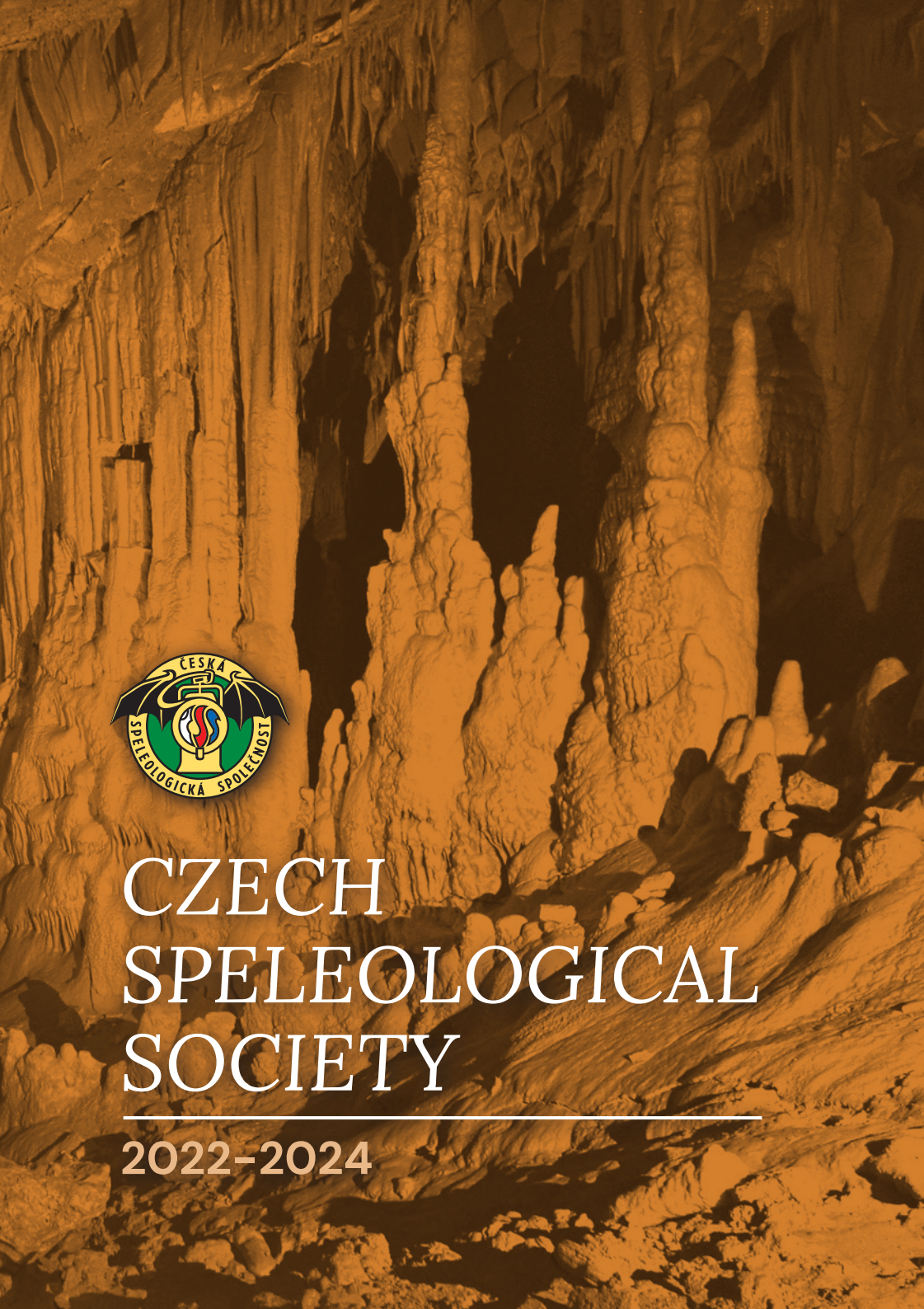


CZECH SPELEOLOGICAL SOCIETY

2022–2024

The V Brlohu Cave as a representative of crevice caves in the Křivoklát area (Photo by M. Majer).

