

Announcement

IGCP-700: Palaeozoic Carbonate Build-ups in South East Asia

(Year 5: Workshop and fieldtrip training for geoscience students, academics and geoscientists on “Late Paleozoic stratigraphic correlation of SE Asia and carbonate platform development in central Sumatra, Indonesia”)

Organised by IGCP-700, Maharakham University (MSU), Merangin Jambi UNESCO Global Geopark, University of Jambi (UNJA) and Universiti Teknologi PETRONAS (UTP)

Venue: Merangin Jambi UNESCO Global Geopark, University of Jambi, central Sumatra, Indonesia

Date: November 2nd-3rd, 2025; Field investigation with training for students and scientists
November 4th, 2025; Main workshop meeting

Organising committee

Assoc. Prof. Dr. Mongkol Udchachon (MSU, THAILAND)

Assoc. Prof. Dr. Hathaithip Thassanapak (MSU, THAILAND)

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Dr. Pradit Nulay (DMR, THAILAND)

Assist. Prof. Halay Tsegab Gebretsadik (UTP, MALAYSIA)

Scientific committee

Prof. Clive Burrett (MSU, THAILAND)

Prof. Chen Jitao (NIGPAS, CHINA)

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Dr. Peter Königshof (SENCKENGERG, GERMANY)

Prof. Stephen Kershaw (UK)

IGCP700's leader institutions

Maharakham University, THAILAND

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Universiti Teknologi PETRONAS, MALAYSIA

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Background

The study of limestones, particularly reef limestones requires bridging across disciplines and timescales in a comparative approach leading to the recognition of trends and patterns. Understanding of ecological changes of ancient reefs is also crucial to evaluate threats to modern coral reefs. The aims of the project are to integrate and synthesise information on Palaeozoic carbonate build-ups throughout South East Asia. Research will focus on the growth and demise of carbonate platforms, the distribution and geometry of build-ups, climate change vs. reef development, and framework-builder diversification in the Palaeozoic. Facies settings of interest will range from seamount carbonates to supratidal and shallow-subtidal environments. We will also address the economic potential of carbonates and thus the planned conference will be of interest for scientists as well as decision makers, politicians, and companies. Carbonates, particularly caves are very attractive for the general public, therefore we foster collaboration with geoparks and national parks.

Limestones are well-known in SE Asia both in Indochina and Sibumasu terranes as extremely attractive karst areas for instance Ha Long Bay in the World Heritage area of Vietnam, that pure limestones are also designed to be used for food production, beverage industries and much more, in Krabi and Phang Nga in Thailand, in the UNESCO Geoparks in Langkawi, Satun and Dong Van (Malaysia, Thailand and Vietnam, respectively) and in the Kinta Valley (Malaysia) and Khammouane and Vang Vieng areas of Lao PDR. Apart from scenic beauty, all these areas and many more have caves that are both aesthetically attractive and have considerable actual and potential for palaeontological, palaeoclimatic, archaeological, historical and biological research. Limestones are also sites of large cement works and many karst areas are being or potentially will be destroyed by quarrying for cement (Kiernan, 2010). One aim of this project is to map areas of suitable quality limestone distant from tourist areas in order to help avoid conflict between the two important industries: tourism and construction. Limestone is important economically as host to very important mineral deposits (e.g. Devonian limestone of the Sepon copper-gold mine in Lao PDR, (Thassanapak et al., 2017) and to important petroleum accumulations such as the Permian limestone of North East Thailand (Booth and Sattayarak, 2011).

Limestones are scientifically important as they are important archives of palaeoclimatic and palaeoceanographic data, of palaeodiversity and as palaeogeographic features. South East Asia contains not only ancient tropical limestones but also cold-water limestones (e.g. early Permian limestones in Malaysia and Thailand (Rao, 1996; Thassanapak et al., 2019). Platform limestones of various ages are widespread across South East Asia and occur in a variety of tectonic environments (e.g. Udchachon et al., 2013). How they accumulated and the controls from tectonic, biotic and palaeoclimatic factors are amongst the academic aims of this project. How the widespread platforms grew, laterally and vertically, how the carbonate factories kept-up with subsidence and the mystery of carbonate platform demise (Wilson et al., 2019) will be important considerations. These also have significant economic implications as platform

growth and their palaeogeographic setting controls primary porosity and hence petroleum reservoir formation (e.g., Saw et al., 2019).

