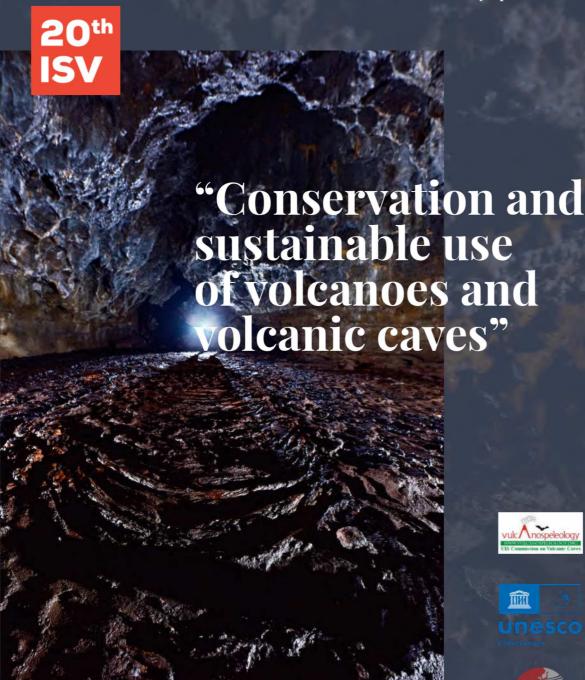
# Second Circular

20th International Symposium on Vulcanospeleology



21 – 26 November 2022 Dak Nong UNESCO Global Geopark Dak Nong Province Vietnam





















# Scientific Committee

No.	NAME	AFFILIATION	
1	Mr. John Brush	Chairman of the UIS-CVC	
2	Mr. Gregory Middleton	Vice Chairman of the UIS-CVC	
3	Prof. Stephan Kempe	Emeritus professor of geology at Darmstadt Technical University (Germany)	
4	Dr. Tsutomu Honda	Chairman, Japanese Vulcano-Speleological Society (NPO-VSS)	
5	Dr. Guy Martini	General Secretary of the Global Geoparks Network, Chairman of the UNESCO Global Geoparks Council	
6	Prof. Jin Xiaochi	Institute of Geology, Coordinator of Asia Pacific Geoparks Network, Chinese Geoparks Network	
7	Prof. Nakada Setsuya	Director-General, Center for Integrated Volcano Research, National Research Institute for Earth Science and Disaster Resilience (NIED), Japanese Geoparks Network	
8	Dr. Yong-mun Jeon	Expert on volcanoes and volcanic caves, Korean Geoparks Network	
9	Prof. Nguyen Lan Cuong	Vietnam Association of Archaeologists	
10	Prof. Pham Hong Thai	Deputy Director-General of Vietnam National Museum of Nature	
11	Prof. Ngo Xuan Thanh	Geologist, Hanoi University of Mining and Geology	
12	Mr. Ho Tien Chung	Geologist, Vietnam Institute of Geosciences and Mineral Resourcesv	
13	Ms. Luong Thi Tuat	Geologist - Vietnam Association of Geoscientists	





# Introduction

Dak Nong UNESCO Global Geopark (Dak Nong UGGp) covers 4,760 km² of 5 districts and 1 city. Its history begins approximately 140 million years ago when an ocean covered the area. Sedimentary rocks, ammonites and other fossils are the silent witnesses of this marine past. More recently, continuous volcanic eruptions took place which resulted in different types of basalt that covers half of the area.

Dak Nong UGGp owns 5 young but beautifully-shaped volcanoes. It also features the longest and largest pyroduct system in Southeast Asia. From 2014 to present, cave explorers have discovered and measured about 50 caves within the geopark's area with a total length of over 10km. Significantly, many caves have been used as shelter of prehistoric people since at least 6,000-10,000 years ago. Furthermore, young volcanic activities also resulted in majestic waterfalls and other beautiful sceneries.

Dak Nong is as well famous for its rich ethnic identity. Originally inhabited by three indigenous peoples (M'Nong, Ede and Ma), in the late 70s of the 20th century it has received numerous people from other provinces to become the homeland of more than 40 ethnic groups of Vietnam.

