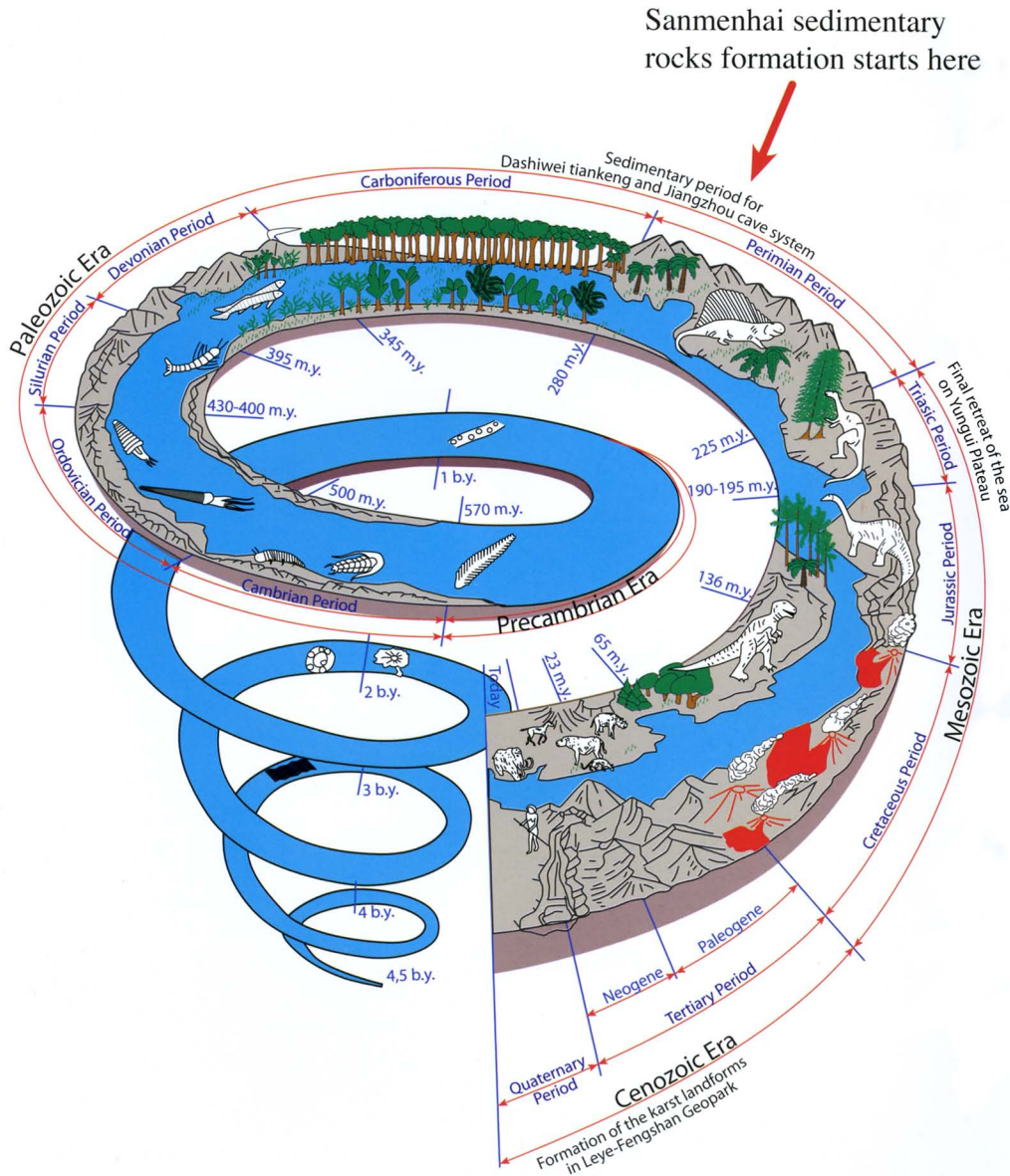




Leye-Fengshan Geopark

Sanmenhai Karst Tour Guide



Welcome to Sanmenhai scenic area.

This handbook will introduce you the geosites you will discover along your way.

Each geosite is marked by a number corresponding to a page of this book where you can find some information.

