The Early Results from Landsat and the Prospects for the Future

40th Anniversary of the Landsat Programme and
the Worldwide Evolution of Remote Sensing from Space

6 June 2012
Conference Room M1, Building M
Vienna International Centre

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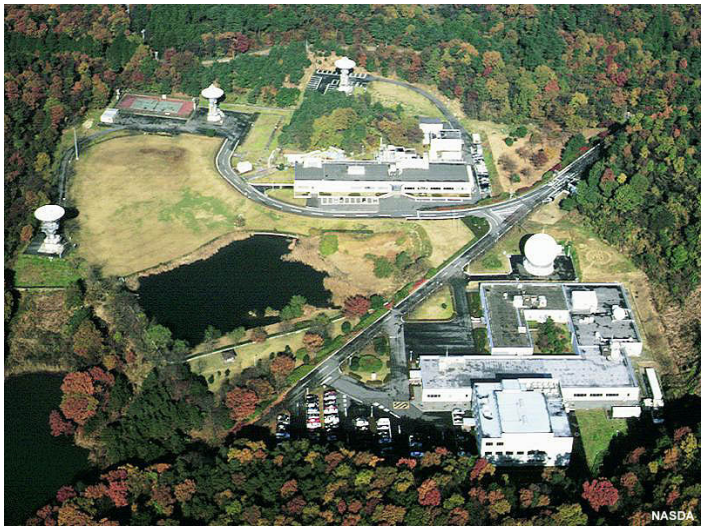
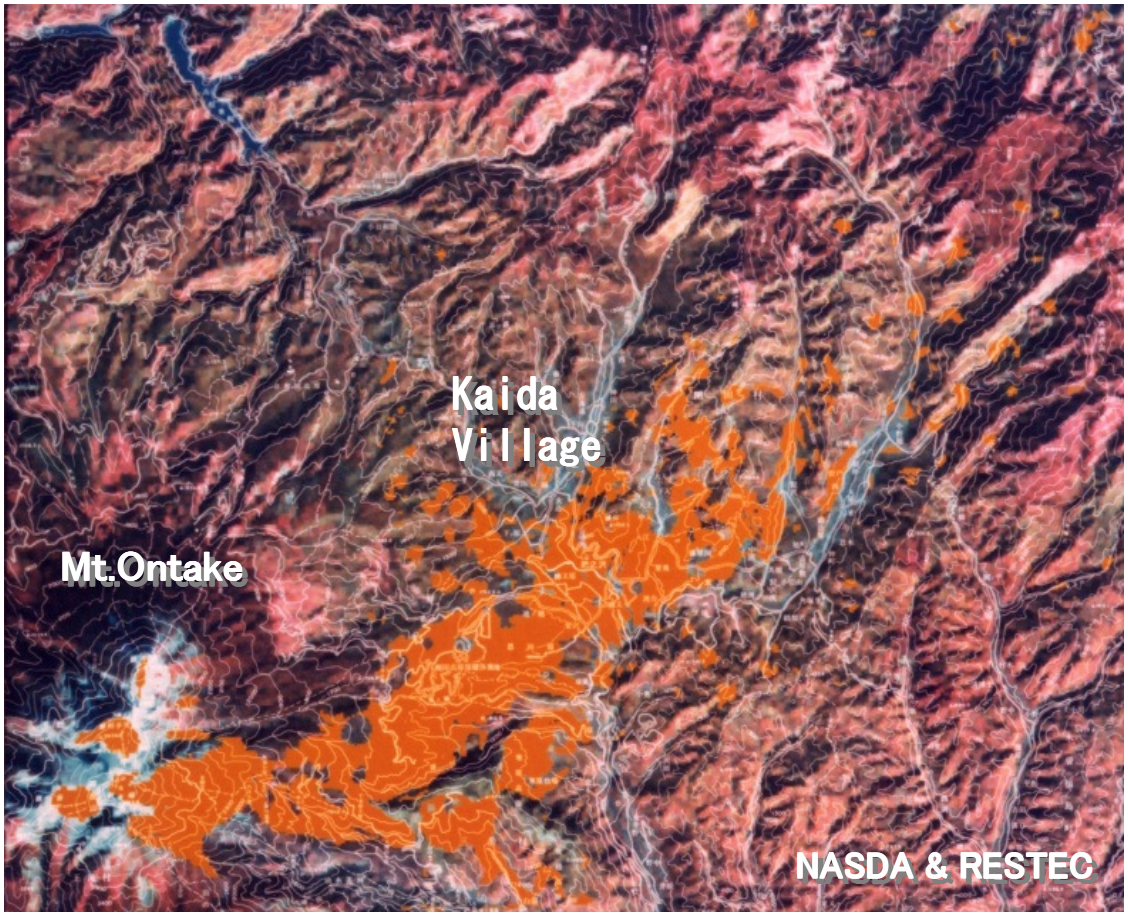
Earth Observation Center, JAXA established on Oct. 1st 1978

- History:
  - Oct. 1978: Establishment of NASDA/ EOC at Hatoyama, Japan as one of the ground stations for Landsat.
  - Jan. 1979: Landsat-2, the first EO satellite remote sensing data direct reception, processing archiving and distribution for comprehensive users.



