** February 2023 News from Sentinel Asia Project Office **

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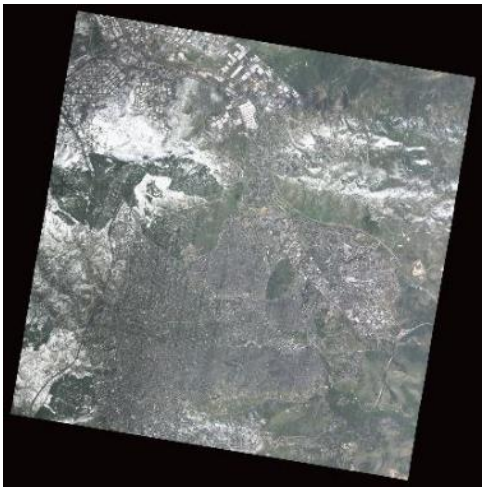
1. [News] Emergency Observation of Disasters (as of 28 February)

   (1) Earthquake in Turkey on 06 February, 2023 (GLIDE Number EQ-2023-000015-TUR)

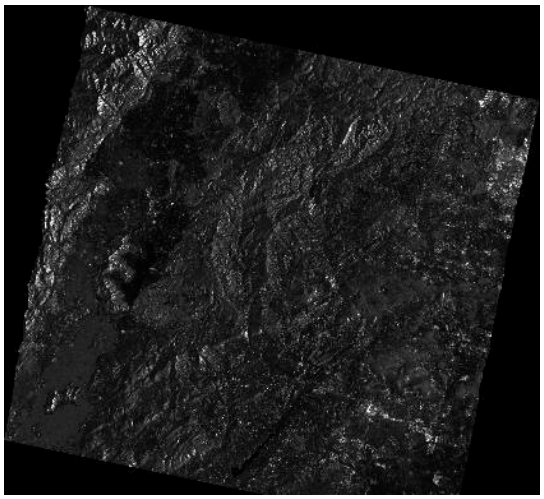
   On 06 February, a magnitude 7.8 earthquake occurred in Gaziantep Province, Turkey, near the border with Syria. A large number of aftershocks including one with a magnitude of 7.5 followed in the region. ReliefWeb reported that over 36,100 people were killed and 216,347 people from affected areas have been relocated to other provinces, according to Turkey's Disaster and Emergency Management Authority (AFAD) on 16 February. (https://reliefweb.int/disaster/eq-2023-000015-tur)

   The AFAD made an Emergency Observation Request (EOR) to Sentinel Asia on 6 February, 2023. Among Data Provider Nodes (DPNs), GISTDA, ISRO, JAXA, MBRSC, and TASA provided data. Among Data Analysis Nodes (DANs), the Institute of Geology, China Earthquake Administration (CEA), Chiba University, the Earth Observatory of Singapore (EOS), TASA, the Tokyo Institute of Technology (TIT) with the University of Tabriz and Gebze Technical University, MBRSC, the National Disaster Management Research Institute (NDMI), and Symbiosis Institute of Geoinformatics (SIG) , Symbiosis International University (SIU) 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/2023/article20230206TR.html

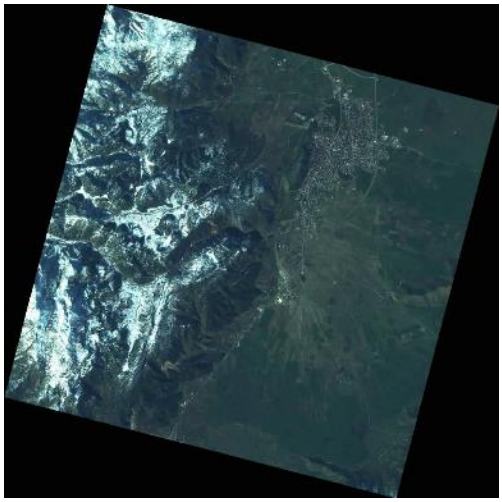
Post-disaster satellite image (THEOS-1) provided by GISTDA



