

RAPPORT OF THE SHUANGHE 400 EXPEDITION IN CHINA

BARTHOLEYNS Jean-Pierre, BOTTAZZI Jean, FAVERJON Marc, HUGON Bruno

jp.bartholeyns@gmail.com - jbottazzi@laposte.net - marc.faverjon@yahoo.com - bruno.hugon@orange.fr

Introduction

“SHUANGHE 400”, the 22nd international scientific expedition in the network of Shuanghedong, Suiyang, Guizhou was organized under the concerted initiative of Shuanghedong National Geopark and Shierbeihou (Twelve Backs Tourism Development Co., Ltd., in charge of the development sightseeing).

- in partnership with the Guizhou Institute of Mountain Resources, GIMR and the Guizhou Cave Association, Guizhou Tourism Geoscience Society,
- thanks to the invitation of the Guizhou Academy of Sciences,
- with the sponsorship of the International Speleology Union (UIS), the European Speleology Federation (FSE), the Commission on International Relations and Expeditions - CREI of the French Speleology Federation (FFS), and the Italian Society caving (SSI)
- with the sponsorship of SCURION via the FSE.

It took place from September 16 to October 8, 2023, on and under the Shuanghe massif which is located in the Suiyang district, Zunyi, Guizhou province in China,

Shuanghe 400 did not benefit from the best weather conditions. Strong motivation and a steady, relentless pace made it possible to get the most out of the objectives accessible in complete safety.

Explorations

Duiwodong

The Duiwodong tiānkēng gave hope for an extension of the network to the north/east. Unfortunately, the 3 main question marks in the sector did not meet our expectations. The tributary downstream of the siphon of the "500 m freestyle" river (300 l/s) came up against a poorly supplied suspended siphon after 260 meters. The Mâconnais tributary also quickly came up against a large rising well. The fossil gallery upstream of the Croûtes (350 m) resulted in 4 different stops on well-ventilated impenetrable narrows, produced for 3 of them by calcite flows, and a narrowing in a wetting vault for the last one.

The downstream part of the little Croûtes river loops after a few hundred meters with the known network.

In the west wall of the tiānkēng, facing our line of descent, a seemingly starting point of a gallery attracted our attention. It was reached after having been completely opened over 800 meters with a machete on very steep slopes invaded by bamboo and various thorn trees. What followed was a 30-

meter rope descent leading to a ledge. Big disappointment to see that the coveted gallery was only a small impenetrable rising well with a gutted side!

Furthermore, the only topo loop problem of the entire network was resolved by redoing a few hundred meters of surveys.

The development added to the topography of Duiwodong is 1319 m.

Hopes for extending the network to Zheng'an through Duiwodong now lie in an unventilated downstream branch of the river.

Xiujidong (Crossing Pruners)

When opening the access trail mentioned above, we fell at the bottom of a ravine onto a small opening with a sucking air current. A nice little network with a P14, and 219 m of development allowed us to go outside, into a beautiful canyon, just at the top of the large west waterfall which flows into the tiānkēng of Duiwodong.

Although undoubtedly located below the spill threshold of the tiānkēng, the 219 m mapped in this cavity will not be taken into account in the development of the Shuanghedong network.

Bojiyandong

Explorations at Bojiyan were made easier and safer by the installation of ropes on the access which has easy but exposed turns and de-escalations. The hopper unclogged at -100 has been re-calibrated and no longer presents selective narrowing.



Galerie du Far-west - Bojiyandong

Photo Bertrand Hauser

We went down the P60 (actually a P45) to fall back into the ceilings of the large gallery found. On the downstream side it looped with the P20 area where several unsuccessful wells were lowered.

Only the laser beam passed over the wells, saving us hard work. On the upstream side, the large gallery found (Cap Nord gallery) was followed for 800 meters, after having had to cross the large Coup de Bambou well, and pass a very low passage due to a hopper and a pile of clay.



