

**6<sup>th</sup> Joint Project Team Meeting for  
Sentinel Asia STEP3 (JPTM2018Awaji)**

**Draft Summary  
of  
JPTM2018Awaji**

# The 6<sup>th</sup> JPTM consisted of nine sessions and 54 presentations were made during the two days meeting.

In total, 51 Participants, 33 Organizations and 30+24 Presentations.

## Day One (1<sup>st</sup> November, 2018)

### **Session 1: Status Report**

*1.1 Overview of Sentinel Asia Status by JAXA*

*1.2 Overview of Emergency Observation*

*1.3 Report of the Steering Committee*

*1.4 JPTM2018 Report*

- Dr. Kawakita, JAXA, as a SA Sec, reported the progress and activities conducted since the last JPTM 2018 with 108 members currently participating in the JPTM,
- Dr. Ikeda, ADRC, as a SA Sec, presented the emergency observation request trends and records since the last JPTM2018,
- Dr. Samarakoon, SC Co-chair, reported the overview of SA Strategic Plan toward the next 10 years for endorsement by JPT members and for report to APRSAF-25 (to be held in the coming week),
- Dr. Chen, NARL, reported the results of JPTM2018 which was held in Jan 2018 with 66 participants from 13 countries and 25 organizations.

## **Session 2: New membership and Working Group Activities**

### *2.1 Presentation by new members*

- MIMU
- VIGMR/MONRE

### *2.2 Water Related Hazard Working Group :IWMI*

### *2.3 Tsunami WG : MMAF- > moved to afternoon*

### *2.4 Wild Fire WG : JAXA*

- Ms. Lefebvre, MIMU, introduced the role, target, governance and contribution to the latest disaster to hit Myanmar, flood in Jul-Aug 2018, which triggered SA and escalated to IDC also. Gaps and challenges, such as analysis limitation at the local level and lack of baseline datasets which made damage and loss analysis difficult so far, were presented for more effective services. Also, next steps for further enhancement in capacity of data preparedness, rapid field observations, and local capacity building plans were reported. Concerning data accessibility, it was commented that there was an open data policy for MIMU data. Regarding data transfer, the performance of cloud system was noted.

- Dr. Dinh, VIGMR, introduced the vision and mandates as Vietnam's leading institute in Geoscience and Mineral Resources incl. geohazards, and expectation as Sentinel Asia member with its data analysis capacity. Involvement in ADPC's capacity development project in landslides, RECLAIM, and RS application project on landslide with Taiwanese colleagues were noted.
- Dr. Amarnath, IWMI, presented Water-related Hazard WG's target, activities conducted so far and reviewed space technologies' effectiveness in 4 disaster cycle. Flood related projects like early warning, modeling, etc. conducted in Asian countries by IWMI, developed products through SA EOR, Index-based flood insurance (IBFI) were introduced. The WG's expectations for further enhancement incl. active cooperation among members, sharing best practices, and promoting knowledge products and tools were shared for members consideration.
- Dr. Nakau, JAXA, co-chair of Wildfire WG, presented wildfire detection examples by satellites and volcano and wildfire monitoring system using Himawari, GCOM-C and CIRC made by JAXA. That system covers Japan and Asian countries and could be extended to interested JPT member countries. Future plans for late 2018 and 2019 were presented.

## Session 3: User's Session

### *3.1 Presentation by guest speakers from the ACDR community*

- *National Committee for Disaster Management (Cambodia)*
- *Ministry of Labour and Social Welfare (Lao PDR)*
- *National Disaster Management Agency (Malaysia)*
  
- Mr. Suzuki, Director of ADRC, introduced background of Asian Conference on Disaster Reduction (ACDR) which was held prior to the JPTM and three dedicated guests from ACDR participants, Cambodia, Lao PDR, and Malaysia.
- Mr. Saohan, NCDM, introduced the disaster situation in Cambodia, the near annual floods and drought as well as storm and typhoon. Disaster management system led by NCDM and statistic data regarding disasters and damages were presented followed by future challenges in DRR at NCDM.
- Mr. Sisomvang, MoLSW, presented Disaster Risk Management in Lao PDR. Flood is a key hazard there which also causes landslides. Disaster management policy established by the prime minister in Feb 2018 enables the government to take actions more quickly. Overview of National Disaster Prevention and Control Committee (NDPCC), cooperation with AHA Centre, DRR project using JAIF budget, and response to flood event in 2018 were presented.

