THE PROFESSIONAL TRANING PROGRAM

"Utilizing Big Earth Data to Enhance SDG Research, Monitoring and Reporting in Thailand and Southeast Asia"

- 29-31 May 2023 in Bangkok, Thailand -

Jointly organized by

Professional Training Program

on

"Utilizing Big Earth Data to Enhance SDG Research, Monitoring and Reporting in Thailand and Southeast Asia"

Jointly Organized by

The Digital Belt and Road Program (DBAR)
National Research Council of Thailand (NRCT)
International Research Center of Big Data for Sustainable Development Goals (CBAS)
DBAR International Center of Excellence (DBAR ICoE-Bangkok),
Belt and Road Research Center, Asian Institute of Technology (AIT-BRRC)

Co-sponsored by

China-ASEAN Regional Innovation Center for Big Earth Data (CARIC)
International Society for Digital Earth (ISDE)
Geo-Informatics and Space Technology Development Agency (GISTDA)
CAS-TWAS Centre of Excellence on Space Technology for Disaster Mitigation (SDIM)

29 – 31 May 2023
Bangkok, Thailand

CONTENTS

INTRODUCTION

Background and rationale

The Digital Belt and Road programme (DBAR) was initiated by the Chinese Academy of Sciences in 2016, which is aiming to improve environmental monitoring, promote data sharing and support policymaking using big data of Earth observations in the Belt and Road regions. In 2021, the International Research Center of Big Data for Sustainable Development Goals (CBAS) was launched to foster the Global Development Initiative (GDI), and United Nations Sustainable Development Goals (SDGs). DBAR is affiliated with CBAS to benefit and extent its facilitations, and capability to a larger audience, especially for the Belt and Road regions. Having a strong institutional support and expert team by CBAS and the regional collaborators, DBAR has committed to put its research effort on investigating indices and indicators to feed into the UN's 2030 Sustainable Development Goals and deliver an open access data platform for the researchers, policymakers and the public for tracking and studying the development and changes in the Belt and Road Region.

To fulfill such vision, DBAR, with CBAS, have established Big Earth Data Sharing and Service Portal, SDGSAT-1 Open Science Program and the DBAR Big Earth Data System and to provide a variety of data mining models, data acquisition patterns, and online services for customized multiple data formats to support researchers and practitioners on applying the data and products to conduct SDG reporting, research and decision-making. Whereas information gaps are remaining between the data providers and potential users especially in the Southeast Asia regions for a more efficient data sharing and applications.

The DBAR International Center of Excellence (DBAR-ICoE) was setup to be a regional node for the aim of DBAR on the SDGs by big data in 2017. As a main partner of DBAR-ICoE at Bangkok, AIT has actively led and participated in various academic activities, including funded research projects, regional and national seminars, etc. under the scope of DBAR. The "Strategic Research Plan for DBAR ICoE-Bangkok, 2023-2024" aims to 1) strengthen national capacity on utilizing Big Earth Data Platform to enhance SDG research, monitoring and reporting; 2) demonstrate the potential value and extension on technology innovation based on the critical development issues evaluated and identified by DBAR with a case study on SDG 6; and 3) deliver a series of national research-policy roundtables to identify the highest priority areas of research for selected SDGs that will have an immediate impact on national policy.

To accomplish the first strategic plan of DBAR ICoE-Bangkok, a professional training program on "Utilizing Big Earth Data to Enhance SDG Research, Monitoring and Reporting, Monitoring and Reporting in Thailand and Southeast Asia" is proposed to be jointly designed by DBAR ICoE-Bangkok, DBAR, CBAS, NRCT, and AIT and to be delivered to the potential trainees from academia, government agencies, NGOs, and private sectors in Thailand and the other Southeast Asian countries.

Objectives of the program

1. Introduce the concept, principles, and cases of utilizing Big Earth Data in SDGs monitoring and progress reporting.

2. Promote the data resources and facilities of DBAR in terms of implementing the research, monitoring and reporting of SDGs using Big Earth data.
3. Build the capacity of relevant professionals, practitioners, and managers in applying Big Earth data for SDG study and reporting in Thailand and the ASEAN region.
4. Establish the regional networks on Big Earth data for SDGs.

