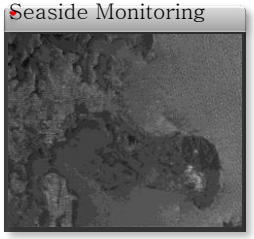
Environment Monitoring

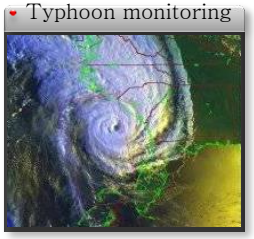






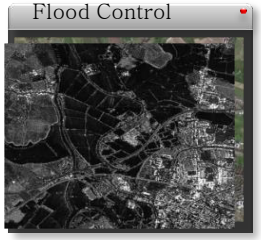
Ocean Monitoring





Disaster Monitoring





Land Monitoring





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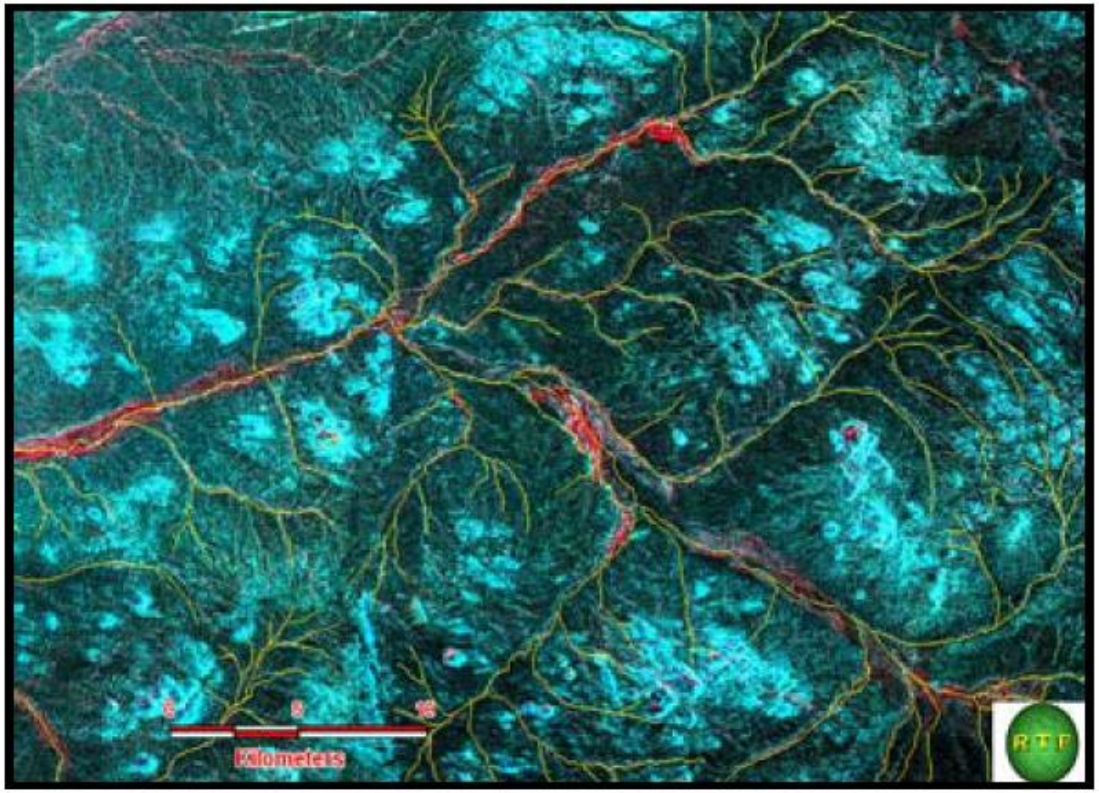
Benefits from Satellite Imagery

