

Program of the 2nd CCRASEAL thematic workshop

Southeast Asian Lakes in the Face of Climate Change: Results from CCRASEAL Project

23rd – 25th August 2023, Luang Prabang Lao PDR

On site event at:

Souphattra Hotel, Souphanouvong Rd, Ban Navienkham

Luang Prabang, Lao PDR

and on line via Zoom:

Zoom Meeting ID: 955 2045 1657

Password: no password is needed

<https://ait-ac-th.zoom.us/j/95520451657>

CCRASEAL Project background

The *Climate Change Risk Assessment for Southeast Asian Lakes (CCRASEAL)* is a research project funded by the Asia-Pacific Network for Global Change Research (APN) and lead by the Asian Institute of Technology AIT, Thailand.

Overall objective of the project is to set up a methodological and analytical framework that leverages on existing data, methods and knowledge to assesses the current and projected climate change impacts and related risk on the mainland SEA region freshwater lakes.

The Asian Institute of Technology AIT is implementing the project in collaboration with 6 partners from 5 different countries in Southeast Asia and Europe, namely:

- Ministry of Natural Resources and Environment, Thailand;
- National Center for Water Resources Planning and Investigation, Ministry of Natural Resources and Environment, Vietnam;
- Universiti Kebangsaan Malaysia (UKM), Malaysia;
- Ministry of Natural Resources and Environment, Lao PDR;
- National University of Laos, Laos PDR;

- Ministry of Environment, Cambodia;
- University of Sassari, Italy (associate partner).

CCRASEAL Project has produced valuable insights into the coupled climate and land use and land cover changes, water availability and quality, and has the potential to allow government agencies, industry, practitioners, and decision-makers to track changes across Southeast Asia basins with unprecedented, homogeneous and consolidated spatial and temporal detail.

To share these valuable insights with a larger regional audience, the CCRASEAL project is organizing a second workshop. The workshop will bring together researchers, policymakers, practitioners, and other stakeholders from across Southeast Asia to share the project's findings, explore potential applications, and identify areas for future research.

Workshop scientific rationale

Climate change is one of the most pressing challenges of our time, with far-reaching impacts on natural and human systems worldwide. The Southeast Asian region is particularly vulnerable to the impacts of climate change due to its unique geography and high population density. In addition, land use change in the region is occurring rapidly, exacerbating the effects of climate change on ecosystems, agriculture, and human health.

To address these challenges, the proposed workshop aims to bring together researchers, policymakers, practitioners, and other stakeholders to share knowledge and discuss the latest research findings related to climate change and land use change impact assessment in Southeast Asia. Leveraging on the knowledge and expertise gained from the CCRASEAL and other on-going research projects, the workshop will focus on the following themes:

1. Climate change and land use change impacts on freshwater resources: The workshop will discuss the latest research findings on the impact of climate change and land use change on freshwater resources in the region. This includes changes in water availability and water quality.
2. Assessment methods and tools: The workshop will also discuss the latest methods and tools for assessing the impact of climate change and land use change on freshwater resources. This includes Earth Observation (EO) and geospatial technologies, hydrological modeling, and other assessment tools.
3. Policy and management implications: The workshop will discuss the policy and management implications of the research findings. This includes the identification of strategies for climate change adaptation and mitigation, as well as the development of policies and management practices that can help reduce the impact of land use change on freshwater resources.

Through these discussions, the workshop aims to promote interdisciplinary collaboration and knowledge-sharing among concerned stakeholders. Ultimately, the goal is to develop strategies and approaches that can help Southeast Asia mitigate the negative impacts of climate change and land use change, and build resilience to these challenges.

Target audience

The event will bring together a range of stakeholders including CCRASEAL collaborators from the five focus countries (Thailand, Cambodia, Lao PDR, Malaysia and Vietnam), government officials, civil society, NGOs,

working professionals on water quality/quantity assessment and management in private sectors and academia.

Structure of the Workshop

The workshop is organized in a structured and formal manner, consisting of two main events that will be conducted both in-person and online via the Zoom platform.

