** June 2024 News from Sentinel Asia Project Office **

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Topics:

1. [News] Emergency Observation of Disasters (as of 26 June)
2. [Interview] Dr. Morimasa Tsuda, JICA Expert, Bangladesh Water Development Board (BWDB)
3. How to send an Emergency Observation Request
4. Using Sentinel Asia Operation System, OPTEMIS

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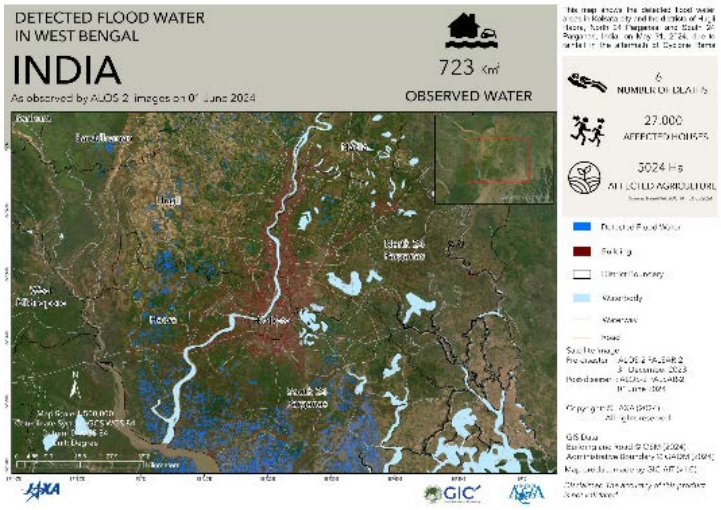
1. [News] Emergency Observation of Disasters (as of 26 June)

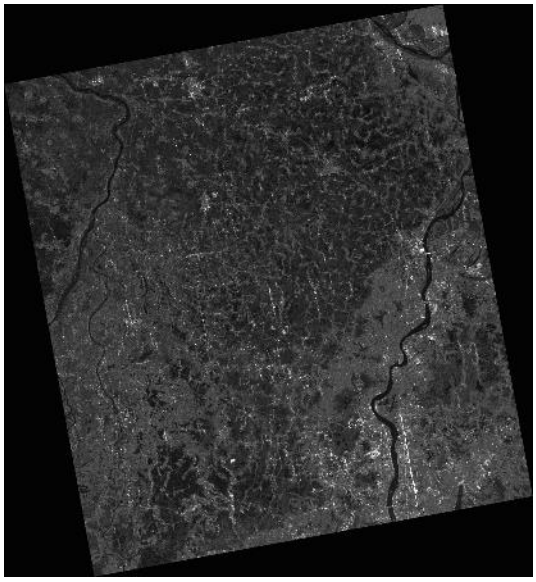
(1) Heavy Rains by Cyclone in India on 27 May, 2024 (GLIDE Number TC-2024-000083-IND)
Cyclone Remal hit India on 26 May. ReliefWeb reported that the cyclone claimed six lives and caused extensive damage to infrastructure and property in coastal areas. More than 1,700 utility poles were damaged, and many trees were uprooted. Approximately 2,500 houses were destroyed and 27,000 partially damaged. More than 147,500 people live in these houses, with about 33% of the children in the most vulnerable and unreached communities. According to government reports, in the South 24 Pargana district alone, 5024 hectares of farmland and 85 hectares of sea used by fishermen were adversely affected.
https://reliefweb.int/report/india/unicef-india-west-bengal-situation-report-no-3-cyclone-remal-31-may-2024

The Indian Space Research Organisation (ISRO) made an Emergency Observation Request (EOR) to Sentinel Asia on 29 May. Among Data Provider Nodes (DPNs), JAXA,TASA and MBRSC provided data. Among Data Analysis Nodes (DANs), JAXA, AIT and MBRSC provided their Value-Added Products (VAPs). Information on the latest response by Sentinel Asia is available at the link below.
https://sentinel-asia.org/EO/2024/article20240527IN.html