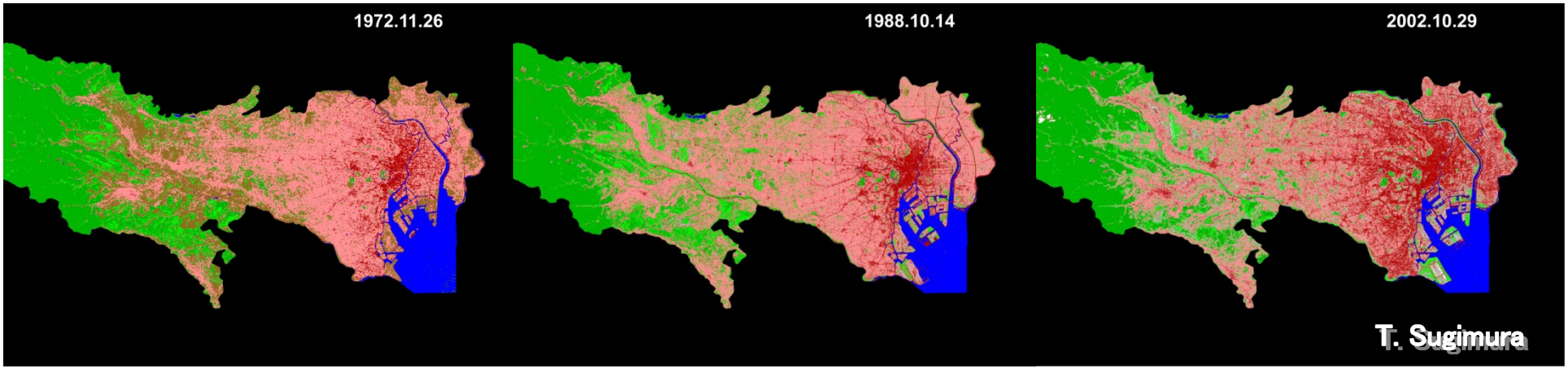
- At Present:
  - JAXA/EOC has been continuing operation of EO satellites since 1978; Landsat series, SPOT series, MOS-1/1b, ERS-1/2, JERS-1, ADEOS, TRMM/PR, EOS-Aqua/AMSR-E, ADEOS-II, EOS/MODIS, ALOS, GOSAT, GCOM-W1.
  - Landsat archive data is typical accessible EO data set from GEOSS.
- Future EOS provided by Japan:
  - ALOS-2, GPM with NASA/DPR, GCOM-C1, EarthCARE with ESA/CPR, ALOS-3, GOSAT-2 .

First Observation of Volcanic Ash from Mt. Ontake erupted on 28 October 1979

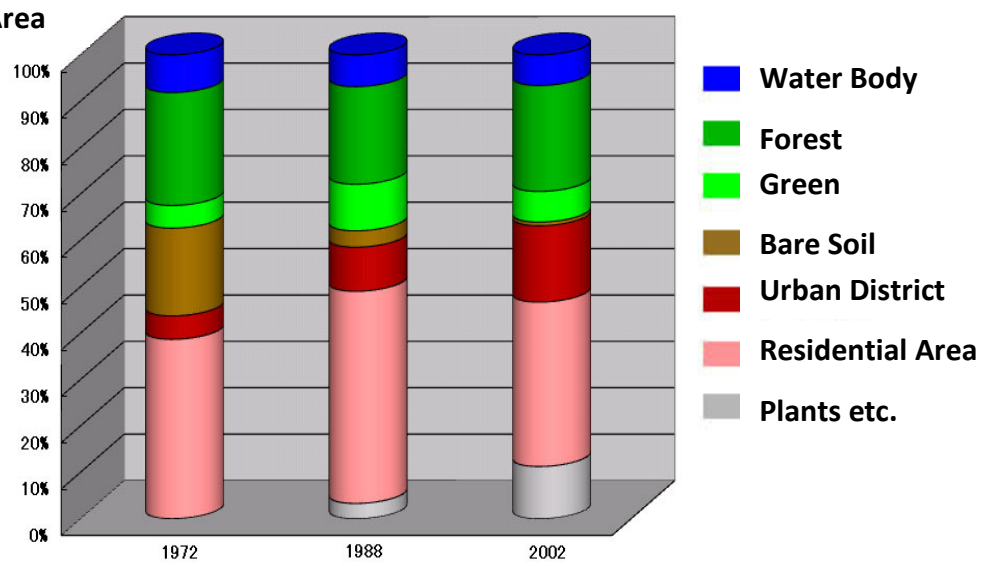


- Before: Landsat-3/MSS image on 23 October
- After: Landsat-2/MSS image on 1 November
- Estimated ash distribution: 200km, depth: 1 to 3mm, total mass: >200 kton

