** May 2022 News from Sentinel Asia Project Office **

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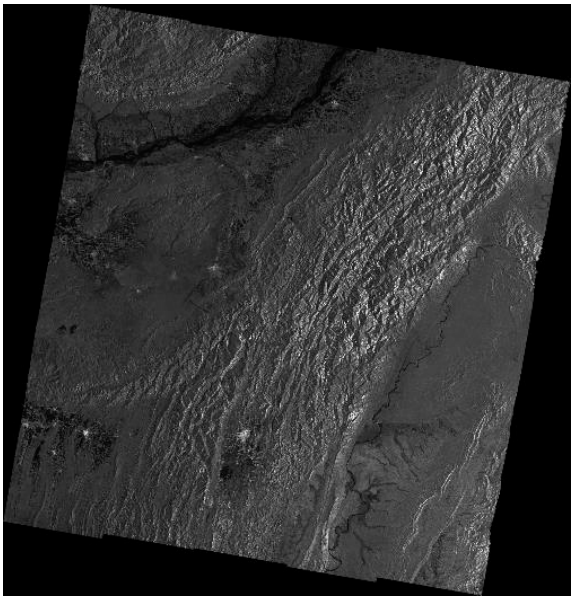
1. [News] Emergency Observation of Disasters (as of 30 May)

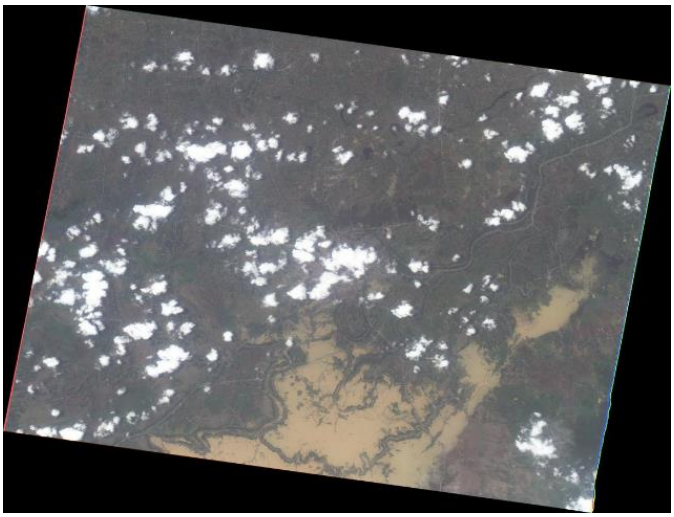
   (1) Flood in India on 15 May, 2022 (GLIDE Number FL-2022-000213-IND)

   Heavy rain triggered floods in Assam and neighboring states. According to CNN, 10 people were killed and more than 700,000 were affected by 19 May. (https://edition.cnn.com/2022/05/18/india/assam-india-rain-flooding-intl-hnk/index.html)

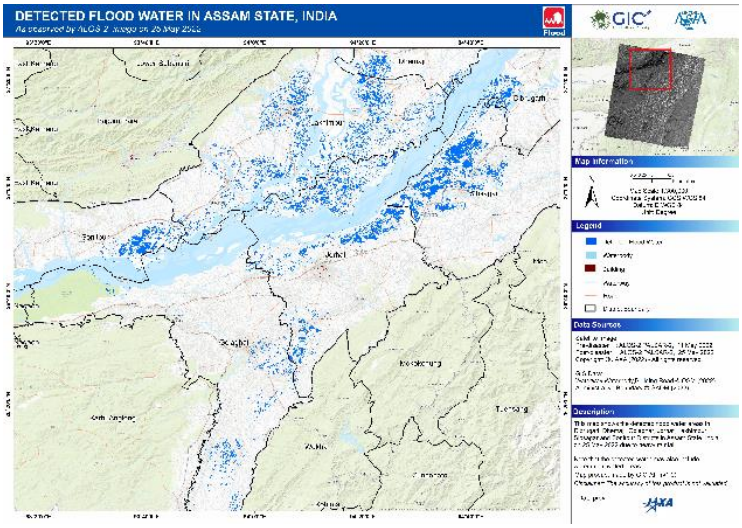
   The Indian Space Research Organisation (ISRO) made an Emergency Observation Request (EOR) to Sentinel Asia on 20 May. Among Data Provider Nodes (DPNs), the National Applied Research Laboratories (NARL) and the Japan Aerospace Exploration Agency (JAXA) provided data. Among Data Analysis Nodes (DANs), the Asian Institute of Technology (AIT), the Mohammed Bin Rashid Space Centre (MBRSC), and the Earth Observatory of Singapore (EOS) provided their VAPs. Information on the latest response by Sentinel Asia is available at the following link:
   https://sentinel-asia.org/EO/2022/article20220515IN.html