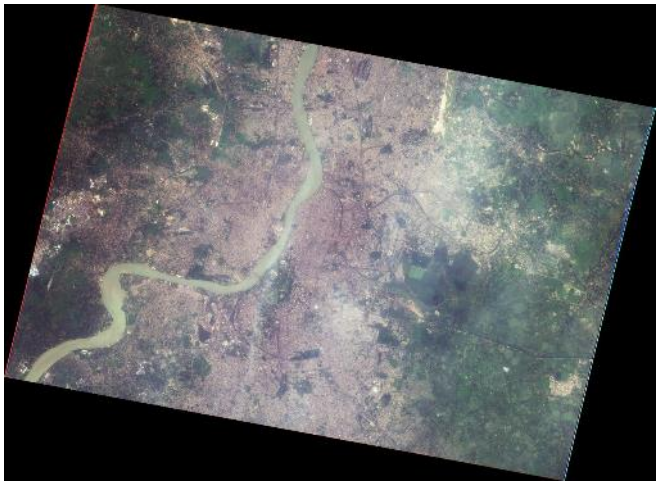


Value-Added Product by AIT

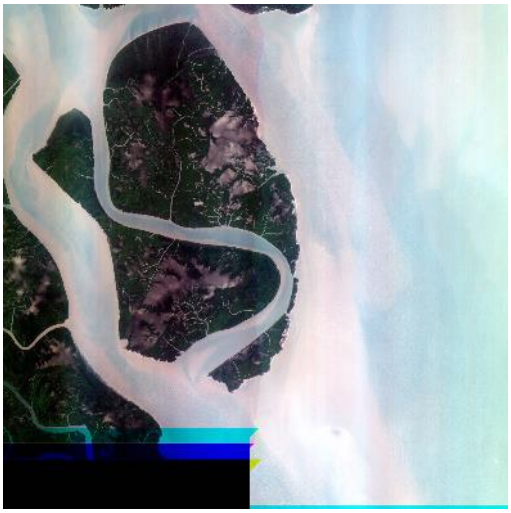
Value-Added Product by MBRSC



Post-disaster satellite image (ALOS-2) provided by JAXA



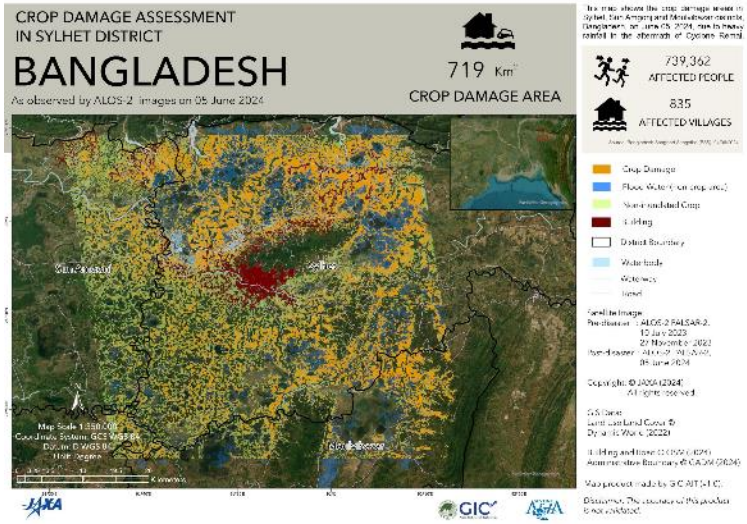
Post-disaster satellite image (FORMOSAT-5) provided by TASA



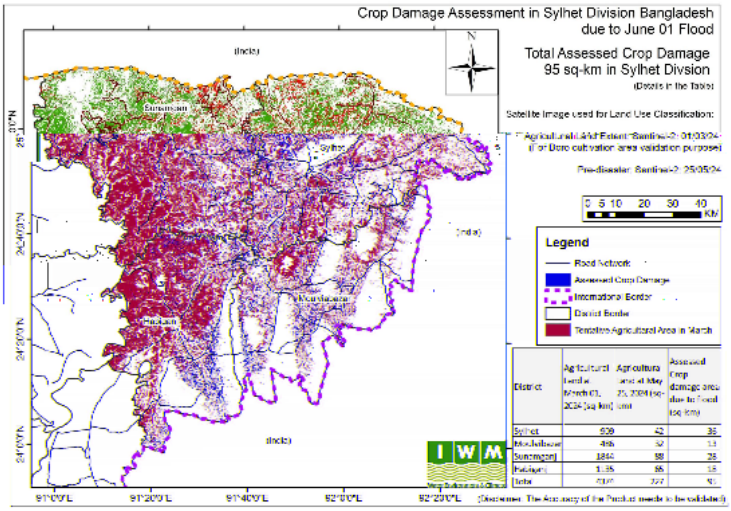
Post-disaster satellite image (KhalifaSat) provided by MBRSC

