



# Equatorial Gondwanan History and Early Paleozoic Evolutionary Dynamics

## First Circular



### ANNUAL MEETING

Yangon, Myanmar  
7-8 January 2020

### POST-MEETING EXCURSION

Southern Shan State, Myanmar  
9-12 January 2020



Myanmar Geosciences Society



United Nations  
Educational, Scientific and  
Cultural Organization



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## About IGCP 668

### Scientific Mission

The present may be the key to the past, but the past is the key to the future. Scientific studies of ancient changes in Earth's physical environment and biota provide insight into our planet's future. IGCP 668 seeks to understand the interplay of Earth's systems during a particularly important ancient interval, the latest Cambrian and early Ordovician (~500 – 450 Ma). This window of Earth history witnessed a change from repeated intervals of evolutionary "boom and bust" (rapid evolutionary radiation followed by dramatic collapse of diversity) in Cambrian shallow seas into a more stable and enduring biota in the Ordovician and thereafter. This change is temporally and likely causally linked to a late Cambrian peak and early Ordovician decline in global explosive volcanism. This volcanism is recorded in particular detail in the equatorial Gondwanan terrane of Sibumasu: Thailand, Myanmar, Malaysia, and Baoshan, China. In these areas fossils are repeatedly interbedded with datable volcanic ashes. Global volcanism may also have resulted in rapid changes in atmospheric CO<sub>2</sub>, and in widespread marine anoxia. The relationship between such environmental stresses and faunal turnover has societal significance today, but our ability to learn from this instructive episode is hindered by our inability to determine the precise timing of these events and thus link cause and effect. IGCP 668 aims to rectify this problem and discover the links between volcanism, evolutionary boom and bust cycles, and ocean chemistry during the fifty million years spanning the Cambrian-Ordovician boundary. In order to do so we must expand our understanding of geology and paleontology of Sibumasu, particularly in the broader, better studied context of other equatorial Gondwana terranes (especially Australia, North and South China, Indochina, and South Asia). IGCP 668 will address these aims by focusing on the following:

*Geochronology & Igneous Petrology:* Resolving the poorly understood late Cambrian and earliest Ordovician geochronology is necessary to interpret the cause and effect relationships between lithospheric events, atmospheric events, and extinction/biodiversification patterns. Intrusive magmatism was widespread in the region during the Cambro-Ordovician, but its record is poorly understood. Sibumasu's tuffs offer a level of geochronologic resolution beyond what is currently available.

*Stratigraphy (and stratigraphic subdisciplines):* We are correlating the stratigraphy of Sibumasu and other parts of equatorial Gondwana using a combined approach of biostratigraphy, lithostratigraphy, chemostratigraphy, magnetostratigraphy, and igneous petrology in order to more directly compare regional vs. local events and geochronologically calibrate all of equatorial Gondwana's Cambro-Ordovician history, not just that of Sibumasu where the absolute dates occur. Only through a coordinated approach of many disciplines and regions can causal relationships within the "Earth-Life System" be established.

*Palaeontology*: When identifying speciation events, extinction events, and biodiversity levels, good taxonomy is fundamental. Although much progress has been made in updating classical systematics, additional taxonomic revision is urgently needed as efforts to update taxonomy have generally been isolated and scattered across limited taxa. Meanwhile, many new taxa have been established, some of which need to be evaluated for their taxonomic validity. As taxa are updated, integrating faunal occurrences into the Paleobiology Database (PBDB) and Geobiodiversity Database (GBDB) will make this information usable in addressing research questions at all scales

### **Additional Aims and Goals**

IGCP 668 affirms that it is the duty of all scientists to disseminate findings and information not just to each other but to the general public. As we conduct field work in rural areas of Southeast Asia, we work with local villages through fossil collecting and storytelling to educate people on natural history and geologic processes. It is our intent that the local around and with whom IGCP 668 collaborators conduct field work should have an introductory sense of what the researchers are looking for and the nature of the geologic record.

