P-DAN Report
University of Tokyo (UT), Japan

4th Joint Project Team Meeting for Sentinel Asia STEP3

The University of Tokyo, Japan
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Our Targets—More Social Impacts

• More usable information to be delivered in a timely manner
  1. Deliver more satellite images to society in disasters.
  2. Deliver more value added products (VAPs) in disasters.
  3. Help better informed decision making by organizations/people.
  4. Achieve less damages, smoother recovery, and more resilience.

• More institutions, experts and citizens to participate.
  1. Promote how useful space technologies are \( \leftarrow \) Lectures
  2. Share how to use space technologies \( \leftarrow \) Lectures
  3. Demonstrate how benefit from space technologies \( \leftarrow \) tools & platforms
  4. Operate space technology for disaster risk management
1. Establishment of University Data Analysis Network (UDAN)

• Establishment of University Data Analysis Network (UDAN) in Asia, data analysis network based on:
  • University networks and
  • Young researchers

→”Special sessions of SA” in international conferences to share achievements and to nurture a community.
Potential networks for UDAN

University Data Analysis Network (UDAN)
- University of Tokyo, Yamaguchi University, JPN
- Asian Institute of Technology, THA
- Chulalongkorn University, THA
- Indian Institutes of Technology (IIT) Kanpur, IND
- University of the Philippines, PHL
- Institut Teknologi Bandung (ITB), IDN
- Hanoi University of Science and Technology, VIE
- Yangon Technological University (YTU), MYA
- etc...

Local Disaster Agency

In-situ Obs. Data

International Organization

Space Agency

Local Government Agency
University CORS* Network Activity
*Continuously Operating Reference Stations (CORS)

Chulalongkorn University, Bangkok

University of The Philippines, Manila

National University of Laos

University of Indonesia, Jakarta

http://gestiss.org/en/
Joint Experiment and Training

UAV Experiment with Low-cost GNSS

Bus route monitoring

Precise DEM construction

Workshop for students

UAV Experiment for precise mapping
2. Capacity Building with Academia

• Capacity building organized by UDAN
  • For each country (government agencies etc.)
  • For international community (e.g. GIC/AIT)
• Capacity building of skills and knowledge provided by UDAN and partners.
• Development of e-learning material.
Common Teaching Materials shared in UDAN

- Basics of remote sensing & space technology
- Data analysis for disaster risk management
- Sharing new Technologies

Regular lectures for students

Equipped with skills and knowledge for disaster risk management

Human resource development for the future

Capacity building for government agencies

SA member Disaster Management Agency

University Students
3. Collaboration with OSM (OpenStreetMap)

- Collaboration with OSM in response phases.
- Sentinel Asia for damage area detection and OSM for base-GIS map.
- Preparation of base-GIS Data set by OSM.
Identification of Affected Buildings and Infrastructure

Precise GIS data in Pre-disaster

Precise GIS data For Preparedness Phase

Hazard areas in Post-disaster
4. Advanced Research Projects

- Utilization of Micro-Satellite Data.
- Utilization of SAR Data from Micro-Satellite
- Automated landslide detection by deep learning.
- Automated building detection.
Nightmare of growing data...

East Japan Great Earthquake 2011 (5500 Scenes)
Thailand Flood 2011 (1500 Scenes),
Nepal Earthquake 2015 (more than 8000 Scenes)

Which data is good for me!?

Solution by Automation!!
Utilization of Micro Satellites

Micro SAR Satellites

Deep learning

Automated damage detection

Data Standardization & Open Source Software

OGC

GIS

GeoServer

OpenLayers 3.0

OpenStreetMap

PostGIS
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