(2) Flood in Bangladesh on 1 June, 2024 (GLIDE Number FL-2024-000088-BGD)
According to Dhaka Tribune, persistent rain has led to the Surma River overflowing, flooding different parts of Sylhet and causing water to enter homes. In 24 hours from 2 until 3 June, the region recorded 226.6 millimeters of rain, followed by an additional 28 mm in the next three hours. The Bangladesh Meteorological Department classifies downpours exceeding 88 mm as very heavy rainfall.
https://www.dhakatribune.com/bangladesh/nation/348240/heavy-rain-submerges-sylhet

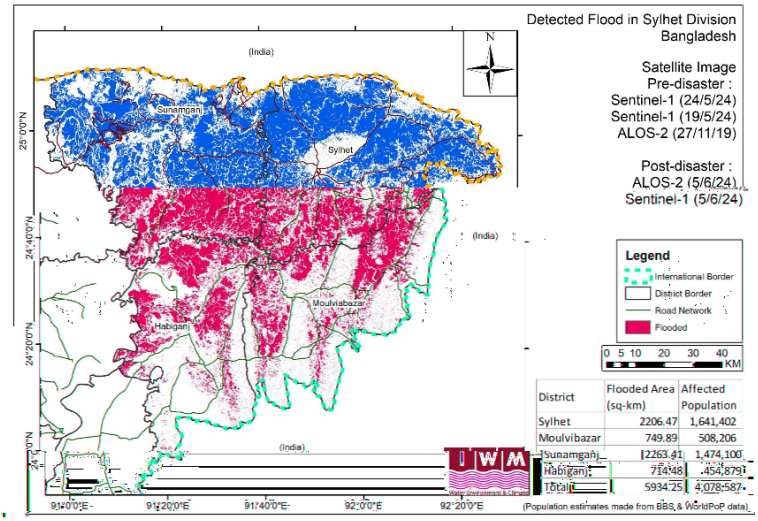
The Bangladesh Water Development Board (BWDB) made an EOR to Sentinel Asia on 3 June. Among DPNs, JAXA and ISRO provided data. Among DANs, JAXA, AIT and the Institute of Water Modelling of Bangladesh (IWM) provided their VAPs. Information on the latest response by Sentinel Asia is available at the link below.
https://sentinel-asia.org/EO/2024/article20240601BD.html