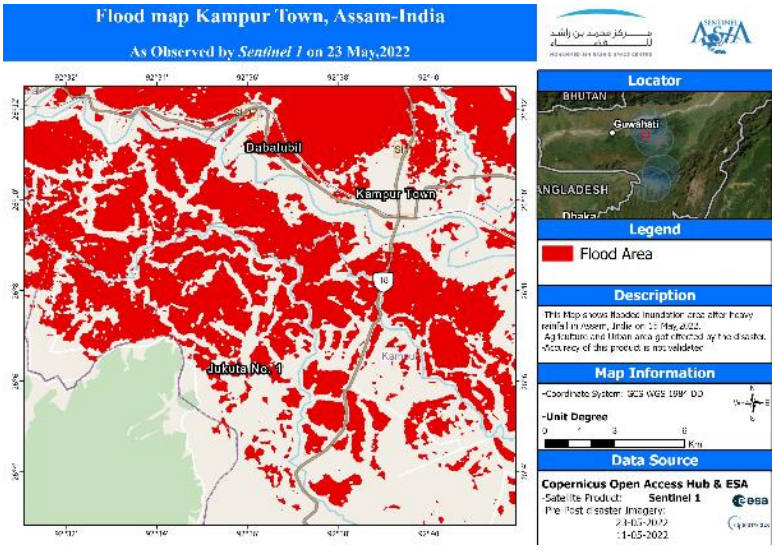
Satellite image (ALOS-2) provided by JAXA



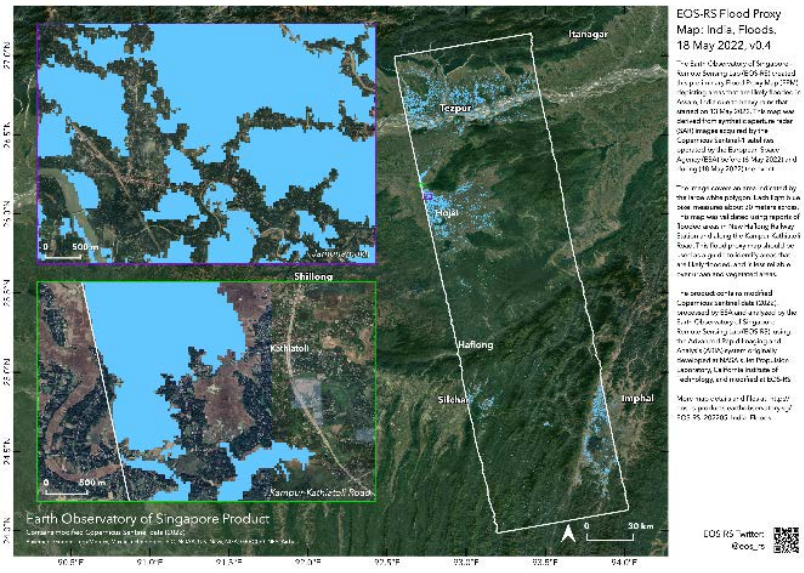
Satellite image (FORMOSAT-5) provided by NARL



Value-Added Product by AIT



Value-Added Product by MBRSC



Value-Added Product by EOS

(2) Coastal Flood in Indonesia on 23 May, 2022 (GLIDE Number SS-2022-000219-IDN)

A tidal wave hit the northern coast of Central Java, Indonesia, and caused coastal floods on 23 May. According to Antara News, wide areas on the northern coast were affected. (https://en.antaranews.com/news/231369/panturas-most-areas-affected-by-coastal-flooding-tidal-waves-bnpb)

The Institute of Technology Bandung (ITB) made an Emergency Observation Request (EOR) to Sentinel Asia on 27 May. Information on the latest response by Sentinel Asia is available at the following link:
https://sentinel-asia.org/EO/2022/article20220523ID.html

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2. [Interview] Prof. Dr. M. Rokhis Khomarudin, Research Professor of the Remote Sensing Research Center, Research Organization of Aeronautics and Space (ORPA), Indonesia

The Indonesian National Institute of Aeronautics and Space (LAPAN) is a long-time member of Sentinel Asia and Indonesia is one of the countries sending Emergency Observation Requests (EORs) to Sentinel Asia most frequently. It underwent a restructuring of governmental agencies and institutions for research and innovation in 2021. Prof. Dr. M. Rokhis Khomarudin talks about this as well as the use of space technology for monitoring disasters and climate change in response to the Sentinel Asia Secretariat.