Being part of the "Central Highlands Gong Culture Space" - a UNESCO's Masterpiece of Oral and Intangible Cultural Heritage since 2005, Dak Nong is also known for the first discovery in Vietnam, and in the world, of the lithophone - one of the oldest of mankind's musical instruments.





### WELCOME MESSAGE

#### Dear Friends,

On behalf of Dak Nong Provincial Leaders, I am pleased to invite you to the 20th International Symposium on Vulcanospeleology (ISV20), which is under the joint auspices of the UIS Commission on Volcanic Caves and UNESCO Global Geoparks Network and will take place in the Dak Nong UNESCO Global Geopark, Dak Nong Province, Vietnam from November 22nd to November 26th 2022. The theme of ISV20 is: "Conservation and sustainable use of volcanoes and volcanic caves".

As you may know, Dak Nong UNESCO Global Geopark owns 5 young but beautifully-shaped volcanoes. It also features the longest and largest lava tube cave system in Southeast Asia with a total length of over 10km. From 2014 to present, cave explorers have discovered and measured about 50 caves within the geopark's area. Significantly, many caves have been used as shelter of prehistoric people since at least 6,000-10,000 years ago. Furthermore, volcanic activities about tens of thousands of years ago have also left in Dak Nong majestic waterfall system and other beautiful sceneries.

Being part of the "Central Highlands Gong Culture Space" - a UNESCO's Masterpiece of Oral and Intangible Cultural Heritage since 2005, Dak Nong also became known for the first discovery in Vietnam, and in the world, of the lithophone - one of the oldest of mankind's musical instruments.

Hosting ISV20, Dak Nong UNESCO Global Geopark is dedicated to offering all participants great opportunities not only to participate, sharing latest research and development results but also to enjoy the beauty of Dak Nong UNESCO Global Geopark's landscape and experience unique local traditions through a wide range of interactive sessions, field trips and activities.

We look forward to welcoming you to the ISV20 and hope to see you all in the Dak Nong UNESCO Global Geopark!

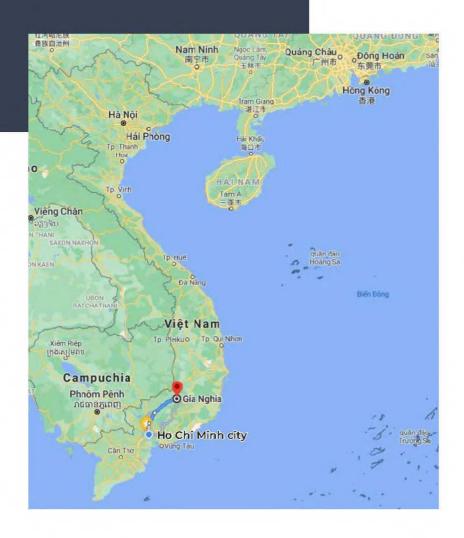


Ton Thi Ngoc Hanh Vice Chairwoman of Dak Nong Province Director of Dak Nong UNESCO Global Geopark

# **Program outline**

TIME (GMT+7)		ACTIVITY		LOCATION
	All day	Airport pick-up & Symposium registration		
Nov 21	18:30 - 21:00	Icebreaker		Provincial Cultural center
	8:30 - 12:00	Symposium Opening Cerenomy Keynote lectures/Sessions	Agro - fair	Provincial Conference hall
	12:00 - 13:30	Buffet		
Nov 22	13:30 - 17:30	Sessions / Visiting exhibition "Volcanoes and volcanic cave wonders"		
	18:30	Welcome party	ازقيحية	Lodge Resort
	8:30 - 12:00	Sessions/workshop	Agro - fair	Provincial Conference hall
Nov 23	12:00 - 13:30	Buffet		
	13:30 - 17:30	Visiting local Dak Nong UNESCO Global Geopark sites, in Gia Nghia, e.g: <b>EXPLORASOUND,</b> <b>The lithophone house</b>		Gia Nghia city
	8:30 - 12:00	UIS-CVC Meeting Session/workshop		Provincial Conference hall
	12:00 - 13:30	Closing ceremony and Farewell party		
Nov 24	13:30 - 17:30	Depart to Krong No volcanic area, visiting some Geopark sites along the road¹		
	19:00 - 20:30	Gala banquet		
Nov 25	Nov 25 All day Short trip <sup>2</sup> and Day 1 of Main trip		Krong No Dist	Krong No District
Nov 26	All day	Day 2 of Main trip <sup>3</sup>		