Please, help us to protect the natural heritage :

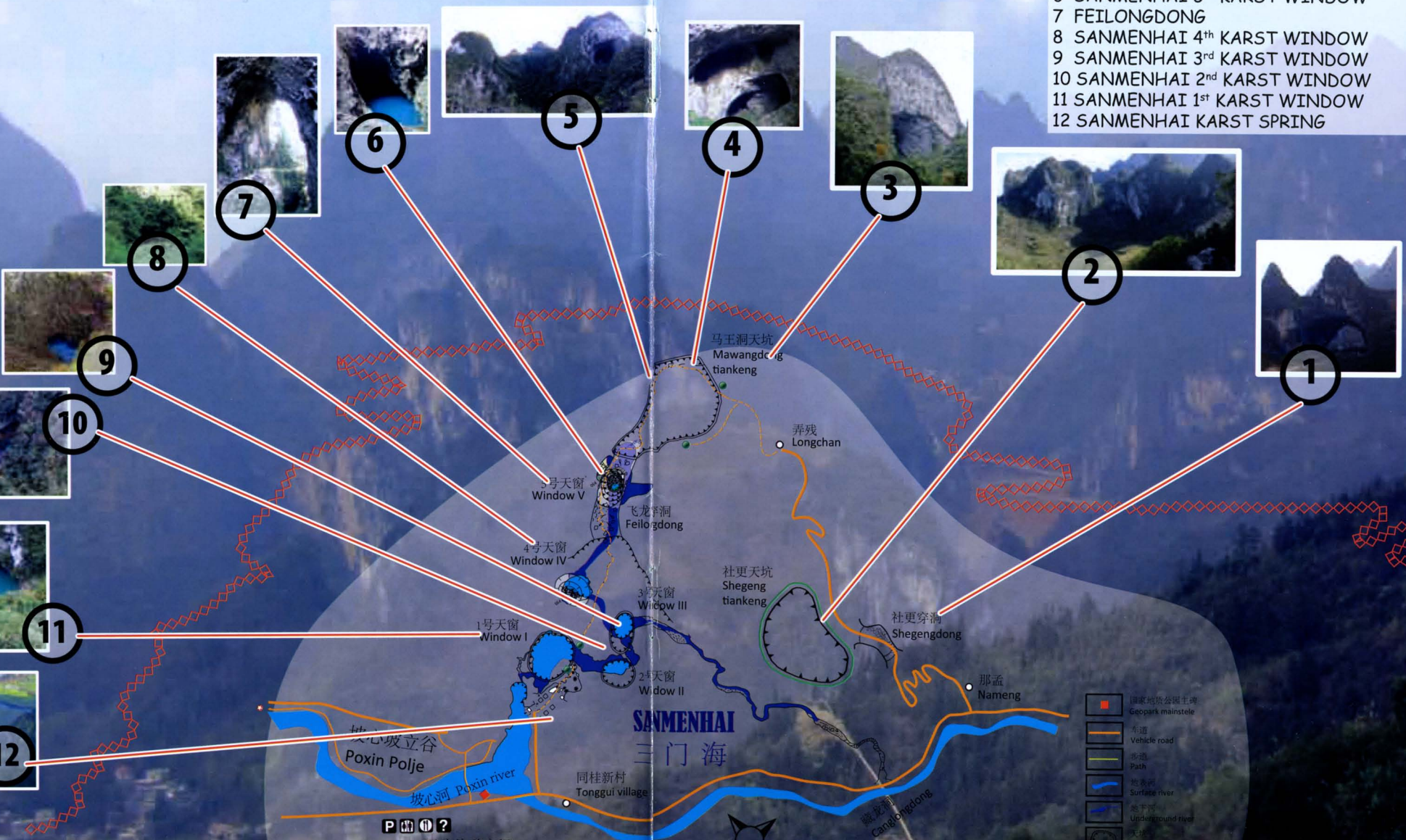
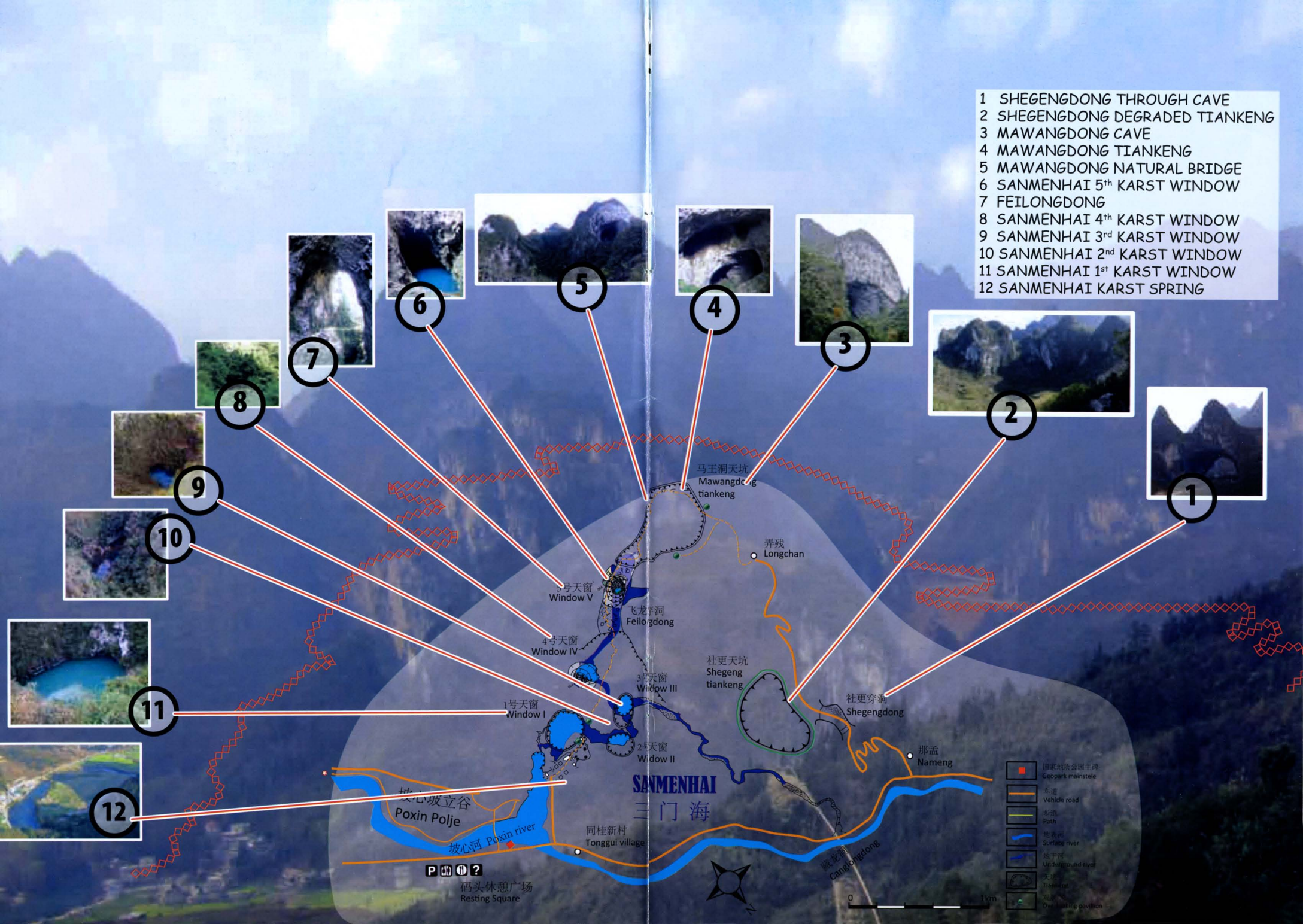
- Follow the foot path,
- Put any rubbish inside the litters,
- Do not pick up plants, stones or flowers.