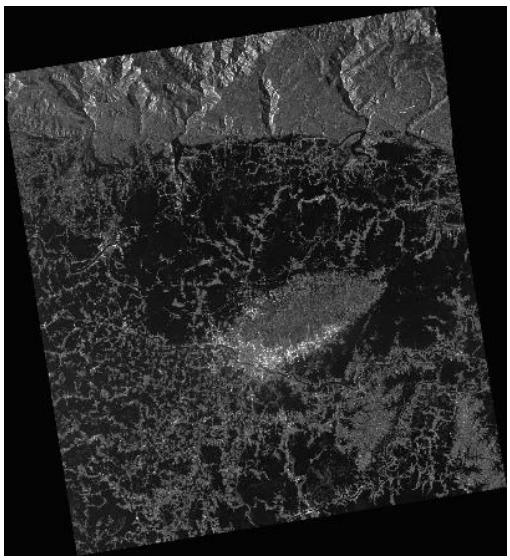
Value-Added Product by AIT



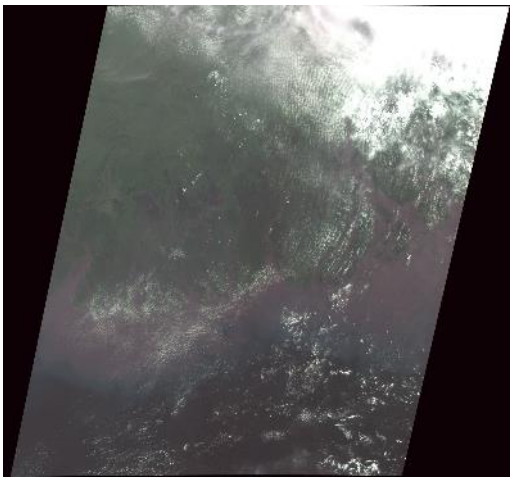
Value-Added Product by IWM



Value-Added Product by IWM



Post-disaster satellite image (ALOS-2) provided by JAXA



Post-disaster satellite image (Resourcesat-2) provided by ISRO

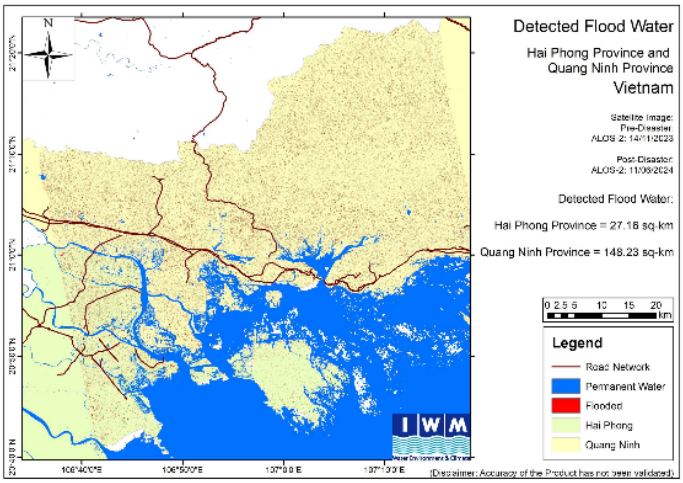
(3) Flood and Landslide in Vietnam on 9 June, 2024 (GLIDE Number FL-2024-000089-VNM)

According to ReliefWeb, on 9-10 June, heavy rain affected northern Vietnam, causing floods and landslides that resulted in casualties and damage. As of 11 June, the ASEAN Disaster Information Network (ADINet) and national authorities reported three fatalities in Ha Giang Province. A total of 9,628 people have been affected across the provinces of Dien Bien, Lao Cai, Ha Giang, Yen Bai, Cao Bang, Lang Son, Thai Nguyen, Bac Giang, Quang Ninh and Hai Phong. In addition, 2,407 houses and seven bridges have been damaged, and at least 41 landslides have been reported in Hoang Su Phi district, Ha Giang Province, blocking some road sections.

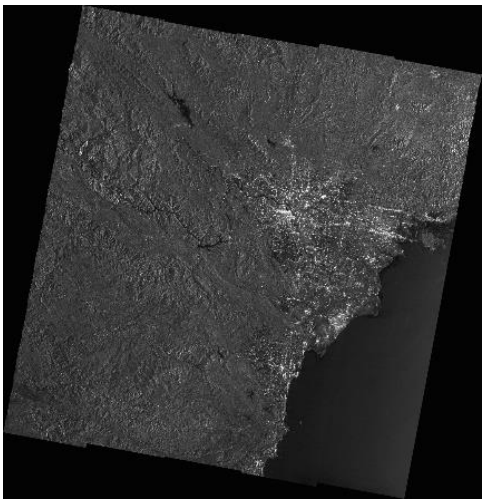
https://reliefweb.int/report/viet-nam/vietnam-severe-weather-and-landslides-adinet-national-authorites-nchmf-echo-daily-flash-11-june-2024

The Ministry of Natural Resources and Environment (MONRE) made an EOR to Sentinel Asia on 10 June. Among DPNs, JAXA, ISRO and TASA provided data. Among DANs, JAXA and IWM provided their VAPs. Information on the latest response by Sentinel Asia is available at the link below.

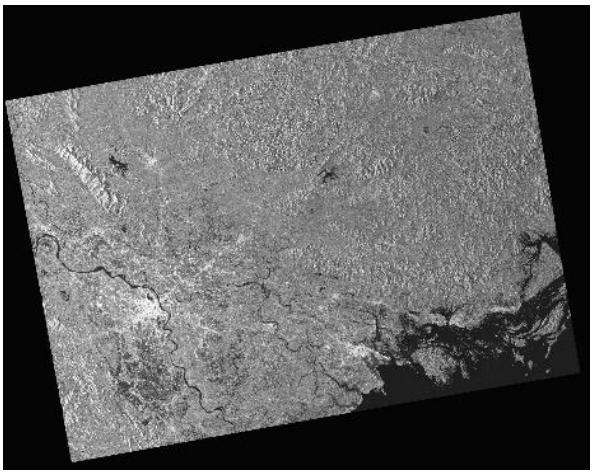
https://sentinel-asia.org/EO/2024/article20240609VN.html