 $<sup>^{1,2,3}</sup>$  For more information, please refer to EXCURSION



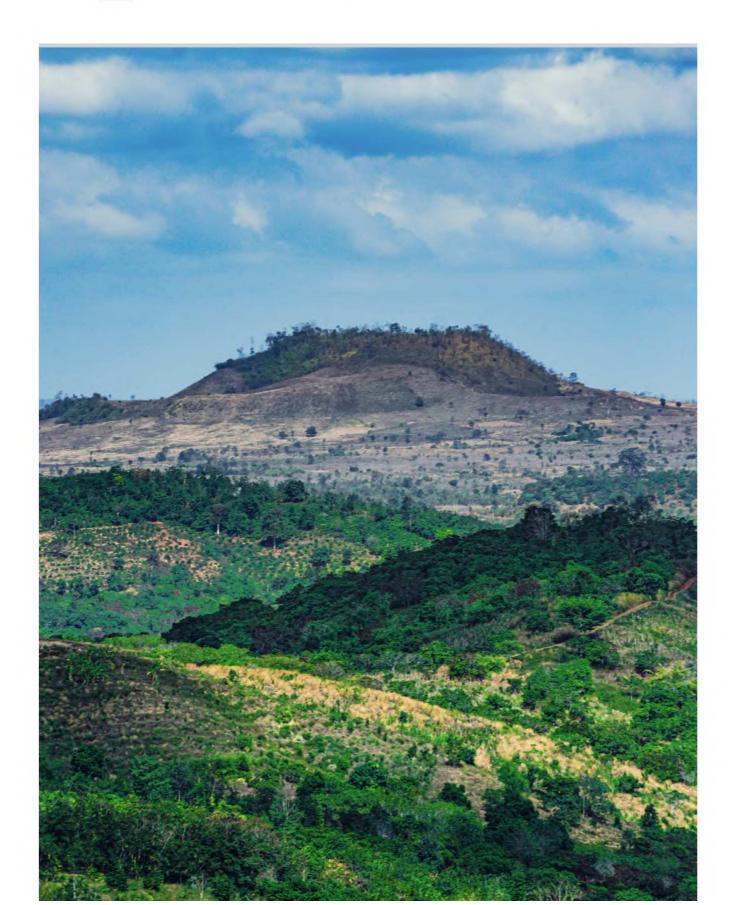
### LOCATION

The 20th ISV will take place in Dak Nong UNESCO Global Geopark, Dak Nong Province, which is located in south-central Vietnam, about 250km northeast of Ho Chi Minh City.

### VENUE



# Accessibility





### BY ROAD

If you want to reach Dak Nong
Province by bus from other
cities/provinces in Vietnam,
you can check this website
https://vietnambustravel.com/

Self-drive rental vehicles are not widely available in Vietnam and it is essential to have a valid Vietnamese driver's licence. International Driving Permits are not recognized.

### BY AIR

Tan Son Nhat International Airport (in Ho Chi Minh City) or Buon Ma Thuot Domestic Airport (Dak Lak Province) are the closest airports to Dak Nong Province. Shuttle busses from these 2 airports will be provided.

It takes about 5 hours from Tan Son Nhat International Airport and 2 and a half hours from Buon Ma Thuot Domestic Airport to the ISV20 venue in Dak Nong Province.

\*\* Shuttle buses from these 2 airports will be provided with fixed drop-off point.
There are 2 fixed departure times of shuttle buses at each airport: One in the morning and one in the evening.

\*\* Detailed of shuttle bus times will be provided on registration form



# **Important Dates**

#### **ABSTRACT SUBMISSION:**

Abstract submission is now available at:

https://20isvdaknong.com/abstract/

Full paper will be submitted via: abstract@20isvdaknong.com.