For your safety :

- Never cross or sit on a barrier,
- Walk slowly : When the floor is wet, it get slippy,
- Pay attention to warning boards.

Enjoy your tour !

- 1 SHEGENDONG THROUGH CAVE
- 2 SHEGENDONG DEGRADED TIANKENG
- 3 MAWANGDONG CAVE
- 4 MAWANGDONG TIANKENG
- 5 MAWANGDONG NATURAL BRIDGE
- 6 SANMENHAI 5th KARST WINDOW
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P ⓘ ⓘ ⓘ
 码头休憩广场
 Resting Square

	国家地质公园主碑	Geopark mainstele
	车道	Vehicle road
	步道	Path
	地表河	Surlate river
	地下河	Underground river
	天坑	Tiankeng
	溶洞	Overhanging pavilion



1 SHEGENG THROUGH CAVE

Through Cave

A through cave is a subterranean passages with two or more openings to the surface.

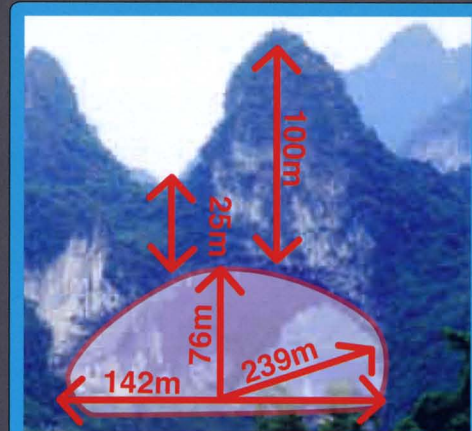


SHEGENG THROUGH CAVE is located at Poxin at the north-east of Sanmenhai. It opens in a peak forest. A small road goes through this cave.

The volume is big, the entrance width is 78 to 142m, the height is 60 to 76m, the length is 239m. The thickness of the rock above is 25 to 100 m.

It is a vestige of an ancient underground river, some parts of the wall are still covered with water erosion scallops and near the south cave entrance there are old river deposits.

SHEGENG THROUGH CAVE is a good place to get used to the peaceful cave atmosphere without having to take lamp with you



The total floor area of the cave is 24 200 m², about 3 Soccer fields.
The total length is 541 m, the height is 20 to 30 m.
The volume is 2 500 000 m³, one third of Beijing Stadium.

