

A satellite image of a city grid, showing a dense pattern of streets and buildings, overlaid with a blue gradient.

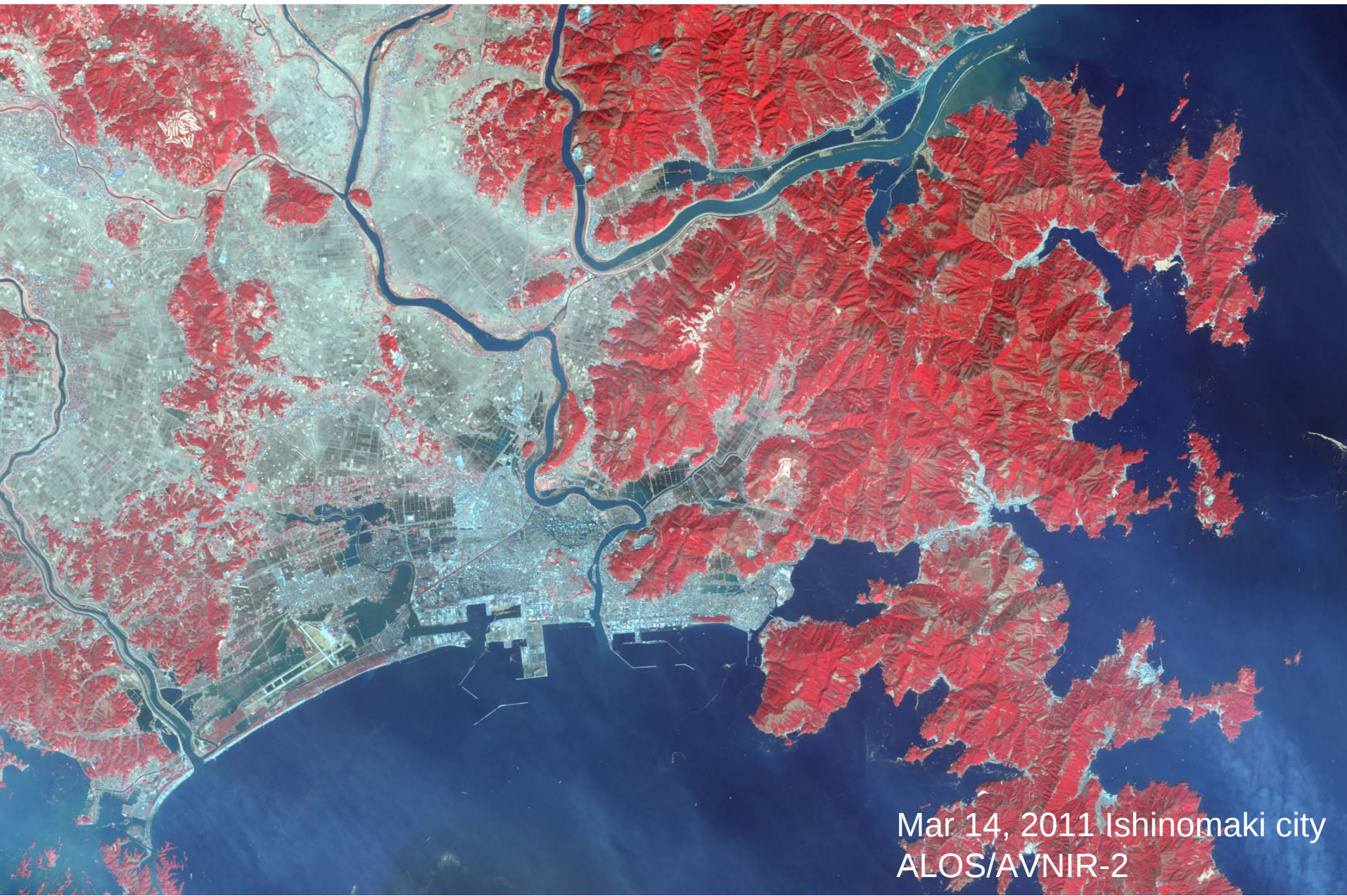