Urban Renewal in 1972-2002 Capital Tokyo



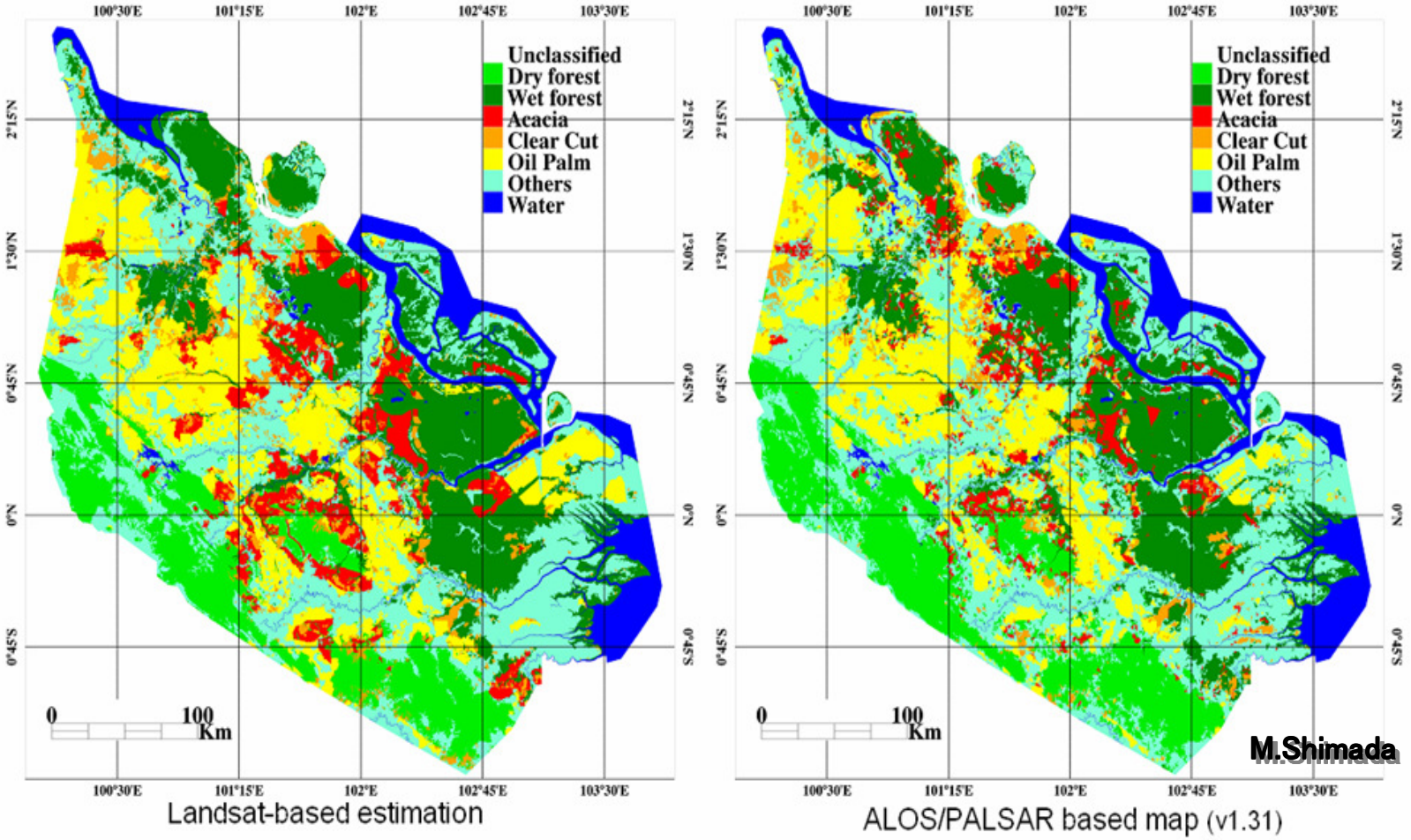
- To solve Civic Problems
  - Transportation network system to rink satellite cities
  - Heat island, air pollution, public health and sanitation
  - Utilization of garbage for reclaimed ground



Inter-satellite Validation of Forest Map

Land Cover Estimation at 50m in Riau, Indonesia using Landsat with in-situ data

- Size: 102 178 km²
- Accuracy 28.579.923 / 40.871.201 pix. (69.9 %)



Expectations for Landsat Data Continuity Mission

- Archived and up-to-date data sets reanalysis will improve climate change models, reducing uncertainty in natural and anthropogenic forcing factors.
- Time series geospatial data analysis will distinguish global change impacts of long term trend and disturbance from static change, in regional biophysical environment and national forest inventory.
- Costal zone monitoring using narrower VNIR bands with practical atmospheric correction will provide information on water quality, phytoplankton, water-borne diseases.
- Mega-cities urban environment measured by VNIR and TIR bands will provide information on air pollution, heat waves relating to public health and sanitation.
- Higher data products of water, agriculture, fishery, disaster and sanitation will provide information of directly affecting risks to Life on Earth.
- Global habitability promotion will be realized by international collaboration on the data interoperability.