2

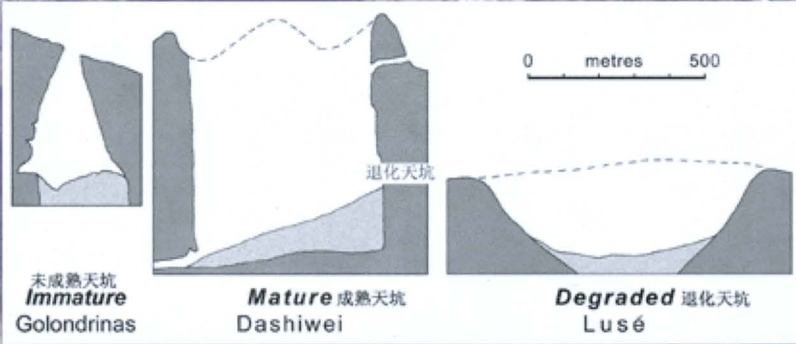
SHEGENG DEGRADED TIANKENG

Degraded tiankeng

A mature tiankeng is distinguished by its almost complete perimeter cliffs that are close to vertical.

An immature tiankeng is one with overhanging cliffs due to incomplete collapse of the original cave chamber, as a consequence, the surface opening is significantly smaller than the floor area.


A degraded tiankeng still retain its large dimensions and many sections of perimeter cliff, but its floor is much smaller than its surface area. It has an excess of debris on its floor and in ramps up its perimeter, and has no cave river through it.




Shengeng tiankeng features cliffs around most of its perimeters, but was damaged by long historic erosion and accumulated clay and rocks at the bottom. It is 400×340 m in diameter, and 115 m in depth.

The tiankeng could be the result of the collapse of the ancient Poxin underground river cave roof and Shengeng cave could be the ancient resurgence.



18 X 

The tiankeng's volume is 121 000 000 m³, eighteen times bigger than Beijing Stadium.



3

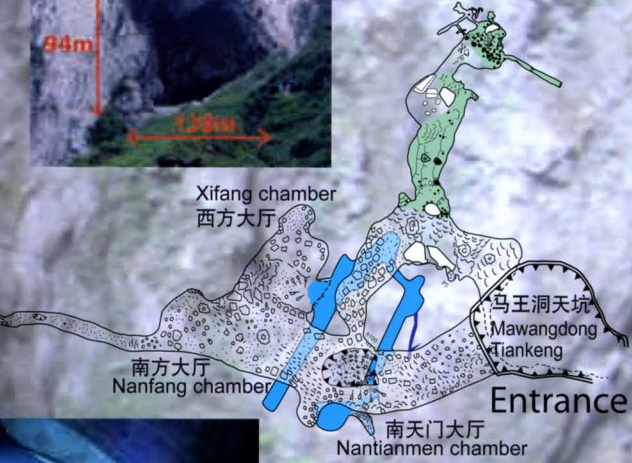
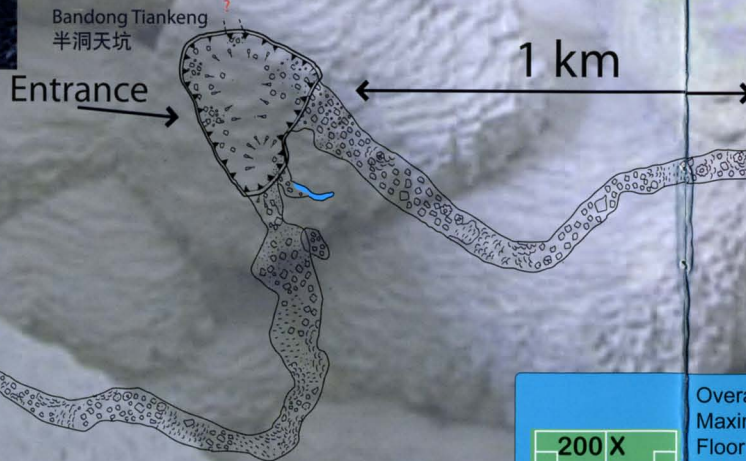
MAWANGDONG CAVE

This cave has two levels: The lower is the underground river, it is the more recent and can be followed only by cave-diving. The higher level is dry, it is 80 to 160m wide for a distance of 500 m.

The cave contains four magnificent chambers : The smallest is 7 200 m², the biggest is 38 400 m².

It is said that Mawangdong is one of the biggest cave passage in the world ever measured : The gallery is 150 m high for 2 km!

The name "Mawangdong" comes from the entrance of the cave looking like a horse's mouth.



Entrance
Heidong
黑洞

Overall length : 9 011 m,
Maximum depth : 266 m,
Floor area estimation : 1 460 000 m²,
Volume estimation : 13 000 000 m³.
The area is equivalent to 200 soccer fields and the volume to 2 Beijing Olympic stadiums !



100m, N

4

MAWANGDONG NATURAL BRIDGE



MAWANGDONG NATURAL BRIDGE is certainly the first natural bridge in the world for the span to be inside a cave.