CZECH SPELEOLOGICAL SOCIETY

2022–2024

Content

Dear fellow cavers,

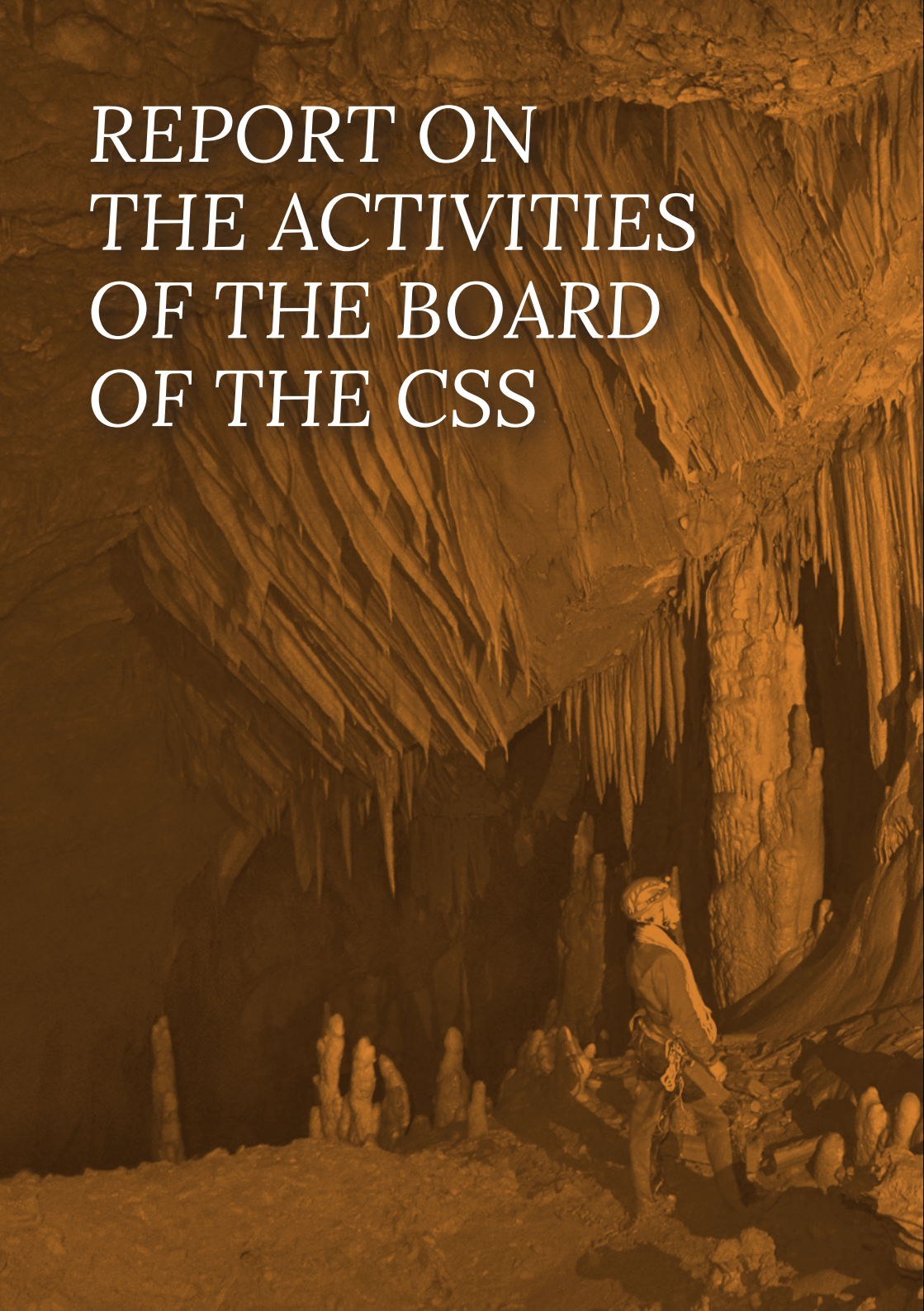
The Czech Speleological Society may not be one of the largest caving organizations in the world, but its members are highly active in exploration. This brochure introduces you to the most significant recent cave discoveries in Czechia, as well as ongoing exploration projects abroad.

Czech cavers have a long-standing presence in expeditions across the Balkans, Mexico, China, Georgia, and other regions. Thanks to the tremendous dedication and effort of our members, the Czech Speleological Society holds a respected place in the global caving community.

I wish you an enjoyable read.

Jan Lenart
President
of the Czech Speleological Society

REPORT ON THE ACTIVITIES OF THE BOARD OF THE CSS



Membership Base

Between 2021 and 2024, the number of members increased from 1084 to 1216. It is not surprising that the majority are men, with 1015, while there are only 201 women. However, it is pleasing to see a significant increase in their number. Over the past period, we welcomed 46 new female colleagues. Although it may not seem so at a first glance, the membership base becomes progressively younger in age, although most members still fall within the age category of 40–59 years. The Czech Speleological Society (CSS) thus tries to focus on young members and, despite partial success, this effort remains the main goal for the future.

Bodies of the Czech Speleological Society 2022–2024

The supreme body of the CSS is the General Assembly, which takes place once in every four years. It elects the CSS Board, which manages the activities of the CSS between general assemblies, and the CSS President, who also functions as the statutory body of the Society. The President's position was held by Jan Lenart, other members of the Board were Jan Sirotek (Vice-President), Libor Láník (Treasurer), Michal Hejna, Zdeněk Motyčka, Mojmír Záviška, Jaroslav Šanda (until May 2024) and Miroslav Manhart (from May 2024).

The General Assembly also elects members of the Supervisory Board, which is the control body of the CSS. The members of the supervisory board were Vratislav Ouhrabka, Bohumil Koutecký and Tomáš Mokrý.