ORGANIZERS & COLLABORATORS

The training workshop is organized by,

- ✧ The Digital Belt and Road Program (DBAR)
- ✧ National Research Council of Thailand (NRCT)
- ✧ International Research Center of Big Data for Sustainable Development Goals (CBAS)
- ✧ DBAR International Center of Excellence (DBAR ICoE-Bangkok)
- ✧ Belt and Road Research Center, Asian Institute of Technology (AIT-BRRC)

The training workshop is co-sponsored by,

- ✧ China-ASEAN Regional Innovation Center for Big Earth Data (CARIC)
- ✧ International Society for Digital Earth (ISDE)
- ✧ Geo-Informatics and Space Technology Development Agency (GISTDA)
- ✧ CAS-TWAS Centre of Excellence on Space Technology for Disaster Mitigation (SDIM)

AGENDA

Date: 29-31 May 2023, Registration at 8:30 am. at GISTDA Academy, 196 Phahonyothin Road, Lat Yao, Chatuchak, Bangkok 10900, Thailand.

Date	Time	Agenda	
Day 1 29 May	8:30 - 9:00	**Registration**	
	Opening Ceremony		
	9:00 - 10:00	-Welcome Remarks by Dr. Wiparat De-ong, Executive Director, NRCT - Opening Remarks by Prof. Huadong Guo, Director General, CBAS, CAS - Welcome by Dr. Pakorn Apaphant, Executive Director, GISDTA - Introduction of Training Program by Dr. Yubao Qiu, Secretariat General to DBAR	Chaired by Dr. Monthip SRIRATANA
		Break and Group photo	
	Module 1: Introduction to DBAR program and the resources and facilities in supporting SDGs		
	10:00 - 12:00	- Introduction of DBAR Program - SDGSAT-1: Satellite and Open Science Program - Introduction of the CASEarth	Dr. QIU Yubao Dr. TANG Yunwei Dr. WU Wanrong
	12:00 - 13:30	-- Lunch Break at Maruay Garden Hotel --	
	Module 2: Data availability, products, application and research, monitoring and reporting cases on different SDGs		
	13:30 - 15:00	**Course 1:** Urbanization and Climate Change	Dr. LU Linlin
	15:00 - 15:10	-- Break --	
	15:10 - 16:40	**Course 2:** Coast Region SDGs	Dr. CHEN Bowei
	16:40 – 17:00	Summary and closing session of Day 1	
	18:00	Welcome Dinner at Maruay Garden Hotel	
Day 2 30 May	9:00 – 9:45	**Course 3 – Part 1:** Monitoring Natural Disasters with Big Earth Data over Southeast Asia	Dr. SONG Wanjuan and Dr. ZHANG Meimei (Part1)
	9:45 – 10:30	**Course 3 – Part 2:** Monitoring of Glacial Lake Outburst Floods (GLOFs) in High Mountain Asia using Landsat 8 imagery	Dr. ZHANG Meimei (Part2)
	10:30 - 10:40	-- Break --	
	10:40 - 12:10	**Course 4:** Water Resources and SDGs	Dr. JIA Guoqiang
	12:10 - 13:30	-- Lunch Break at Maruay Garden Hotel --	
	Module 3: Data management and data sharing standards		
	13:30 - 15:00	**Course 1:** Earth Science Data Management and Sharing Standards	Prof. WANG Juanle
	15:00 - 15:10	-- Break --	
	15:10 - 16:40	**Course 2:** Applications of SDGSAT-1 Data	Dr. TANG Yunwei
	16:40 - 17:00	Summary and closing session of Day 2	
	17:00 – 18:00	Training Program Assessment	Dr. WANG Lei Dr. XUE Wenchao

Date	Time	Agenda	
Day 3 31 May	**Module 4: Open discussion and sharing on regional data needs and potential applications in Thailand and Southeast Asian countries**		
	9:00 - 10:00	Group discussion of all participants	Dr. JIA Huicong Dr. XUE Wenchao
	10:00 - 10:20	-- Break --	
	10:20 - 11:20	Experience sharing and SDG cooperation for the future	Dr. Monthip Sriratana Dr. Yu Bo
	11:20 - 11:40	Summary and closing session of Day 3	
	Closing Ceremony & Certification ceremony		
	11:40 – 12:00	- Conclusion of the Training Program by Prof. QIU Yubao, SG of DBAR - Certificating to the Trainers and Trainees - Closing Remarks by Dr. Monthip Sriratana, Director of DBAR ICoE-Bangkok - Group photo	Chaired by Dr. XUE Wenchao