It is located at 300 m from the entrance at the depth of 87 m. But Mawangdong is so huge that there is enough daylight to let plants grow.

The Mawangdong cave here is over 100 m high and 100 m wide. A natural bridge is crossing all the width of the gallery.

The formation process is the same as most of natural bridge : The river bed found a deeper passage, the bridge is constituted by a Permian limestone strata remained by the erosion.

The river now completely moved to lower and unexplored gallery, it can be accessed by the karst windows and flows out at the resurgence of Sanmenhai.



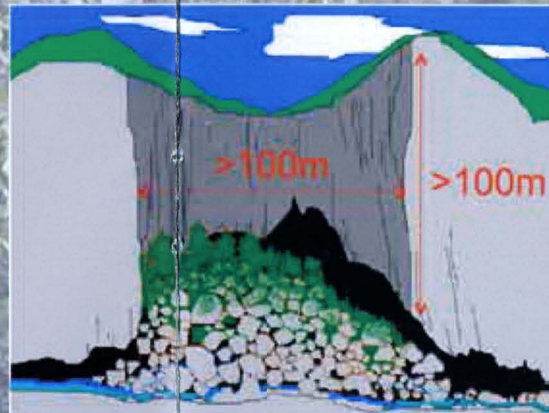
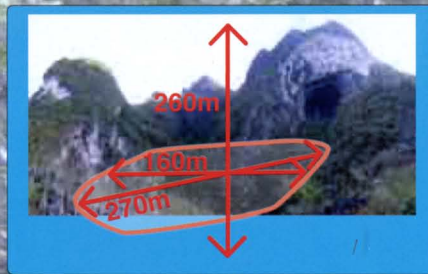
5 MAWANGDONG TIANKENG



MAWANGDONG TIANKENG is surrounded by cliffs, from 30 to 200 m high, peaks, from 110 to 260 m high, huge caves, with Mawangdong on the west and Feilongdong on the east. The bottom is the 5th karst window of Sanmenhai and has no flat area.

The vegetation is a forest of small trees growing on steep slopes.

Thanks to the footpath, it is a pleasure to discover and go through this exceptional place which was hardly accessible in its natural condition.



A tiankeng is defined as a distinctive type of very large collapse doline that is more than 100 m wide and deep, with a depth to width ratio close to the unity and vertical cliffs round most of its perimeter.





The 5th karst window is located at an intermediate position between Sanmenhai and Mawangdong, below the ceiling of Feilongdong.

The entrance is 30 m in diameter and 50 m deep. The only safe way to go down is to use ropes.

The subterranean river in this karst window flows from one lake to another.

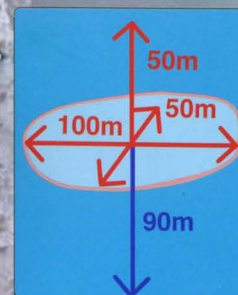
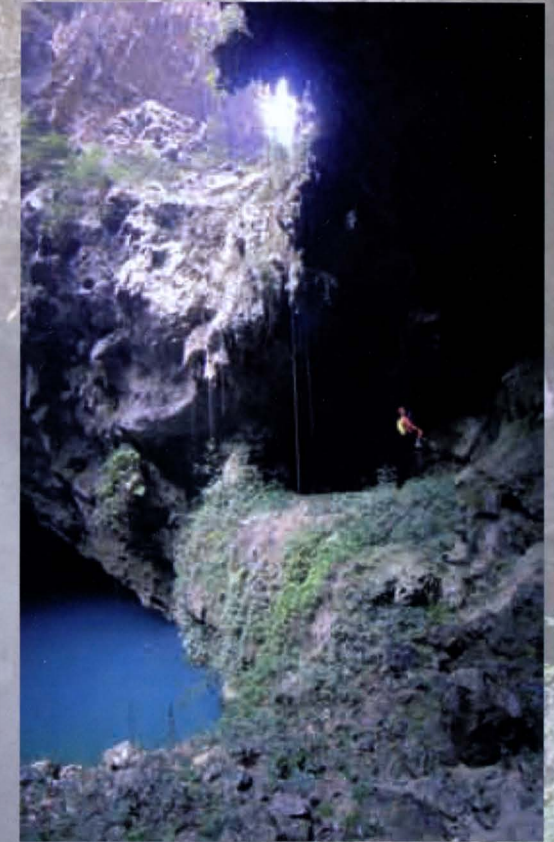
Cave divers have explored the subterranean river to a depth of 90m, in December 2009, they made a connection to the 5th karst window.

They are now trying to find the connection to the 4th karst window located in the entrance of Mawangdong.