- Mr. Soh, NDMA, reported on the disaster situation in Malaysia and introduced the National Disaster Management System(NDMS).

### **Session 3: User's Session (continued)**

#### *3.2 Presentation on good practices*

- *ADB*
- *ADPC*
- *AHA Centre*
- *EOS*
- *ICIMOD*
- *Manila Observatory (MO)*
- *NRSD/MONRE*
- *PHIVOLCS*
- *PNG/NDC*
- *SUPARCO*
- Mr. Hamamoto, ADB, reported its strategy toward 2030 and DRR related projects. One of space-based tech. application Technical Assistance projects contributing to SA, “Community-based Disaster Risk Management” which was conducted in Armenia, Bangladesh, Fiji and Philippines was presented, in which SA is connected to national DRR management framework. New endeavor by ADB, Space Data Analysis Explorer, SPADE, which is a platform for analysis by satellite and GIS data, was also introduced.

- Ms. Anggraini, ADPC, reported its activities as Data Analysis Node(DAN). ADPC led EOR on the occasion of Laos dam collapse, Myanmar floods in Aug 2018, and Vietnam floods and landslides in June 2018
- Mr. Pang, AHA Centre, presented its activities using satellite data in DRR fields. This year, it contributed to 6 disaster events in ASEAN countries by applying satellite data. Through these activities, potential considerations for satellite data such as pre-schedule EO before storm and potential flooding events, and providing a short narrative on the processed data for the users were raised.
- Mr. Bhardwaj, EOS, made a brief introduction of Advanced Rapid Imaging and Analysis (ARIA) system developed by JPL and Caltech. ARIA system's main features are automatic data intake, automatic processing and visualization interface. Automatic interferometry processing is available. Disaster proxy map/flood proxy map and ALOS-2 data intake is under development.
- Mr. Uddin, ICIMOD, presented its activities in HKH region and flood mapping activities in Bangladesh and HKH region, also earthquake in Nepal in April 2015 and quick review on cooperation with JAXA since ICIMOD joined SA.

- Mr. Perez, MO, reported overview of MO's activities and SA related activities. One of MO's major activities is weather reports and issuing bulletins. MO is a DAN member and triggered SA, used observed satellite data based on its mapping protocol.
- Mr. Vu, NRSD/MONRE, presented its overview and activities regarding SA. Standard Operation Procedure(SOP) for utilization of SA for disaster management activities has been set in March 2018. In this SOP, DMPTC/MARD, MONRE, and STI/VAST work together to utilize SA for DM activities. On Oct 2<sup>nd</sup>, PM training for IDC was held at NRSD/MONRE. Comments and suggestions about pre-disaster data were made.
- Ms. Nu Nu Khaing, MoSWRR, presented organization of disaster management in Myanmar and roles of Emergency Operation Center(EOC). EOC cooperate with MIMU, Servir Mekong, Sentinel Asia, AHA Center regarding DM activities.



- Dr. Daag, PHIVOLCS, introduced SA Success Story project which has been conducted in the Philippines over 10 years. It consists of Hazard map update with ALOS data, ground deformation detection by interferometry using ALOS-2 data, and landslides early warning project using GSMaP. A grid of GSMaP is 10kmX10km, so more detailed warning location is needed and system shall be upgraded to narrow target. Collaboration with JAXA by ALOS-2 application on volcano monitoring is also ongoing. Activations of SA since last JPTM2018 and generated products were also introduced.
- Mr. Mana, PNGDMC, reported the country profile, hazards in Papua New Guinea and overview of NDC. Challenges on more enhancement in technical skill development, commitment by government mapping agencies, and data and info sharing were noted.
- Mr. Bokhari, SUPARCO, briefed on SACRE's activities regarding DRR. SACRE developed a database which accommodate LCLU data in addition to satellite data such as MODIS. SUPARCO is a member of IDC, UN-SPIDER, and APSCO and contribute to SPIDER's knowledge portal. Once flood occurs, MODIS data is used for analysis. SUPARCO has a satellite development program, PRSS-1. SUPARCO is working with UNESCO on flood model development. SUPARCO is currently DAN member and expect to become a DPN in the future.

