9th Joint Project Team Meeting for Sentinel Asia STEP-3 (JPTM2024)

Summary

5-7 November 2024

The 9th JPTM consisted of four sessions and ten training workshops; 38 presentations were made during the three-day meeting.
The training workshops offered opportunities to learn about the studies by Sentinel Asia members.

Group Photo

In total, 135 Participants from 40 Organizations.

Day 1 (5 November 2024)

Opening Ceremony

Attendees participated in the opening ceremony of the 9th JPTM (JPTM 2024),
with Dr. Joel Joseph Marciano, Jr., Director General of the Philippine Space Agency (PhilSA)
delivering the keynote message. Dr. Ariel C. Blanco, Director of PhilSA-SIIB, and
Dr. Shiro Kawakita, Acting Executive Secretary of Sentinel Asia, gave the opening remarks
as co-chairs of JPTM 2024.

In his remarks, Dr. Marciano emphasized the importance of harnessing satellites and collaboration
for regional disaster resilience and stressed the usefulness of Sentinel Asia.
He also introduced PhilSA, the Philippines' space activities and various accomplishments.

Session 1: Overview
1.1 Recent Activities of Sentinel Asia since 2023
1.2 Report of the Steering Committee and APRSAF-29

- Mr. Goro Takei, Deputy Executive Secretariat of Sentinel Asia reported the Sentinel Asia activities since 2023 including some examples of EORs (highlighting the work of DPNs and DANs supporting data provision), training events held by Sentinel Asia, and Sentinel Asia's participation to the disaster-related events such as Understanding Risk 2024 and the APMCDRR 2024.

- He also reported the Steering Committee (SC) activities. ADPC and PhilSA joined as SC members during this period; GISTDA and GIC-AIT serve as the co-chairs of the SC. The next face-to-face meeting is expected in December this year. The update to Strategic Plan was explained and the change has been approved by JPT members in this meeting. He requested the participants of JPTM to contact SC members if they have request to have training activities and/or intention to conduct training activities for other JPT members.

- The summary of APRSAF29 Sentinel Asia session and Plenary report of Sentinel Asia Activity was presented to the audience.

Session 2: New membership
Presentation by new members
2.1 Institute of Water Modelling (IWM), Bangladesh
2.2 National Center for Hydrology and Meteorology (NCHM), Bhutan
2.3 National Disaster Risk Management Office (NDRMO), Tonga

- Mr. Imran Khan, IWM
- Ms. Sonam Lhamo, NCHM
- Ms. Ofa Ema Petulisa Masiwawa, NDRMO

As new members of Sentinel Asia, they introduced their respective organizations, and reported their activities including the past disasters for which Sentinel Asia EORs were implemented.

Session 3: User's Session
Presentation on good practices of Sentinel Asia or expectations of Sentinel Asia

- *Oil Spill Monitoring from Space*
  (Mr. Noel Borlongan, PhilSA, Philippines)
- *Optimizing the Microsoft Planetary Computer for Emergency Observation and Mapping (EO/ M)*
  (Ms. Jezleer Montajes, Manila Observatory, Philippines, and Mr. Fren Marlon Peralta, Xavier University -
  Ateneo de Cagayan, Philippines)

- Mr. Borlongan presented PhilSA's activities concerning the oil spills in Manila Bay, including the result of observations by Sentinel Asia satellites.

- Ms. Montajes and Mr. Peralta introduced their research project on use of the tool called "Microsoft Planetary Computer" for disaster monitoring.

Special Session: Philippines Session *"Space for DRRM: The Philippine Perspective"* **(continued)**

Moderator: Ms. Princess Angela Young, PhilSA

Panelists:

-   Mr. Paolo Jonas Alan, Information Technology Officer II and Assistant Division Chief of OCD-ICTD, "Utilization of Space Technologies at the NDRRM Operations Center"
    He introduced that disaster assessment maps provided by Sentinel Asia are used for their decision making.

-   Dr. Marcelino Villafuerte II, Deputy Administrator, PAGASA, "Satellite Data Utilization for Meteorological Applications in the Philippines"
    He introduced the usefulness of satellite data for their early warning system for water related disasters.