Achievements of the IGCP-700's previous activities

From 13th to 16th December 2021, an inaugural conference meeting of the project was held in NE Thailand. Initiation of the project was delayed due to substantial domestic travel restrictions due to Covid-19. This very successful hybrid conference was both online and in-person with 19 presentations on the first day and was followed by two days examining and discussing outcrops in the Loei fold belt. The main thrust of the inaugural meeting was to introduce Thailand-based geologists to carbonate geology. IGCP project 700 is the first IGCP project to cover carbonate studies and a major focus of the inaugural meeting was to introduce Thai geologists to carbonate sedimentology, structure and palaeontology.

From 22nd - 25th August 2022, we organized the Year 2: Meeting (hybrid) + fieldtrip training for students/academics and young geoscientists on Palaeozoic carbonate build-ups in Central Thailand, after a one-day meeting, a fieldtrip was conducted along the Phetchabun fold belt in Central Thailand from Phetchabun in the north to Lopburi, Saraburi and nearby areas in the south visiting the late Palaeozoic carbonate sequences build-ups and fossils. This trip includes a field carbonate training/workshop led by prominent carbonate workers from the developed world (both in-person and online). The course includes basic concept and application for both academic knowledge and economic benefit for students/academics and geoscientists on Carbonate sedimentology, Carbonate depositional environments, Palaeontology and biostratigraphy, Regional stratigraphic correlation, mapping of the carbonate sequences in SE ASIA and Education for the general public and geoparks.

During 25th - 30th September 2023, IGCP-700's Year 3: Meeting + fieldtrip training for students/academics and young scientists on Sibumasu Palaeozoic carbonate build-ups, fossils and palaeoenvironments conducted in southern Thailand and NW Malaysia was organised by IGCP-700 in cooperation with IGCP-735, JMG and LADA. This meeting as well as field excursion and training have improved our knowledge on the carbonate build-ups and fossils in different terrane from what we had conducted in the previous years which based on the Indochina terrane. The Sibumasu terrane includes a unique geological history, palaeoclimate, platform carbonates and fossils. With totally 17 talks with 85 participants including 38 online and 47 in-person from 10 countries joined this one-day meeting in Ao Nang, Krabi. Up to 30 participants from the meeting continued to attend the field excursion for the Permian limestone in Krabi and the Lower Palaeozoic succession in Satun UNESCO Geopark. After 2-days trip in southern Thailand, we continued the journey to northern Malaysia including Perlis as well as Langkawi UNESCO Geopark for further field training and geological and correlation

For this year we have both new and old senior scientists mainly from Australia, China and UK to support academically to our young participants. These include Prof Dr Stephen Kershaw, Brunel University, London, Prof Dr Xiaochi Jin, Institute of Geology, Chinese Academy of Geological Sciences, Dr Jitao Chen from Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences and Prof Dr Clive Burrett, Mahasarakham University. We have also organised the trip from Krabi to Satun UNESCO Geopark and across the border to Perlis and Langkawi UNESCO Geopark in Malaysia with Drs Clive Burrett, Hathaithip Thassanapak

and Mongkol Udchachon as the main trip leaders for the excursion with staffs from both geoparks to support logistically and technical knowledge. The impact of these activities is useful for not only to the support of local and international academic/research activities and networking but also for the promotion of the geopark on its geological significant and the beauty of the nature in both countries for the promotion of geotourism industry in the geopark area.