Please refer to paper format guideline at

https://20isvdaknong.com/abstract/

01 July - 01 November 2022

#### SYMPOSIUM REGISTRATION

Symposium registration will be available at:

https://20isvdaknong.com/signup/

15 July - 30 October 2022

## Fees

#### **PARTICIPANTS**

#### SYMPOSIUM ONLY (FROM NOV 21<sup>ST</sup> TO NOV 24<sup>TH</sup>):

- · 20th ISV booklet
- · Round-trip airport shuttle bus with fixed schedules
- Shuttle bus from hotels to Conference Hall with fixed schedules.

### Buffet lunches: Nov 22<sup>nd</sup> & 23<sup>rd</sup>

- · Icebreaker
- · Welcome Party
- · Mid-symposium tour
- · Farewell Party

**US\$250** 

# SYMPOSIUM AND SHORT FIELD TRIP (FROM NOV $21^{\rm ST}$ TO NOV $25^{\rm TH}$ )

- 20<sup>th</sup> ISV booklet
- · Transport from and to the airport
- · Shuttle bus from hotels to Conference Hall
- · All lunches
- Icebreaker
- Welcome Party
- · Mid-symposium tour
- · Farewell Party
- · Short package field trip (1 packed lunch, Gala banquet

and 1 night accommodation in Krong No - Nov 24th are covered)

**US\$350** 

## SYMPOSIUM AND MAIN FIELD TRIP (FROM NOV 21ST TO NOV 26TH)

- 20<sup>th</sup> ISV booklet
- · Transport from and to the airport
- · Shuttle bus from hotels to Conference Hall
- · All lunches
- · Icebreaker
- · Welcome Party
- · Mid-symposium tour
- · Farewell Party
- · Main field trip (2 packed lunches, 1 Gala banquet and

2-night accommodation in Krong No - Nov 24th and 25th are covered)

· Cave rescue insurance

US\$400

ACCOMPANYING PERSONS						
SYMPOSIUM ONLY	US\$200					
SYMPOSIUM AND SHORT FIELD TRIP	US\$300					
SYMPOSIUM AND MAIN FIELD TRIP	US\$350					
STUDENTS						
SYMPOSIUM ONLY (Only for the lectures and work sessions)	US\$50					
SYMPOSIUM AND SHORT FIELD TRIP	US\$150					

# **EXCURSIONS**

### MID-SYMPOSIUM TRIP (covered in registration fee):

#### Afternoon Nov 23rd:

All participants will visit some sites of Dak Nong UNESCO Global Geopark in the Gia Nghia area: N'Trang Long Statue, EXPLORASOUND, The Lithophone House.

### **POST-SYMPOSIUM TRIPS**

#### A - Afternoon Nov 24rd:

The volcanic area is 90 to 120 kilometres by road from Gia Nghia City Two different routes will be used to convey participants by small bus and both routes will be a chance for participants to explore the landscape, livelihoods and culture of the region.

To absorb local heritages and landscapes, participants shall be divided into two groups (you can make a selection on the reservation form):

#### GROUP A - ROUTE: "THE BLESSING OF VOLCANO"

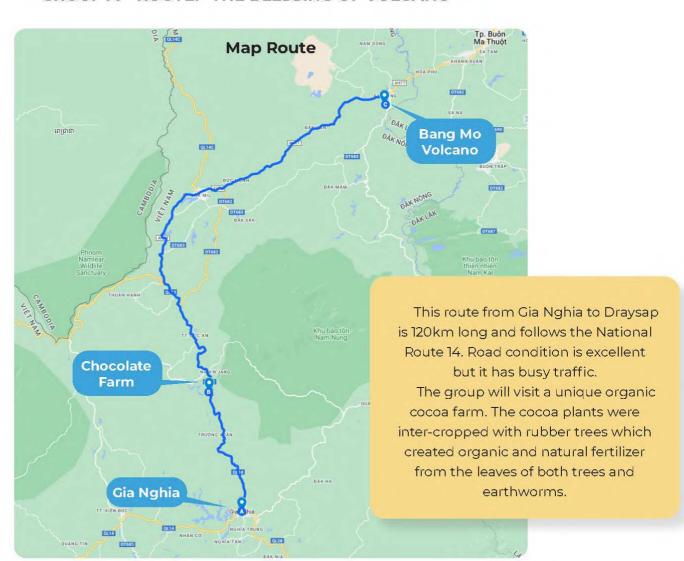




Photo 1: Cocoa farm

Here, participants should taste chocolate made by the Enjoy factory – a local brand and a strategic partner of Dak Nong Unesco Global Geopark. Certainly, cocoa juice and coffee are included for your experience as well.

