Session title: Unlocking the Potential of Big Earth Data: Tracking SDG Indicators in Southeast Asia

Session Organizer: Asian Institute of Technology

Short Description

Recent advancements in computing and data science enable quasi real-time processing of large volumes of data, complementing traditional statistics. This allows us to delve deeper into the human and socio-economic spheres, gaining valuable insights into human behaviours and experiences. By analysing big earth data, we can understand the interactions between physical, chemical, biological, and human components of the Earth system, shedding light on the impacts of human activities on the environment. However, the application of big earth data in policy making is in its early stages, lacking standards and integration strategies. To effectively utilize big earth data, there is the need of bridging the gap between traditional and big data ecosystems. This requires developing clear frameworks, methodologies, and integration approaches that consider both technical aspects and socio-economic factors. By integrating big earth data with traditional data sources, we can generate high-quality information that is more detailed, timely, and relevant, empowering policymakers to make informed decisions.

Objectives

This session aims to demonstrate the usefulness of big earth data for SDG accountability, focusing on SEA Region. The connections between technologies and the human sphere, considering socio-economic implications will be explored. By fostering discussions and sharing insights, this session will seek to identify concrete steps to mainstream big earth data into policy making, ensuring its effective integration into the decision-making process and implementation.

Expected Results

The session expects to show cases of the current research on applying big earth data in support SDG study, evaluation, and reporting in Thailand and SEA region. Through productive interaction and in-depth discussion, we expect to explore potential opportunities for strengthening the capacity to use big earth data in tackling SDG challenges and supporting regional development policies in SEA through extensive regional research collaboration and partnership.

Agenda

Time: 13:30-15:00, September 8th, 2023 Room: 305 E

Moderator:

LU Linlin

Associate Professor

International Research Center of Big Data for Sustainable Development Goals, China

Dr. LU Linlin is currently an Associate Professor in Aerospace Information Research Institute, Chinese Academy of Sciences (AIR, CAS). Dr. Lu obtained a Ph.D. in remote sensing from the Institute of Remote Sensing Applications, CAS. Her research interests include image information detection, image classification and time series analysis applied to urban environment, urban resilience and sustainability. She is the author of more than 120 journal articles and conference proceeding papers. Dr. Lu was appointed as member of Sino-EU Panel on Land and Soil (SEPLS), member of Group on Earth Observations (GEO) Global Urban Observation and Information Initiative and Human Planet Initiative. She presently co-chairs the Urban Environment Working Group in the Digital Belt and Road program.

Participants

Event 1 (13:30 – 13:50)

Using the SDG indicators 2.3.1 & 2.3.2 for assessing small-scale farms' income in the context of changing climate in Chiang Mai province Thailand.

Thi Phuoc Lai Nguyen

Assistant Professor

Development Planning Management and Innovation, Asian Institute of Technology

Dr. Thi Phuoc Lai Nguyen is a social scientist. Her research crosses beyond conventional social science discipline and integrates interdisciplinary aspects to address the complexity and uncertainty that challenge development planning. It centers upon understanding the human dimension in planning and managing the environment regarding social attitudes, epistemological processes, and behaviors of understanding, mitigating, and adapting to social and environmental changes. Specific areas of interest are coupled human-environment complex systems, social and environmental changes, social actors and environmental inequalities, governance of socio-ecological systems, education, and innovation for sustainable development.

Event 2 (13:50 – 14:10)

Monitoring and assessing urbanization progress in Thailand between 2000 and 2020 using SDG indicator 11.3.1

XUE Wenchao

Associate Professor

Environmental Engineering Management, Asian Institute of Technology

Personal Profile: Dr. XUE Wenchao is an Associate Professor at the Department of Energy, Environment and Climate Change, School of Environment, Resources and Development of the Asian Institute of Technology (AIT). Dr. Xue obtained her Ph.D. in Urban Engineering from the University of Tokyo, Japan and earned both her Master and Bachelor in Environmental Science and Engineering from Tsinghua University, China.

Her research encompasses the areas of sustainable watershed environmental management, application of big earth data in support of SDGs, environmental emerging contaminants, and resources/energy productive wastewater treatment, monitoring and elimination.

Event 3 (14:10 – 14:30)

Assessment of SDG indicator 11.6.2: PM2.5 concentration in Thailand using earth observation data

Ekbordin Winijkul

Associate Professor

Environmental Engineering Management, Asian Institute of Technology

Dr. Ekbordin Winijkul is an Associate Professor in the Environmental Engineering and Management program, Asian Institute of Technology. He got his Ph.D. in Environmental Engineering from the University of Illinois at Urbana-Champaign, USA in 2015. Before joining AIT, Dr. Ekbordin worked as project coordinator for the World Bank project to reduce air pollution emission from diesel vehicles in Bangkok. He also worked at Argonne National Laboratory (USA), International Institute for Applied System Analysis (Austria) and Atmospheric and Environmental Research, Inc. (USA), focusing on emission inventory development of multiple anthropogenic combustion sources. His research interests are emission inventory, air pollution modeling and
monitoring, air quality management, and environmental technology and management.

Event 4 (14:30 – 14:50)

Monitoring for SDG indicator 14.1.1: Coastal Eutrophication across inner and coastal areas of Thailand

Salvatore G.P. Virdis

Associate Professor

Remote Sensing and Geographic Information Systems, Asian Institute of Technology

Dr. Salvatore G.P. Virdis is an Associate Professor at the Asian Institute of Technology (AIT), Thailand. His formal background is in applied geological sciences and remote sensing. Dr. Virdis recent and current research interests center upon Geo-Information and Earth Observation Science to assess and evaluate present and future changes of anthropogenic origin as well as their effects on natural and non-natural physical/human environment. He uses integrated field-based, remote/proximal sensing techniques and advanced geospatial modelling on a variety of spatial and temporal scales, ranging from seasonal to decadal processes. He has several publications in high impact factor international journals and more than 19 years of teaching experience. At AIT is supervising and mentoring several Master and PhD candidate students.