### **Project Coordinators**

**Prof. Nigel Hughes**

University of California, Riverside  
United States

**Dr. Apsorn Sardud**

Department of Mineral Resources  
Thailand

**Prof. Shanchi Peng**

Nanjing Institute of Geology and Paleontology  
China

**Mr. Kyaing Sein**

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**Prof. Paul Myrow**

Colorado College  
United States

**Prof. Sachiko Agematsu-Watanabe**

University of Tsukuba  
Japan

**Dr. Ryan McKenzie**

University of Hong Kong  
China



## Host City & Venue

IGCP 668 is pleased to announce that the inaugural meeting will take place in Yangon, the capital city of Myanmar. Yangon is a city of great history and cultural significance. It is the home of Shwedagon, one of the largest and oldest Pagoda complexes in the world, and gem markets featuring Myanmar's famous rubies. During your stay for the conference, be sure to enjoy the city's culture and historical sites.

The scientific conference will take place at Yangon's beautiful Sedona Hotel, No. 1 Kaba Aye Pagoda Road, Yankin Township Yankin Township, Yangon (Rangoon) 11081 Myanmar. The Sedona hotel is directly on Inya Lake in the heart of Yangon. IGCP 668 participants will be eligible for a special rate, \$65. Information about reserving the room at that rate will be announced in a future circular or on the IGCP 668 website..

If you are receiving a travel grant from IGCP 668, we will book your room for you. Grant recipients will have double rooms shared with another participant. You are welcome to request a roommate though roommate requests cannot be guaranteed (except for couples).

## Scientific Meeting

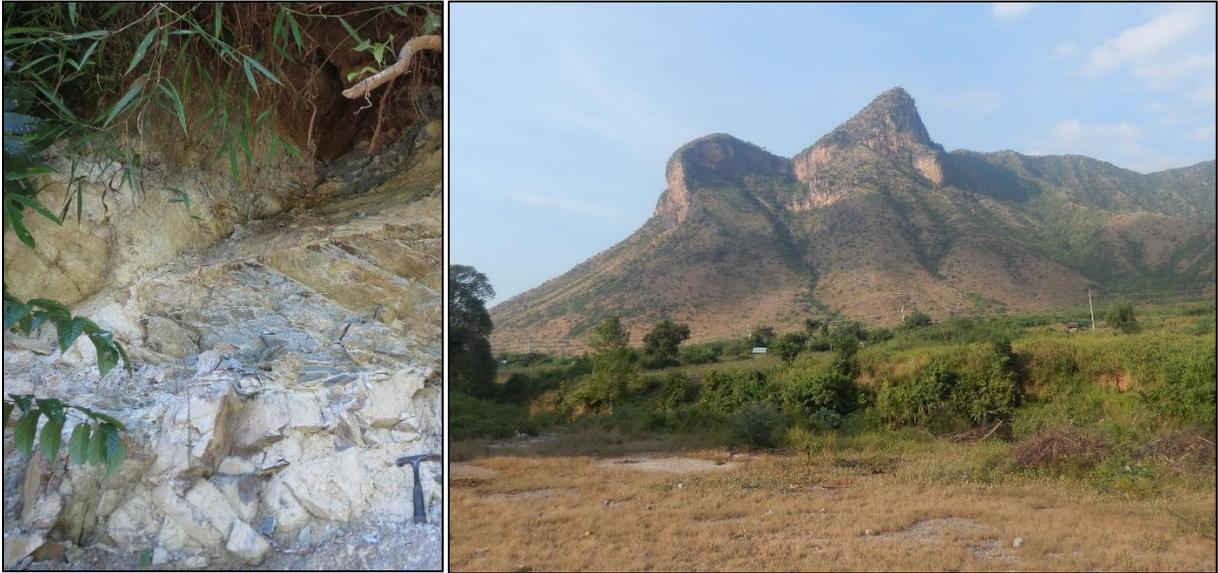
The IGCP 668 meeting is a symposium within Geomyanmar. IGCP679 - Cretaceous Climate and Earth Dynamics in Asia - is pleased to join with IGCP668 in sponsoring our symposium due to shared interest in the geological history of Asia and how regional influences have had major global effects. IGCP 679 is cohosting the IGCP contribution to the meeting. The Geomyanmar scientific meeting will begin the morning of 7 January 2020 and conclude the evening of 9 January. The IGCP symposium will be on the afternoon of 7 Jan and all day 8 Jan. It will consist of a combination of keynote, oral, and poster presentations.