The elementary units of the CSS are Caving Clubs (ZO), acting as subsidiary associations of the CSS with their own legal responsibility. In 2024, there were 61 caving clubs in total.

The Czech Speleological Society also includes the Editorial Board, expert commissions and the Speleo Rescue Service. Their activities will be presented in the following chapters.

Activities of the Editorial Board

After several personnel changes, the Editorial Board has been operating with the following members since April 2023: Michal Hejna (Chairman), Marek Audy, Tomáš Bohanes, Irena Jančaříková, Milan Geršl, Jiřina Novotná and Božena Vrabcová. The main task of the Editorial Board is the publication of the electronic magazine eSpeleo, the printed proceedings from the Speleoforum conference and other publications under the CSS.

Between 2022 and 2024, 11 issues of eSpeleo were published (issues 2–12, starting with issue 4, it became a regularly published magazine three times a year). In 2022, the Editorial Board prepared the publication Czech Speleological Society 2017–2021 for the promotion of the CSS at the International UIS Congress in France. In 2024, the CSS resumed the publication of the CSS Library edition. The

first volume in the renewed edition, and the thirty-ninth volume in total, was the publication Jeskyně Štramberského krasu by Jan Lenart.

Since 2022, the Editorial Board has been managing the CSS Facebook profile. The CSS also operates the Speleo.cz website.

Starting from 2022, the Editorial Board regularly awards the Editorial Board Prize for the best article in the Speleoforum proceedings at the Speleoforum conference.

Activities of the Cave Rescue Service

The Cave Rescue Service (SZS) of the Czech Speleological Society was established in 1982 as a voluntary specialized unit of the Czech Speleological Society. The Cave Rescue Service has two stations with a total of 30 cave rescuers: station Bohemia with 12 rescuers and station Moravia with 18 rescuers. In the case of underwater rescue, the SZS is in direct contact with the team of cave divers. The SZS is a part of the Integrated Rescue System of the Czech Republic.

Between 2021 and 2024, 120 trainings were held at both SZS stations, more than 50 of which were conducted in cooperation with the Fire Rescue Service and other units of the Integrated Rescue System.

Since 2019, the SZS has been a member of the European Cave Rescue Association (ECRA). In 2022, the SZS celebrated its 40th anniversary and hosted the 15th European Cave Rescue Services meeting at Rudice in the Moravian Karst, attended by 150 participants from nearly 25 countries, not only from Europe. The entire event was held under the auspices of the General Director of the Fire Rescue Service Ing. Vladimír Vlček, the Governor of the South Moravian Region Mgr. Jan Grolich, and the International Speleological Union (UIS).

Conferences, Seminars and Lectures

One of the main goals of the CSS is the education and training of speleology enthusiasts, whether CSS members or other interested parties. For this purpose, individual caving clubs organize various lectures, excursions, local meetings and other educational events.

At the national level, regular events Speleoforum and Cave Explorers' Meeting were held in 2022–2024, as well as the extraordinary conference Karst, Caves and People associated with the 5th International Speleologists' Meeting in the Moravian Karst.

Speleoforum

The biggest and the most significant speleological event in the Czech Republic. In 2024, the 43rd meeting was held at Sloup in the Moravian Karst, attended by more than 400 speleology enthusiasts. Friday evening and Saturday are dedicated to lectures and presentations, Sunday is reserved for excursions. In 2024, a block of children's presentations was included in the program for the first time.

Several awards are granted at the occasion of the Speleoforum meeting. These include awards of the CSS Board for the best annual report, the most significant discovery by CSS members in the Czech Republic, the most significant discovery by CSS members abroad and a special award of the CSS Board. The Speleoforum participants themselves award prizes for the most significant discovery by CSS members in the Czech Republic, the most significant discovery by CSS members abroad, the best poster, the best lecture and the best map. The Editorial Board awards a prize for the best article in the Speleoforum proceedings.

Awards for Discoveries in the Czech Republic and abroad:

2022

Discoveries in the Czech Republic:

- *Award of the CSS Board for Caving Club 6-07 Tišnovský kras: discoveries in the Králova Cave.*
- *Participants' Award for Caving Club 6-10 Hluboký závrt: Hedvábná Cave, Moravian Karst.*

Discoveries abroad:

- *Award of the CSS Board for the Medúza 2022 Expedition: Juriško vrelo Cave, Montenegro.*
- *Participants' Award for Caving Club 6-17 Topas: Atmos Cave, Albania.*

2023

Discoveries in the Czech Republic:

- *Chairman's and Participants' Award for Caving Club 6-15 Holštejnská for the discoveries in the Lipovecká ventarola Cave.*

Discoveries abroad:

- *Award of the CSS Board for the Sokotra 2023 Expedition for cave discoveries on the island of Socotra in Yemen.*
- *Participants' Award for the Maganik 2023 Expedition for the discoveries in the Iron Deep Cave.*

2024

Discoveries in the Czech Republic:

- *Award of the CSS Board for Caving Club 7-01 Orcus: discoveries of non-karst caves in the Hrubý Jeseník Mts.*
- *Participants' Award for Caving Club 1-02 Tetín: Trinity Cave, Bohemian Karst.*

Discoveries Abroad:

- *Award of the CSS Board for the Shaanxi 2024 Expedition for the discoveries in China.*
- *Participants' Award for the Atmos-Neuron 2024 Expedition for the discoveries in the Kobyla Cave, Albania.*

The second part of the brochure will focus on the awarded discoveries.