Main aims of the activities in central Sumatra, Indonesia

The activity in central Sumatra, Indonesia includes workshop and fieldtrip trainings for students/academics and young scientists on Late Paleozoic stratigraphic correlation of SE Asia and carbonate platform development

in central Sumatra, Indonesia organizing at the Merangin Jambi UNESCO Global Geopark, University of Jambi. Basically, the workshop will be organized by our IGCP700 senior scientists and supporting team with technical assistant. It is planned to start with plenary lectures on “Palaeozoic stratigraphy and tectonic evolution in SE Asia” and followed by “Carbonate platforms in SE Asia and classification of carbonate rocks”. After these talks it will be followed by a training on carbonate classification and depositional environment interpretation of carbonate rocks using our collections such as slabs and thin-sections mainly from Thailand and should be partly from the central Sumatra for the geopark staff and participants to learn more on the geological significant of the area. The last session will be a panel discussion on Palaeozoic stratigraphic correlation and carbonate platform development in SE Asia in which all participants are invited to share their technical information such as geological reports, maps and stratigraphic logs to update and compile. This information will be store in retrieval database for further sharing, update and common uses internationally. We hope this IGCP700’s activities will expand our community networking both geopark and university personnel, support and strengthen human capability for future geological exploration and economic developments in SE Asia.

Important time

August 2025	Open for registration
October 10th, 2025	Deadline for abstract submission (for poster presentation)
October 15th, 2025	Deadline for fieldtrip registration and payment
October 25th, 2025	Deadline for workshop (on-site) registration
November 2nd-3th, 2025	Fieldtrip investigation and training
November 4th, 2025	Main workshop meeting

Abstract submission and poster presentation

This workshop is also open for poster presentation which will be included during coffee break. One-page abstract in ENGLISH is invited. The abstract should be good written in English, concise, related to but not limited to Carbonate Sedimentology, Palaeozoic Stratigraphy of SE Asia, Palaeontology and Biostratigraphy of Palaeozoic Successions, Reef and Build-ups, etc.

A0 sized-poster should be prepared for the presentation. Presenters will be notified to attend their poster during the certain time for Q&A.

If interested, please submit abstract to: igcp700@msu.ac.th; mongkol.c@msu.ac.th

Sponsors and student support

Both workshop and fieldtrip are primarily supported by Merangin Jambi UNESCO Global Geopark, University of Jambi and IGCP700. This activity is also seeking sponsoring agencies/companies to help support the meeting especially for students and young scientists. IGCP700 programme generally supports students and young scientists by providing registration fee waivers for them joining in the workshop and meeting via the help of agencies/companies. To support student transportations, meals and accommodations in order to join IGCP700's meeting or fieldtrip, please contact us.

*IGCP700 will also support a certain number of students and young geoscientists especially ladies from underdeveloped countries and developing countries to join the IGCP700's workshop meeting. This includes the certain amount of the cost for transportations, meals and accommodations. Participant who interests should submit a good abstract for poster presentation to the organizer's email.

Registration fee

Workshop registration fee: free of charge

Field excursion fee: 190 USD (for geopark excursion including ride (from Lubuk Linggau city and Merangin Jambi UNESCO Global Geopark and to Jambi), rafting, lunch and dinner). This rate **does not include** accommodation in which the participant needs to make a booking. For more information and suggestion for the hotel please check from booking applications and websites or contact the geopark office for hotel information.

A maximum of 10 participants is limited (higher numbers might be considered depending on transportation availability), so please submit your registration form to reserve your seat ASAP.

The participant who is interested to join can make a payment directly to the geopark office, please contact the office; meranginjambigeopark@gmail.com

Website: <https://geopark.meranginkab.go.id/en/hubungi/>

A limited number of students or young geoscientists especially ladies from underdeveloped and developing countries might be supported by the IGCP700 and the Merangin Jambi UNESCO Global Geopark (terms and conditions applied). Please submit your abstract for poster presentation in the workshop for consideration by 30 September 2025.

NOTE: participants take responsible for their own international and domestic travels and accommodation. Organizer supports for meeting facilities and document, lunches and water during the workshop meeting.