### **Oral Presentations**

There will be multiple sessions with oral presentations. With the exception of invited keynote speakers, all presentations should be restricted to a total of 20 minutes: 15 minutes for the talk, 5 minutes for questions, and two minutes for transitions between speakers. Please bring your presentation to the meeting on a USB flash drive. The file type should be compatible with Microsoft PowerPoint. Presenters are encouraged to present in English as this language is understood by the largest number of participants, but presenters are permitted to speak in the language of their choice.

### **Poster Presentations**

Posters will be available for viewing both days of the scientific meeting. On the afternoon of November 30, there will be an extended break during which poster authors will be present to discuss them. Restrict poster sizes to no larger than 91cm X 122cm (printing size A0). Presenters must print posters prior to arrival as there will be no printing options at the venue. The organizers encourage poster text to be in English as this language is understood by the largest number of participants, but presenters are permitted to use the language of their choice.



## Post-Meeting Excursion

The post-meeting excursion will depart 9 January to drive from Yangon north to the beautiful Shan Plateau. Climbing the Shan Plateau marks the transition from the west Burma Block to Sibumasu. There we will visit the southern Shan State's Linwe area and the western flank of the Pindaya range. The trip will feature Precambrian through Silurian deposits with special focus on the Cambro-Ordovician units. The latest Cambrian rocks (Molohein Group) are known to contain both volcanic tuffs and trilobites with a conformable transition into the Ordovician units (Pindaya Group). Other fossils known in the area include cephalopods, brachiopods, echinoderms, and graptolites.

We will stay in Ye-ngan for 3 nights before returning to Yangon on 12 Jan.

The southern Shan State is heavily forested with a climate more conducive to weathering than erosion. Infrastructural expansion of the past decade has served science well in exposing more outcrops than have been accessible at any point in the past. With one exception most of the excursion will take place on or near roads where roadcuts have stripped away the forest soil and overgrowth to expose relatively fresh outcrops. As such the trip should not be particularly physically strenuous but will require considerable time in cars and possibly some use of motorbikes.

The excursion fee will be announced in a future circular. We cannot guarantee to return to Yangon earlier than 8:00 pm on 12 Jan, so we recommend not booking any flights for that night.

## A note on safety

Some travel advisories are in effect for Myanmar. These advisories affect the northern Shan State, but not Yangon or the area southeast of Mandalay which is generally considered safe. Normal security procedures apply: please be especially careful with your valuables such as passport, travel documents, and money, keeping them with you on your person in a secure way. Bringing photocopies of all these documents and storing them in a separate place is also recommended.

The excursion will involve extensive work around roads and on outcrops in heavily forested areas. Please exercise basic field precautions against cars, vegetation, insects, and snakes.

## Registration

Though IGCP 668's meeting is a subset of Geomyanmar, please register directly with IGCP 668. Complete the registration/abstract submission form found on <https://swern001.wixsite.com/igcp668/next-meeting> and email it to the IGCP 668 secretary at [swern001@ucr.edu](mailto:swern001@ucr.edu). Thanks to support from the Myanmar Geosciences Society the regular Geomyanmar registration and abstract fee is waived for IGCP 668 participants though a fee will apply for participants attending the excursion.

## Visa Information

Participants from most countries will require a Visa to visit Myanmar. Many Visas and other entry regulations require a letter of invitation from the conference organizers. If you need a letter, please contact Nigel Hughes at [nigel.hughes@ucr.edu](mailto:nigel.hughes@ucr.edu) as soon as possible. Please also copy Shelly Wernette at [swern001@ucr.edu](mailto:swern001@ucr.edu) on the email as Nigel's email is currently inconsistent.

**See you in Myanmar!**