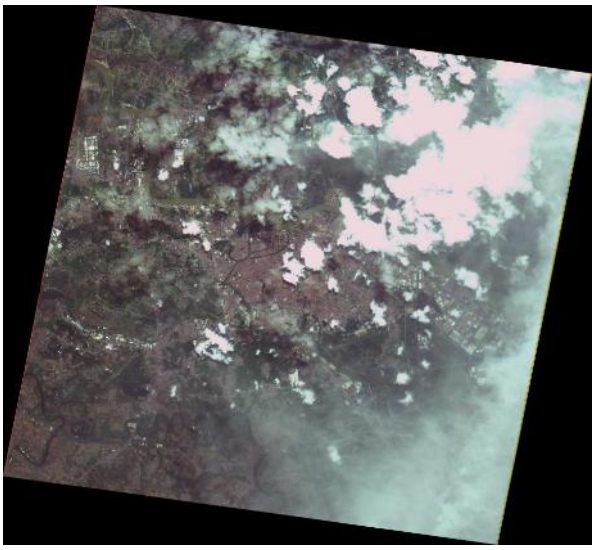
Value-Added Product by IWM



Post-disaster satellite image (ALOS-2) provided by JAXA



Post-disaster satellite image (EOS-04) provided by ISRO



Post-disaster satellite image (FORMOSAT-5) provided by TASA

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2. [Interview] Dr. Morimasa Tsuda, JICA Expert, Bangladesh Water Development Board (BWDB)

Dr. Morimasa Tsuda, a Japan International Cooperation Agency (JICA) long-term expert, dispatched from the Japan Water Agency to the Bangladesh Water Development Board (BWDB), is an advisor regarding the advancement of integrated water resource management in Bangladesh, including the use of satellite technology for disaster risk management. His contributions have been pivotal in bringing BWDB and the Institute of Water Modelling (IWM) to join the Sentinel Asia initiative in 2023 and 2024, respectively, and establishing Standard Operating Procedures (SOP) for emergency observation requests in Bangladesh.

Dr. Morimasa Tsuda
JICA Expert, Bangladesh Water Development Board (BWDB)

Sentinel Asia Secretariat
Could you tell us about your background?

Dr. Morimasa Tsuda
I began my career with the Japan Water Agency in 1999, focusing primarily on development and management of water resources. I was dispatched as a water technology and policy advisor to BWDB in June 2022. In this role, I assist in river planning and management, as well as in coordinating and building relationships with related agencies. I believe the Sentinel Asia framework can be highly effective in fostering these relationships.

Sentinel Asia Secretariat
How did you begin utilizing satellite data for disaster risk management? Could you provide specific examples of how you have used satellite data? Additionally, can you share any experiences with satellite applications and disaster risk management outside of Bangladesh?

Dr. Morimasa Tsuda

During my tenure at the International Centre for Water Hazard and Risk Management (ICHARM) from 2014 to 2017, I participated in a UNESCO project aimed at creating a flood forecasting and warning system for the Indus River in Pakistan. The primary challenge was managing the rain data to input into the model. JAXA was also involved in this project, where they corrected the GSMaP (Global Satellite Mapping of Precipitation) data with ground rain gauge information. As GSMaP relies on calculations between observations, the rain position sometimes shifted. However, this correction program adjusted the rain position to align with ground observations. This experience taught me that combining satellite and ground observations significantly improves data usability.
When I arrived in Bangladesh, where the Ganges, Brahmaputra, and Meghna rivers converge, I realized the difficulty in collecting accurate precipitation information, as only 7% of the river area flows through Bangladesh, with upstream rainfall impacting the country. I recognized the potential effectiveness of GSMaP and consulted JAXA. Around this time, BWDB was joining Sentinel Asia, and I have been collaborating with BWDB activities since then.
Moreover, I believe combining satellite images and ground observation could be instrumental in monitoring riverbank erosion. As water and sediment flow into Bangladesh from upstream, the fragile riverbank leads to the loss of houses and fields each year. We have been using satellite images to monitor erosion, but by integrating water levels to generate topography data, we can better monitor erosion around river structures. I have been advocating for Bangladesh to utilize this approach.

Sentinel Asia Secretariat

Could you tell us about any appealing points or challenges of Sentinel Asia? For instance, you requested an emergency observation in 2023—how was that experience?

Dr. Morimasa Tsuda

BWDB requested emergency observations during Cyclone Mocha in May 2023 https://sentinel-asia.org/EO/2023/article20230514BD.html .
The procedure was straightforward, and we received a substantial amount of information. In times of disaster, the simplicity of the procedure is a significant advantage.
During Cyclone Midhili in November 2023
https://sentinel-asia.org/EO/2023/article20231117BD.html ,
I appreciated the proactive concern from ADRC and JAXA regarding the impending cyclone. Initially, we were uncertain about requesting an emergency observation, but their support made it easier to proceed. It was reassuring to have them reach out to us in such a manner.

Sentinel Asia Secretariat

What are the challenges for Sentinel Asia?