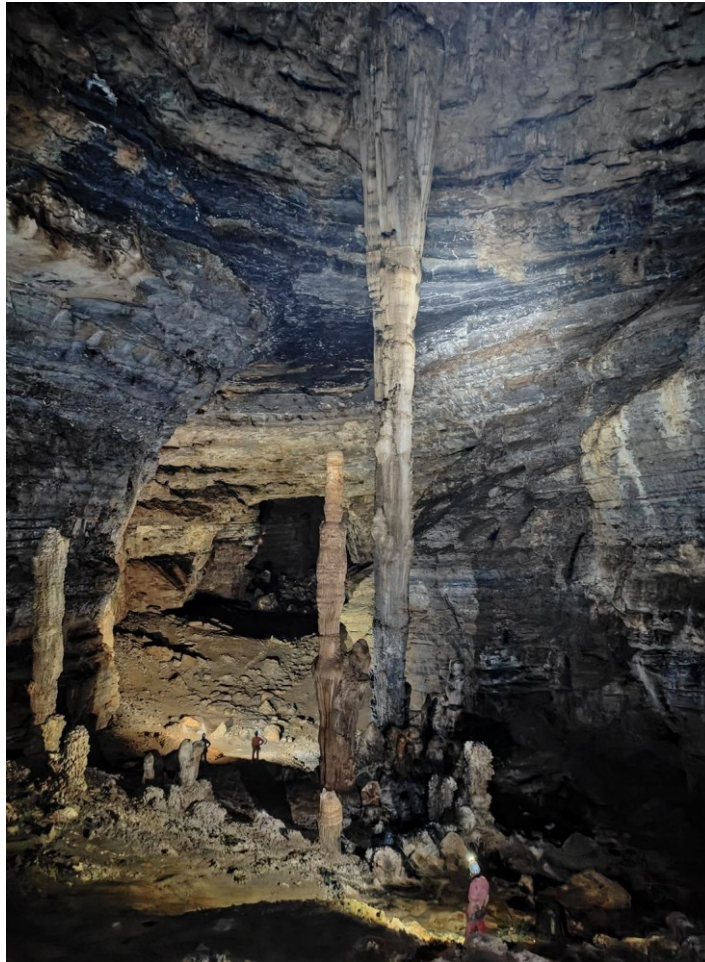
Cap Nord gallery - Bojiyandong Photo Bertrand Hauser

A small side river has been raised to a watered rising well. The terminus explored is a new large shaft, partially lowered and opposite which the gallery could perhaps continue?

These discoveries open up “white” areas to the west of the network.

Another side gallery, the Bat gallery, was covered for more than 700 m after crossing several small ledge shafts. The terminal part which abuts calcite plugs is particularly concretized.

During a day aborted due to a flood, some extensions were mapped in a tangle of small galleries.



Bojiyan

Photo Bertrand Hauser

Another big target at Bojiyan was “P110” located around -120 m at the terminus of the entrance gallery. It’s actually a P240! (220 m from the access landing). The watered well was equipped out of flood, which translates as “in the mud!”. An acrobatic pendulum 25 m from the bottom made it possible to reach a highly ventilated gallery which was traveled for approximately 300 m, stopping when the fracture pinched. The network is one of the most “expensive” in Shuanghe!

In this well, the long network which begins at the skylight has been the subject of the beginnings of disassembly. A branch was discovered on this occasion which remains to be pursued.

Development added to Bojiyan = 4697 m,

Huoyangping

The westernmost branch, where exploration stopped on a P30 at the top of a large void, was continued by the discovery of two large rooms measuring 150 x 120 meters and 120 x 80 meters. Chaotic galleries were continued on both sides, but they quickly came up against blockages leaving no hope of a continuation. Note that this discovery brings us very close to the downstream of the Far-West gallery of Bojiyan, which seems to constitute its extension.



Da dome room - Huoyangping

Photo Bertrand Hauser

The climbing, begun in 2019, of a tributary above the large wells (P200), has been completed. After 35 meters of well-watered climbing, the small river of the SMIC (this is the price we estimate to have been paid for the climbing) was continued for a few hundred meters, up to a hopper with rootlets. In a small side gallery, the exploration remains to be continued.

In the branch providing access to the large rooms, the sequence of 2 shafts of 17 and 60 meters did not make it possible to complete this branch which continues with an undescended P50.

Shortly before the large rooms a P30 was lowered, with the only result being impenetrable cracked shafts.

Development added to Huoyangping = 1468 m.

Hongdingyan

Between the P36 and the P18, a split P25 with a muddy start provided access to the Salamander River. This beautiful meander characterized by large pots continues. With the weather forecast raising fears of storms, the exploration was interrupted at the level of a small tributary watering an opposing passage.

Development added to Hongdingyan: 168 m,

Off-grid...for now

In the far south, but not connected to the network, a 2.5 km crossing was made in 2019 between Liangfengdong and Liangfengshangdong. Upon entering through this 2nd cavity, the ceilings where possible question marks remained were carefully examined, allowing any hope of a continuation to be definitively ended. In the same vein and in the same sector, the Dawandong cave was re-inspected to be definitively classified as completed.

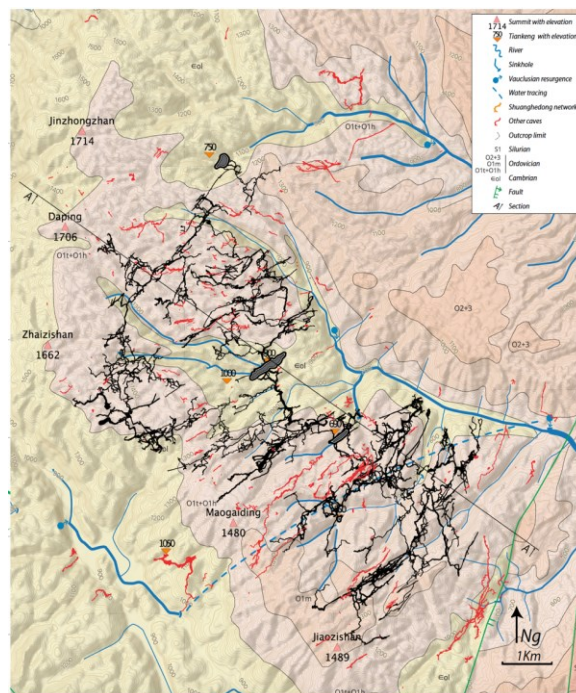
The end of the expedition took us to Zheng'an, to Mawangdong, lower entrance to the Jishedafengdong network, a cavity which today seems not to be able to join the Shuanghedong network. Crossing an 8 m climb allowed us to explore more than 700 m of chaotic galleries towards the south-east while the river continues its course at a depth of -334 m.

