GIC GEOINFORMATICS CENTER

January 2023 NEWSLETTER
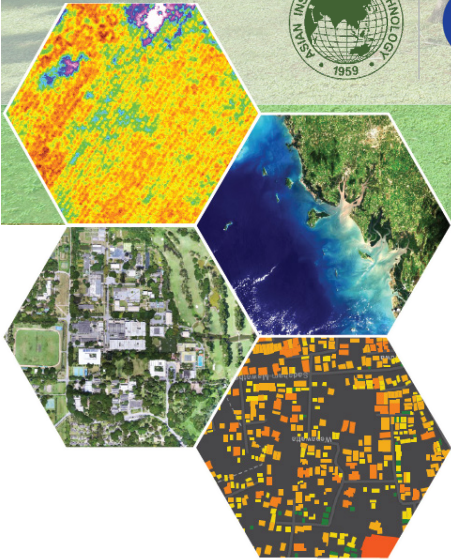
The 21st Steering Committee Meeting of Sentinel Asia

The 21st Steering Committee Meeting of Sentinel Asia was held at the Asian Institute of Technology (AIT) on 10-11 October 2022. The meeting was organized by the Asian Disaster Reduction Center (ADRC) and Japan Aerospace Exploration Agency (JAXA) with the participation of several Data Providing Nodes (DPN) and Data Analyzing Nodes (DAN).

During the event, members discussed ways to improve value-added product generation for natural disasters and strengthen user interaction within the Sentinel Asia community by sharing members' experiences and knowledge.

Sentinel Asia steering committee meeting participants in front of Geoinformatics Center

Mongolia National Training on Digital Technologies for Disaster Risk Management

The Mongolia National Training on Digital Technologies for Disaster Risk Management was held on 13-14 October 2022 in Ulaan Baatar, Mongolia. Mr. Anish Ratna from Geoinformatics Center joined this training program as a resource person and delivered lectures on Digi

Photograph of the participants during a lecture session

tal Technologies for Disaster Risk Management. There were 48 participants from national agencies and private organizations such as the National Emergency Management Agency (NEMA), the Emergency Management Department of the Capital City, the Disaster Research Institute, the Ministry of Digital Development and Communications and National Data Center, the National University of Mongolia, etc.

During day 1, participants were given lectures about the introduction to DRM, data necessary for DRM, and Information and Communication Technology (ICT) for risk assessment and visualization. The lecture duration was about an hour and a half for each session. Participants were introduced to freely available applications for downloading Satellite, DEM, and thematic data, along with a demonstration of the Risk Changes application, which can be used for risk assessment.

On day 2, lectures were given on using ICT in disaster prevention, mitigation, preparedness, response, and recovery. Participants took part in a "Stop Disasters!" game, where they learned about virtual disaster risk management and risk communication.

Launch and Training of PyAEZ v2.0.0

The agroecological zoning (AEZ) methodology developed by FAO and IIASA is a well-established modeling system for land evaluation to support sustainable land-use planning, stimulate agricultural investments, monitor the status of farming resources, and assess the impacts of climate change on agriculture.

While the 4th version of global assessment (GAEZ) was established on the 17th of June 2021, there is an increase in demand for national-level and regional-level AEZ in many parts of the countries to implement, which requires tremendous skills, data, and capacity supporting tools to effectively deliver the essential AEZ outputs and reach out for decision making in the land-use planning. Thus, PyAEZ (Python library for AEZ framework) is developed by the Geoinformatics Center of AIT in collaboration with the FAO Regional Office for Asia and the Pacific (Strengthening Agro-climatic Monitoring and Information System) Project in Lao PDR and IIASA.

PyAEZ system comprises six modules to generate agro-climatic and crop-specific comprehensive information regarding crop suitability and land productivity in terms of agro-climatic yield relevant to

the planning and decision-making process. PyAEZ package is of particular interest to national and international organizations dealing with different agriculture production and sustainability, land and water resources, food security, agricultural development, climatic variability, and climate change.