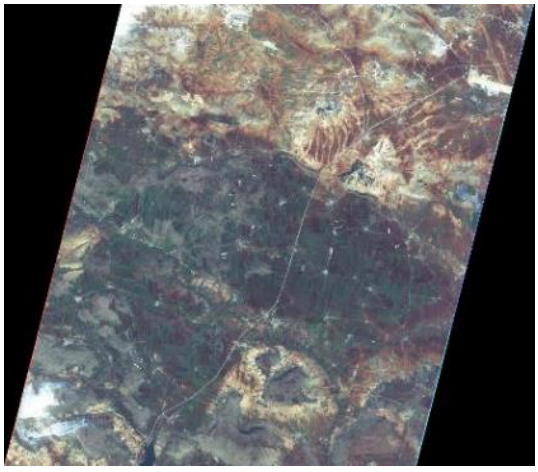
Post-disaster satellite image (CARTOSAT-3) provided by ISRO



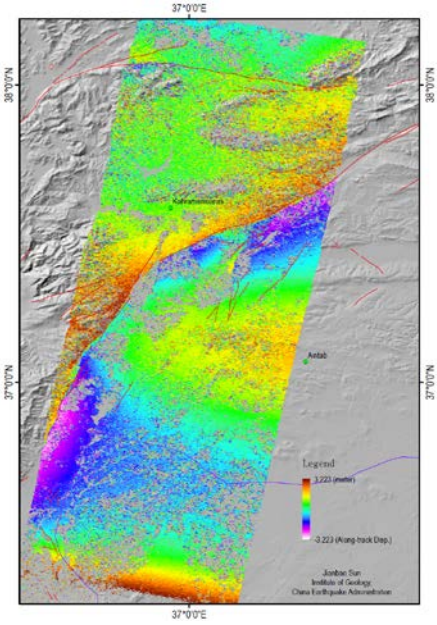
Post-disaster satellite image (ALOS-2) provided by JAXA



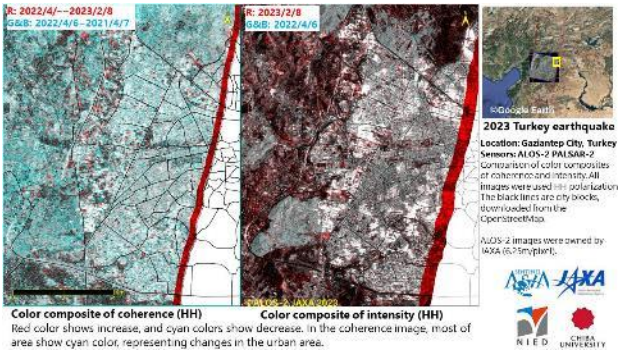
Post-disaster satellite image (KhalifaSat) provided by MBRSC



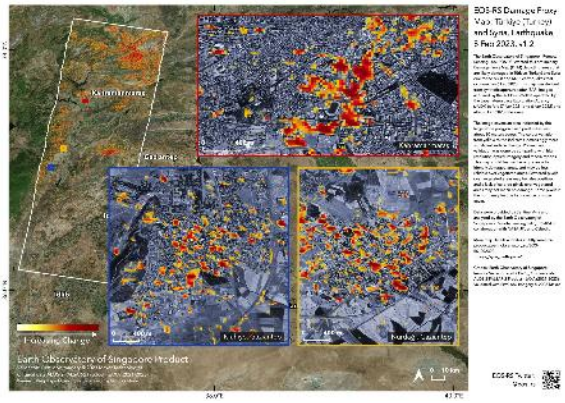
Post-disaster satellite image (FORMOSAT-5) provided by TASA