Satellite-based Digital Terrain Mapper

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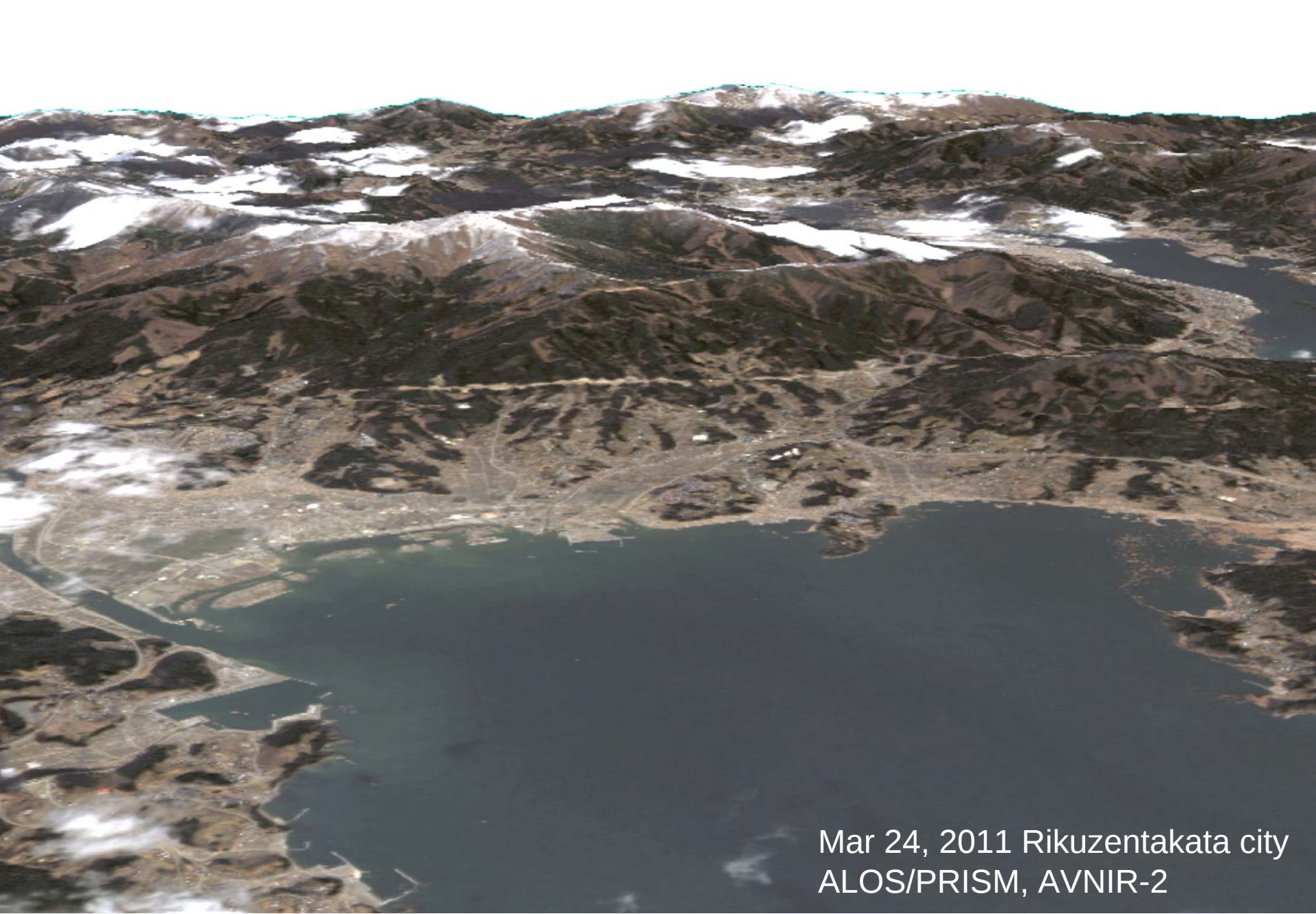
RESTEC