-   Dr. Rolyn C. Daguil, President, Caraga State University, "Caraga State University's Space + Geospatial Products and Services for DRRM"
    He emphasized the importance of API and high-resolution satellite data for their disaster-related analysis.

-   Dr. Arturo Daag, Associate Scientist, DOST-PHIVOLCS, "Utilizing Satellites in Monitoring Volcanic and Earthquake Disasters in the Philippines through Sentinel Asia"
    He introduced several good practices of using Sentinel Asia and emphasized the importance of swift activation to receive satellite data in a timely manner.

Special Session: Philippines Session *"Space for DRRM: The Philippine Perspective"* **(continued)**
Moderator: Ms. Princess Angela Young, PhilSA
Panelists:

- Ms. Christine Marie Oca, Science Research Specialist I, PhilSA, "Drought Detection from Space: A Data-Driven Early Warning Approach"
  She explained how drought severely impacted agriculture in the Philippines and shared approaches to drought early warning using the satellite and ground observation data.

- Ms. Cara Patricia Canlas, Science Research Specialist II, PhilSA, "Defining Fire Regime in the Palawan, Philippines using Satellite-based Fire Products"
  She introduced the serious economic loss due to fire in the Philippines and the importance of conceptual framework to define fire regime.

Special Session: Philippines Session *"Space for DRRM: The Philippine Perspective"* **(continued)**

In this session designed to introduce the activities of Philippine institutions, each panelist introduced their activities, sharing their expertise and experience in disaster management and utilization of space assets.

After the presentations by the panelists, they discussed the challenges to use space technologies.

Dr. Daag of Phivolcs mentioned the difficulty of obtaining satellite images in the timely manner due to the orbital restriction of data acquisition opportunity. This challenge is addressed by requesting support to the International Disaster Charter through Sentinel Asia escalations.

Mr. Alan of Office of Civil Defense mentioned that data sharing within government agencies may be challenging when different format needs technical manipulations to be used in government's system. Challenge occurs when decision makers need to interpret the provided scientific information. The solution may be to simplify the value-added products and also have capacity building for decision makers.

Dr. Villafuerte II of PAGASA added their activity to convey the importance of utilizing space asset through sharing the best practices to the government decision makers.

Special Session: Philippines Session *"Space for DRRM: The Philippine Perspective"* **(continued)**

Responding to a question from Dr. Vetrita, Ms. Canlas mentioned the need to increase the record of fire to improve the accuracy of defining fire regime; they emphasized that concluding agreements are needed to ensure smooth data exchange.

Asst. Prof. Luis Carlos Mabaquiao from University of Philippines (UP Diliman) shared his concern about the difficulty to verify the deformation of mountainous area and Dr. Daag responded their utilization of corelating their data with location information provided by GPS stations installed in many areas of Philippines.

Also, Prof. Mabaquiao UP-Diliman also asked about sharing a manual for deriving VAPs for learning purpose for students, and Ms. Oca of PhilSA recommended to ask the government agencies to assist interpretation of the data source.

Ms. Masiwawa of Tonga NDRMO shared her challenges about data sharing among government agencies and asked how Philippine agencies address it. The panelist replied that National Disaster Management Council oversees the activities among agencies and a legal agreement among government agency is established defining the mandate of each agencies.

A participant asked about the verification process of drought data and Ms. Oca and Ms. Canlas shared their experience of collecting anecdotal data from local agencies in a case-by-case approach to each provinces.

Session 3: User's Session (continued)
Presentation on good practices of Sentinel Asia or expectations of Sentinel Asia

- *Events occurred in Central Asia in 2024*
  (Mr. Ulan Abdybachaev, CAIAG, Kyrgyz, online participation)
  Dr. Ulan introduced their recent Sentinel Asia EORs in Central Asia and Caucasus region,
  training and workshop organized by the Sentinel Asia Secretariat and ADRC.