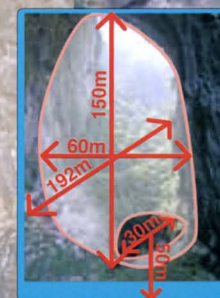
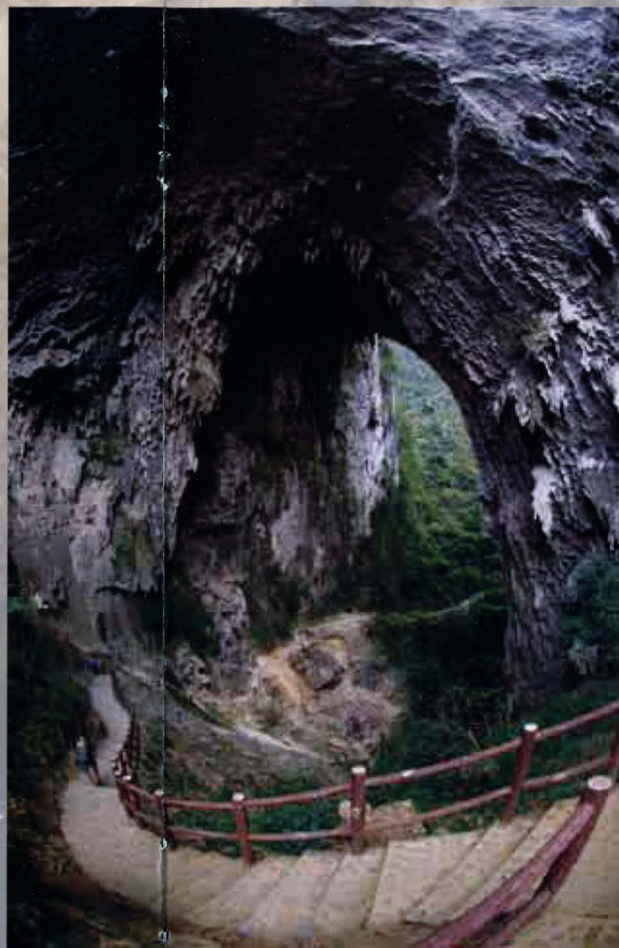
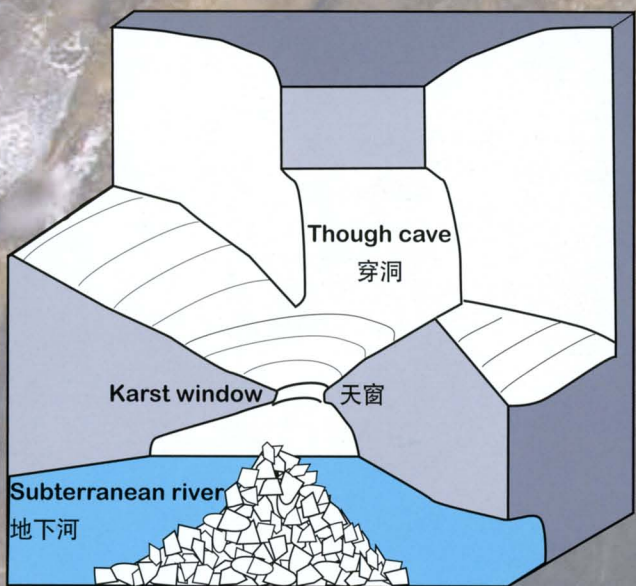


Karst window

A karst window is a sink-hole giving access to an underground stream from the surface.



7 FEILONGDONG THROUGH CAVE



Feilongdong is a through cave with a karst window giving access to the subterranean river.

It is an intermediate level between the river and Mawangdong. It illustrates the gradual uplift of the mountain.

The through cave is 60 m wide, 150 m high and 192 m long.

The karst window is 30 m in diameter and 90 m deep.

In December 2009, cave divers made a connection with the 4th karst window of Sanmenhai.



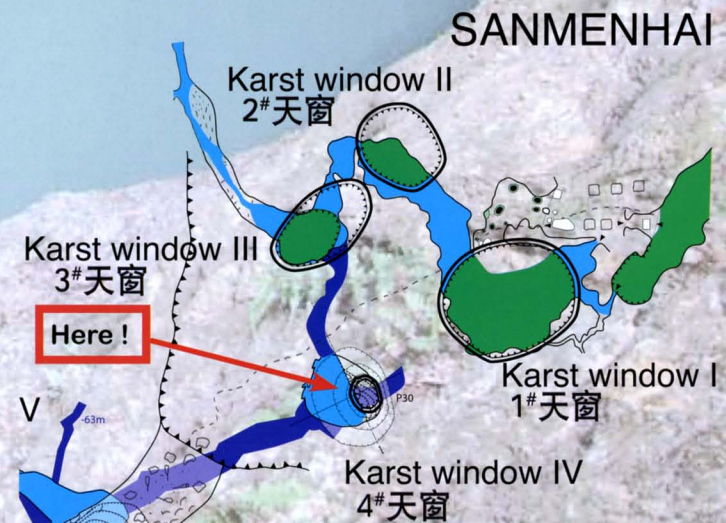
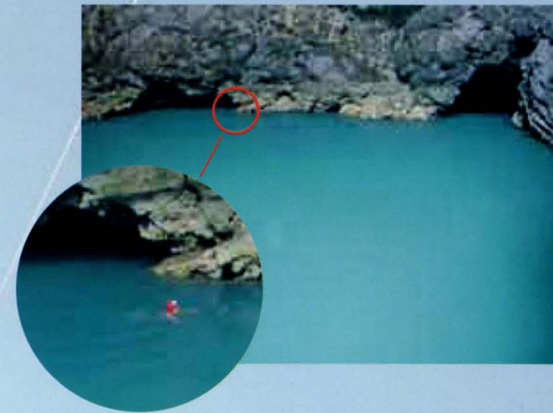
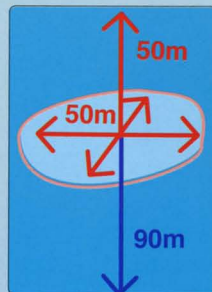