Ground Water Exploration

❖ Explore ground water using satellite images



Buried Water Resources (red areas) *(Source: RTF)*

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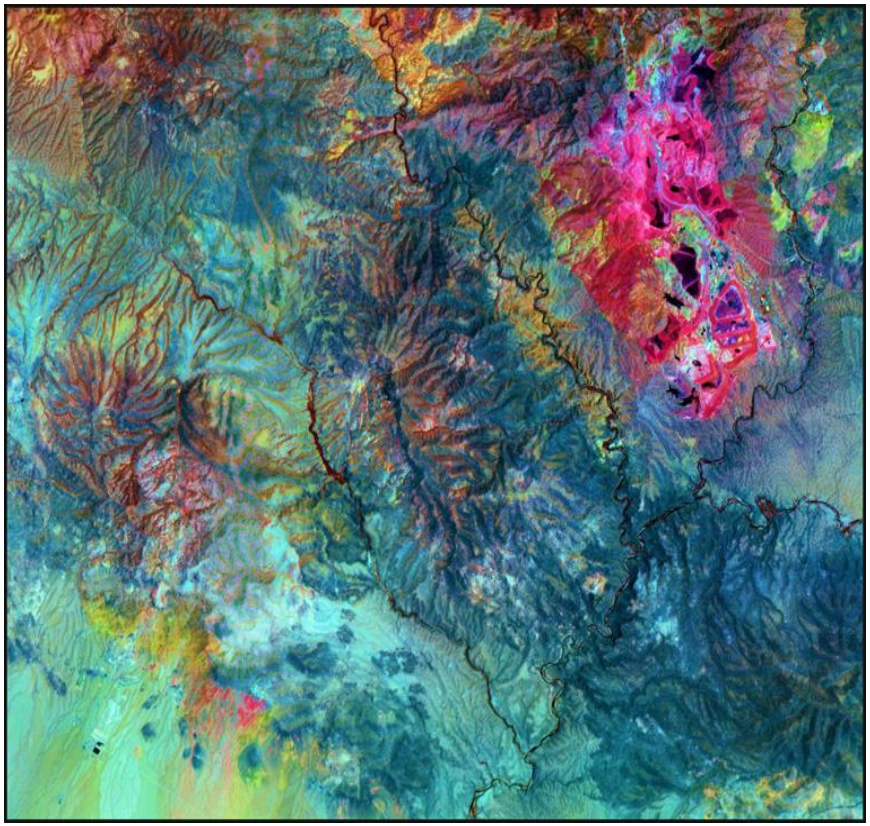
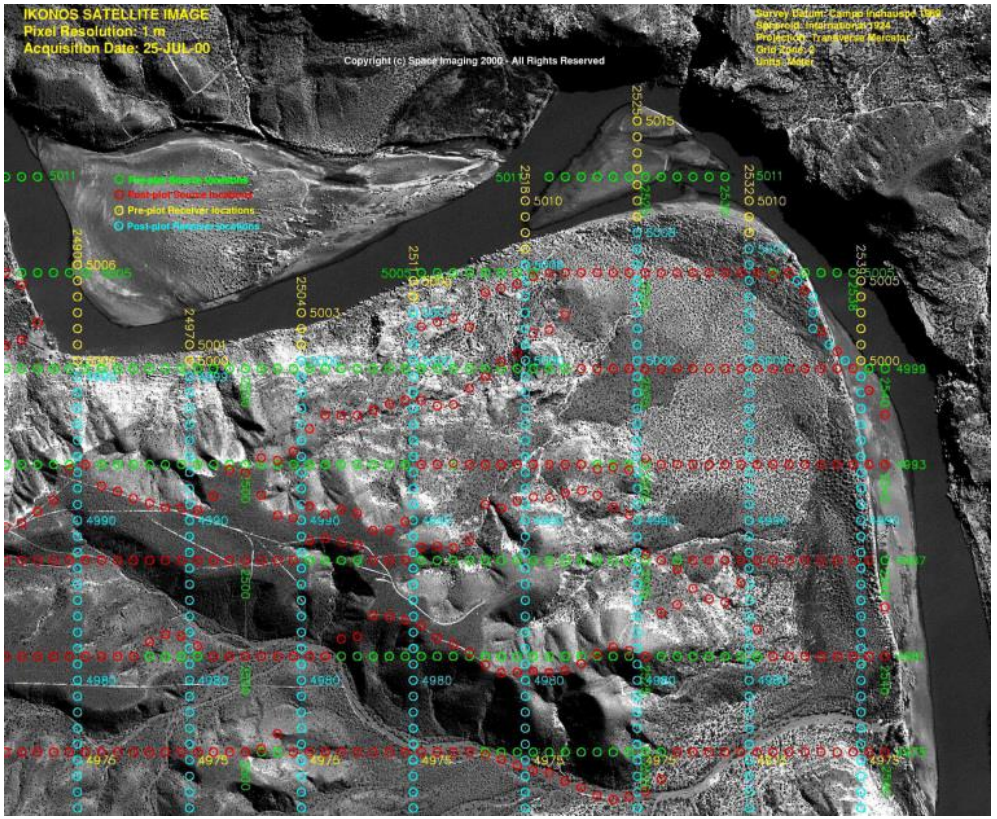
Benefits from Satellite Imagery