- *The 2024 disaster cases in Indonesia*
  (Dr. Yenni Vetrita, BRIN, Indonesia)
  Dr. Vetrita introduced their recent Sentinel Asia EORs and challenges faced for the analysis.
  She also shared her efforts on mitigating fires in Indonesia and importance of knowledge
  sharing and open collaboration among the Asia-Pacific countries.

- *Flood impact analysis based on SAR image in Kanchanpur district*
  (Mr. Joshan Maharjan, Department of Hydrology and Meteorology, Nepal)
  Mr. Maharjan introduced their recent Sentinel Asia EORs, and the severe flood occurred due to
  the record-breaking amount of rainfall this year.

Session 3: User's Session (continued)
Presentation on good practices of Sentinel Asia or expectations of Sentinel Asia

- *Using ALOS 2 satellite image data combined with geographical data for flood monitoring in Vietnam
(Mr. Vu Huu Liem, MONRE, Vietnam)*
Mr. Liem introduced their recent Sentinel Asia EORs especially on Typhoon Yagi. He also shared their proposals and requests to Sentinel Asia for improving its disaster related activities.

- *Lao PDR Country Report, Status of Space Technology Application for DRR in Lao PDR
(Dr. Virany Sengtianthr, DMH, Lao PDR)*
Dr. Sengtianthr introduced the past Sentinel Asia EORs and also mentioned that Lao PDR is under preparation of the road map for Early Warning 4 all using satellite data.

- *Pacific Post Disaster Support Facility (Sentinel Asia Use Case)
(Mr. Kaliopate Tavola, SPC, Fiji)*
Mr. Tavola introduced recent Sentinel Asia EORs and other disaster management activities in the Pacific Islands. He also mentioned challenges from the viewpoint of the capacity development in the Pacific.

Recent activities by UN-SPIDER and Changes in Satellite Data Procurement and Application Systems
(Mr. Jumpei Takami, UNOOSA)
Mr. Takami introduced UN-SPIDER and its activities in Tongatapu Island in Tonga and their challenges in satellite data procurement and application system.

New Perspective on space-based disaster management cooperation: International Cooperation in the context of UNCOPUOS
(Mr. Takanori Miyoshi, JAXA, Japan)
Mr. Miyoshi introduced his activities relating UNCOPUOS and its Scientific & Technical Subcommittee (STSC). He also introduced international cooperation for "Planetary Defense" against the possible damage by meteorites. He proposed Sentinel Asia to cooperate on this aspect.

Day 2 (6 November 2024)

Training Workshop I: Demonstration of Disaster Risk Assessment Application

- *Using Earth Observation Data to Support Sentinel Asia Step-3: focus on risk analytics for pre-disaster actions (Dr. Peeranan Towashiraporn, ADPC, Thailand, online participation)*
Dr. Peeranan reviewed Sentinel Asia step-3 that it responds to all the phases of the disaster management cycle and stressed that the satellite data is needed for this purpose. In his presentation, he focused on forecasting the flood and the drought using satellite data with introducing of ADPC's projects in cooperation with other organizations.

Training Workshop II: Demonstration of flood monitoring/forecasting systems

- *Flood monitoring and forecasting using GSMaP-IF*
  (Dr. Muraoka, JICA Expert, BWDB, Bangladesh)
  Dr. Muraoka introduced GSMaP-IF, which dramatically improved the accuracy of precipitation data by calibrating the GSMaP original data with available observed ground-based rainfall data. He also showed the use cases in Bangladesh.

- *Today's Earth: Introduction of Global Hydrological Simulation System*
  (Mr. Kosuke Yamamoto, JAXA, Japan)
  Mr. Yamamoto introduced "Today's Earth(TE)", a tool to simulate global terrestrial hydrology integrating satellite observation data and reported its function and development status. He informed "Today's Earth Global" will be released early next year.

Training Workshop III: Lecture on Standard Operating Procedure

- *Standard Operation Procedure (SOP) for smooth EOR*
  (Dr. Makoto Ikeda, Asian Disaster Risk Reduction Center (ADRC), Japan)
  Dr. Ikeda reported statistics of Sentinel Asia EORs for this year, noting that the number of disasters was relatively the same as in previous years, however, the number of the SA activations this year was double that of last year. He also introduced good practices on EORs, the status of SOPs established recently and related workshops.