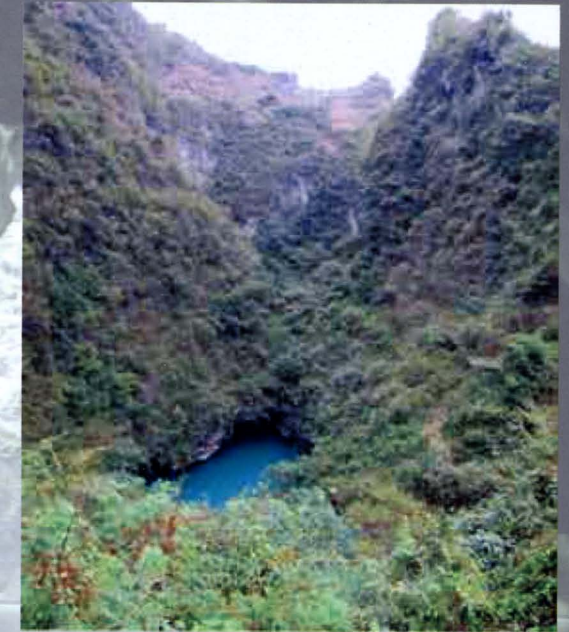
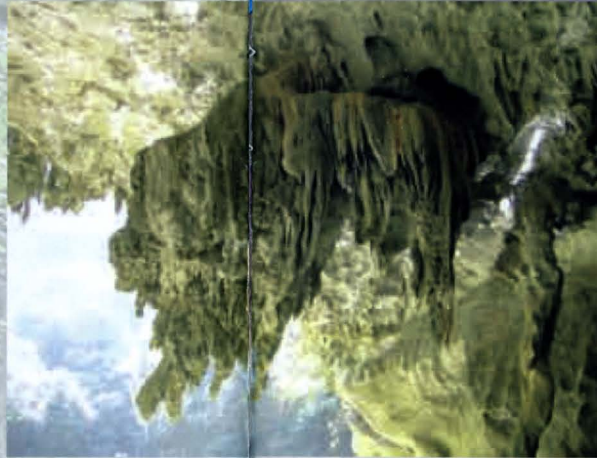
This karst window is a funnel shaped pit. The entrance is less than 30 m long and 20 m wide, but it enlarges to 50 m diameter. The pits is 48 m deep but the lake is 70 m deep, so, the total vertical extent is 118 m.

The only safe way to go down the karst window is to use the SRT (Single Rope Technique).

There is an under water connection with the 3rd karst window of Sanmenhai, but only divers can go through.

The connection between Feilongdong and the 4th karst window was found in December 2009, at the a of -90 m, by divers from Canada, France, Australia and Singapore, all members of the GUE diving team.





The third karst window is situated 490m from the entrance. It is funnel shaped, 75m wide at the top of the cliffs, but only 43m by 34m at the water level.

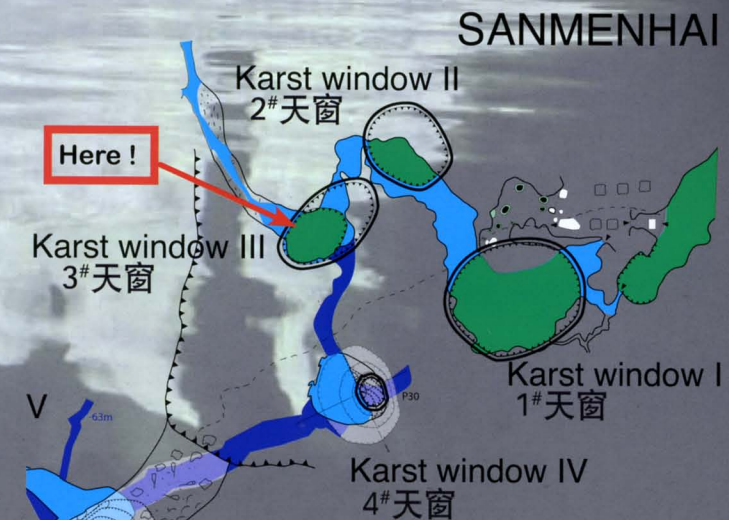
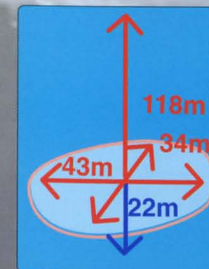
The walls are very steep and descend vertically into the water.