The Bang Mo volcano is located in Ea T'linh town, Cu Jut district. Bang in Ede language means "lake marsh" stemming from a very moving love story of the indigenous people. In the surrounding area there are several, at least two, craters, that produced a basaltic lava cover of c.4.2km² on top of the older shale, siltstone and sandstone.



Photo 2: Bang Mo volcano

The older lava crater is quite large, c.673m in diameter, and 82m in height at 420m asl. No other products e.g. scoria, spatter, ash or bomb are found (if they were once present, they have been completely weathered into soil) and the crater slope is c.10°. The basalt, now completely weathered into red soil, which also helps confirm its relatively old age, is intensively cultivated with coffee plantations.

The younger Bang Mo volcano is much better preserved with a relatively round and sharp profile, at c.407m asl, 242m in diameter, 40m in height and sloping 15°. Composed of scoria, spatter, ash, bomb and lava, with a rounded crater on top, this volcano is typical of the central type of eruption. Given the fact that the rock is not yet strongly weathered (relatively fresh pieces of basalt are scattered on the crater surface) and the crater shape is still sharp, it is clear that this volcano is much younger than the previous one, dating from c.200,000-600,000 years ago.

Group theme: geology, vulcanology, biology, economy, geopark

#### GROUP B - VOLCANOES AND SURROUNDING LANDSCAPE

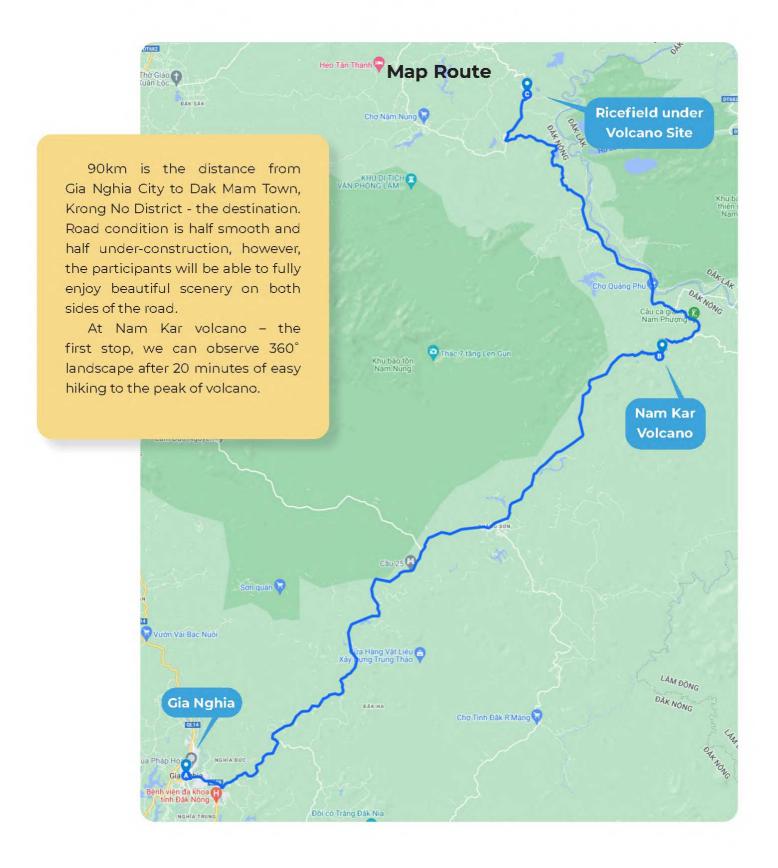




Photo 3: Nam Kar volcano

The main and highest scoria (M) cone is c.60m in height, 220m in dia., with a small crater c.20m deep on top at c.660m asl. Composed of beds of scoria of several cm in dia., it is perfectly round and sharp.