TENTATIVE SCHEDULE

Workshop and fieldtrip training for geoscience students and geoscientists on “Late Paleozoic stratigraphic correlation of SE Asia and carbonate platform development in central Sumatra, Indonesia”

Organized by IGCP-700, Merangin Jambi UNESCO Global Geopark, Mahasarakham University (MSU), University of Jambi (UNJA) and Universiti Teknologi PETRONAS (UTP)

Venue: Merangin Jambi UNESCO Global Geopark, University of Jambi, central Sumatra, Indonesia

November 2nd-3th, 2025; Fieldtrip investigation and training

Excursion leader: Assoc Prof Dr Mongkol Udchachon and geologists from Merangin Jambi UNESCO Global Geopark

Fieldtrip investigation and training for geoscience students, geoscientists and others in relevance field of studies in the Merangin Jambi UNESCO Global Geopark, visit and study sections in and nearby the geosites such as Mengkarang Fossilized Brachiopods, Muara Karing Leaf Fossil and Teluk Gedang Wood Fossil. This activity aims at accessing more understanding on the Permian carbonate platform development in central Sumatra for palaeoenvironment and palaeogeography interpretation. Basic carbonate sedimentology as well as depositional environment and basic fossil notification and identification such as brachiopods, corals, ammonoids, fusulinids, plants and others in the geoparks will be provided and trained primarily in the field for participants. More detailed study for carbonate rocks and fossils will be included in the main workshop training. Future research cooperation and opportunities will be also discussed from the possible rock sections and materials observed.

Major geosites to visit

Teluk Gedang Wood Fossil

In this geosite, we get the characteristics of Jambi flora fossils that are 290 to 300 million years old which are characterized by the presence of fusulinids in the rock of the Mengkarang Formation. This name signifies the Merangin river that just into the plains on its banks, which is bounded by rock walls, in the form of fractured Granodiorite cliffs, columnar joints, sedimentary rocks stratified, and the beauty of tree trunk on the banks of the river. And there is a fossilized *Araucarioxylon* mass tree trunk, with roots that also appear to have been petrified, a trunk as high as ± 2.40 m from the roots, and a diameter of ± 1.60 m. And not far from this tree there is a collection of fossil shells and fusulinids which are clearly embedded in the layer of gray sedimentary rock.

Muara Karing Leaf Fossil

The Karing River is a small river that connecting directly into the Merangin River, the estuary forms a waterfall, which shows normal faults and is followed by minor faults as evidenced by a terraced waterfall, there are fossils of Macraethopterid, Pecopterid, and Cordaites leaves, these three fossils

were found in the black tuffaceous shale layer is eroded and belongs to the Mengkarang Formation. Although the fossils found are not intact, the parts are very well preserved. In addition to the three fossils above, in Muara Karing there is also a tree trunk fossil in situ. During its growth, these fossils grew in swamps which were then preserved by the erosion process and were exposed on the banks of the Merangin River at the downstream of the Karing River. Five of these stump fossils were found. Some of the stump fossils can be identified as fossils of *Calamites* trees which are highly susceptible to erosion by the Merangin River.

Mengkarang Fossilized Brachiopods

This black shale which contains tuffaceous fossils of marine origin such as brachiopods and crinoids as well as leaf fossils belongs to the Mengkarang Formation. The Mengkarang Formation as a whole is thought to have been deposited in a shallow, muddy land-sea environment, in a low energy regime, near to a volcanic island arc and Early Permian (290 million years ago).

At this geosite, we can see the distribution of brachiopods and crinoid fossils along the composing river. Apart from fauna fossils, there are also fern fossils which are part of Jambi flora fossils such as *Pecopteris* sp. and *Calamites* sp.

Itinerary

Day 1: November 1st, 2025

Time	Activities
15.20 pm	Participants arrival at Lubuk Linggau Airport
16.00 pm	travel to Bangko – Merangin
20.30 pm	arrival at Bangko town

*Participant with the same flight or the flight before can join transportation to Bangko. In this case, it is needed to inform the organizer at least 7 days in advance for the meeting point and car arrangements