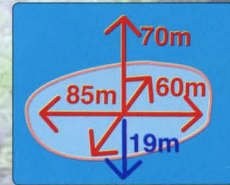
The cliff on the east side is 118m high.

The karst window can be accessed by foot through at 873m-long cave called Canlongdong.

In 2008, a diving team could made an underwater connection to the 3th window.

The water is 22 m deep, and at the bottom the mud is more than 10 m thick. Flow erosion waves are obvious.



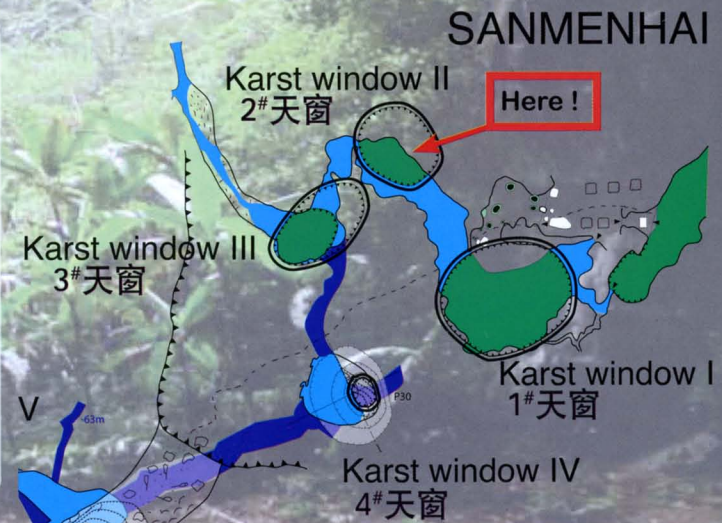


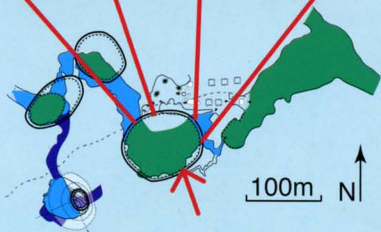
The second karst window is shaped like an ellipse (85m×60m). The bottom is half water, half forest. The water covers 1500m², and is about 19m deep.

A wall is covered with sub-horizontal phytokarst. This is an unusual formation, seldom seen on cave walls.



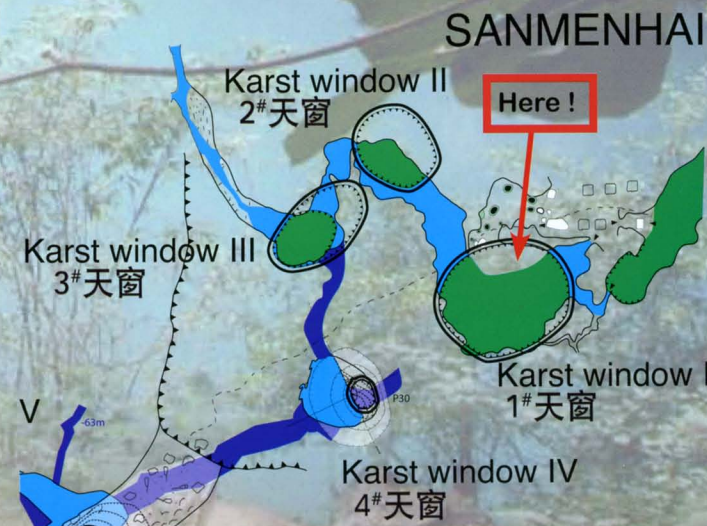
Phytokarst :
Phytokarst forms under the influence of sunlight.





The first window of SANMENHAI has at 5 access points : Upstream, a big dry cave to the east, a cave with a pool of water but no flow, downstream, and a small dry cave to the south..

In 2009, a diving exploration established that there is no underwater cave in the lake.





Sanmenhai is the resurgence of Poxin underground river with an elevation of 419m, and it is the head stream of Panyang river, also called the source of longevity, for many longevity village are around there.

There are 5 cave windows distributed from the resurgence to the upstream, which is called window I, II, III, IV, and V respectively.

Of them Window I, II, III are bigger scale and opened for tourists, the river below the windows is 690m long and can be accessible by boat, that is why it is called Sanmenhai (three seas).

Window IV and Window V can be accessible only by 50m long and 70m long cave diving respectively.