A few tens of meters to the north, the smaller spatter cone (605m asl, height 24.2m) is composed of spatter, scoria and bombs c.10cm in dia. The cone has no crater on top. Instead, several gas-escape pipe-like structures, resembling "tree molds" are visible in a road cutting.



Photo 4: The pipe-like structures of the spatter cone

If time permits, the next stop will be the geosite of Dak Nong UNESCO Global Geopark. This viewing point is known as "The rice field under volcano".

#### 20th ISV DAK NONG



Photo 5: Landscape of rice field

High on the watershed line looking far to the right, participants will see the grandiose Krong No River, which is forever eroding the mountains to form a large and even paddy field. Local people have worked on this field for generations, yielding a very well-known rice variety. It is quite a surprise that there is such a large paddy field in the mountainous area, sometimes yellow due to ripe rice, other times green because of young rice or even dark brown after the rice is harvested. Some flocks of ducks or storks embellish the picture to create a quiet, warm and well-fed life.

Group theme: geology, vulcanology, photography

#### **B-SHORT FIELD TRIPS**

Option 1: C8 Cave - C9 Cave - Packed lunch - Nam B'lang Volcano.

Option 2: C3 – C4 Cave – Packed lunch – C6.1 Cave – Dray Sap / Gia Long Waterfall.

#### **C - MAIN FIELD TRIPS**

#### 25 Nov:

- Group 1: C7 Cave (or alternatively C1, C2, C6, etc) – Packed lunch – C4 -C3 Cave (if remaining time, Dray Sap / Gia Long waterfall will be included)
- Group 2: P8 Cave Packed lunch C8 Cave
   C9 Cave Nam B'lang Volcano

#### **26 Nov:**

- Group 1: C8 Cave C9 Cave Packed lunch
   Nam B'lang Volcano
- Group 2: C7 Cave Packed lunch C4 C3
   Cave (if remaining time, Dray Sap / Gia
   Long waterfall will be included)

#### Caving equipment for main field trips only:

- Participants on the short field-trip won't need vertical gear and the organizers can provide a basic helmet, head-light and gloves.
- Participants on the main field-trips will need to bring their own SRT (Single-rope technique) gear if they wish to enter Cave C7 (Groups 1 and 2) or Cave P8 (Group 2 only). For your safety, the organizers will prepare ropes and other safety gear and provide a support team.
- If you wish to rent SRT gear, we only have 15 sets available and you will need to book in advance.
- A set of SRT gear includes: full body harness, descender, ascenders, carabiners, helmet and head-light.
- We reserve the right to refuse entry to the vertical caves if we consider you do not have sufficient experience or do not appear to be fit enough.
- For Cave C7, we will have a caving ladder available for participants who do not want to use SRT gear. However, you need to bring your own harness for attaching to the safety belay rope. Alternatively, we have 20 harnesses available for rental. Please contact us and book in advance.



Photo 6: Nam B'lang volcano and surrounding lavafield

#### \*\*DESTINATIONS OF SHORT FIELD TRIP AND MAIN FIELD TRIP\*\*

#### 1. Nam B'lang Volcano (former name: Chu B'luk Volcano)

Nam B'lang volcano is the place to study and learn about volcanic formation mechanisms processes and features, (pahoehoe, "pseudo-pillow", pillars, volcanic glass, interaction between lava flow and soggy sediments, etc.), plant moulds/casts; volcanic material composition, minerals, etc.; as well as the site for sightseeing and experiencing the volcanic landscape.

- Nam B'lang volcano has a conical frustum shape, its side's typical trapezoidal shape can be observed from different viewpoints; its summit extends flatly with the direction from northeast to southwest. The crater has a funnel-like shape, with oval-shaped rim and vent openings go towards the southwest. The formation mechanism creating the funnel shape and downward curve in the vent openings is assumed to be the result of subsidence, which happened immediately after the eruption stopped, following the principle of gravity balance. The inner slopes of the crater is about 60° - 80°, where heavy basalt rocks, reddish brown outside, dark grey inside, are scattered. Mingling with these rocks are ash, tuff, aggregates, mud clay and weathered soil. Inside the crater, the lush vegetation is typical of tropical forests.