Zoom Link for Online Participants
https://zoom.us/j/98266584406?pwd=NENjYVMxdzk4Nnk5dkZVSnlNbUl4QT09
Meeting ID: 982 6658 4406
Passcode: 615688

For more information, please contact our coordinator:
Ms. Thunyamas Phearuang
(thunyamas@ait.asia or Tel: (66) 62-2432422)

RESOURCE PERSON

Module	Trainers
Module 1: **Introduction to DBAR program and the resources and facilities in supporting SDGs**	Dr. QIU Yubao Professor, DBAR Secretariat
	Dr. TANG Yunwei Associate Professor, SDGSAT-1 / CBAS
	Dr. WU Wanrong Research Assistant, CASEarth / CBAS
Module 2: **Data availability, products, application and research cases on different SDGs**	Dr. LU Linlin Associate Professor, DBAR-URBAN
	Dr. CHEN Bowei Assistant Professor, DBAR-COAST
	Dr. SONG Wanjuan Assistant Professor, DBAR-DISASTER
	Dr. ZHANG Meimei Associate Professor, SDIM
	Dr. JIA Guoqiang Assistant Professor, CARIC
Module 3: **Data management and data sharing standards**	Dr. WANG Juanle Professor, ISDE WG3
	Dr. TANG Yunwei Associate Professor, SDGSAT-1 / CBAS
Module 4: **Open discussion and sharing on regional data needs and potential applications in Thailand and ASEAN countries**	Dr. WANG Lei Associate Professor, SDIM
	Dr. JIA Huicong Associate Professor, DBAR-DISASTER
	Dr. YU Bo Associate Professor, DBAR-DISASTER
	Dr. Salvatore G.P. Virdis Associate Professor, Remote Sensing and Geographic Information Systems, AIT
	Expert from GISTDA Academy (TBD)
	Expert from ASEAN countries (TBD)

1. CHEN Bowei 陈博伟

Dr Bowei Chen is currently an assistant professor at the Aerospace Information Research Institute, Chinese Academy of Sciences (AIR-CAS), and an external supervising professor at Beijing Forestry University. He has been awarded the Young Talents of Science and Technology Innovation by the Hainan Association for Science and Technology. Also, he has been awarded the Capacity Development Acceleration Fund of SHLC from the University of Glasgow, which is the only Chinese PI project for all the past rounds.

His primary research interest is the use of satellite LiDAR to monitor mangrove productivity and its coastal application, especially for the ICESat-2 and GEDI missions. He has experience in coastal and forest remote sensing for over 8 years with 40 publications and contributed three book chapters on topics including vegetation mapping, coastline detection, and coastal environment assessment. Webpage**:** **https://www.researchgate.net/profile/Bowei-Chen-7**

Topic: Towards a more sustainable coastal environment: how big earth data contributes the SDG14 in MSR countries

This session aims on how big earth data contributes the SDG14 in the Belt and Road region. As we know that the coastal area covers a vast area and involves a large population, facing challenges of multi-dimensions related to sustainable development. We will talk about our latest research findings on coastline change, mangrove classification, fishpond identification, city expansion and compressive assessment using remote sensing and GIS techniques. There will be showcase on how deep learning and cloud platform are used in coastal remote sensing applications, together with our latest results from SDGSAT-1. We hope that the attendant will be familiar with the use of some of the state-of-the-art technology in coastal remote sensing and be able to transfer to their own study area.

2. JIA Guoqiang 贾国强

Dr Guoqiang Jia, is currently a research associate in Aerospace Information Research Institute, Chinese Academy of Sciences (AIR, CAS), works on the global and regional rainfall-induced landslide modelling and assessment, and hydrological remote sensing.

He was involved in two projects funded by National Natural Science Foundation of China, one projects funded by Department of Science and Technology of Guangxi Zhuang Autonomous Region, China. He studied physical geography and received his doctoral degree in 2021. Invited as the peer reviewer of Hydrological Processes and involved in the international landslide research workshop LandAware, he has six journal, one software copyright and one book chapter publications.

Webpage: https://www.researchgate.net/profile/Guoqiang-Jia

Topic: Monitoring surface water dynamics based on multi-source remote sensing big earth data in cloudy and rainy regions

It mainly introduces the main progress in optical extraction algorithms and multi-source remote sensing extraction algorithms for surface water, and takes Guangxi, China as an example to analyze the trend and dynamic changes of surface water bodies at multiple time scales, and carries out attribution analysis.

