

2nd JPTM for Sentinel Asia STEP3



21 November 2014, Yangon, Myanmar

Sentinel Asia STEP3, Joint Project Team

The 2nd Joint Project Team Meeting (JPTM) for Sentinel Asia STEP-3 jointly organized by the Myanmar Earthquake Committee(MEC) and JAXA, successfully concluded on 21 November 2014 with several achievements ;

➢Number of Participants : 45 persons (12 countries and region)

Number of Organization : 29 organizations (inc. 7 international organizations)

Mr. Takehisa Chiba of JAXA (JPT Secretariat) reported status of Sentinel Asia as follows:

(1) Sentinel Asia transferred to Step3 from January 2013, and the 2nd version of "Sentinel Asia Step3 Implementation Plan (IP)" was established in April 2014.

(2) Concerning support for all disaster management cycle (pre-disaster, response, and recovery phase) in Step3, JAXA expressed that JAXA would support this within a certain limit of ALOS-2 data in addition to archive data, under condition that other DP members support this.

(3) As a new activity, Emergency Observation (EO) Success Story by JAXA/AIT Mini-Project in Sri Lanka, the Philippines, Bangladesh, and Myanmar from 2013 and Indonesia and Viet Nam from 2014 was introduced.

(4) JAXA proposed to establish a Steering Committe for strategic and long term implementation of Sentinel Asia activities much more as "Sentinel Asia Evolution".

Joint Project Team (JPT) members welcomed new participation from following organizations and they explained their background and future contribution to the Sentinel Asia.

(1).NCDM: Mr. Phlang Ponley Rath, NCDM Cambodia Introduced that MCDM become a sentinel Asia new member.

(2). ADPC: Anggraini Dewi of ADPC explains Geo-science application.

To better prepare government agencies, cities and communities for unexpected hazards, ADPC offers a wide range of services in the field of geo-science application and technology for disaster risk management, particularly in disaster risk assessment monitoring. These services range from building the capacities of national agencies and universities to undertaking risk assessments at various levels using a multi-disciplinary team of specialists and GIS/RS technologies for data analysis. ADPC's services focus on, but are not limited to: continue next page

2.3 Introduction of New Members

(2). cont 'd

- Hazard assessments
- Development of spatial database of buildings and infrastructures
- Vulnerability field surveys
- Derivation of risk indices for cities and provinces
- Damage estimation of hypothetical event scenarios
- Risk assessments at local, city, sub-national, and national levels

- Training on risk assessment and its applications, including on the use of GIS and Remote Sensing

•ADPC has been working in these sectors in several countries including Bangladesh, Cambodia, Indonesia, Lao PDR, Myanmar, Nepal, Pakistan, the Philippines, Sri Lanka, Timor-Leste, and Vietnam.

•ADPC is looking forward to having collaborations with Sentinel Asia and providing active contributions to the disaster risk reduction efforts through geo-science and application and technology.

2.3 Introduction of New Members

(3).Tohoku Univ: Shunichi Koshimura introduced their research on tsunami disaster mitigation, In the bringing together state-of-the-art disaster science, high-performance computing, remote sensing and spatial information sciences, Prof. Koshimura's team tackles the critical problems in disaster response and recovery to identify the impact of tsunami disaster. Especially, a semi-automated method to estimate building damage in a tsunami affected area is developed using pre- and post-event high-resolution synthetic aperture radar data. The method is verified through the case studies in the 2011 Tohoku and other recent catastrophic events to be implemented in the activity of Sentinel Asia's Data Analysis Node.

2.4 Overview of Emergency Observation

Mr Nakao of ADRC reported the present situation of emergency observation. The points are as follows.

- Average of request number is almost 20-40 times/year.

- Among requests, Sentinel Asia is carried out at 80%, and action post the disaster is carried out at 80% of those.

- From request to *activation time is almost in one day
- -*activation time: trigger of Sentinel Asia
- From request to archive delivery is almost in 3 days
- From request to post image delivery, it takes average of 9 days
- From request to product delivery, it takes average of 21 days

2.5/6 Node Report (1/4)

There were 2 kinds of node report such as "Data Provider Node Report" and "Data Analysis Node Report", have reported as follows;

➢Data Provider Node

(1) JAXA: Mr. Kengo Aizawa of JAXA reported ALOS-2 status and introduced some of ALOS-2 examples. Also reported KIBO operation status.

(2) NARL: Mr.Bo Chen of NARL give an overview of NARLabs and introduce their satellite programs. Then focus on how they support step-3 activities. The success way of providing support suggests it may be a good approach and can be extended to other areas.