- Dr. Muhari (MMAF) co-chair of Tsunami WG, presented purpose and goals of Tsunami WG, proposed activities of the WG, activities conducted and planned in 2018. Training session was conducted on the occasion of JPTM2018 in Taiwan, where around 20 participants joined and demonstrated Tsunami Early Warning system, led by Prof. Koshimura, Tohoku Univ. 2<sup>nd</sup> Web meeting is expected to be held for further enhancement of international linkage among members. Case study with a field survey was conducted in Palu, Indonesia, in Oct. 2018 by the WG.

### *3.3 Discussion - expectation for Sentinel Asia toward further improvement*

- Dr. Giriraj mentioned there are still challenges in customization of data set, and the need for a more serious note on prevention.
- Mr. Sharma, as a data provider node, in the STEP3 phase, noted it is necessary to focus on what kind of data set should be generated before observation.
- Dr. Kawakita commented that the point raised had been discussed in SC and will be treated in SC.
- Mr. Uddin mentioned there are a lot of options, in public, and that there are many available data and, about Digital mapping, open street map could be good tool for flood mapping group.
- Mr. Hamamoto commented that GIS technology is becoming a more powerful tool and that ADB would want products, value added data(VAP). Through today's presentations, he recognized members make useful VAPs and that a single point for sharing platform is better.

- Mr. Alok, EOS, commented on free data for validation and other purpose usage of VAPs like environment assessment etc. because it takes some time to generate and usage for other purposes should be considered.
- Dr. Daag responded about free data for validation, building data is still difficult but some data can be opened.
- Dr. Manzul responded about validation data and detail to be presented by him on Day Two.
- Ms. Dewi commented on treatment of data sets, as EOS already commented, data serving system. Members have own servers and upload their data now.
- Mr. Hamamoto commented about ADB's data server requirement.
- Dr. Kawakita commented that in STEP3 we cover all disaster cycle and data serving system. The first matter is an agenda of SC and need some time to answer.
- Dr. Samarakoon summarized the discussion, that there were two main points; first is data sharing/policy toward covering all disaster cycles, which is also a key topic of SC and shall be discussed among DPNs, the second is organization of how to deal with data collected from various organizations on one system.

## **Session 4: Local Host's Session**

*4.1 Keynote presentation : Dr. Kazuya Kaku*

*4.2 Presentation by Japanese disaster management organizations and research institutions*

- *GSI*
- *JMA*
- *Chiba University*
- *NIED*
- *Yamaguchi University (YU)*

*4.3 Benefit from Sentinel Asia in Japan in the case of 2018 Japan floods*

- Dr. Kaku, JAXA, who contributed in launching the Sentinel Asia project and see its progress for more than a decade, expects to retire at the end of this fiscal year, and in appreciation of his contributions, his keynote presentation was made in which he reviewed the growth of SA since its initiation.
- Mr. Kobayashi, GSI Japan, presented ALOS-2 based observation of crustal deformation associated with large earthquakes. GSI has an agreement with JAXA on InSAR analysis. Two topics presented were the 2018 Hokkaido Eastern Iburi Earthquake, in which InSAR analysis of ALOS-2 data was conducted, and the SAR derived 3D displacement map development implemented by GSI.

- Mr. Sharma, ISRO, asked how ALOS-2 data is useful for earthquake, whether hazard frequency maps had been generated and hazard based data analysis conducted.
- Mr. Kobayashi responded that GSI Japan is data provider and provide data to the government committee, and the analysis is made by the committee.
- Mr. Kageyama, JMA, presented Volcano Monitoring in Japan. JMA conducts volcano monitoring at continuous observation stations. They use ALOS-2 data for deformation monitoring. Active volcanoes monitoring such as Shinmoedake, Nishinoshima using ALOS-2 were introduced.
- Prof. Yamazaki, Chiba Univ., introduced their activities regarding Hokkaido earthquake on Sept 6<sup>th</sup>, 2018, in which ALOS-2 data analysis and field survey were conducted.
- Mr. Taguchi, NIED, introduced its background and its major activities. This year GOJ established the Information Support Team (ISUT) and NIED is a main member of ISUT. On the occasion of the heavy rainfall in Hiroshima in July 2018, ISUT members were dispatched and web based map application shared by ISUT, which showed evacuation shelter status, water supply spot, road condition etc. Maps were made for Disaster medical assistance team (DMAT) responding to the disaster. ISUT was also dispatched to Hokkaido earthquake in Sept. 2018 and satellite based maps were generated.
- Prof. Nagai, Yamaguchi Univ., introduced space technology based research and SA related activities. YU is now creating the Yamaguchi MODEL, a new framework for satellite data utilization for disaster response by closely working with local government. Related organizations, JAXA, NIED, Yamaguchi Prefecture are involved in the framework under the SIP project.