3. JIA Huicong 贾慧聪

Dr. Huicong Jia, is currently an associate professor at the Aerospace Information Research Institute, Chinese Academy of Sciences (AIR-CAS). She received the Ph.D. degree in natural disaster risk assessment and management from Beijing Normal University, Beijing, China, in 2010. She is the author of four books, and more than 60 articles. Her research interests include drought formation mechanism, drought remote sensing monitoring, and drought risk assessment index system and drought risk assessment model. Dr. Huicong Jia was a recipient of The Outstanding staff Award of Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences（two times）in 2011-2015, and the national outstanding map works award- "Geographic Atlas of China". Webpage: https://www.researchgate.net/profile/Huicong-Jia

Topic for discussion: Risk assessment of maize yield reduction caused by drought in China from 2000 to 2020

Target: SDG 13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries

According to statistics from the World Meteorological Organization, of the total losses caused by various natural disasters, the losses caused by meteorological disasters accounted for about 85%, and drought accounted for about 50% of the losses caused by meteorological disasters. As the most populous agricultural country in the world, China is affected by the monsoon climate, and the impact of drought on agricultural production is particularly huge. Maize is one of the most important food crops in China. Due to its high-water demand, it is vulnerable to drought due to the influence of the climate. Based on the cause mechanism of the drought, there is still a lack of research on the evaluation of the maize drought from the perspective of risk. Therefore, the national-scale corn drought risk assessment is in line with the needs of sustainable agricultural development in China, and has important guiding significance for early warning of drought disasters, mitigation of drought risks and ensuring national food security. The research breaks through the current relatively static risk assessment, based on historical disaster statistics, through drought index monitoring and disaster damage vulnerability fitting, describes the law of drought risk development and evolution, and supports SDGs indicator evaluation for rapid identification and monitoring of disaster risks.

4. LU Linlin 鹿琳琳

Dr. Linlin LU, is currently an associate professor at the Aerospace Information Research Institute, Chinese Academy of Sciences (AIR-CAS), and the International Research Center of Big Data for SDGs (CBAS). Dr. Lu obtained a Ph.D. in remote sensing from the Institute of Remote Sensing Applications, CAS in 2009. At the same year, she joined CAS as an assistant professor. Her research interests include spatio-temporal data fusion, image information detection, image classification and time series analysis applied to urban environment, urban resilience and sustainability.

Dr. Lu is a member of Group on Earth Observations (GEO) Global Urban Observation and Information Initiative and Human Planet Initiative(2016-present). She was appointed as member of Sino-EU Panel on Land and Soil (SEPLS) (2018-2022). She presently co-chairs the Urban Environment Working Group in the Digital Belt and Road program. She led several projects, including the National Natural Science Foundation of China (NSFC), National Key Research and Development Program, and Strategic Pilot Science and Technology Project of CAS, etc. She published more than 120 journal articles and conference proceeding papers, and won the "National Geographic Information S&T Progress Award" of China. Webpage: https://www.researchgate.net/profile/Linlin-Lu

Topic: Big Earth data for sustainable cities and communities - Analysis of the spatiotemporal evolution of surface urban heat island: A case study of the Bangkok Metropolitan Region, Thailand

The Surface Urban Heat Island (SUHI) effect is one of the most significant phenomena in the urbanization process, which has a significant impact on residents' life and production. This course focuses on the typical tropical city of Bangkok, using Landsat and MODIS remote sensing images from 2000 to 2020 as the data basis. Firstly, we analyze the spatiotemporal changes in land cover, land expansion, and landscape type characteristics in Bangkok. Secondly, we use Enhanced Spatial and Temporal Adaptive Reflectance Fusion Model (ESTARFM) to create high spatiotemporal resolution land surface temperature (LST) products and analyze the temporal and spatial characteristics of SUHI in Bangkok. Finally, we explore the impact of land cover and landscape patterns on the SUHI. This course aims to provide an objective and feasible method for alleviating the SUHI and provide a reference for urban managers to manage the risks of thermal environment.

5. QIU Yubao 邱玉宝

Dr. Yubao QIU, is currently a research professor at the Aerospace Information Research Institute, Chinese Academy of Sciences (AIR-CAS), member of the Academic Construction Committee for the International Research Center of Big Data for SDGs (CBAS) (2021.9-2026.8). He directs/lead the Digital Environment Research Unit of CBAS. Currently, his research interests are microwave remote sensing of snow and ice, especially the High Mountain Asia and Northern East, West (mainly Xinjiang Province) of China, and northern cold regions, current with the support of several national fundings.