(3) GISTDA: Ms Rio Tanabe of JAXA explained that due to current serious drought situation in Thailand, GISTDA submitted the short report for the JPTM2014. Sentinel Asia Secretariat reported GISTDA's activity update since last JPTM and record of emergency observation.

Data Analysis Node

(1) AIT: Dr. Manzul of AIT introduced DAN activity and survey results of DAN and DPN, AIT also introduced procedure to create products and format of products , IDC escalation cases are increasing , therefore PM role is important. AIT explained scenario of sentinel Asia Activation and explained how to expand DAN activities.

2.5 / 2.6 Node Report (3/4)

(2)MO: Dr. May Celine T.M. Vicente of MO From 1980-2010 and in the international context, the Philippines ranked among the highest in terms of exposure and vulnerability to tropical cyclones (TC) and associated disasters. Nevertheless, downstream disaster management and monitoring are implemented through the 2011-2028 DRRM Plan, whose mandate lies with the National Disaster Risk Reduction and Management Council and its associated agencies. The Manila Observatory (MO) has five research Programs that are responsive to this, namely: Urban Air Quality (UAQ), Regional Climate Systems (RCS), Climate Change Assistance (CCA), Geomatics for Environment and Development (GED), Solid Earth Dynamics (SED), Iono-Geomagnetics (IG) as well as Instrumentation and Technology Development (ITD). Aligned with Sentinel Asia, institutional protocols have enabled emergency observation (EO) for the following: TC Bopha/ Pablo (4 Dec 2012), SWM-enhanced TC Trami/ Maring (19 August 2013), TC Haiyan/ Yolanda (8 Nov 2013). Future plans of MO include the MO 2015 Geoportal on the occasion of its 150th Anniversary, risk and resilience policy research, CCA-DRRM mainstreaming in policy and governance, strengthening teaching and research laboratories and networks of ground-based sensors such as rainfall monitoring systems, more institutional networking and linkaging as well as improving access to satellite imageries and regional climate models/ scenarios.

(3) LAPAN: Ms. Parwati Sofan, LAPAN has reported the status of research activities in remote sensing application for disaster management which consist of preparedness stage (early warning system and hazard mapping), emergency response, and post disaster analysis. For some case of emergency response, LAPAN has utilized the UAV technology to have free cloud cover image, such as Merapi Volcano's dome and Flood in Jakarta. LAPAN also has conducted some data analysis for EOR in 2013-21014 i.e., The Volcano Eruption of Sinabung Mount in North of Sumatera, and as a Project Manager for Kelud Volcano Eruption in International Charter.

2.7 Special Report

(1) VAST: Mr. LAI ANH KHOH of VAST introduced the Vietnam Natural Resources, Environment and Disaster Monitoring Satellite VNREDSat –1, launched on May 7, 2013. After one and half year in orbit, it acquired more than 28000 scenes including both PAN and MS images, half of them are inside and another half are outside Vietnam territory and located mostly in ASEAN countries. It made also some emergency acquisitions in case of some serious hazards (typhoon and flood) in the region. The report gives an overall description of the VNREDSat – 1 project, summarizes the operation of the satellite during over one year in orbit, names some applications of VNREDSat – 1 data in different fields and concludes with some important outcomes of the project.

2.8 Local Organization Report (1/2)

There were 3 local organization / body have reported related with Sentinel Asia as follows;

- (1) DMH: Dr Lai Lai Aung presented about the activities of DMH.
 - The presentation points are as follows
- about the numbers metrological, hydrogical and seismological stations in Myanmar.
- current satellite receiving MT-SAT and FY2 system and SATAID software for analyzing storm, clouds, and rainfall 3days forecast with it.
- current early warning dissemination system
- about forecast, bulletining and warning issues by DMH.
- about past storms and probability to cross Myanmar coast.
- Current tsunami exercise ,Public awareness and education for natural disaster and installation of Rader and Awos system.
- present natural disaster in Myanmar.

(2) MEC: Ms Hla Hla Aung of MEC presented "Remote Sensing Application for Seismic Hazard Assessment in Myanmar"

In seismic hazard assessment, geological investigations, interpretation of tectonic geomorphic landforms using remote sensing application are very important for locating damaging earthquake in the future. Satellite data can detect these landforms very effectively. In which, InSAR data can give precise and more detailed mapping of large-scale earthquake area.

(3) MTU: Prof. Kyou ton of Myanmar Technology University presented their activities. The presentation points are as follows.