Cavers Meeting

The Cavers Meeting is a traveling weekend meeting of cave explorers organized on an annual basis by a different caving club at various places in the Czech Republic. Unlike Speleoforum, it is less formal, and besides meeting cave explorers, it aims to present the activities of the organizing caving club and its most significant speleological sites.

In 2022, this event took place in the Na Chlumu Quarry in the Bohemian Karst, and the organizing Caving Club 1-06 Speleoclub Prague welcomed a total of 88 participants. In 2023, the meeting took place as a part of the International Speleologists' Meeting in the Moravian Karst – see the next chapter. In 2024, the event was organized by Caving Club 4-01 Liberec in the Krkonoše Mountains. The meeting took place under very poor weather conditions on the ridge of Ještěd Mountain, during the September floods. Despite this, several dozens of cave explorers found their way to Ještěd Mountain.

Karst, Caves and People Conference

On September 20–24, 2023, the 5th International Speleologists' Meeting in the Moravian Karst and the 2nd International Conference took place under the joint name Karst, Caves and People 2023. The main reason for organizing both events was the renewed promotion of the Moravian Karst and Czech speleology, this time at the 300th anniversary of the first descent of a human into the Macocha Abyss and the 45th anniversary of the establishment of the Czech Speleological Society.

The highlight of the event was the reconstruction of Lazar Shopper's historic descent into the Macocha Abyss, which took place on Saturday, September 23, when a replica of the mining winch from that time was installed on the lower bridge of the abyss, and a SZS volunteer was symbolically „rediscovering" the bottom of the abyss and was subsequently pulled back onto the surface.

A total of 130 speleologists from 9 countries participated in the Karst, Caves and People event. During the meeting, 24 excursions to caves with no public access in the Moravian Karst and Javoříčko Karst were organized, and 16 lectures were presented at the conference, along with 6 posters. The contributions were also published in the proceedings volume issued at the conference. The entire event was organized by the Czech Speleological Society in cooperation with the Cave Administration of the Czech Republic, the Nature Conservation Agency of the

Czech Republic and the Czech Geological Survey, with significant support from the Institute of Geology of the Czech Academy of Sciences and the Blanensko Museum. The event was supported by the International Speleological Union–UIS.

International Year of Caves and Karst

The year 2021 was declared the International Year of Caves and Karst (IYCK) by the International Speleological Union–UIS. Its main goal was to highlight the specific characteristics of karst areas and their extreme vulnerability to anthropogenic influences on a global scale. Activities within the IYCK were significantly affected by the global COVID-19 pandemic, so the Bureau of the International Speleological Union decided to extend this initiative to 2022. The motto of the International Year of Caves and Karst was „Explore, Understand and Protect," which reflects the effort to logically organize our approach to the values represented by karst and caves. The Czech Speleological Society was the main driver of this initiative in the Czech Republic and, together with the Cave Administration of the Czech Republic, the Nature Conservation Agency of the Czech Republic and the Czech Geological Survey, prepared promotional materials, organized two conferences Karst, Caves and People, and a number of other events – exhibitions, lectures, meetings. The CSS also managed to obtain a license for the Czech edition of the book „Karst, Caves and People" published at the occasion of the International Year under the auspices of UIS in Slovenia. It was published by the Audy Publishing House, which also renders its distribution in the Czech Republic.

Speleowiki

The Czech Speleological Society launched a pilot operation of the Speleowiki application in the summer of 2022. This is a platform based on the reputable MediaWiki technology, which allows the digital collection of information about exploration activities of CSS members, recording data on individual caves, storing maps, documents and photographs.

In the spring of 2023, all CSS members gained access, and can also enter new data into the system or update existing ones.

By the end of 2024, Speleowiki contained the following data:

- 4,176 *caves in 11 countries*
- 4,805 *event records*
- 12,768 *bibliographic records*
- 625 *maps*
- 515 *documents*
- 2,029 *photographs*
- 158 *organizations*
- 4,282 *personalities*

SpeleoGo

Since 2023, the Czech Speleological Society has been supporting individual members, caving clubs and broader teams in their speleological activities. For this purpose, granting of a non-claimable one-off contribution SpeleoGO was initiated. Projects meeting Article II of the Statutes – Mission, Purpose and Activities of the Society can be supported. Examples of supported activities: discovery activities at home locations; equipment of caves; organization of meetings, excursions, expeditions; courses or educational activity.