#### 2. P8 Volcanic shaft

P8 is the deepest known cave in the Dak Nong Geopark and also in South-East Asia and it has many important features. It is also a spectacular and exciting shaft to descend into. It is a place that very few people have visited. It is easy to understand why, with its great depth, its cave ceiling coating thickness and therefore pretty high safety considerations. On the other hand, the space of the Cave below a depth of 26 m will always be attractive, promising visitors a spectacular sight in the world of underground volcanic caves with interesting and unique heritage after they overcome the huge challenges of descent.

P8 features are important for understanding the mechanism of formation and the mouth of the shaft has unique scientific values and is also important for education to raise community awareness of geological heritage, volcanoes and volcanic caves.

Single Rope Technique (SRT) equipment is required for the entrance pitch and the shaft is suitable only for speleologists who have the necessary SRT skills and experience.

#### 20th ISV DAK NONG



Photo 7: P8 Cave entrance from below

#### 3. C8 Cave

C8 is one of the most beautiful caves in the area with 791m of spectacular passage, many charcoal sites, ceiling collapses, lavacicles, and the gradually development of calcite stalactites is very interesting to study.

C8 is characterized by a very complex formation mechanism, with significant differences between the upstream section in the south and the downstream northern section. Interpretation of the mechanism behind cave interior formation has a great value for science and education, as it can help to raise awareness about earth sciences in general, and vulcanospeleology in particular. In addition to the geoheritage, the charcoal piles in C8 can become an object of curiosity for visitors, and the road to discover their origin and formation is an interesting challenge.



Photo 8: C8 Cave Entrance

#### C9 Cave

Biospeleological investigations during the cave mapping project in 2018 by international speleologists found several new species in the caves in Krongno, Daknong. In the very next year, Scientists from Royal Belgian Institute of Natural Sciences also found two new Stick insect species inside the crater of Nam B'lang volcano despite spending only two days there.

Inside the C9 cave, spiders, horseshoe bats, beetles are common and there is potential for further research. In the entrance area, the density of flora has facilitated the growing of reptiles and herbs in the area.



Photo 9: C9 Entrance

#### 5. C7 Cave

C7 is the longest cave in southeast Asia. It is also one of the most spectacular. It has a single passage trending SE-NW, The entrance is an 11 m deep roof collapse which requires rope or ladder to descend. The collapse hole is scenic due to its vegetation growing on the boulder cone below. The roof collapse does not segment the pyroduct as the collapsed part of the ceiling does not extend across the entire width of the passage below.



Photo 10: C7 entrance

#### 20th ISV DAK NONG

Cave C7 was formed from lava flowing from Nam B'lang volcano into a low-lying and fairly flat valley. High-temperature, low viscosity lava, rich in volatile matter, resulted in an expanding flow and created a huge pyroduct. Streams of lava rich in gas plus stream overflows in several waves, increasingly widened the original passage. The high pressure along with the accumulation of gas created the large arch of the cave, breaking the ceiling cover at the weakest point, creating the pristine entrance. In some areas, ceiling collapse over time has expanded the original passage size, resulting in the current form of the cave.

#### 6. C6.1 Cave



Photo 11: Excavation site of C6.1

C6.1 Cave was surveyed in 2015 (Honda et al. 2015, survey). The 20 m wide and about 7 m deep (climbable) roof collapse separates a singular southern cave passage (about 100 m long) from an approximately 150 m long northern cave section, which consists of a main gallery that gradually declines in size, as well as a smaller side passage; both passages join in a terminal chamber with a lot of breakdown. The main northern gallery is 10-15 m wide and 10 m high.

The cave became famous due to the archaeological excavations led by the Vietnam Museum of Nature (Hanoi). The excavation at the NE corner of the roof collapse was started when local people, extracting bat guano from the cave, found many archaeological artefacts, including tools such as oval axes, blade-sharpened oval axes, blade-sharpened short axes, stone flakes and potteries similar to those. In 2018 human bones were discovered by the archaeological team.