Prof. Dr. M. Rokhis Khomarudin
Research Professor of the Remote Sensing Research Center
Research Organization of Aeronautics and Space (ORPA),
National Research and Innovation Agency (BRIN), Indonesia

Sentinel Asia Secretariat

First, could you tell us about your organization's recent restructuring? We heard that many research institutions have been combined under the National Research and Innovation Agency (BRIN). What is your current organization exactly? And what is different from the past LAPAN as an individual agency? We also would like to know if there is any change in your position with respect to Sentinel Asia.

Prof. Dr. M. Rokhis Khomarudin

In 2021, Indonesia decided to merge all research institutes in Indonesia, not only LAPAN but also other research and technology institutes, such as the Ministry of Research and Technology (RISTEK), BPPT (Agency for the Assessment and Application of Technology Indonesia), LIPI (Indonesian Institute of Sciences), and BATAN (National Nuclear Energy Agency of Indonesia), into one institute, the National Research and Innovation Agency, and we call it BRIN. For example, even a research institute under the Ministry of Agriculture was integrated into BRIN. It is a really big organization. LAPAN itself became one of the research organizations under BRIN and now is called the Research Organization of Aeronautics and Space (ORPA). We still work as a space agency the same as before, but BRIN also created the Secretariat of the Indonesian Space Agency (INASA) to handle international collaboration activities with other space agencies of the world. They have several other duties, such as public service, relations, and cooperation first, and then the duties are handed over to other centers.

Under this new structure, the INASA will be the focal point for the Asia-Pacific Regional Space Agency Forum (APRSAF), and INASA will handle administrative matters for Sentinel Asia, but technically the Remote Sensing Research Center of ORPA will continue to support Sentinel Asia.

For additional information, under BRIN, we have 12 research organizations with 85 research centers. ORPA itself has five research centers, which are the Space Research Center, the Rocket Technology Research Center, the Aerospace Research Center, the Satellite Research Center, and the Remote Sensing Research Center. More than 15,000 people work for BRIN. Now, my position is a research scientist at the Remote Sensing Research Center who focuses on research activities in the field of remote sensing, especially on remote sensing methodology development.

Sentinel Asia Secretariat

We think ORPA (formerly LAPAN) will contribute to innovation in your country through your space activities as an agency under BRIN. Is disaster management using space technology included part of that scheme? Do you have any concrete policies/plans in this regard? Please tell us about the role and activities of ORPA on the point of "Space and Disaster Management."

Prof. Dr. M. Rokhis Khomarudin

The business process is still under discussion regarding the activities because, as I already mentioned, we have two organizations under BRIN and have not decided yet which organization should take care of specific businesses. However, ORPA has some research on how to use remote sensing for disaster management under the Remote Sensing Research Center. The center has three research programs. The first is related to technology and data and they handle data as input for all remote sensing activities. The second is method development for image processing. The last is platform development. I am responsible for the second one and we have three groups under the program. The first one is related to land resources for agriculture, forestry, mining, etc. The second group is related to disasters and this group will take care of disaster-related issues. The third group is related to marine and fisheries research.

I am sure that ORPA and INASA will continue to contribute to space innovation activities, including disaster management using space technology, and under BRIN, the activities will become stronger because it can involve more of BRIN's resources.

Sentinel Asia Secretariat

We appreciate your contribution to Sentinel Asia. The number of EORs from Indonesia is the largest. We think Sentinel Asia is efficiently used in your country. Could you introduce some EORs and other Sentinel Asia activities that made an impression on you?

Prof. Dr. M. Rokhis Khomarudin

First of all, I would like to say thank you for your support in providing remote sensing data for disaster emergency response in Indonesia.