The PyAEZ launching event was held on 28th November 2022 with the participation of 60 members from 34 countries. The training program was held from 29th November 2022 – 2nd December 2022, including practical sessions and presentations from Swun Wunna Htet and Kittiphon Boonma from Geoinformatics Center. Fifty-five participants attended the training, and they could better understand the AEZ assessment process and the PyAEZ

FAO (Food and Agriculture Organization) Agriculture Statistics Training

GIC and the Food and Agriculture Organization of the United Nations - Regional Office for Asia and the Pacific (FAO-RAP) jointly held a capacity building event at AIT to compile farm-based SDG indicators and explore ground truth data collection tools for agriculture statistics from 28 November - 02 December 2022.

Participants included statisticians from national statistics offices around the region, including Cambodia, Nepal, Timor Leste, Indonesia, Mongolia, Sri Lanka, and Thailand, as well as geospatial professionals from the Thailand Office of Agricultural Economics. During the technical meetings, participants worked on their respective national datasets to compile information for SDG indicator 5.a.1 - Women's ownership of agricultural land, SDG indicator 2.3.1 - Productivity of small-scale food producers, and SDG indicator 2.3.2 - Average income of small-scale food producers, by sex and indigenous status.

The ground truth data portion of the event led par-

ticipants through sessions focusing on ground truth data collection for remote sensing of agricultural areas. Sessions encompassed a range of topics central to ground truth data collection, including core data requirements, sampling design & selection, questionnaire design, enumerator training, ground truth data collection, data upload, and data dissemination. Participants were introduced to the Open Foris Collect & Collect Mobile data collection tools and approaches to ground truth data collection with drones and high-resolution satellite images.

Group photograph taken in front of Geoinformatics Center

Training on Dynamic Multi-hazard Risk Assessment for Risk Reduction Planning

A training on dynamic multi-hazard risk assessment for risk reduction planning was held on 10-15 December 2022 at GIC, AIT. The training was jointly organized by the United Nations Office for Outer Space Affairs (UNOOSA), the Asia-Pacific Space Cooperation Organization (APSCO), the Geoinformatics Center, the Asian Institute of Technology (GIC-AIT), and the Centre for Disaster Resilience, ITC, University of Twente (CDR-UT). Fifteen participants from Asian and South American countries participated in the training, including Bangladesh, India, Iran, Mongolia, Nepal, Pakistan, Peru, Thailand, and Turkey.

The objective of this course is to provide an overview of multi-hazard risk assessment and hands-on sessions in a GIS environment. Participants were introduced to the concept of disaster risk management and the role of space-based remote sensing technology. A series of lectures and practical exercises using ILWIS software were given on hazard, element-at-risk, vulnerability data, loss estimation, and risk assessment on different risk reduction alternatives and changes in future climate and land use change scenarios. During the training, the participants were introduced to an open-source and cloud-based Spatial Decision Support

tool called RiskChanges (http://riskchanges.org/), which allows them to assess and evaluate the current and future multi-hazard risk at the local level, and to analyze optimal risk reduction alternatives.

Resource persons for this training were Prof. Cees van Westen (CDR-UT), Dr. Manzul Kumar Hazarika, Mr. Syams Nashrrullah, Mr. Anish Ratna Shakya (GIC-AIT), Mr. Niranga Alahacoon (IWMI), and Mr. Lorant Czaran (UNOOSA).