Speleo Insurance

Since 2023, members of the Czech Speleological Society can use Speleo Insurance, which was arranged with the UNIQA insurance company to ensure their activities abroad. Speleo Insurance provides comprehensive protection, including the coverage of medical expenses, accident insurance, liability insurance and rescue operation costs. It also covers risky speleological activities such as cave exploration, speleoalpinism or cave diving, which are not included in regular travel insurance. The insurance also includes additional insurance for winter sports and high-risk sports.

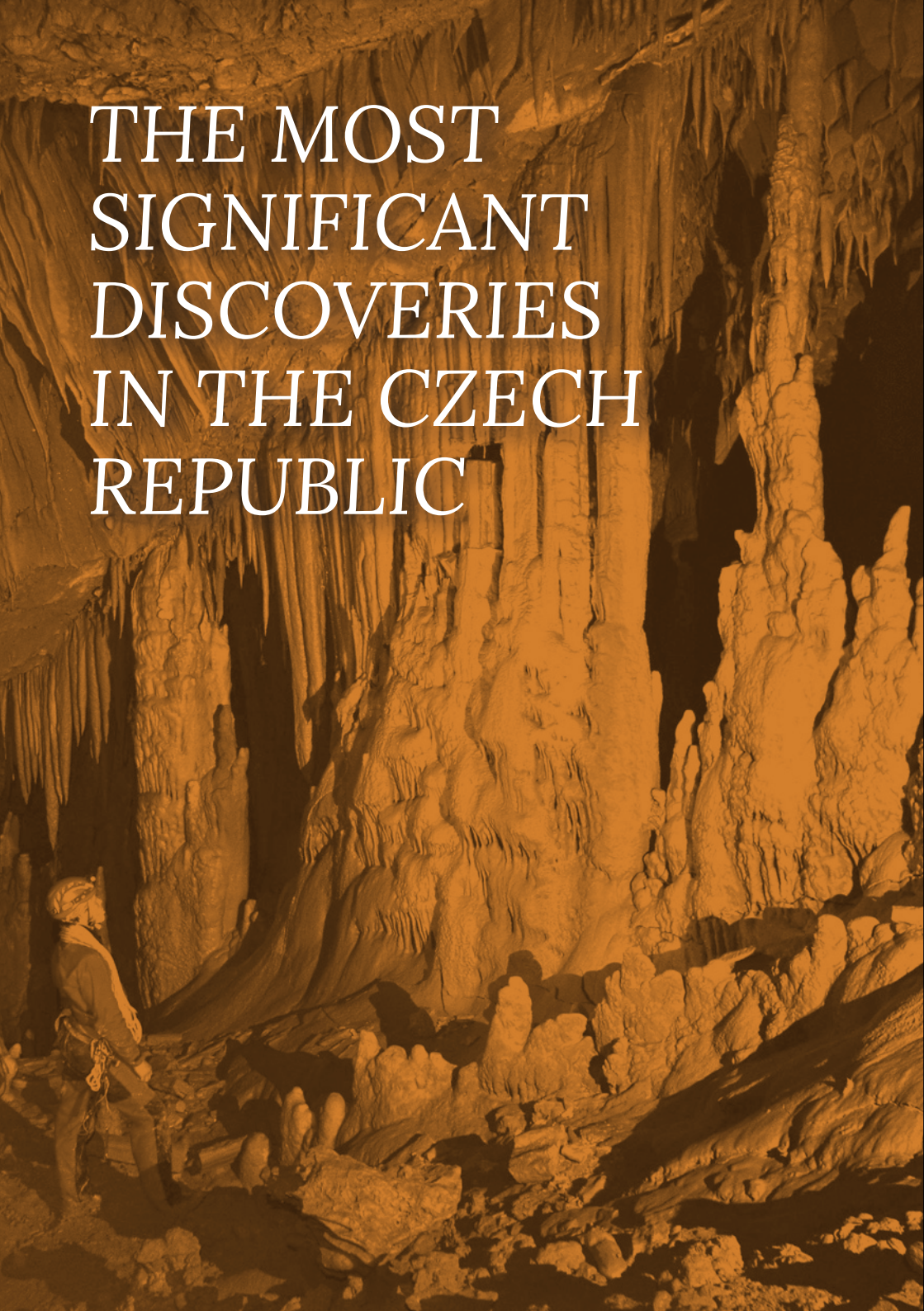
Speleo Insurance is intended exclusively for CSS members, with an option to arrange individual or family insurance. Family insurance allows insuring not only the CSS member but also their partner and children. The validity of the insurance applies to trips within Europe or worldwide. The insurance is arranged annually, with the maximum duration of individual stays abroad depending on the chosen tariff and, if necessary, the insurance can be extended or expanded at any time.