Feb. 21 2012@UNESCAP

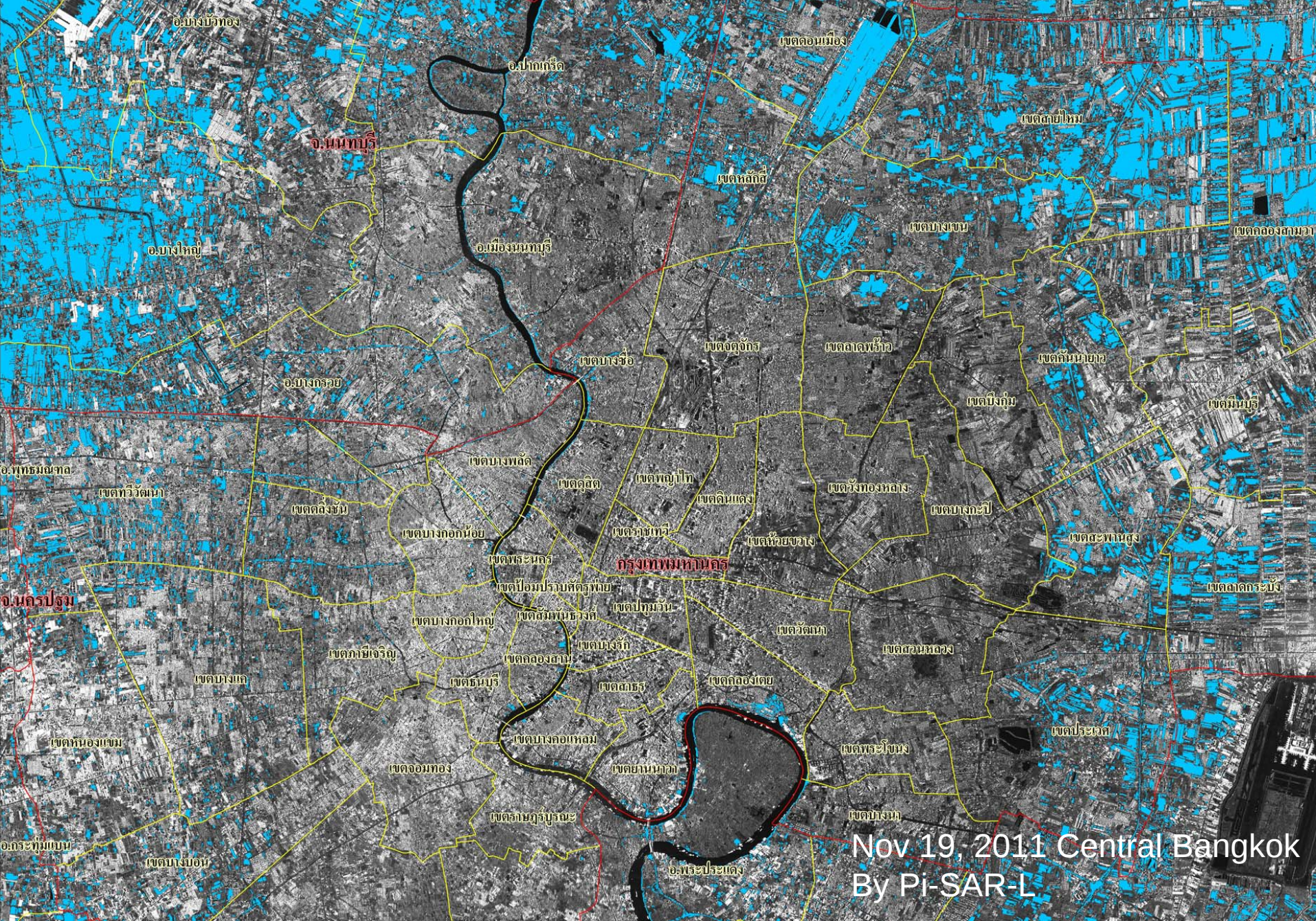
Workshop on Flood Risk Reduction through Space
Application in South-East Asia