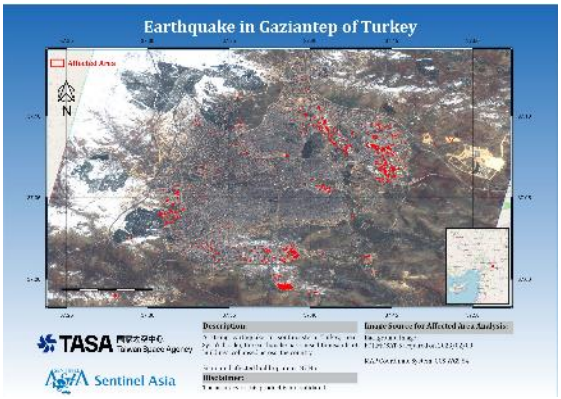
Value-Added Product by CEA



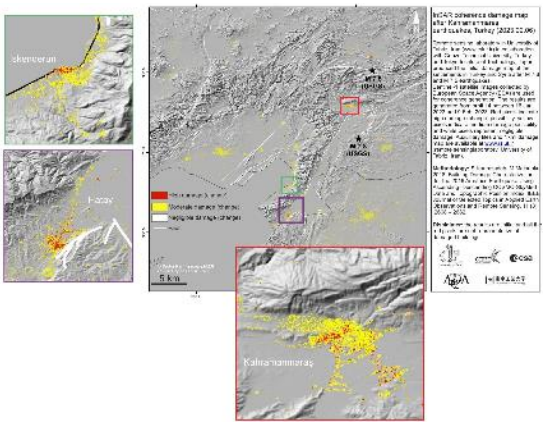
Value-Added Product by Chiba University



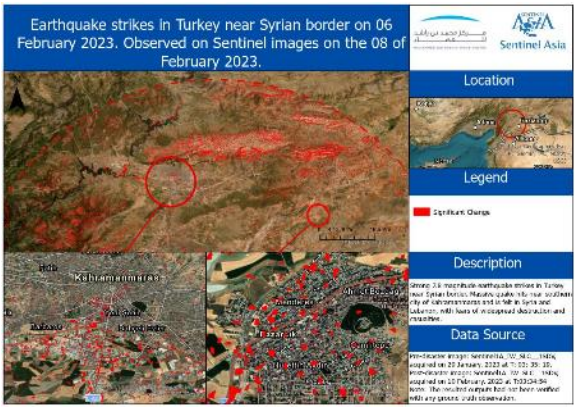
Value-Added Product by EOS



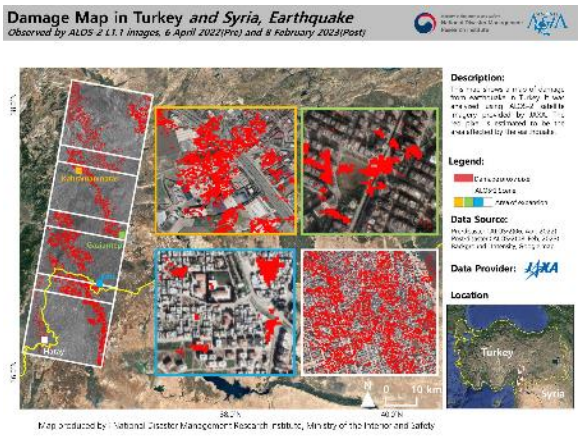
Value-Added Product by TASA



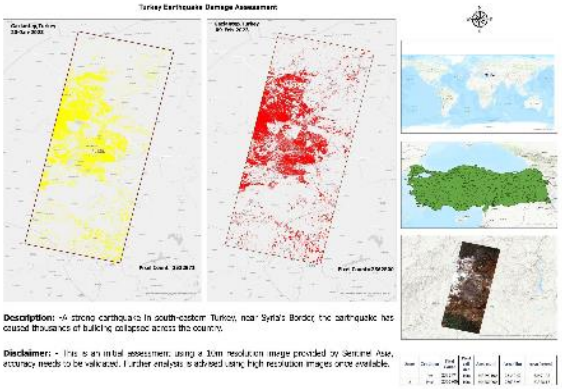
Value-Added Product by TIT with the University of Tabriz and Gebze Technical University