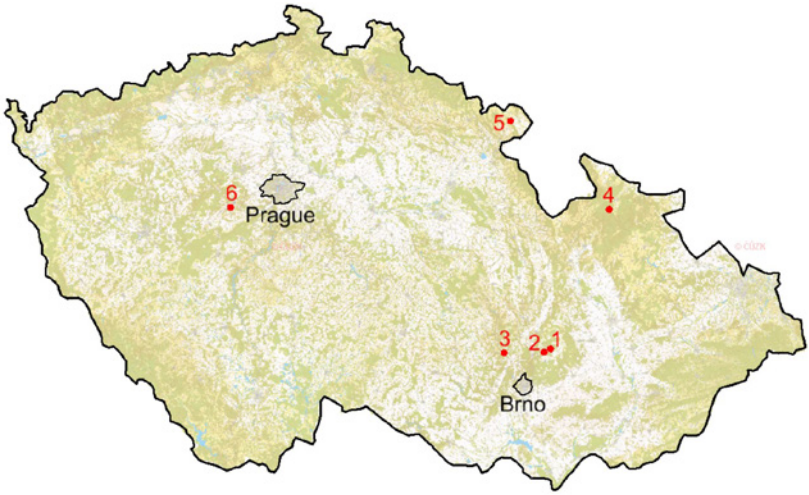
Entry into the Council of Scientific Societies of the Czech Republic

In 2022, the CSS joined the Council of Scientific Societies of the Czech Republic. It is a subsidiary association of the Academy of Sciences of the Czech Republic, bringing together 87 scientific societies from nature sciences, medical, social sciences and technical fields.

As a member, the CSS can be granted subsidies for publishing printed materials, organizing conferences, and for membership fees in international organizations.

THE MOST SIGNIFICANT DISCOVERIES IN THE CZECH REPUBLIC





▲ *An overview of locations from the following chapters. 1. Lipovecká ventarola Cave, 2. Hedvábná Cave, 3. Králova Cave, 4. Hrubý Jeseník caves, 5. Tygří pruhy Cave, 6. Trinity Cave*

Between 2022 and 2024, 119 new caves were added to the cave database (JESO – National File of Speleological Objects). Of these, 13 were karst caves (3 of which were discovered through quarrying) and 106 were non-karst caves. This best indicates the areas with a potential for further discoveries in the Czech Republic: non-karst caves. Thirteen caves were discovered in the Broumovsko area, which also includes the longest Czech non-karst cave – Teplická Cave, nearly two kilometers long, whose detailed documentation has not been completed yet. As concerns the 19 documented caves in the Hrubý Jeseník Mountains, it was an unexplored area, and these are the first caves reported. A similar situation exists in the Křivoklátsko area, where three caves had been known before the survey began in 2022, and there are 65 caves today. Rock variability in these three areas is also interesting. While the caves in the Broumovsko area are developed in Turonian sandstones, those in the Hrubý Jeseník Mts. are developed in Proterozoic and Paleozoic metamorphic rocks (mainly gneisses and orthogneisses) and those in the Křivoklátsko area are dominated by Neoproterozoic silicites.

These are the newly registered caves. What about discoveries in the already known ones? Systematic prolongation works are ongoing in almost all karst areas but major discoveries have only been achieved in the Moravian Karst and Tišnov Karst. Some of them, along with the already mentioned non-karst caves, will be covered by separate chapters.

New Discoveries in the Hedvábná Cave

Jiří Buček (Caving Club Hluboký závrt)

The entrance to the Hedvábná Cave is through the Meisel Sinkhole on the Ostrov Plateau in the northern part of the Moravian Karst, about 900 meters northeast of the Macocha Abyss. It is a pit cave with a massive central abyss, formed in the Lažánky Limestone of the Macocha Formation. The total depth of the cave is 130.4 meters.

The first attempts to penetrate the Meisel sinkhole date back to 1934 when Professor Karel Absolon and his research group came here after the fire of the timbering and the collapse of the shaft in the Městikáď Sinkhole. Although Professor Absolon reached more open spaces after digging the shaft, his further progress was stopped by an impenetrable narrow passage. After this failure, he shifted his research focus to the Deep Sinkhole. The shaft in the Meisel Sinkhole eventually collapsed after the degradation of the timbering and was forgotten for several years.

The Meisel Sinkhole was reopened based on a geophysical survey (the first in Czechoslovakia) in 1946. A new shaft was excavated, and open spaces were discovered in 1948 at a depth of 16 meters, ending at a depth of 40 meters with an impass-

able narrow passage. This location was then abandoned again, and the timbered shaft eventually collapsed again.

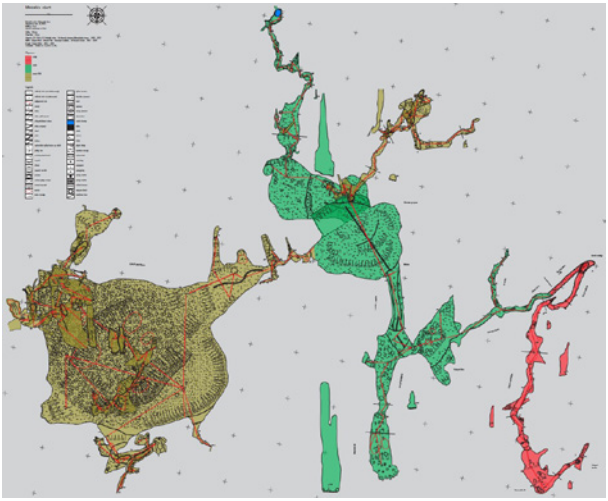
In 1971, the sinkhole was reopened by a professional research group from the Moravian Karst. The entrance shaft was secured with concrete rings, and work began on widening the terminal narrow passage. After these spaces were made accessible, the central abyss and other adjacent spaces were discovered. Later, after climbing chimneys, the Moravian Hall with unique stalactite decorations was discovered. A test pit was also dug at the bottom of the central abyss, and the spaces of the High Hall were discovered, continuing to the standing water level at a depth of 130.4 meters. Unfortunately, the underground flow of the Punkva River was not reached, as expected.