Day 2: November 2nd, 2025

Time	Activities
08.00 am	Start the fieldtrip by car to Air Batu Village
09.00 am	Arrival at Air Batu Village – reaching the Teluk Gedang Wood Fossil by rafting
10.00 am	Arrival at Teluk Gedang Wood Fossil
12.30 pm	Lunch
13.00 pm	Reaching Muara Karing Leaf Fossil
15.00 pm	Leaving Muara Karing, back to Bangko
19.00 pm	Dinner

Day 3: November 3rd, 2025

Time	Activities
08.00 am	Start travel by car to Mengkarang Fossilized Brachiopods
09.00 am	Arrival at Bedeng Rejo Village to start the tracking
09.30 am	Arrival at Mengkarang Fossilized Brachiopods
12.00 pm	Lunch
15.00 pm	Leaving Mengkarang Fossilized Brachiopods
16.30 pm	Arrival at Geopark Information Centre
17.30 pm	Leaving Bangko – on the way to Jambi
23.30 pm	Arrival at Jambi

Day 4: November 4th, 2025; Main workshop meeting

Time	Activities
08.30 – 09.00	Desk registration
09.00 – 09.10	Welcome speech by University of Jambi and Merangin Jambi UNESCO Global Geopark (10 min) <i>By Dean/Director/representative</i>
09.10 – 09.15	Open session and introduction to IGCP-700 programme (5 min) <i>By Dr Mongkol Udchachon, Dr Halay Tsegab, Dr Hathaithip Thassanapak and Dr Pradit Nulay</i>
09.15 – 09.45	Palaeozoic stratigraphy and tectonic evolution in SE Asia (30 min) <i>By Dr Clive Burrett and Dr Mongkol Udchachon</i>
09.45 – 10.20	Limestone and fossil for geopark promotion and development (35 min) <i>By -to be announced-</i>
10.20 – 10.30	Coffee break with poster presentation (10 min)
10.30 – 12.00	Introduction to carbonate sedimentology, classification, and depositional environments (90 min) <i>By Dr Halay Tsegab, Dr Mongkol Udchachon and Dr Clive Burrett (Dual-mode lecture)</i>
12.00 – 13.00	Lunch
13.00 – 14.30	Basic identification of common fossils in Late Palaeozoic limestones in SE Asia (80 min) <i>By Dr Mongkol Udchachon, Dr Hathaithip Thassanapak and Kantanat Takulweerayut</i>
14.30 – 14.40	Coffee break with poster presentation (10 min)
14.40 – 16.00	Exercise and Practice “classification of carbonate rocks & fossils” (80 min) - with thin sections, rock slabs and fossils from Thailand, central Sumatra and others– <i>By Kantanat Trakunweerayut, Dr Hathaithip Thassanapak and Dr Pradit Nulay</i>
16.00 – 16.30	Discussion on Late Paleozoic stratigraphic correlation of SE Asia, networking and cooperation on carbonate build-ups in SE Asia and the application for geopark developments
16.30 – 17.30	Closing session/dinner

Remark: please note that the schedule might be subjected to amendment and if required the organizer will notify, please keep updated.

Visa: please check if you required visa to enter Indonesia>> <https://evisa.imigrasi.go.id/>

Travel to Jambi: participant might fly to and back from Jambi using Sultan Thaha Airport (DJB) in Jambi city via Jarkata, Soekarno–Hatta International Airport (CGK).