Development added to Jishedafengdong: 1118 m (total development: 6830 m).

Dayingyandong, a cavity known since 2023, has been continued. This resurgence in the Ranghui polje will never join the Shuanghedong network but can deliver a beautiful system under the neighboring Kuankuoshui massif. This exploration made it possible to detect and correct three major errors in the pointing of the caves of the Rangshui polje which supplies the Shuanghedong network through the loss of Dadong.

Systematic surveys were carried out. Seven other cavities, each of less than 200 m of development, total 743 m of development and complete our information on the karstification of the upper part and the northwest edge of the massif under which the Shuanghedong network develops. Note in particular the Goujiadang cave which, at 1640 m above sea level, is the highest of the cavities under exploration in the sector.

Finally, a very small entrance lost in the mountain, Xiutanqidong (Snifette), was covered over 284 m. She could become one of Shuanghedong's many network heads.



Shuanghedong Reseau, 09/2023: 415 km, -912 m.

Jean Bottazzi, Marc Faverjon, Jo De Waele

Summary of explorations in a few figures:

10112.02 m surveyed in total including 7386.01 m in Shuanghedong.

The Shuanghedong network at the end of the expedition showed a development of 414,062 m for a depth (unchanged) of 912 m.

Scientific observations

Jo De Waele and Wang Deyuan focused their efforts on the observation and sampling of rocks in cavities such as Pixiaodong, Bojiyan, Shanlingdong, Hejiaodong, Liucaoguxiadong, Mawangdong and Datutianjiaodafengdong that could shed light on the question of the genesis of the network. Sites were selected primarily based on the presence of gypsum and celestine and position relative to shale strata.



Gypsum crust (white) covering celestine (blue) - Pixiaodong Photo Jo De Waele



Transparent gypsum crystal growing in sediment - Bojiyandong

Photo Jo De Waele

The participation of cavers

The core team brought together 8 European speleologists including 5 French: Jean Bottazzi, Marc Faverjon, Bertrand Hauser, Bruno Hugon, Gilles Connes; a Portuguese: Carlos Placido, and two Belgians: Jean-Pierre Bartholeyns and Jo De Waele.

The expedition team is composed and organized around different skills adapted to the requirements of the organization that invites us: speleologists, instructors in caving techniques, topographer also having knowledge in geology, crystallography, IT, cartography, photography and protection karst. Every day, they worked in three or four independent teams, depending on the importance and difficulty of the objectives to be achieved and determined by knowledge of the terrain and topographical analyses. Relatively numerous during this expedition, Chinese speleologists were sometimes included in the exploration teams. There were more than 27 of them, including Li Po, He Wei, Qian Zhi, Zhou Wenlong, Wang Deyuan, Zhang Kaiqi, Zhao Zhongguo, Zhao Fei, Ye Rurui, Liu Jia, Gao Zhan Dong, Wang Qiaoneng, Wang Sunhong, Wang Liangtong, Zhang Hongzhi, Luo Shuwen, Lorue, Kriss, Chao Jian, Yuan Na, Wuhai Bo, Hui Changwang, Wang Yong, Wang Rong, Shi Yichen, Tom.

The time spent underground by all the participants reached a total of 1059 hours, not including the significant hours spent prospecting with the help of local volunteers and which allowed the location of new cave entrances. The information thus gleaned during these prospecting days is carefully archived and geolocated on a map. Their interpretation allows a better general knowledge of the karst zone studied.

Training course

Ending a 3-year hiatus, the tradition of caving training courses has been relaunched. Thirteen trainees participated. We were surprised by the level of autonomy of many of them.

Conclusion and perspectives

The priority question that this expedition wanted to answer, namely the possibilities of extension under the Zheng'an karst located in the northeast, found an unpleasant answer: it will not be easy at all.

On the other hand, the “blank area” in the northwest has sufficient potential to exhaust many speleologists. Although systematic nibbling conducted by conduit now constitutes the most effective method of investigation, discoveries such as the North Cape gallery show that large galleries can still be discovered and offer spectacular advances.

The “Shuanghe 400” expedition benefited from very wide media coverage both in the written press and on the most important Chinese television channels. It also provided a framework for a report on Franco-Chinese speleological expeditions as a model of success through friendship and cooperation.



Scurion®