In late 2020, new discoveries were made in the central abyss, in the left face of which an overhanging wall 35 meters high was climbed within four days. After a short traverse, a corridor was discovered, leading to a dome approximately 40 × 40 meters in size and about 35 meters in height. This dome was named after Karel Kučera. From this large space, a smaller sinkhole leads to a depth of -100 meters. Several chimneys lead from the Karel Kučera Dome, the most interesting of which is the northern chimney, ending in the Jan Balák Gallery with stalactite decorations. An extensive network of interconnected chimneys, often ending just below the surface, is present in the eastern part of the Karel Kučera Dome. Climbing exploration is still under way in these spaces.

In mid-2021, the right side of the central abyss was climbed (with the help of a folding column), and another corridor with several chimneys ending just below the surface was discovered.

The total length of the Hedvábná Cave has exceeded 1 kilometer, with the length of new spaces now reaching 300 meters.

◄ *The Karel Kučera Dome, approximately 40 × 40 m in size and 35 m in height, was discovered on December 28, 2020. Karel Kučera „Ramba" was the long-lasting chairman of the Hluboký závrt Caving club (Photo by M. Audy).*



► *A map of the Hedvábná Cave. Red-shaded parts were discovered between 1942 and 1970, the green ones between 1970 and 2020, and the brown parts were discovered after 2020. The distance between the crosses is 10 m.*

Králova Cave

Michal Beneš (Caving Club Tišnovsky kras)

History of Discoveries

The Králova Cave in Květnice Hill was discovered on May 28, 1972, by Jaroslav Bárta and his dog Luxík. The cave was named after Alois Král, the discoverer of the Demänovská Cave of Liberty in Slovakia. After the first survey, the so-called „Old Part" appeared to have corridors 330 meters in length. On April 7, 1984, the Dobišar Corridor was discovered, known for its beautiful decorations with straws up to 1.5 meters long. On February 2, 1989, open spaces „Austria", the Hall of Three Bears and the Labyrinth were discovered. The Tišnov Dome, the largest open space in Květnice Hill, was discovered on February 4, 1989 from the Hall of Three Bears. It is 41 meters long, 18 meters wide and 32 meters high.

Further exploration resulted in the discovery of the Lily Dome and the Dreadful Dome. On July 6, 2008, after breaking through from the Dreadful Dome, it was possible to reach the Sunday Dome through a branch containing the „White River"

formation. This purely white flowstone accumulation, about 8 meters long, really resembles a flowing river.

New Discoveries

In late 2013, excavation of the „Tunnel of Hope“ was started, aiming at the presumed transverse fault. The progress was hampered by the presence of sediments filled with flowstone, quartzite blocks and moist clays. After eight years, on January 18, 2022, karst continuation of Králova Cave was reached. An impassable crevice appeared, beyond which dripstone decorations were visible. The entrance was widened and a mixture of sediments and flowstone plate fragments was removed. On March 1, 2022, the Anniversary Dome, the second largest space in Květnice Hill, was discovered. It is 34 meters long and 12 meters wide. The average height is around 6 meters and gradually rises. Speleothem decorations are dominated by the white flowstone accumulation 12 meters wide and 8 meters high. The dome contains classic dripstone decorations with many stalactites and stalagmites but also almost transparent curtains and helictites. The space diverges into several unexplored continuations and branches. The surface in front of the flowstone wall is filled with detrital loams, which were found to bear anthodites. Chimneys reaching 12 meters in height are present in the central part of the dome, above the collapsed

◄ *A speleothem lake in the Králova Cave (Photo by M. Beneš).*

► *Calcite crystals up to 2.5 cm in size in the lake in the Anniversary Dome in the Králova Cave (Photo by M. Beneš).*

blocks. To the northwest, the space continues with a slope ending with a talus cone. From here, a narrow passage leads to the western part ending with a cave-in.

This place is superposed by a part of the previously known Dreadful Dome.