Dr. Morimasa Tsuda

As we can only submit one Emergency Observation Request (EOR) per disaster, it is essential to coordinate with other domestic agencies due to the extensive coverage required. Additionally, as

the information is sent only to the organization that submitted the EOR, there is a need for a mechanism, such as WebGIS, to share this information with other domestic organizations.

Sentinel Asia Secretariat

You coordinated the roles among the relevant organizations in Bangladesh during the EOR and established the Standard Operating Procedures (SOP). Could you share what you consider to be the significance of the SOP, what you found useful, and the challenges you encountered during the coordination?

Dr. Morimasa Tsuda

Given that the target area changes from time to time, it was clear that a system to coordinate the target area in advance was necessary. To address this, we held a coordination meeting with relevant Bangladeshi agencies, and agreed on and established the SOP. With ADRC providing the template, the discussion process was straightforward. As a JICA expert, I supported the formulation of the SOP, and I found it beneficial that this process also strengthened relationships with related organizations.

Sentinel Asia Secretariat

You gave a lecture on flood monitoring using GSMaP-IF at Joit Project Team Meeting (JPTM) held in Jakarta, Indonesia in 2023 https://sentinel-asia.org/meetings/SA3JPTM8/index.html .
Could you share your comments on your participation in JPTM? Additionally, do you have any advice on the use of GSMaP for human capacity development?

Dr. Morimasa Tsuda

First and foremost, I am delighted to have participated in JPTM. It was particularly gratifying to meet and build relationships with the individuals who responded to the EOR in May.
Lecturing on GSMaP at JPTM was also a valuable experience. Some participants mentioned that they found the talk engaging. I firmly believe that the combination of satellite and ground observations is highly effective. This concept applies to other satellite data as well. I hope that DAN and DPN will consider this approach, as it could lead to the development of practical technologies that are user-friendly for disaster risk management agencies.
(Dr. Tsuda's presentation at the JPTM 2023 can be found here:
https://sentinel-asia.org/meetings/SA3JPTM8/agenda/Day2/Day2_Workshop2_2.2_BWDB.pdf)

Sentinel Asia Secretariat

Could you tell us about any appealing points about joining Sentinel Asia?

Dr. Morimasa Tsuda

Sentinel Asia is unique because it is based on volunteer-driven activities, making it easy to join and recommend to other organizations. Additionally, Sentinel Asia has been operating for over 10 years. This longevity provides a stable foundation for ongoing activities and collaborations.

Sentinel Asia Secretariat
How does Bangladesh use space technology for disaster response, and what are the challenges?

Dr. Morimasa Tsuda
Riverbank erosion is a significant focus, with IWM using satellites to monitor long-term changes. Other agencies are also studying this issue. Additionally, I have heard of using satellites to observe local river shape changes over time, which is useful when designing river infrastructure.
One major challenge is cloud cover, which hinders our ability to observe river conditions during the summer. In this context, JAXA's ALOS-2 satellite, having Synthetic Aperture Radar (SAR) sensor onboard, is advantageous because it can make observations regardless of weather conditions. However, utilizing ALOS-2 is technically challenging because we are not yet fully familiar with handling satellite data.

Sentinel Asia Secretariat
Please let us know if you have any expectations for Sentinel Asia to improve our activities.

Dr. Morimasa Tsuda
Sentinel Asia is a remarkable initiative with over a decade of success. However, there is a need for greater awareness of the participation procedures; encouraging more institutions to join could significantly enhance its impact.

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3. How to send an Emergency Observation Request

JPT member organizations are entitled to send an Emergency Observation Request (EOR) for disasters in the Asia-Pacific region. Please refer to https://sentinel-asia.org/e-learning/Emergency_Observation_Request.html

EOR Order Desk:
Asian Disaster Reduction Center (ADRC)
HP: http://www.adrc.asia/
E-mail: sarequest@adrc.asia
FAX: +81-78-262-5546,
TEL: +81-78-262-5540

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4. Using Sentinel Asia Operation System, OPTEMIS

Sentinel Asia launched a new operation system, OPTEMIS. Please refer to the website on how to create an account for OPTEMIS.
https://sentinel-asia.org/e-learning/Emergency_Observation_Request.html

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Sentinel Asia Project Office
Satellite Applications and Operations Center (SAOC)
Japan Aerospace Exploration Agency (JAXA)
Ochanomizu Sola City, 4-6 Kandasurugadai, Chiyoda-ku, Tokyo 101-8008 Japan
E-mail: Z-SENTINEL.ASIA@ml.jaxa.jp