Training Workshop IV: An Introduction to OCHA's Humanitarian Data Exchange (HDX)

- *Overview of the Humanitarian Data Exchange*
  (Mr. Anthony John Burke, The Centre for Humanitarian Data, UNOCHA)
  Mr. Burke introduced UNOCHA's Humanitarian Data Exchange (HDX), an open platform for sharing humanitarian data that provides easy access and is used by 1.4 million users for crisis response. He also shared that timely provision of satellite imagery is crucial for effective crisis response.

Training Workshop V: Demonstration of Disaster Management System

- *National Database for Emergency Management*
  (Mr. Praveen Kumar Bandi, ISRO, India)
  Mr. Bandi introduced ISRO's National Database for Emergency Management (NDEM). It provides satellite data-based information and serves for disaster management such as early warning system for flood. ISRO is conducting capacity building activities for the users.

Training Workshop VI: Forest Fire Monitoring "Lecture and Hands-on Training"

- *Satellite-Based Burnt Area Detection Using Sentinel-2 Imagery*
  (Ms. Thitawadee Suvachananonda, GISTDA, Thailand)
  Ms. Suvachananonda introduced the importance of monitoring forest fire that happens in the dry season of Thailand and demonstrated forest fire detection process using Sentinel-2 data with free software Python and SNAP. She starting with SNAP data processing, and lectured about Normalized Difference Water Index (NDWI) analysis and Relativized version of burn severity analysis.

Training Workshop VII & VIII: Data Analysis Method "Lecture and Hands-on Training"

- *SAR Data Analysis for Flood Detection and Mapping*
  (Mr. Syams Nashrrullah Suprijatna, AIT, Thailand)
  Mr. Suprijantna gave lecture on how to process Sentinel-1 SAR data and extract inundated area from SAR images by step-by-step instructions using SNAP and QGIS.

- *Flood Mapping using Google Earth Engine*
  (Mr. Kabir Uddin, ICIMOD, Nepal)
  Mr. Uddin gave several hands-on exercises to convey the key points defining important parameters when creating flood map using Google Earth Engine.

Training Workshop IX: Data Analysis Method

- *GNSS Techniques for Water Level Monitoring*
  (Asst. Prof. Luis Carlos Mabaquiao, UP DGE-TCAGP)
  Prof. Mabaquiano presented his research on water level monitoring utilizing Kinematic Positioning of GNSS Positioning Mode and GNSS signal reflectometry, highlighting its benefits in terms of accuracy, cost effectiveness, and accessibility.

- *Optimizing Optical Satellite Data Analysis: Methods and Strategies*
  (Dr. Saeed Hussain Al Mansoori, MBRSC, UAE)
  Dr. Al Mansoori presented the analysis of the optical satellite data done by stressing importance of using it. He also introduced some use cases of satellite data in the UAE for land use purposes, including underground water detection, palm tree disease monitoring, and disaster management using high resolution satellite data. He also gave participants some insights on the advanced technology in the field of optical satellite data analysis such as automatic detection of palm trees, ships, airplanes, electric towers, cars, cloud, oil spill, and temporal changes using Deep Learning and AI.

Day 3 (7 November 2024)

Training Workshop X: Data Analysis Method

- *Analysis method using SAR satellite data: building damage assessment*
  (Prof. Masahiko Nagai and Dr. Arnob Bormudoi, Yamaguchi University, Japan)

Prof. Nagai introduced the satellite data analysis activities by Yamaguchi University and gave a lecture on the satellite data use, especially for disaster management, with SAR data analysis for various types of disasters showing some cases that occurred in Japan.

Dr. Arnob Bormudoi conducted hands-on training with the participants on estimating damaged buildings using ALOS-2 SAR data collected before/after the M7.6 earthquake that occurred in the Noto peninsula, Japan, on January 1st, 2024.