He has experience in microwave remote sensing from 2006, when he was a PH.D candidate in CAS, the main research interest including remote sensing of snow and ice over High Mountain Asia and Northern Cold Regions, Arctic environment research, and data science; He led 2 international cooperation projects on snow and Ice information Services supported by National Key R&D Plans of China, two projects granted by National Natural Science Foundation of China (NSFC) about remote sensing of snow and ice, already published more than 100 papers, published more than 10 science dataset, participated in the preparation of 4 monographs, and won the first "ScienceDB Scientific Data Award" (individual achievement award). Webpage: https://www.researchgate.net/profile/Yubao-Qiu

Topic: Introduction DBAR Program

The environmental and societal challenges will require assessment and monitoring of terrestrial and marine ecosystems, so that decisions and policies can be based on sound information. This in turn requires precise, accurate, and timely observation and measurement of processes across a range of spatial and temporal scales. These needs can be met with integrated networks for collecting data, such as in-situ and space-borne Earth observation systems that sample a range of spatial and temporal scales.

The International Symposium on Earth Observation for the Maritime Silk Road (EMSR) was held in Sanya in 2015, releasing the "Sanya Declaration on International Cooperation on Earth Observation for Maritime Silk Road Development". In Beijing in 2016, the International Symposium on Earth Observation for One Belt and One Road (EOBAR) released the "Beijing Declaration on Earth Observation for the Belt and Road". Participants agreed on the establishment of a "Big Earth Data Alliance for the Belt and Road", expecting big data to be the engine driving the construction and operation of the Belt and Road.

Big data will become a peace envoy for all countries and regions along the Belt and Road, shining a light on the present and future of the region. The Belt and Road demands traction, and Earth observation and Big Earth Data are important to helping participants grasp the potential impacts. The Digital Belt and Road (DBAR) Program was launched to this end, and received support from international organizations and countries along the Belt and Road.

6. TANG Yunwei 唐韵玮

Dr. Yunwei TANG is currently an associate research professor at the Aerospace Information Research Institute, Chinese Academy of Sciences (AIR-CAS), and International Research Center of Big Data for SDGs (CBAS). Her research interests include land cover classification, geostatistical modelling and multi-modality data fusion. She has led 5 projects, published more than 60 papers, 4 national invention patents, and participated in the publication of 4 monographs.

She is currently in charge of the Sustainable Development Science Satellite 1 (SDGSAT-1) Open Science Program, which provides free access to data from SDGSAT-1 for scientific research around the world in order to promote multi-disciplinary research on social, environmental and economic dimensions of sustainable development goals (SDGs) and fill in existing data gaps limiting progress towards SDGs. Webpage: https://www.researchgate.net/profile/Yunwei-Tang

Topic：SDGSAT-1: satellite, open science program, and SDGs monitoring

Module I - SDGSAT-1: Satellite and Open Science Program: Introduction of the background and characteristics of SDGSAT-1 satellite. Get access to the SDGSAT-1 data through Open Science Program. Establish international cooperation network by joint-implementing global SDGs monitoring.

Module III - Applications of SDGSAT-1 Data : Introduction of how to use SDGSAT-1 data to monitor SDG indicators, the topic covering SDG 2 (Zero Hunger), 6 (Clean Water and Sanitation), 7 (Affordable and Clean Energy), 11 (Sustainable Cities and Communities), 13 (Climate Action), 14 (Life below Water) and 15 (Life on Land), etc.

7. YU Bo 于博

Dr. Bo Yu, is currently an associate professor at the Aerospace Information Research Institute, Chinese Academy of Sciences (AIR-CAS). Her research interests are landslide/building extraction from remote sensed images.

Topic for discussion：Building extraction from different high spatial resolution remote sensed images

Propose a deep learning network of SNNFD by synthesizing features in spatial domain and frequency domain in a multi-task framework. Train and evaluate the model on different public datasets with different spatial resolutions from different imaging sensors, so that transferability and robustness of the proposed model can be evaluated more objectively. It outperforms typical frameworks for building extraction from different images. Explore the impact of different building sizes on extraction performance.