The first is a two-day capacity building event that aims to facilitate knowledge exchange among invited participants belonging to academia, public and private sectors dealing with freshwater resources in Laos. This event will focus on sharing the findings and technical, methodological and environmental insights gained from the CCRASEAL project, and will provide an opportunity for attendees to learn about the latest research methods and tools related to climate change and land use change impact assessment on freshwater resources in Southeast Asia.

Additionally, there will be one day dedicated to a technical-scientific forum open to the general public. This event will provide attendees with the opportunity to present their own research findings, engage in scientific discussions, and receive feedback from their peers and experts in the field. This symposium-style event will encourage knowledge sharing and collaboration, as well as provide valuable networking opportunities for attendees.

Registration

To register for the technical-scientific forum, please scan the following QR code or click the following link:

<https://forms.gle/n199MdDhWxcyJmXZA>

or QR code



Please could you confirm your availability to join the workshop to Siwat Kongwarakom, siwatk@ait.asia, specifying whether you will be joining in person or online (Zoom link to follow).

This event is published on the CCRASEAL website: <https://ccraseal.com>. You are invited to visit it regularly for updates.

Day 1: 23rd August 2023

8:00 – 8:30	Registration
-------------	---------------------

Welcome and Opening addresses

	<p>Welcome addresses by Assoc. Prof. Dr. Chanda Vongsombath, Dean, Faculty of Environmental Science, The National University of Lao (NUOL)</p>
	<p>Welcome addresses by Prof. Kazuo Yamamoto, President, Asian Institute of Technology (AIT)</p>
8:30 – 9:00	<p>Welcome addresses by Dr. Linda Anne Stevenson, Head of Knowledge Management and Scientific Affairs and Deputy Head of Development and Institutional Affairs, Asia-Pacific Network for Global Change Research (APN)</p> <p>Opening address by Dr. Salvatore G.P. Virdis, CCRASEAL PI</p>

Opening Session

09:00 – 9:30	<p><i>“Assessing Climate Change Risks in Southeast Asian Lakes: Insights from CCRASEAL”</i> Speaker: Dr. Salvatore G.P. Virdis CCRASEAL PI and Prof Sangam Shrestha (CCRASEAL Co-PI)</p>
--------------	--

9:30 – 10:00 Coffee break & Photo session

Technical Session 1: Bridging the Gap: Integrating Climate Change and Water Resources Management in Southeast Asian Freshwater Systems

Chair: Dr. Salvatore G.P. Virdis (AIT Thailand)

10:00 – 10:20	<p><i>“Water Resources Management in Lao PDR”</i> Speaker: Mr. Pinthong Salermxay, Department of Water Resources Management, MONRE, Lao PDR</p>
10:20 – 10:40	<p><i>“Groundwater Management in Urban Case study Sungthong District, Vientiane Capital”</i> Speaker: Dr. Outhai Soukkhy, Acting Principal of Northern Agriculture and forestry college</p>
10:40 – 11:00	<p><i>“Climate Change Policy in Laos- The national Determined Contribution of Laos PDR”</i> Mr. Vilakone Maniphousay, Department of Climate Change (MONRE, Laos PDR)</p>
11:00 – 11:20	<p><i>“Assessing Historical and Future Climate Scenarios for Southeast Asia”</i> Dr Liew Juneng (UKM, Malaysia)</p>
11:20 – 12:00	Q&A Session

12:00 – 13:00 Lunch Break

Technical Session 2: Bridging the Gap: Integrating Climate Change and Water Resources Management in Southeast Asian Freshwater Systems

Chair: Dr Liew Juneng (UKM, Malaysia)

13:00 – 13:20	<i>“Groundwater in the Greater Mekong Region: Critical Review and Prospective Solutions”</i> Ms. Dung Do (NAWAPI, Vietnam)
13:20 – 13:40	<i>“Probability-Based LSWT exceedance Risk Assessment in Southeast Asia over historical and future scenarios”</i> Dr Salvatore G.P. Virdis(AIT, Thailand)
13:40 – 14:00	<i>“Rainfall-runoff modelling using SCS-CN Method at the Multi-Basin scale in Mainland Southeast Asia”</i> Mr Siwat Kongwarakom (AIT, Thailand)
14:00 – 14:20	<i>“Long-Term Spatiotemporal Analysis of Lake Surface Water area changes in Southeast Asia”</i> Ms. Tatsaneewan Phoesri (AIT, Thailand)
14:20 – 14:40	Q&A Session