Mar 14, 2011 Ishinomaki city
ALOS/AVNIR-2



Mar 24, 2011 Rikuzentakata city
ALOS/PRISM, AVNIR-2



Nov 19, 2011 Central Bangkok
By Pi-SAR-L

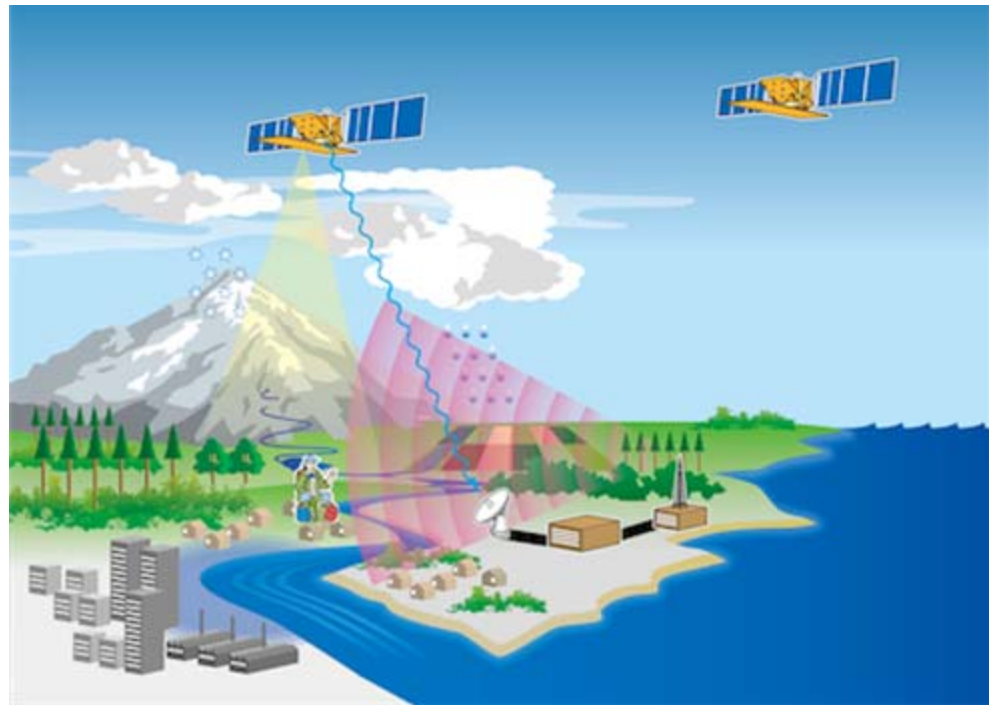
Contents

- What remote sensing can provide?
- Terrain observation from space.
 - Basics of terrain observation.
 - Observation by optical sensor.
 - Example of ALOS/PRISM
- Example of water resource management using remote sensing.
- Summary

What remote sensing can provide?

Satellite remote sensing can provide...

- High frequent observation.
- Wide coverage and high resolution.
- Observation in equivalence quality (objective).



What remote sensing can provide?

The information from remote sensing data will help water resource management ,

- Nowcasting(i.e. inundation monitoring..)
- Forecasting
- Together with prediction model or assimilation.



**Digital Terrain Model
from satellite remote sensing**



Elevation Model (DEM)

Elevation points without any attributes (i.e. may represent the bare earth. No buildings and trees.)

Surface Model (DSM) <our target>

Elevation points representing the surface closest to the sensor (e.g. including buildings and trees as a DEM)

Terrain Model (DTM)

Elevation points representing the terrain. Also called Digital Ground

When using the term DTM, Digital Terrain Model, should be reserved for models of reality which includes information relating to surface features, in addition to information regarding elevation.

Ian Dowman, "Generating Digital Elevation Models from Satellite Imagery",
materials of the special seminar on DEM extractions in JAXA/EORC, Tokyo, 2002.