Value-Added Product by MBRSC



Value-Added Product by NDMI

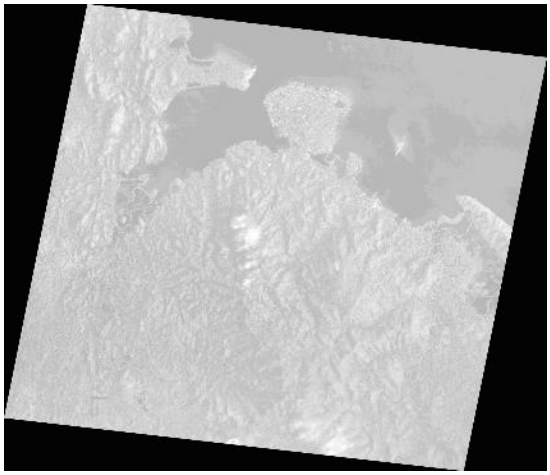


Value-Added Product by SIG-SIU

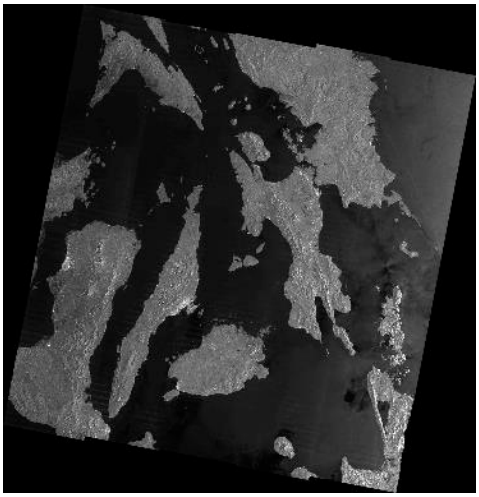
(2) Earthquake in the Philippines on 16 February, 2023 (GLIDE Number EQ-2023-000025-PHL)

A magnitude 6.0 earthquake hit Masbate Island near Luzon and Samar islands in the Philippines on 16 February. Philippine News Agency reported the day after the quake that 61 houses, 15 schools, and six buildings were damaged, but there were no casualties. (https://www.pna.gov.ph/articles/1195447)

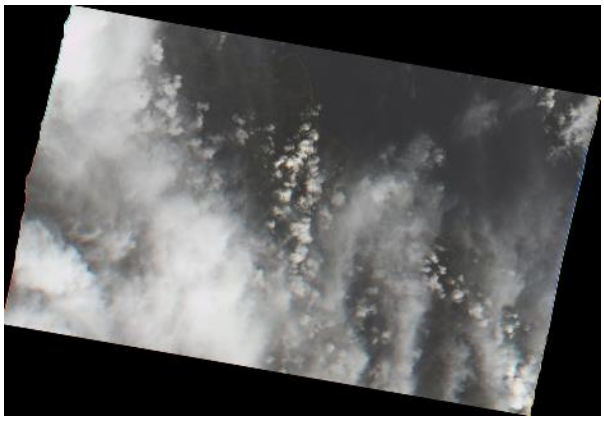
The Philippine Institute of Volcanology and Seismology (PHIVOLCS) made an Emergency Observation Request (EOR) to Sentinel Asia on 17 February, 2023. This EOR was escalated to the International Disasters Charter. PHIVOLCS assumed the role of Project Manager for this Charter activation. Among DPNs, CRISP, JAXA, and TASA provided data. Information on the latest response by Sentinel Asia is available at the link below.
https://sentinel-asia.org/EO/2023/article20230216PH.html



Post-disaster satellite image (TelEOS-1) provided by CRISP



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



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

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2. [News] Philippine Space Agency became a member of Sentinel Asia as a Data Provider Node

On 24 January, 2023, the Philippine Space Agency (PhilSA) became a member of Sentinel Asia as a Data Provider Node, which provides Earth observation satellite images when Sentinel Asia is activated.

Sentinel Asia is an international cooperative project that aims to contribute to disaster management in the Asia-Pacific region by utilizing space technology. The purpose is to reduce the damage caused by natural disasters by sharing disaster-related information, such as Earth observation satellite images, via the Internet. Sentinel Asia was established in 2006 as an initiative of the Asia-Pacific Regional Space Agency Forum (APRSAF), with JAXA playing the role of secretariat.