- Myanmar has experienced many type of geologic hazards
- geometrogicsl and tectonic back ground of Myanmar
- Locations of landslide events occurred in Myanmar
- The causes of landslide events in Myanmar
- Historical Landslide events in Myanmar
- the activities to mitigate the landslide remarks.
- the Methods to prevent the occurrence of landslide.

2.9 International Organization Report (1/1)

There were 3 international organization / body have reported related with Sentinel Asia as follows;

(1) Disaster Charter: Mr. Chiba of JAXA explained how to activate the Charter via Sentinel Asia and a new scheme as universal access .

(2) ADPC: Mr. Kittiphong Phongsapan, ADPC introduced organization, history, and mission. And explain Disaster Risk Assessment and Monitoring. To support DRR adopting science approach. ADPC also shows strong interest to contribute Sentinel Asia, and to be involved further discussion.

(3) UNOCHA : Nu Kyang, UN/OCHA introduced their organization and functions. Also introduced some of disaster case of supported and explained how they prepare satellite image and process them.

(1) JAXA: Ms. Rio Tanabe of JAXA introduced JAXA's updated GSMaP in GPM version which was released in Sept 2014 and its evaluation activities. And also introduced demonstration project of flood and drought warning using GSMaP. Mr. Muraki of ADB noted that utilization of GSMaP is not easy for users and suggested to JAXA to provide application software for more accessible dataset. JAXA commented that GSMaP's potential for local use were demonstrated through ADB/UNESCO flood/drought projects and is ready to consider to develop the user friendly application software for GSMaP.

(2) JAXA: Ms. Sachko Hozawa of JAXA explains The WINDS satellite has a capability of providing high data rate communication links in the Asia-Pacific region with its MBA and APAA. The ground terminals of the WINDS satellite have been installed and now are under operating about once per week in the 10 Asian countries. JAXA will continue to support the communication for some emergency cases. The result of WINDS data transmission is summarized to provide feedback for future Sentinel Asia activities and future communication satellites.

(3) Discussion how to enhance using multiple satellite

JAXA : Mr. Kengo Aizawa as for the secretariat of Sentinel Asia, reported status of renewal of Sentinel Asia server. and also reported result of experiment of communications. To share the information, JAXA propose it requires two of system ,one for general information to public ,another is for detail information to Sentinel Asia member. Members will comment to JAXA until end of Dec.

JAXA :Mr. Takeisha Chiba, JPT Secretariat, reported the Task Force activities which was recommended by JAXA/CSIRO at the JPTM 2014. Through the discussions, establishment of a Steering Committee to deal with strategic matters and to formulate the long term plan of Sentinel Asia activities was recommended. This proposal was endorsed by JPT members.

4.3 Collaboration with Other Initiatives (1/1)

- (1) JAXA: Ms. Rio Tanabe of JAXA explained Sentinel Asia Secretariat reported Sentinel Asia activities toward the 3rd World Conference on Disaster Risk Reduction (WCDRR) and Post HFA, which is one of action items from JPTM2013. JAXA coordinated with ADRC to prepare the report titled "Achievements of the SA in the HFA and recommendation for the post HFA" and submitted to the related events and Post HFA drafting team.
- (2) UNESCAP: Mr. Ito of UNESCAP introduced organization and role. And ESCAP explained Strategy of regional cooperation to broaden and deepen the contribution of space and GIS to address issues related to disaster risk reduction and management, environment and development by increasing relevant activities at the national, sub-regional and regional levels.
- (3) ADB: Mr. Yusuke Muraki of ADB introduced their organization and structure. Mr. Muraki also introduced flood prediction management project, post disaster needs assessment in the case of typhoon Yolanda. Mr. Muraki expresses Quick Satellite information provision is pretty important. Mr. Muraki proposed the necessity of based-GIS should be provided by DPN to enhance developing products by DAN and also expand the number of DAN. Mr. Muraki expressed ADB will contribute to strengthen the work of Sentinel Asia.

(1) JAXA: Ms. Rio Tanabe of JAXA presented the Sentinel Asia success story and capacity development activities. JAXA conducted the several type of capacity development related to the Sentinel Asia to support SA utilization in the member countries. Dr. Deo Raj of ICIMOD asked whether the target for mini project is limited to the national level and JAXA responded that it's not limited for national level and advised to ask for JAXA.

(1) AIT: Dr. Manzul of AIT introduced how to estimate risks and explained how to create hazard maps. AIT performs Mini-Project in 4 countries and showed implementation plan.

(2) NARL: Mr.Bo Chen of NARL give an introduction of the Taiwanese experience on predisaster monitoring. Then point out the key is to set a SOP during crisis. ICT technology is only the tool.