14:40 – 15:00 Coffee break

Group discussion: Unlocking Solutions for Southeast Asian Freshwater Resources

Moderator: Dr Salvatore G.P. Virdis

15:00 – 16:00	<p>Discussions theme: Bringing evidence into policy: Integrating Science, Governance, and Policy Approaches in a Changing Climate (45 minutes).</p> <p>Group 1: Policy making at national level Group 2: Policy making at local level Group3: Research and academia</p> <p>All groups will report their findings and proposals to the assembly (5 minutes / group).</p>
16:00 – 16:30	<p>Closing Remarks by Assoc. Prof. Dr. Chanda Vongsombath, Dean, Faculty of Environmental Science, The National University of Lao (NUOL)</p>

Day 2-3: 24th – 25th August 2023

Training on Climate Change impact Assessment on Freshwater resources

Dates: 24 - 25 August 2023

Venue: Souphattra Hotel, Souphanouvong Rd, Ban Navienkham, Luang Prabang, Lao PDRat

Duration: 12 hours

Level: Basic to Intermediate

Learning objectives:

The main objective of the training is to provide an overview of climate modeling and downscaling as well as their applications in climate change impact assessment.

Participants will be introduced to CORDEX-Southeast Asia products as well as the fundamental understanding and practical considerations when using the datasets. A variety of tools and techniques for climate data processing and applications will be introduced through demonstrations and hands-on exercises. Participants will gain experience downloading and working on the downscaled climate projection data from the Southeast Asia Regional Climate Change Information System (SARCCIS) and Earth System Grid Federation (ESGF) databases, as well as learn how to perform bias correction.

Additionally, participants will gain experience downloading, handling, and analyzing data from a variety of earth observation sources. Participants will learn how to utilize Python programming for data wrangling and visualization, as well as how to perform trend analysis for study areas with large-scale coverage.

This course introduces the principles lying behind climate change impact assessment techniques and data-driven approaches applied to freshwater resources in Southeast Asia. However, the major focus remains on practical knowledge over theories to learn how data-driven approaches and methods work.

Trainers:

Dr Salvatore G.P. Viridis, Ass. Prof. at the Department of Information & Communication Technologies, School of Engineering and Technology (SET), AIT Asian Institute of Technology (Thailand).

Dr Liew Ju Neng, Ass. Prof. at Department of Earth Science and Environment, Universiti Kebangsaan Malaysia (Malaysia).

Mr. Siwat Kongwarakom, CCRASEAL Project Manager, School of Engineering and Technology (SET), AIT Asian Institute of Technology (Thailand).

Mr. Abdul Azim bin Amirudin, Research Assistant, Department of Earth Science and Environment, Universiti Kebangsaan Malaysia (Malaysia).

Schedule of the course

Day	Session	Topics	Session type	Instructor
1	Morning 9:00 - 12:00	1. Overview of Climate Modeling and Downscaling 2. Overview of CORDEX-Southeast Asia 3. Climate model biases and bias-correction. 4. CORDEX Downscaling Simulations Database - SARCCIS and ESGF.	Lecture	Dr Liew Ju Neng and Mr. Abdul Azim bin Amirudin,
	Afternoon 13:00 - 16:00	5. Downloading and extracting the data from the database. 6. Working with climate model data and bias-correction.	Hands-on practice	
2	Morning 9:00 - 12:00	1. Overview of Earth Observation (EO) for climate risk assessment. 2. Introduction to EO data archive. 3. Introduction to Python for large-scale data analysis.	Lecture & hands-on practice	Dr. Salvatore G.P. Virdis and Mr. Siwat Kongwarakom
	Afternoon 13:00 - 16:00	4. Data wrangling, and data visualization. 5. Trend analysis of climatic time series.	Lecture & hands-on practice	