PhilSA, established in 2019, is the central government agency addressing all national issues and activities related to space science and technology applications. As a Data Provider Node, PhilSA is expected to provide Earth observation satellite images from two satellites: DIWATA-2 and NovaSAR-1.

DIWATA-2, an Earth observation microsatellite, was built by researchers from the University of the Philippines Diliman (UPD) and the Advanced Science and Technology Institute of the Department of Science and Technology (DOST-ASTI) in cooperation with Tohoku University and Hokkaido University in Japan and launched from the Tanegashima Space Center in October, 2018.

NovaSAR-1 is a Synthetic Aperture Rader (SAR) satellite. Other mission partners include UK Space Agency (UKSA), Australia’s Commonwealth Scientific and Industrial Research Organization (CSIRO), and the Indian Space Research Organisation (ISRO).

The total number of Sentinel Asia members in the Philippines is now 10, including Data Analysis Nodes and Disaster Management Organizations. As an executive secretariat of Sentinel Asia, JAXA will continue working with the Sentinel Asia member to deepen and revitalize community cooperation and establish Sentinel Asia as a tool for disaster management in the affected countries.

The Sentinel Asia Secretariat visited PhilSA and handed over an approval letter to become a member of Sentinel Asia (January 25, 2023)

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3. [News] PHIVOLCS organized Project Manager training on the Disasters Charter for Filipino agencies

"The International Charter Space and Major Disasters," or "the Charter," is an international framework for space agencies, currently 17, to provide satellite observation images in response to disaster emergencies worldwide. Sentinel Asia has close relations to the Charter. In addition to some members of Sentinel Asia also being members of the Charter, any member organizations of Sentinel Asia can request emergency observation by Charter satellites at the same time that they send an Emergency Observation Request (EOR) to Sentinel Asia when needed.

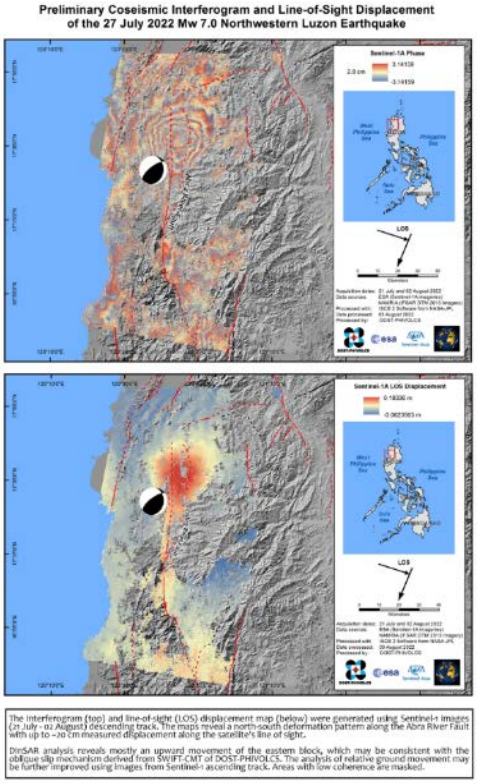
The Philippine Institute of Volcanology and Seismology (PHIVOLCS) is an active member of Sentinel Asia and has contributed to Sentinel Asia activities by providing its analysis for EORs. PHIVOLCS is also a member of the Sentinel Asia Steering Committee. On 24 January, 2023, PHIVOLCS, with the support of JAXA, organized Project Manager training in Quezon City, Philippines.

"Project Manager" is a role within the Charter to manage activation and communicate with users and space agencies. PHIVOLCS has been working as a project manager for Charter activations in

the Philippines. Considering the importance of the project manager from the country requesting Charter activation, PHIVOLCS invited the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), the Mines and Geoscience Bureau (MGB), the Department of Environment and Natural Resources, the Advanced Science and Technology Institute (ASTI), the Manila Observatory, and the newly established Philippine Space Agency (PhilSA) for the training and 38 people participated in total.