IS4D, Institute on Space for Development, is a virtual platform for national outreach. YU is participating in IS4D with SA VAP leader. Human resource development activity is another endeavor done by YU.

- Mr. Miyazaki, JAXA, presented JAXA's activities for Domestic Disaster Response and shared how GOJ uses satellite data for disaster management activities. JAXA has an agreement with GOJ regarding sat data use on disaster response. Through this agreement related ministries and agencies can request JAXA to make emergency observation by ALOS-2.

## Day Two (2<sup>nd</sup> November, 2018)

### **Session 5: Project Management**

#### *5.1 Reports by Data Provider Nodes(DPNs) GISTDA/ISRO/MBRSC/JAXA/NARL/VAST*

- Mr. Wasanchai, GISTDA, briefed its overview and reported DPN's activities. In 2018, GISTDA provided 80 scenes to SA's EO request.
- Mr. Sharma, ISRO, reported its contribution as DPN to SA activities. National RS Center of ISRO as a DAN made VAPs of flood event which occurred in India in 2018. EOS asked whether ISRO's datasets are downloadable or not; the answer was "They are available".
- Mr. Saeed, MBRSC, presented UAE national space program incl. satellites status of DubaiSat-1 and DubaiSat-2, data of which were provided to SA. KhalifaSat-1 was just launched 4 days ago in Japan. As to when KhalifaSat-1 data will be available for SA community, it was stated that it would take at least 3 months.
- Mr. Takada, JAXA, reported JAXA's DPN activities. VAPs of landslides caused by the recent earthquake in Hokkaido were presented. JAXA's next endeavor as DPN, ALOS-2 observation plan for base map generation in Asia was introduced.
- Mr. Jay, NARL, presented characters of FORMOSAT-5 program, which was launched in August 2017 and its data has been provided to SA for EORs such as this year's heavy rainfall in western Japan and earthquake in Indonesia etc.
- Mr. Tan, STI/VAST, reported on DPN activities with VNREDSat-1 and its organization. STI has agreements with related ministries in Vietnam and linkages with int'l partners in satellite data use in disasters and provided VNREDSat-1 data. Limitations and suggested solutions considered by STI were shared.

## *5.2 Primary Data Analysis Node (P-DAN) Report*

- Dr. Manzul reported AIT's P-DAN activities in 2018. 24 activations were made in 2018. VAPs made by AIT were introduced. Through VAP generation activities, in the case of Indonesia Earthquake, AIT team visited the site and disseminated the products to local government. AIT developed an interactive website for users.
- Ms. Tamkuan, Yamaguchi Univ., reported VAP generation activities as VAP leader. YU generated flood maps, InSAR products for Hokkaido earthquake and earthquake and tsunami in Indonesia, and compared difference between ALOS-2 and Sentinel-1 VAPs.
- Dr. Miyazaki made P-DAN report. Univ. of Tokyo is now developing automated mapping system for more effective VAP generation. It consists of 3 components, 1) automated detection by deep learning, 2) input data management, and 3) quality control system. EOS asked possibility by users to use or contribute with their training data, with the reply that the point is payment, if it will be cleared, it would be possible.



### 5.3 Sentinel Asia documents (TOR): JAXA

- JAXA, as a SA Sec, proposed the revision of the Terms of Reference (TOR) on the Joint Project Team for Sentinel Asia STEP3 (JPT-3). The aim of the revision was to state clearly that (1) JAXA's director for Satellite Applications and Operations Center (SAOC) would sign as "the Executive Secretary of JPT-3" instead of JAXA' director himself/herself in case he or she signs documents or agreements on behalf of Sentinel Asia JPT-3 pursuant to the Item 5 of TOR and that (2)the director of JAXA Bangkok office as well as staff members of JAXA duly delegated the authority by the director for SAOC would be entitled to sign as the proxy in case the latter is not available. JPT Members endorsed the proposed concept. JAXA would circulate the revised draft for review by all JPT-3 members in terms of counterproposal on expressions, if any, for a period of two weeks.