8. WANG Juanle 王卷乐

Dr. Juanle Wang is currently a professor and doctoral advisor of Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences in Beijing, China. His research interests include environmental remote sensing, disaster risk reduction knowledge service, and the sharing of big earth data. He has published more than 100 academic papers, and has published 7 monographs and 2 Atlas, and he won the second prize of National Scientific and Technological Progress Award in 2014.

Prof. Wang is a member of World Data System Scientific Committee in International Science Council (ISC-WDS). He serves the director of World Data Center for Renewable Resources and Environment in WDS, execute director of the Disaster Risk Reduction Knowledge Service in the International Knowledge Centre for Engineering Sciences and Technology under the Auspices of UNESCO, and editorial member of "Data Science Journal", "Data", “Geosciences Data Journal”, et al. Webpage: http://english.igsnrr.cas.cn/people/scientists/index_19010.html?json=http://www.igsnrr.cas.cn/sourcedb_igsnrr_cas/yw/scientists/En_sklreis/200908/t20090819_2421129.json

Topic：Earth Science Data Management and Sharing Standards

This course will share the progresses and practices of earth scientific data management and sharing standards in global and national level. It includes global earth data management and sharing progress analysis, Chinese earth data management and standards practices, and serials case study taking World Data System in ISC and related data management infrastructures as examples.

9. WU Wanrong 吴宛容

Wu Wanrong currently works as a Research Assistant at the Data Sharing Working Group of International Research Center of Big Data for SDGs (CBAS). She was involved in the Strategic Priority Research Program - Big Earth Data Science Engineering (CASEarth) and served as a contact person, assisting with the CODATA review project on CASEarth’s data policy and implementation (2021.2-2022.10). Wu Wanrong has a background in computer networking and image processing, which she gained during her time was a PhD candidate at UNSW. Her research interests include remote sensing and image processing.

Topic: Introduction to the CASEarth Program for Big Earth Data and SDGs

This session serves as an exploration of the CASEarth Program and its pivotal role in advancing data sharing and SDGs. Founded in 2018, targeting the development of open science, FAIR data, and developing a new paradigm, CASEarth constructed a data sharing platform with the support of the CAS and its massive data resources, successfully breached the bottleneck of the data sharing field and thereby laid a better groundwork for future SDGs fulfilment. CODATA, an international data committee, commissioned by the CASEarth team, conducted a comprehensive analysis and evaluation through interviews, document review, and online meetings and finally came to a positive conclusion, commending

CASEarth data sharing achievements. CASEarth researchers have developed and published SDG-related data products on BRICS Forum, FBAS Forum, and UN Water Conference, facilitating the development of SDGs while monitoring and evaluating their indicators. Moreover, CASEarth is dedicated to promoting the development of the classification system for Big Earth Data and SDGs, which, to researchers from China and abroad, means further improvement of data access and the transparency of data. Finally, this session concludes with practical demonstrations of basic operations on the CASEarth Data Sharing Service Portal, enabling participants to effectively use this platform.

10. WANG Lei 王雷

Dr Lei WANG is an associate professor at Aerospace Information Research Institute, Chinese Academy of Sciences. He received his bachelor's degree from Beijing Normal University in 2004, and a doctorate degree from the Institute of Remote Sensing Applications, Chinese Academy of Sciences in 2009. He worked as an assistant professor (2009-2012) and an associated professor (2013-2019) at the Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences. He was also engaged in post-doctoral researcher (2000-2013) in the Department of Earth System Sciences of Tsinghua University, and a visiting scholar (2013-2018) in the Department of Geographical Sciences of the University of Maryland.

He is currently the office director of the CAS-TWAS Space Disaster Reduction Centre of Excellence, and the academic secretary of the Central Committee of the International Council of Science (ICSU) Disaster Risk Integrated Research Program (IRDR). His research interest is land mapping and analysis at large scales, especially on monitoring and analysing forest disturbance. He has published more than 30 research papers in Lancet, Science Advances, Remote Sensing of Environment and other journals.

Topic for discussion and DBAR-Disaster: Factors of global forest loss: a case study on Fire

Information on forest cover and forest cover change is necessary for carbon accounting efforts as well as for parameterizing global-scale biogeochemical, hydrological, biodiversity and climate models. From 2000 to 2020, a total of 4.5 million km2 of forest were loss due to disturbance. In this presentation, we implement an automatic object-based method to distinguish different causes of forest loss. We generated the fire caused forest loss map, and compared patch-based features and pixel-based features. We made analysis at country level to global level, as well as climate ecozone level.