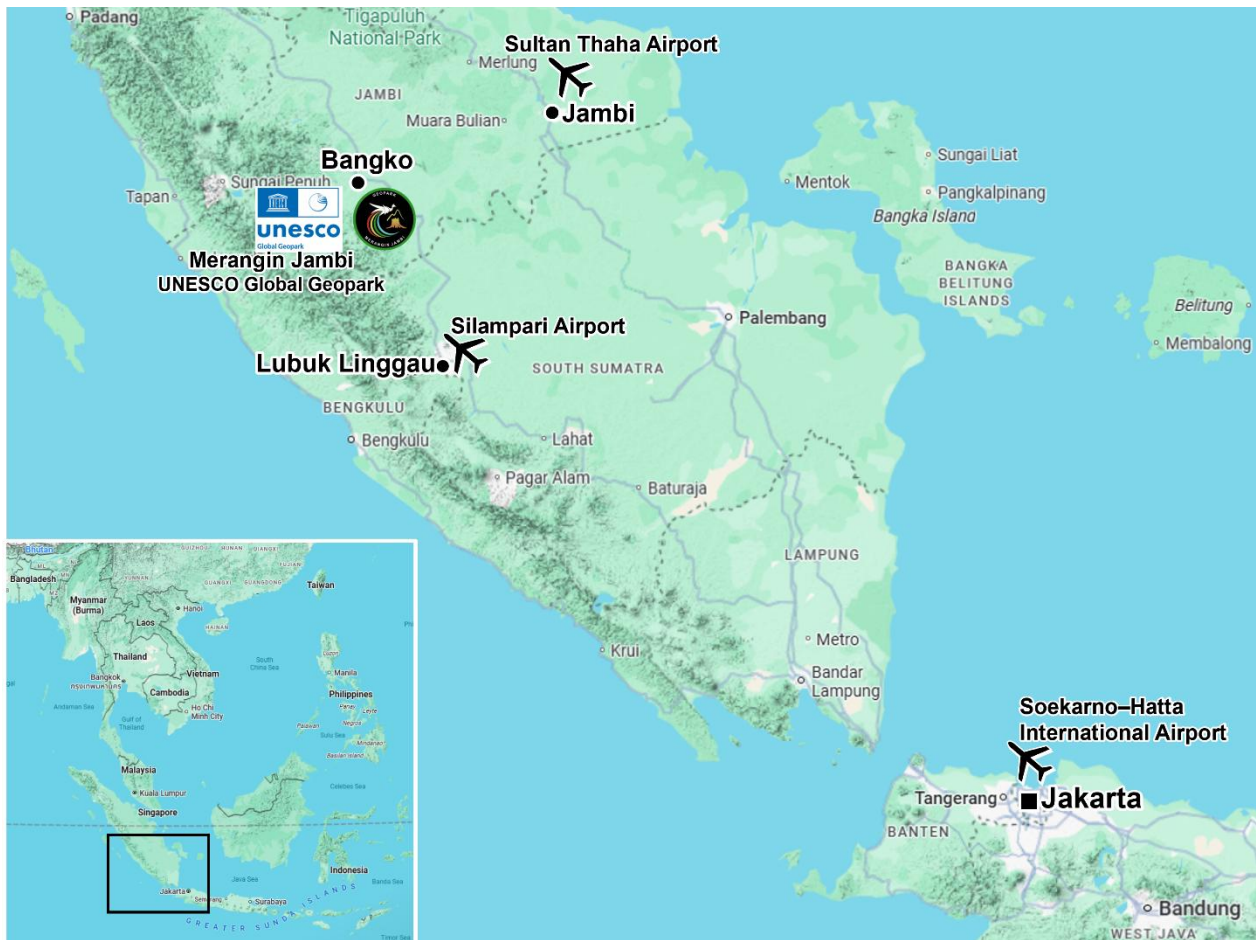
Travel to Bangko (Merangin Jambi UNESCO Global Geopark) via Lubuk Linggau Airport (Silampari Airport) (LLJ). Participant might need to travel from Jakarta using Soekarno–Hatta International Airport (CGK) to Lubuk Linggau Airport. Then take taxi or rental car to Bangko and it takes about 4 hrs.

Accommodation in Jambi and Bangko: there are ranges of hotel and prices in Jambi and Bangko, the participant can check from the hotel booking applications and websites. In Jambi, it might be recommended to stay close to University of Jambi for your convenience to join the activities.

Merangin Jambi UNESCO Global Geopark’s email; meranginjambigeopark@gmail.com

Website: <https://geopark.meranginkab.go.id/en/hubungi/>

IGCP700’s official website: <https://prc846.wixsite.com/igcp700>



Travel Map to Jambi and Bangko Merangin (Jambi UNESCO Global Geopark) (credit: Google Map)



Three main geosite map for this fieldtrip investigation and training in the Jambi and Bangko Merangin (Jambi UNESCO Global Geopark)