6.1 Overall Activity of Working Group

 SPARCO :Mr.Wazir Khan of SPARCO proposed landslide and earthquake WG. It requires Some of resources like experts, data, software so on. SA office request all participants to comments/propose for the WG. SA office will support the WG by steering committee.

6.2 / 6.3 / 6.4 Working Group Report (1/5)

(1)Flood Monitoring Working Group

•Mr. Yoichi Iwami with ICHARM from Japan, a chairperson of Flood WG, introduced the activities of Flood WG from the beginning (Step1&2) up to now (Step3) including ICHARM contribution. The activities range from rainfall monitoring and flood forecasting to flood detection and situation analysis. In the Step 3, flood early warning systems which can use satellite rainfall observation have much progressed in some Asian countries as an operational system. He also suggested satellite rainfall observation system should contribute to monitoring of global climate change.

•Mr. Yusuke Mukai from ADB made a presentation on ADB activities including the on- going regional technical assistant projects in Bangladesh, Viet Nam and the Philippines to apply satellite-based rainfall data, GSMaP to flood models in each country. The system introduced under the project includes the GSMaP calibration system using ground-based rain gauges and SMS based flood warning dissemination system. He introduced the evacuation drill conducted in the pilot areas of Bangladesh, which involved local people to understand the flood forecasting information sent through the SMS system.

6.2 / 6.3 / 6.4 Working Group Report (2/5)

(1)Flood Monitoring Working Group

•Ms. Lai Lai Win, Deputy Superintendent of DMH, Myanmar presented the status of flood forecasting in Myanmar and challenges of using limited ground gauged data and satellite based rainfall data. In this regard, she mentioned that applying IFAS Model using insufficient ground gauges or satellite observation data without calibration has not so far got accurate results for flood forecasting operation in DMH. It is also difficult to download data from internet in the country.

•In the discussion of this session, there were many questions and comments in terms of selecting models, parameter tuning by limited local data, GFAS utilization and dissemination measures of useful information to local people.

6.2 / 6.3 / 6.4 Working Group Report (3/5)

(2) Wildfire Working Group

• Dr Nakau of Hokkaido University New Sensors ALOS-2/CIRC and UNIFORM/BOL, launched in May 2014, begun to monitor wildfires. Wildfire WG would like to collaborate with countries suffered from wildfires. Also, importance of reduction in fire ignition was emphasized and new fire risk indices are discussed.

•Dr Haruyoshi Katayama of JAXA explained CIRC. CIRC is a compact infrared camera to observe wildfire, volcanoes, and heat island phenomena. CIRC onboard ALOS-2 was launched in May 24, 2014. CIRC onboard ISS(JEM/CALET) will be launched in 2015. ALOS-2/CIRC shows its ability to detect wildfires. Calibration and validation of ALOS-2/CIRC is ongoing. ALOS-2/CIRC data will be available to the public this December.

6.2 / 6.3 / 6.4 Working Group Report (4/5)

(3) GLOF monitoring Working Group

•Prof. Hiromichi Fukui of Chubu University introduced background and objectives of GLOF-WG. and explained relations between global warming and Glacial lake expansion. He suggested following activities for SA step3

- Regular mapping and monitoring by Satellite image (ALOS2, etc.) and Field work
- Information Sharing by Cloud GIS
 - Glacial Lake Inventory by the end of 2014fy
 - Hazard and Risk Mapping by the end of 2015fy
- Mitigation and Adaptation: Early Warning System
 - Case study on some lakes by the end of 2015fy
- Regional and Global cooperation
 - South South cooperation (Andean-Himalayas) by the end of 2016fy

6.2 / 6.3 / 6.4 Working Group Report (5/5)

(3) GLOF monitoring Working Group

• Dr. DeoRaj of ICIMOD introduced issues of Himaraya region. and explains disaster management options/alternatives, role of earth observation in Disaster Management framework. Lastly proposed following items for SA step3.

- Develop inventory of glacial lakes every 5 years using ALOS data set;

- Regular monitoring – 2 or 3 glacial lakes using monthly satellite images – ICIMOD will lead;

- Develop field based monitoring system;

7. Emergency Response (1/2)

- (1) ADRC: Mr. Nakao of ADRC, explained the analysis of user feedback from the questionnaire of each activation. points are as follows.
 - Response Time is almost satisfied
 - Quality of provided data is almost satisfied

- More than half of respondents make a map of the thematic map or disaster area map with provided satellite image.

(2) Discussion : how to enforce the DAN activity

SA secretariat explains typical activity of DAN in case of SA activation.