The training started with remarks by Dr. Teresito C. Bacolcol, Director of PHIVOLCS, and the participants learned about how the Charter works and the role of the Project Manager in Charter activations. They also deepened their understanding of Sentinel Asia and discussed the role of each participating agency and protocol when a disaster occurs in the Philippines.

The International Charter Space and Major Disasters
https://disasterscharter.org/
How the Charter Works
https://disasterscharter.org/web/guest/how-the-charter-works



A Value-Added Product produced by PHIVOLCS for an earthquake in the Philippines, 27 July, 2022. PHIVOLCS also worked as a project manager.

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4. [Interview] Dr. Arturo Daag, Philippine Institute of Volcanology and Seismology (PHIVOLCS)

The Philippine Institute of Volcanology and Seismology (PHIVOLCS) is a service institute of the Department of Science and Technology (DOST) that is principally mandated to mitigate disasters that may arise from volcanic eruptions, earthquakes, tsunami and other related geotectonic phenomena. They provide timely, quality and socially-inclusive information and services for warning, disaster preparedness and mitigation. They do through the development and application of technologies for the monitoring and accurate prediction of, and determination of areas prone to, volcanic eruptions, earthquakes, tsunamis and other related hazards, and gender-responsive capacity enhancement for comprehensive disaster risk reduction.

Sentinel Asia secretariat interviewed Dr. Arturo S. Daag, Associate Scientist at DOST-PHIVOLCS, on their activities relating to Sentinel Asia.

Sentinel Asia Secretariat
The Sentinel Asia Secretariat is grateful for PHIVOLCS' long-time contribution to our activities. As one of our Data Analysis Nodes (DANs), we understand that you are one of the principal institutions that work against disasters in the Philippines. We also expect you to continue to serve this role. Could you tell us the background of your joining Sentinel Asia (SA)?

Dr. Arturo Daag
PHIVOLCS joined SA more than a decade ago through joint projects, mainly on capacity building, partnering with Japan Aerospace Exploration Agency (JAXA). Some of those projects were conducted with the full support of JAXA and in partnership with PASCO-Philippines in which several educators came from Japan and provided knowledge of processing optical and later SAR (JERS, ALOS1 & 2) remote sensing data.
Some of the successful projects concerned the use of ALOS-2 and GIS data for detecting land deformation and subsidence near metro Manila, fault system studies, and volcano activity monitoring.
In more recent activities, JAXA supported PHIVOLCS' partnership with NTT data for using Global Satellite Mapping of Precipitation (GSMaP) (near real-time rainfall observation) data and RADAR for landslide management. In this project, the calibration of the satellite observation showed a strong correlation with the field observations especially on heavy to moderate rainfall. These data were then utilized on a Web-based application for a landslide monitoring and warning system. Based on such a system, PHIVOLCS conducted capacity building for local people in Rizal Province as a pilot site. At the moment and in more recent years, PHIVOLCS uses the capacity of Sentinel Asia for data acquisition in times of disaster.

Sentinel Asia Secretariat
The Philippines has the largest number of SA members next to Japan. Can you tell us the framework of these institutions and the roles of each member in your country?

Dr. Arturo Daag
The Philippines is prone to various disasters, from meteorological and geologic hazards. The frequency of disasters is higher compared to other countries. Member disaster organizations, both government and non-government, are active during disasters and thus there is a good network and collaborations.

The Sentinel Asia Project Manager training session can be considered as the starting point for better collaborations. Now, the Philippine Space Agency (PhilSA) is also on board with Sentinel Asia activities, and since it acts as a mother agency, by designing a proper protocol as a leader, I expect to have more agencies/institutes contributing to Sentinel Asia.

Sentinel Asia Secretariat
"World Disaster Risk 2022" by Bündnis Entwicklung Hilft and the Institute for International Law of Peace (RUB) and Armed Conflict at Ruhr University Bochum (IFHV) points out the Philippines as the highest disaster risk country. Disaster management is the top priority of your country. Could you please tell us what is the role of SA in your country? And what is PHIVOLCS' motivation for joining SA?