## Session 6: Sentinel Asia System

### 6.1 Sentinel Asia Step 3 System Concept: JAXA

- Mr. Takada, JAXA, introduced new SA Step 3 cloud storage system. Data provision speed test using 4 servers(Mumbai, Singapore, Taiwan, Tokyo) was conducted. Current Step 2 system will be stopped next Oct and new system will be started Nov 2019. As this system change would cause DPNs and DANs to use SFTP client software and so on, necessary adjustments is requested by JAXA.

### 6.2 Contribution to Sentinel Asia regional cloud servers: NARL

- NARL offered to contribute to SA regional by providing their certain resources of cloud servers. NARL would like to have a specific cooperation framework to ensure this contribution. JPTM welcomed the offer and recommended that JAXA coordinate with NARL and work on drafting the agreement and sign it on behalf of JPT-3.

### *6.3 OPTEMIS development status: GISTDA*

### *6.5 Demonstration of PTEMIS : GISTDA*

- Mr. Wasanchai, GISTDA, presented Strategic and Operation Research Center (SORC) and OPTEMIS, which is a web based operation tasking system developed by GISTDA and was customized for SA. It was demonstrated, EOR is easily done over the OPTEMIS, followed by EOR Activation, EOR Tasking to DPN, DAN... each DPN can check AOI over the OPTEMIS and can upload the observed data to the system. Then DANs can access to the observed data for their analysis. All related information is collected systematically over the system, which save time and resources of requesters, DPNs, and DANs. This system is ready for use among SA community.
- Ms. Lefevbre, MIMU, commented that this system would help to reduce DAN's duplicated work in the future and GISTDA's contribution was very much welcomed.

### *6.4 MOU between GISTDA and Sentinel Asia JPT-3 concerning OPTEMIS cooperation*

- JAXA, as a SA Sec, reported that although JAXA had been working on the draft cooperation agreement between GISTDA and JPT-3 concerning cooperation on OPTEMIS based on the request from GISTDA and the recommendation at the JPTM in Taipei, the agreement had become no longer necessary for GISTDA. However, GISTDA still needed a sort of license agreement to be signed by JPT-3, if not a cooperation agreement. The JPTM recommended that JAXA and GISTDA draft such license agreement and that JAXA sign it on behalf of JPT-3.

## **Session 7: Strategic Plan of Sentinel Asia**

### ***7.1 Introduction of the Steering Committee***

- Dr. Samarakoon, co-chair of Steering Committee(SC), reported the current status of the Strategic Plan development led by SC members so far which is expected to be endorsed by JPTM and reported at coming APRSAF-25 in Singapore.

### ***7.2 | Satellite Data Provision and System: JAXA***

- JAXA lead the “Satellite Data Provision and Systems”. It was already reported by Mr. Takada that JAXA has been developing a new cloud server system under cooperation with Academia Sinica Taiwan and GISTDA, which will be started Nov 2019. Web-GIS portal will be set with the new system for SA members. Procedure of DPN and DAN to realize Step-3 by new framework is under preparation.
- Mr. Hamamoto, ADB, commented that JAXA’s leadership was welcomed and asked availability for users to analyze data or add their interested layers on the data over the system.
- Related to the ADB’s comment, Ms. Dewi, ADPC, asked possibility to add useful data like Open Street Map and plan of cooperation with OSM.
- GISTDA commented to upload open sat data for the future.

- Dr. Samarakoon summarized open data source would be included and possibility of private companies' involvement in the data system in the future.