Most of cases, AIT as P-DAN works to create products. SA prefer to take part in more DANs for analysis. AIT commented as follows.

Sentinel Asia DAN activities can be strengthen by adding a management mechanism in time of disaster to coordinate the activities between DPN, DAN and end users.

- This will enable effective utilization of satellite data by DAN members avoiding duplication of map products using the same satellite data.
- This will ensure the value added products will reach the end user.
- This will also help build communication among the DAN member and identify individual DAN's strengths.

-This will also help to get better feedback from end user to better support Sentinel Asia activates.

7. Emergency Response (2/2)

(2) Discussion how to enforce the DAN activity (cont'ed)

Second comment is to get the national disaster management agencies who are JPTM members to get involved in Sentinel Asia activates by keeping JPTM member active and updated.

- Supply member with newsletter of Sentinel Asia activates (every six month)

- Provide technical e- leaflet/poster (which can be hanged on department) on how to utilize the Sentinel Asia affectively.

- Requested the JPTM member to provide information on current system in placed in their country to disseminate value added products provided by Sentinel Asia. (This will enable Sentinel Asia build a profile of each JPTM member countries to better dissimilate the value added products to the local authorities.

Third comment is to adopt a interactive, dynamic webGIS platform to deliver value added products to the end user. This platform should support end user to interact with the maps as well as use it a communication platform. (e.g online digitization to mark important location on the map)

Member report, the success story using the space data and the issues of Recovery phase

(1) MONRE: Ms. Virany, of Remote Sensing Center (RSC), Natural Resources and Environment Institute under Ministry of Natural Resources and Environment (MONRE) presented information about the activities of MONRE and various space related activities in disaster monitoring and Sentinel Asia activities in Lao PDR. RSC would like to continue support the Sentinel Asia STEP3 and promotion related to the utilization of space for disaster reduction.

(2) MARD: Mr. Bui Quang Huy of MARD introduced application of space technology on disaster management in Viet Num. And explains activities with UN-SPIDER and JAXA, operating schema.

(3) CAIAG: Dr. Aizhan Ainabekova of CAIAG introduced disaster situation and activities of National remote sensing center. Points are as follows.

- Presented potential of the satellite zonation system are effective for spatial-temporary precise monitoring.

- For integrated analysis of surface processes, the satellite zonation data should be analyzed together with other thematic data, based on GIS methods.

- Obtained results show a high potential of the satellite zonation to understand landslide formation processes and objective assessment of their hazard.

- Assessment of natural hazards on regional level requires a further development of satellite sensors and methods, based on GIS.

(5) SPARCO Mr. Zafar IQBAL of SPARCO introduced their activity Space aid in disaster management. He explains Disaster monitoring and mitigation, typical flood cases. SPARCO had a field validation exercise and produce hazard maps ,damage assessment reports. Also SPARCO explains their GIS/RS training course and space applications.

7.2 **Recovery (3/3)**

7.2 Discussion on How to Enhance using Space Data on Recovery Phase, Comments and suggestion are as follows.

(1) Comments:

- Researches are very important for future predictions and preparedness for disaster so SA should support such activities.

- DPN need particular policies. For example, each should make a proposal describing purposes of the request, focused areas and data utilization so that DPN can easily discuss and make a decision for data provision in preparedness phase.

- Satellite data provision in DPN should be top-down. However, it is easy to go on with collaboration from both give and take perspectives.

- DPN and each research topic should be separately discussed, as data provision require discussions at much higher level.

- Data provision is very important issue for disasters-related capacity development. Therefore, possible data provision can be suggested as follows; 1) provision of data for emergency observation cases by free of charge; and 2) provision of previous data with minimum cost for further researches.

(2) Suggestion:

- Establishment of possible projects in the regional scope under Step 3.

8. Summary of Closing

1.Endorsement

(1) The Proposal of Sentinel Asia evolution plan was reported to the members. Proposal Consists of

- Joint drive SA, For End users, Strategic management(Steering committee)

- The concept was agreed by the participants and will be presented to next APRSAF.
- JAXA asked for comments. The deadline of comments is Nov 28.

2.Actions

(1). All participants to comment or/and request to JAXA regarding "Sentinel Asia communication" system until end of Dec.

(2). All participants to comments to JAXA regarding "Sentinel Asia evolution" until Nov 28th.

(3). All participants comments or/and propose to JAXA regarding "Earthquake and landslide WG" until end of Dec.

(4). All participants to suggest JAXA regarding how enforce the DAN activity until end of Dec.





Thank you very much.