Indonesia has suffered various types of disasters such as volcanic eruptions, storms, and tsunamis. So, the emergency observations by the Sentinel Asia satellite fleet are very useful for us for disaster emergency response. One example is flooding in Sulawesi in July 2020 (https://sentinel-asia.org/EO/2020/article20200716ID.html). Around 5,000 households across six districts were affected by this disaster. We sent an EOR to Sentinel Asia and received satellite data from five agencies (CRISP, GISTDA, ISRO, JAXA, NARL) and value-added products (VAPs) from two agencies of Sentinel Asia (AIT and MBRSC). In addition, this EOR was escalated to the International Disasters Charter to have more satellite data, and AIT provided a project manager for this Charter activation. LAPAN itself produced many VAPs, with the data obtained from the Charter satellites as part of Sentinel Asia's escalation.

My impression through Sentinel Asia is to collaborate and work with other people in other institutes, in other words, networking. Sentinel Asia joint project team (JPT) members are given the opportunity to participate in regular meetings such as JPT meetings and capacity-building events such as training workshops and webinars organized by and for JPT members. Also, Data Analysis Nodes (DAN) of Sentinel Asia are very important for us because we sometimes find difficulties processing the data, but Sentinel Asia provide us with support through DANs.

Another important thing for us is the mechanism of "Sentinel Asia Escalation to the Charter." Through this mechanism, we can escalate activations of Sentinel Asia to the International Disasters

Charter (IDC). If no data from Sentinel Asia is available or additional data other than data from Sentinel Asia constellation satellite are desirable, then IDC can support us as well. What is significant and beneficial is that in the case of Sentinel Asia escalation, the Sentinel Asia community provides its total support, conducting the production of VAPs, in terms of roles and responsibilities in the context of IDC, which is also a wonderful support from Sentinel Asia.

Sentinel Asia Secretariat

Sentinel Asia's contributions are recognized as a solution to socioeconomic issues under APRSAF's Nagoya Vision. Could you tell us how Sentinel Asia is/will be used as such a solution in Indonesia? Please also advise us regarding what you expect for Sentinel Asia and how you intend to contribute to it.

Prof. Dr. M. Rokhis Khomarudin

I also think remote sensing in general will be able to support socioeconomic issues; for example, SDGs, especially SDG 2 (Zero Hunger), SDG 6 (Clean Water and Sanitation), SDG 11 (Sustainable Cities and Communities), SDG 13 (Climate Action), and SDG 14 (Life Below Water). There are still challenges to apply remote sensing, but we have collaborated with the United Nations Climate Change conference (COP) to detect slum areas. Disaster management is, too, one of the big socioeconomic issues and Sentinel Asia can support our disaster management activities with emergency response to disasters and can reduce the impact of the disasters and accelerate the rehabilitation process. This is realized in Sentinel Asia Step 3.

Sentinel Asia Secretariat

Speaking of SDG 13 (Climate Action) that you mentioned, disaster management is a climate change-related activity. Does Indonesia conduct disaster management activities in this context? If so, please tell us about your activities and plans.

Prof. Dr. M. Rokhis Khomarudin

Climate change and disaster management is important to study, especially using remote sensing. Under the second program I mentioned in the previous question, I conduct research on the prediction of Jakarta sinking* by 2030. Remote sensing supports land use/cover change, land subsidence, coastal change, and deforestation. We use not only climate data but also sea surface data to predict the future condition. Through modelling, we can estimate Jakarta's condition in 2030. I think remote sensing can support such climate applications.

*Note: The surface level of the capital city of Indonesia is subsiding because of the high rate of the use of groundwater while the sea surface rises with the effects of climate change.

Sentinel Asia Secretariat

LAPAN developed several of its own satellites and LAPAN-A4 will be launched soon. What are the details of this satellite? Could Sentinel Asia expect the data provision of LAPAN-A4 and/or possibly its future follow-on missions?

Prof. Dr. M. Rokhis Khomarudin

We hope that LAPAN-A4 will be launched this year and we will continue to develop satellites. LAPAN-A4 is an experimental satellite. It will not operate on its own, but will be used in combination with LAPAN-A1 to A3. The satellite continues the mission from LAPAN-A3 and will be used to monitor earth surface conditions with AIS and magnetometer sensors. Its sensor is optical, with red, green, blue, and infrared, and the resolution will be 4 meters. Regarding data sharing,

further discussion is needed, but I think it would be possible to share, especially on disaster emergency response for research purposes, and I will make efforts to make this possible.

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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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