#### 7. C3-C4 Cave

These caves are near Draysap waterfall and require a 30 minute walk from the main road.

C3 and C4 are a segmented pyroduct featuring a main gallery of significant size (up to 20 m wide and 15 m high). The cave has a NW segment (NW of the C3 roof collapse; about 300 m long), a middle segment (between the C3 roof collapse and the C4 roof collapse/main entrance; 280 m long), as well as a SE segment (SE of the C4 roof collapse/main entrance; 150 m long).

No archaeological discoveries have been made in C3 Cave so far. However, several archaeological artefacts were discovered near the main entrance to C4 Cave, including pebble materials, axes, stone flakes, anvils

made from riverine pebbles, a piece of opal-chalcedony. Also found were crude potteries, small pottery pieces of 2-3 cm showing decoration similar to those observed on ceramics of the Neolithic Age in the wider area dated to 4,000 - 5,000 years ago.



Photo 12: C4 Entrance

#### 8. Dray Sap Waterfall and Gia Long Waterfall



Photo 13: Draysap Waterfall

Dray Sap waterfall is located in the territory of Dak Sor commune, Krong No district. In the Ede ethnic language, it means Smoky waterfall. At more than 10 meters high on Serepok River, the Smoky waterfall was formed by basalt flows of the Nam B'lang volcano which erupted and covered sedimentary rocks. On coming here, visitors can observe many different forms of foam basalt, signs of basalt flow and fossil molds. The basalt eruption here also formed columnar basalt rocks, resulting from the fact that lava flows slowly cooled and contracted.

#### **D - TRANSPORT BACK TO AIRPORTS**

At the end of the field trips, buses will take you to airports on the afternoon of either 25 or 26 Nov. However, there is also an option to pay for an extra night's accommodation in Dray Sap or Dak Mam and then leave for the airport next morning.

## **BOOKING ASSISTANCE**

#### AIR TICKET BOOKING

We could assist you in finding flights that fit the airport shuttle buses and ISV20 schedule. Depending on the departure location, ticket class and time, the fares will be notified to you after you tick the box that needs assistance with booking air tickets in the registration form.

#### **ROOM BOOKING**

As most of the hotels and guest houses in Gia Nghia City are not popular on booking apps, we could support you for 3-night stay booking (from Nov 21st to 24th) in Gia Nghia during the Symposium by your choice on the registration form.

We have two types of accommodation: Guest House and 2-Star Hotel. You can choose to stay in a single room or a double room with your travel companion, or a shared room with another attendee. The exact prices will be quoted to you after we receive your request on room booking support on the registration form.

Due to the limited number of rooms, we will prioritize the arrangement for those who book earlier. In case there is no room of your choice, we will contact and inform you of the best alternative.

If you would like to book a hotel that is not on our list of providers, we will support you to get the contact number of the hotel you prefer, so that you can book the room by yourself.

Accommodation is included in the total price of the post – symposium trips (one night stay for the Short field trip and 2-night stay for the Main field trip). However, because of the road travel time to Ho Chi Minh City, you may wish to stay an extra night (at additional cost) and take a shuttle the next morning.

If you wish to extend your stay and need our room booking assistance, please mention this in the registration form.

Please note that hotel quality and room class are at local standards.

#### **MEALS**

With the exceptions of the Icebreaker, Welcome Party, Farewell Party and 2 buffet lunches, other meals are not included in the Symposium fee.

Gia Nghia City offers a large variety of restaurants, food inns and bars. Suggestions will be provided in ISV20 booklet.

For package post-symposium trips, lunches and the gala banquet on 24 Nov are included.

#### **VIETNAM VISA POLICY FOR TOURISTS**

Check out our latest updates on Vietnam Travel Policy 2022 via <a href="https://bit.lv/3k0GyWb">https://bit.lv/3k0GyWb</a>

We also suggest that you consult the Website of the Embassy of Vietnam in your country. If you are required to obtain a visa, you may find it easier and safer to obtain one from the Embassy before departing for Vietnam.

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