At the end of this training course, participants were able to Understand how risk information can be used to select appropriate disaster risk mitigation and prevention measures and to make decisions by considering likely future risk scenarios.
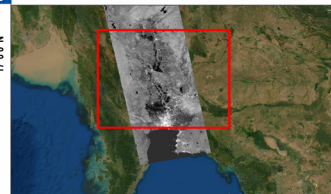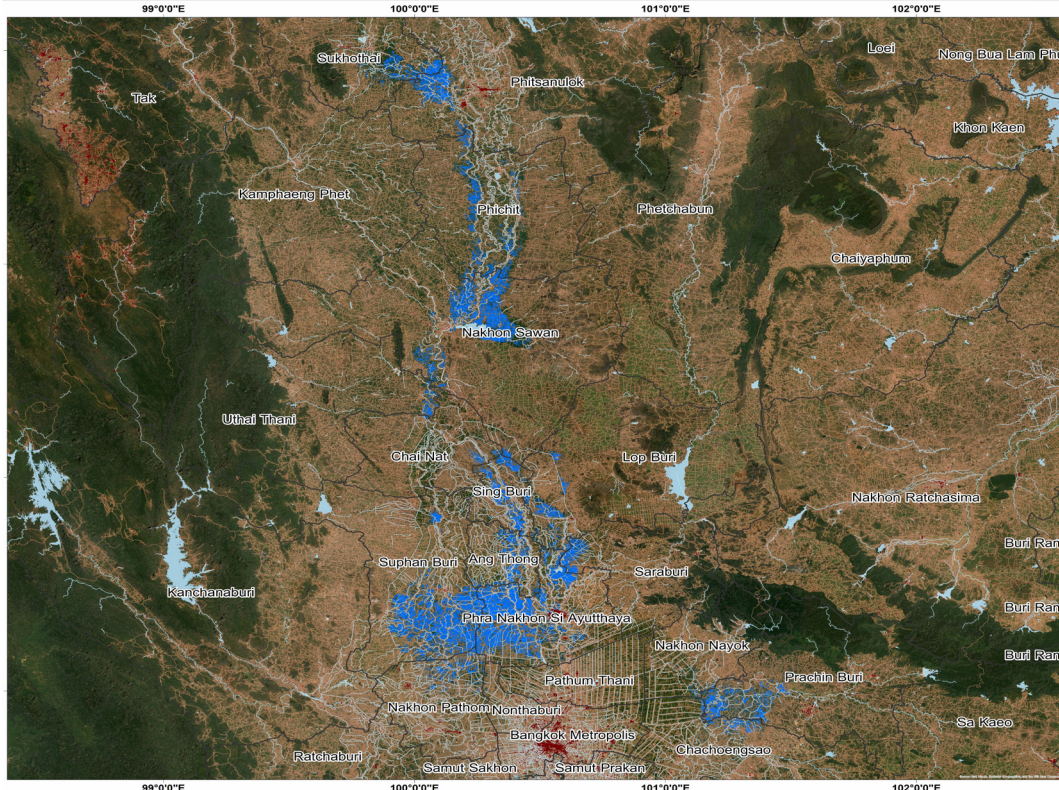

Group photograph taken on the last day of the training

IDC Activation 787: Tropical Storm Noru in Thailand

DETECTED FLOOD WATER IN CENTRAL REGION, THAILAND
As observed by Sentinel-1 images on 23 October 2022

Value-added product produced by Geoinformatics Center, which shows the flood extent of the central region of Thailand

Authorities in Thailand issued flash flood warnings for eight southern provinces on 19 October ahead of more expected rain, with areas in nearly 40% of the country's regions inundated and dealing with flood waters. Heavy rain and tropical storms since September have also caused flooding in 59 of Thailand's 77 provinces, impacting 450,000 homes, according to the interior ministry.

In response to this disaster, ADRC (Asian Disaster Reduction Center), on behalf of the Geo-Informatics and Space Technology Development Agency (GISTDA), escalated this activation to the International Disaster Charter (IDC).

Geoinformatics Center - Asian Institue of Technology became the Project Manager for this Call, and National Oceanic and Atmospheric Administration (NOAA) and Geoinformatics Center (GIC) acted as value adders for this activation. They produced value-added products using SAR and Optical satellite images provided through the International Disaster Charter system. Finally, all the products generated during the activation were shared with the end-user/requester (GISTDA) to manage the disaster response activities.

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