Dr. Arturo Daag
One of PHIVOLCS' mandates is to study and monitor earthquake and volcanic eruptions. In the case of a large-scale event, PHIVOLCS is required to provide an immediate update/map of the impacted area. Since PHIVOLCS was trained to conduct image processing and use satellite observations, now we have the capacity to use the Sentinel Asia Portal for Earth Observation Request (EOR) at the time of a disaster to generate those maps and information.

Sentinel Asia Secretariat
Q4: On another topic, the former director of PHIVOLCS, Dr. Renato Solidum, is now the Secretary of the Department of Science and Technology (DOST). Does this change in your organization cause any revisions in your goals or plans? If so, do you have any changes in relation to SA?

Dr. Arturo Daag
Since the new PHIVOLCS' director is also in the remote sensing field and GPS, PHIVOLCS values the usefulness of remote sensing data in disaster management, and I'm sure the role and interest of PHIVOLCS will remain the same. Also, our human resources are now trained, and they can make the most of the remote sensing data. The newly established "Remote Sensing" unit at PHIVOLCS is part of the PHIVOLCS strategy of better-using satellite observation for disaster management.

Sentinel Asia Secretariat
We suppose that PHIVOLCS mainly handles disasters related to volcanic eruptions and earthquakes. How do you combine Sentinel Asia in your disaster management activities?

Dr. Arturo Daag
Sentinel Asia plays a crucial role in disaster management in the Philippines. Especially in the time of a large-scale event, the only timely way to grasp the situation is through satellite observation. Sentinel Asia plays an important role in times of disaster through the coordinated efforts of Satellite Data Providers by providing data free of charge in times of disaster, which is very important in disaster management.

Sentinel Asia Secretariat
PHIVOLCS has handled disasters related to storms, like Typhoon Haiyan (Yolanda) in 2013. Considering that there is so much damage from such storms, what do you expect from SA for the storms?

Dr. Arturo Daag
Large events such as Typhoon Haiyan require huge international effort since the demand for data download and processive are intensive. At that time, Project Management and all the related coordination usually take an enormous effort; luckily, international partners helped in the value-added product development.

If the event is related to a flood, landslide, or typhoon, it is better if PHIVOLCS does not act as a project manager, as those issues are not part of PHIVOLCS' mandate. However, for several flood and landslide events, we act as Project Manager since there are no other available personnel to take over. However, since we just conducted Project Management Training, agencies concerned with meteorological hazards should act as PM, such as PAGASA and other agencies.

Sentinel Asia Secretariat
What are the advantages of SA, for example, the provision of Value-Added Products by DAN in a timely manner, etc.? And can you tell us what you expect from SA?

Dr. Arturo Daag
One of the important aspects of the SA is collaborations with other international partners. Some of the resources and expertise come from other SA member countries. For example, at the time of a flood, if the Philippines DAN does not process the data due to other response priorities related to the disaster, other DANs like the Asian Institute of Technology (AIT) could support us by processing the data and provide the information to the Philippines. Some DAN partners also provide training sessions as part of capacity building for SA members.

Sentinel Asia Secretariat
PhilSA develops Philippines earth observation satellites. What do you expect from these satellites?

Dr. Arturo Daag
PhilSA satellites at the moment are mainly in the experimental stage and are mostly small satellites such as CubeSat and NanoSatellite, which were part of the early development under DOST-ASTI. With the creation of PHILSA, the development of EOS will be faster since manpower and resources has increased. In the near future, PHILSA will join as Data Provider Node.

Sentinel Asia Secretariat
SA is expected to contribute to promoting the resolution of socioeconomic challenges in the "Nagoya Vision" of the Asia Pacific Regional Space Agency Forum (APRSAF) (https://www.aprsaf.org/annual_meetings/aprsaf26/outcome_documents.php#Vision). Is SA combined for solving these challenges in the Philippines, or will it be?
contribute to SA?

Dr. Arturo Daag

PHIVOLCS can contribute to developing good practices and highlighting the importance and impact of the data provided by SA for other stakeholders and agencies in the Philippines when it comes to disasters.

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5. 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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6. 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