11. ZHANG Meimei 张美美

Dr. Meimei ZHANG, is currently an associate professor at the Aerospace Information Research Institute, Chinese Academy of Sciences (AIR-CAS). Meimei Zhang received the B.S. and M.S. degrees in cartography and geographic information sciences from China Agricultural University, in 2012, and the Ph.D. degree at the Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, Beijing, China, in 2016. The main research interest including remote sensing of glacier and glacial lake over High Mountain Asia and data science. She led 1 project granted by National Natural Science Foundation of China (NSFC), participated in 2 international cooperation projects, and already published more than 20 papers. Webpage**:** https://www.researchgate.net/profile/Meimei-Zhang-4

Topic 1: Monitoring Natural Disasters with Big Earth Data Over Southeast Asia
Topic 2: Monitoring of Glacial Lake Outburst Floods (GLOFs) in High Mountain Asia using Landsat 8 imagery

CONTACT PERSON

DBAR

- **Prof. Yubao QIU**
  Secretary-General, DBAR Secretariat, The International Research Center of Big Data for Sustainable Development Goals (CBAS)
  Email: qiuyb@radi.ac.cn

- **Ms. Jiarui TIAN**
  Administrative Officer, DBAR Secretariat, The International Research Center of Big Data for Sustainable Development Goals (CBAS)
  Email: jrtian@cbas.ac.cn

DBAR ICoE-Bangkok

- **Dr. Monthip Sriratana**
  PI-DBAR Strategic Development
  Director, DBAR ICoE-Bangkok, National Research Council of Thailand (NRCT)
  Email: monthip2007@gmail.com

AIT-BRRC

- **Dr. Wenchao Xue**
  Co PI-DBAR Strategic Development
  Associate Professor, EECC/SERD
  Director, Belt and Road Research Center, Asian Institute of Technology (AIT)
  Email: wenchao@ait.ac.th Tel: 02-524-5626

- **Ms. Thunyamas Phearuang**
  Program Officer, Belt and Road Research Center, Asian Institute of Technology (AIT)
  Email: thunyamas@ait.asia Tel: 062-2432422

GISTDA

- **Mr. Alongkot Pakat**
  Officer (Knowledge Transfer), Geo-Informatics and Space Technology Development Agency (GISTDA)
  Email: alongkot@gistda.or.th Tel: 084-3677036

- **Mr. Natthaphong Khaengkhan**
  Officer (Knowledge Transfer), Geo-Informatics and Space Technology Development Agency (GISTDA)
  Email: natthaphong@gistda.or.th Tel: 082-8893877