### *7.3 II Value Added Product (VAP): YU*

- Prof. Nagai, YU, as a VAP leader, reported their activities on VAP. They are now developing a manual VAP creation based on disaster types, a Standard Operation Procedure(SOP), and validation activity. YU enhances VAP through university network, review data policy and data for R&D activity by university network, in-situ data collection through GNSS, pre-disaster image repository and access.
- EOS asked about Univ. Network, that it is welcomed and EOS is willing to contribute on this point, such as student exchange etc.
- Mr. Dinh also commented about Univ. Network,
- Ms. Lefevbre asked about Univ. Network, if is it for SA members or not, and duration of data provision.
- Prof. Yamazaki commented how to deal validation data for future events, which will be useful for other events..
- Ms. Dewi noted importance of standardization which was promoted by YU for SA community.
- Mr. Bokhari commented that successful case should be shared for standardization.

#### *7.4 III End-user Enhancement : AIT*

- Dr. Manzul, AIT, is leading end-user linkage enhancement by developing interactive web portal and mobile phone application, field surveys, partnership with local and int'l organizations.
- EOS asked possibility to aggregate data collected by DANs for further activities. Dr. Manzul responded that it is case by case and Tsunami WG is planning to gather related available data.
- Dr. Muhari responded that it depends on the data and purpose of usage.
- MIMU asked local communities' involvement in the activities. Dr. Manzul responded that as for the Indonesian case, LAPAN, Indonesian national institute, supported AIT to communicate with local people.

### *7.5 IV Step-3 Activities (Complete DRR cycle) : ADRC*

### *7.6 V Communication, Collaboration and Cooperation: ADRC*

- Mr. Suzuki, ADRC, reported progress made for item IV & V. To align with Sendai Framework, ADRC participated in AMCDRR held in Ulaanbaatar 2018, where ADRC presented SA's activities, and also SA's endeavor will be included in publication of UN disaster related report to be issued in 2019. Collaboration with Int'l organizations such as ADPC, UNESCAP are underway, and communication with donor and business communities(IBM, Lloyd Register Foundation) are also done by ADRC regarding cloud storage/analysis system with IBM and a project proposal etc. with Lloyd.
- Dr. Manzul mentioned that he also attended ESCAP's Ministerial Conference held in BKK, and AIT will contribute in capacity development part.

### *7.7 Discussion and adoption of the Strategic Plan*

- Dr. Samarakoon commented that some points are already noted in each presentation and further comments could be delivered to the secretariat.
- The Strategic Plan developed by SC was presented and the contents and directions were welcomed and supported by JPTM2018Awaji participants and will be presented at APRSAF-25 as a living document for next 10 year for their endorsement.

## Session 8: Special Session – Contribution of Sentinel Asia to achieving global agenda

### *8.1 Keynote Speech : UNISDR*

- Dr. Matsuoka, UNISDR Japan representative, presented Sendai Framework for DRR 2015-2030. 7 global targets are set in the framework with 4 reduce & 3 increase targets. Space technology is expected to contribute to the framework, especially, Priority 1, Understanding disaster risk is the field where space technology, satellite, Sentinel Asia shall play an important role. As for targets e & f, space agencies' supports and expertise are expected.

### *8.2 Toward the strengthened link between Sentinel Asia and Sendai Framework and SDGs : IWMI*

- Dr. Giriraj reported on the background of the activity, how SA contribute to Sendai Framework and SDGs. Survey on priority actions for SA was conducted. Members' concerns and challenges to be tackled were shown.
- Strategic focus points for SA were presented:
  - Engage with SA initiative of APRSAF
  - Plan national, regional and international activities, etc.
- Proposal and suggestions to SA Sec and JPT members by IWMI and AIT were also shared.



### *8.3 Toward further global partnership : AIT*

- Dr. Manzul, AIT, introduced WB's initiative on collaborative data innovations for sustainable development. As for proposed activities for further enhancement toward global partnership are shared.

## **Session 9: Summary and Closing**

### *9.1 Summary of JPTM2018Awaji by Secretariat*

- SA Secretariat presented the draft summary of JPTM2018Awaji, a modified one of which will be circulated to participants for their review and comments together with draft revised TOR. Comments will be collected within two weeks.

### *9.2 Next host organization: ADPC*

- Mr. Peeranan, ADPC, announced next host and that timing would be announced to members soon after ADPC set with JAXA, and also briefly introduced ADPC Strategy 2020 aligning with global framework.

### *9.3 Closing Remarks by ADRC*

- Mr. Suzuki, ADRC, made closing remarks.