Mineral and Oil Exploration

- Explore minerals and oil

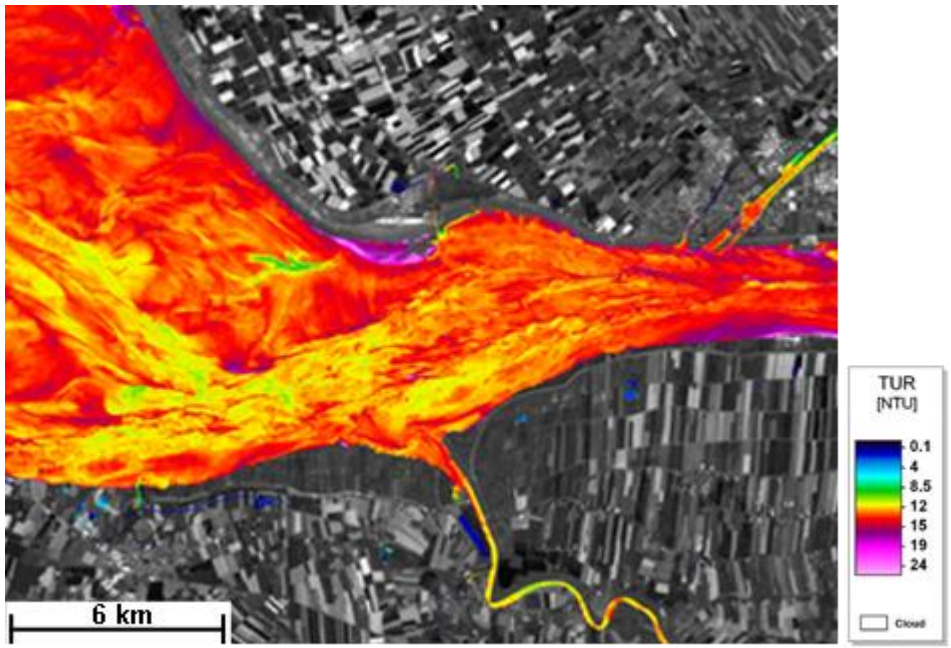




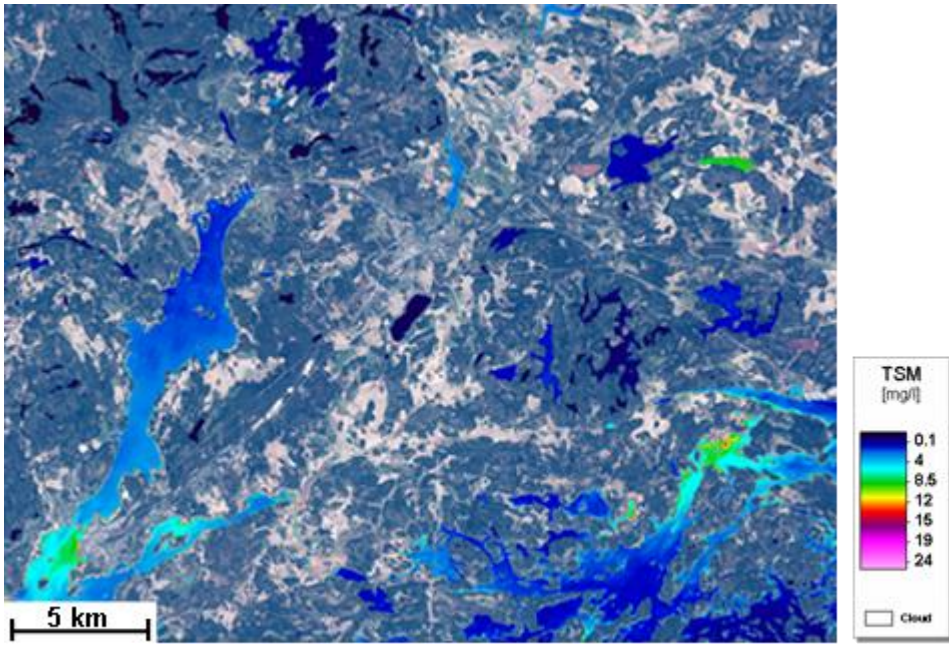
Benefits from Satellite Imagery

Water Quality Monitoring

- Monitors water quality such as turbidity and total suspended matter in river and lake



Turbidity, River Elbe, 02.06.2011 11:39 UTC, Rapid Eye 5 m resolution



Total Suspended Matter, Finnish lakes, Rapid Eye 5m resolution

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Benefits from Satellite Imagery

Border Monitoring

- Monitors border lines



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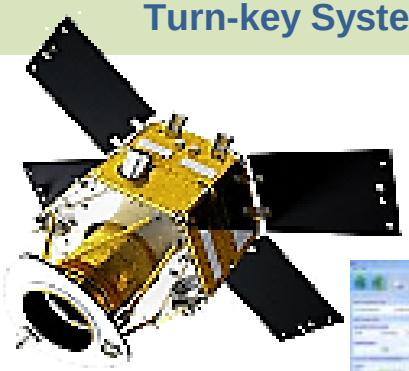
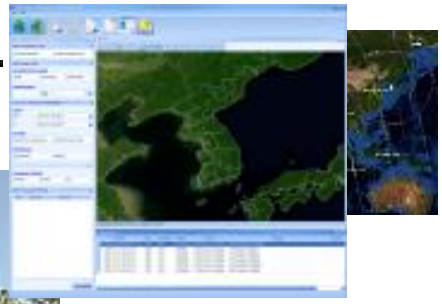
Satrec Initiative Offers

Earth Observation Satellite System

Turn-key System







With training and education

Cost Effective EO Solution with Technology transfer

Satellite Imagery

Direct Access to KOMPSAT Imagery





KOMPSAT Imagery



Cost Effective EO resources

Satrec Initiative Offers #1

- **Satellite images and training**
  - Satellite images
    - KOMPSAT-2, KOMPSAT-3, KOMPSAT-5 and DubaiSat-2
    - Pay per purchase
  - Training
    - General training for remote sensing
    - Applications for security, environment monitoring, etc.
  - Recommended for initiation of remote sensing applications in Chad
  - Can be started in 1st quarter of 2015

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Satrec Initiative Offers #2

❖ Construction of remote sensing center

- Ground station and application center to be built
  - ➢ Antenna and computer systems cost USD 8M-9M
- Direct access to satellite images
  - ➢ KOMPSAT-2, KOMPSAT-3, KOMPSAT-5 and DubaiSat-2
  - ➢ Annually ~ USD 7M
- Training
  - ➢ General training for remote sensing
  - ➢ Operation of ground station
  - ➢ Applications for security, environment monitoring, etc.
- Infrastructure for remote sensing applications and GIS in Chad
- Project can be initiated in 1st quarter of 2015
  - ➢ Project duration: 1 year

Satrec Initiative Offers #3

- **Small satellite solution for Chad**
  - Chad owns its own remote sensing satellite
    - ~300 kg satellite system with high resolution camera
  - Ground station and application center
  - Technology transfer
    - General training for remote sensing
    - Design of small satellite system
    - Operation of ground station
    - Applications for security, environment monitoring, etc.
  - Foundation for independent space technology development
  - Project takes 3 to 4 years
  - Project cost : USD 70M including launch cost

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Contacts

- **Contact person in Satrec Initiative for all matters**

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Skype: moongyukim