PARTICIPANT LIST

No.	Title	Name-Surname	Organization / Affiliation / Institute	Position	Email
1	Ms.	Jirapa Maneerat	Department of Agriculture, Ministry of Agriculture and Cooperatives	Surveyor Experienced Level	jirapa.man2521@gmail.com
2	Ms.	Jindarat Noomkuan	Information and Communication Technology Center, Department of Agriculture, Ministry of Agriculture and Cooperatives	Surveyor working	jn_0612@hotmail.com
3	Mr.	Polpreecha Chidburee	Regional Center of Geo-Informatics and Space Technology, Naresuan University, GISTNU	Director	polpreechac@nu.ac.th
4	Mr.	Teerayut Horanont	Sirindhorn International Institute of Technology (SIIT), Thammasat University	Associate Professor	teerayut@siit.tu.ac.th
5	Mrs.	Kanignun Prukkanone	Pollution Control Department, Ministry of Natural Resources and Environment	Environmentalist, Professional Level	kanignun2002@hotmail.com
6	Ms.	Tanatporn Khunchamnan	Pollution Control Department, Ministry of Natural Resources and Environment	Environmentalist, Practitioner Level	tanatporn.kh@gmail.com
7	Mr.	Teerawat Ram-Indra	CPF Thailand Public Company Limited	Sustainable Engineer	teerawat.ram@gmail.com
8	Mr.	Pisut Nakmuenwai	Faculty of Environment and Resource Studies, Mahidol University	Lecturer, Dr.	pisut.nak@mahidol.edu
9	Mr.	Surakameth Mahasirimongkol	Strategy and planning division of Office of the Permanent Secretary, Ministry of Public Health	Deputy Director	hrm58110118050 01@gmail.com
10	Mrs.	Sujirat Sitthiroj	Ministry of Commerce	Trade Officer, Professtional	sujirat.sitthroj@gmail.com
11	Ms.	Yupaporn Chorkao	Strategy and planning division of Office of the Permanent Secretary, Ministry of Natural Resources and Environment	Plan and Policy Analyst	malee_2527@gmail.com
12	Ms.	Suchada Kamworapan	Office of Natural Resources and Environmental Policy and Planing	Project Coordinator	suchada.psu@gmail.com
13		Narissara Nuthammachot	Southern Regional Center of Geo-Informatics and Space Technology, Faculty of Environmental Management, Prince of Songkla University, PSU	Lecturer, Associate Professor	narissara.n@psu.ac.th
14	Mr.	Pongthep Nimnuan	ESG: Eastern Region Center for Space Technology and Geo-Informatics, Burapha University (BUU)	Researcher	pongthep.ni@go.buu.ac.th
15	Mr.	Dawut Kalaes	ESG: Eastern Region Center for Space Technology and Geo-Informatics, Burapha University (BUU)	Researcher	dawut@go.buu.ac.th
16	Ms.	Ubonwan Niyomjan	Strategy and Planning Division, Office of the Permanent Secretary, Ministry of Public Health	Plan and Policy Analyst, Senior Professional Level.	spd.policy1@gmail.com
17	Ms.	Phantira Saphankaew	Collaborating Center for Clean Air and Climate Change (CCCACC), Faculty of Public Health, Thammasat University.	Research Associate	phantira.saphankaew@gmail.com
18	Mr.	Narawich Kaewwongsa	Collaborating Center for Clean Air and Climate Change (CCCACC), Faculty of Public Health, Thammasat University.	Research Assistant	narawich_te@hotmail.com

No.	Title	Name-Surname	Organization / Affiliation / Institute	Position	Email
19	Mr.	Rangsan Khamkhon	Collaborating Center for Clean Air and Climate Change (CCCACC), Faculty of Public Health, Thammasat University.	Research Assistant	Rangsan.Khamkhon@gmail.com
20	Ms.	Phakabhorn Songthong	Bureau of Digital Health of the Permanent Secretary Ministry of Public Health	Medical Statistics Technician (Experienced Level)	kobkero10872@gmail.com
21	Mr.	Roshan Bhandari	Asian Institute of Technology (AIT)	AIT Alumni of M.Sc. Environmental engineering and management and former freelance consultant at AIT	bhandari.env@gmail.com
22	Mr.	Chung Jing Xiang	Faculty of Science and Marine Environment, Universiti Malaysia Terengganu, Malaysia	Senior lecturer	jingxiang89@gmail.com
23	Ms.	Thunyaporn Sudsupap		Plans and policy analyst	thunyaporn.ssp@gmail.com
24	Ms.	Huiyang Luo	School of Environment Resources and Development, Department of Development and Sustainability	Ph.D Student	st123525@ait.asia
25	Mr.	Siwat Kongwarakom.	Asian Institute of Technology (AIT)	Research assistant	siwatk@ait.asia
26	Ms.	Nazira Alimzhanova	Asian Institute of Technology (AIT)	Research Associate	nazirasa@ait.asia
27	Mr.	Zheng Li	Asian Institute of Technology (AIT)	Ph.D Student	st121672@ait.asia
28	Mr.	Aung Chit Moe	Asian Institute of Technology (AIT)		st122225@ait.asia
29	Ms.	Phorntip Saensri	School of Engineering and Technology, Water Engineering and Management	Master Student	Psaensri1998@gmail.com

TRAINING MODULE

Module 1: Introduction to DBAR program and the resources and facilities in supporting SDGs

1. Introduction of the DBAR International Science Program
2. Introduction of SDGSAT-1 Satellite and Open Science Program
3. Introduction of the CASEarth Portal and Application

Module 2: Data availability, products, application and research cases on different SDGs

1. Urban and Climate Change
2. Sustainable Coastal Region Management
3. Disaster Monitoring and Risk Reduction
4. Water Resources and SDGs

Module 3: Data management and data sharing

1. Open Data Sharing Principles
2. SDGSAT-1 Satellite Facility for Open Data Sharing and Application

Module 4: Open discussion and sharing on regional data needs and potential applications in Thailand and ASEAN countries

1. Group Discussion
2. Experience Sharing and Future Cooperation