Further Explorations Related to the Anniversary Dome

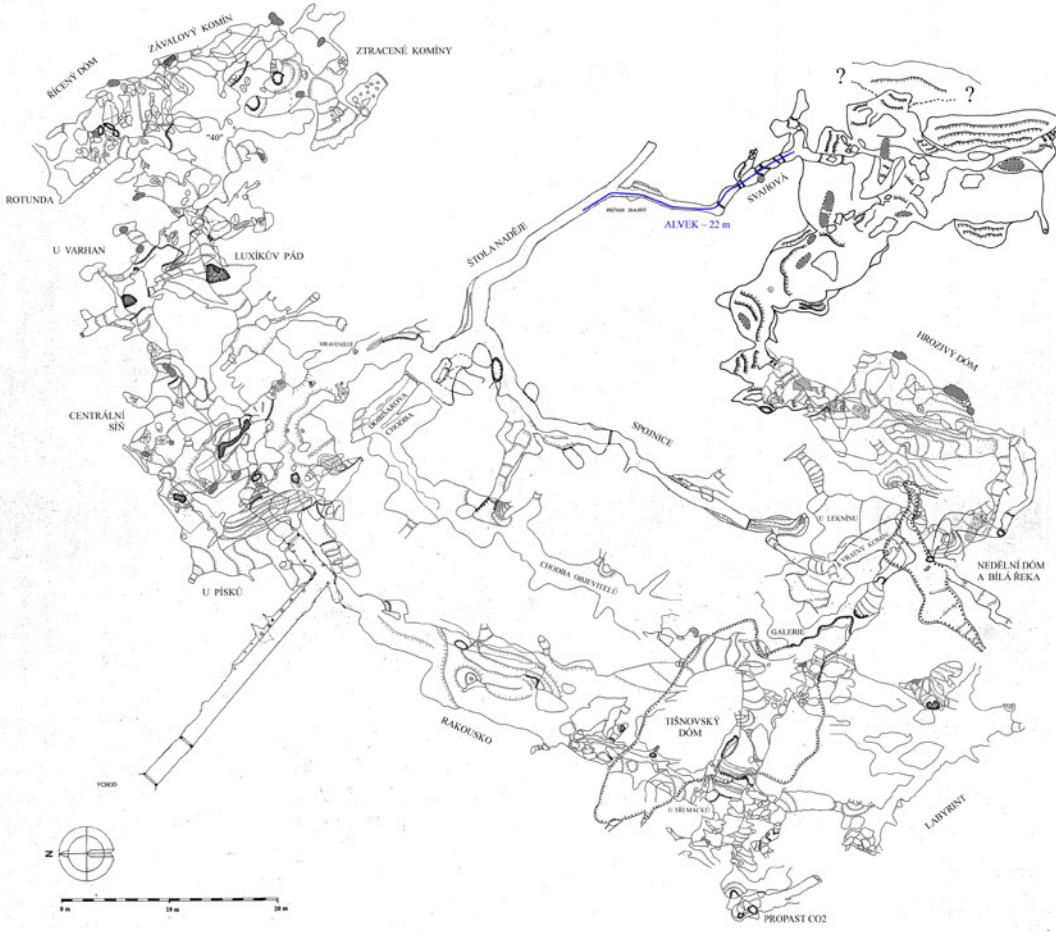
In October 2022, a room with a speleothem lake was discovered by a camera survey of a narrow crevice. Due to safety reasons (exploratory work nearby), the room was reached not before January 3, 2024. Only then did we realize what a unique feature it was. The small lake (2 × 1 meters) contained calcite crystals up to 2.5 cm on its shores, arranged in three rows one above another.

In December 2023, after widening the entrance narrow passage, it was possible to reach a hardly accessible, southward-leading ascending (about 45°) corridor. This room, 10 m in size, contains rich decorations and ends with an impassable continuation. Exploration of a chimney leading to the west was interrupted after several months of effort. Another surveyed space was the western branch of the Anniversary Dome. This is a six-meter corridor with an impassable continuation. The survey has shown that any further exploration in this space is not promising.

The latest explorations will be directed to the lower part of the western branch.

After the last survey, the Králova Cave has a length of 1,386 meters and a vertical range of 61 meters.

► *A map of the Králova Cave.*



KRÁLOVA JESKYNĚ NA KVĚTNICI

STARÁ ČÁST – OBJEVENA 28.5.1972
MĚŘIL A ZAKRESLIL : J.HIMMEL 1974
MAPOVALI : P.VAŠÍK, P. HIMMEL, M. ŽIŽKA, E. KLADIVA
S. VESELÝ, K. DVOŘÁK, J.KREJČÍ, LTEJKAL, J. BÁRTA,
J. HOVORKA

DOBIŠÁROVA CHODBA – OBJEVENA 7.4.1984
MĚŘIL A ZAKRESLIL: P.VAŠÍK, J. KREJČÍ 1984
MAPOVALI: R.MICHNA, M. MELKES, J. OHAREK

NOVÁ ČÁST - OBJEVENA 2.2 a 4.2.1989
MĚŘIL A ZAKRESLIL: M.BULVA 1990
MAPOVALI: K.MOLÍK, I.BULVOVÁ,P.VAŠÍK

NEDĚLNÍ DŮM - OBJEVEN 6.7.2008
TIŠNOVSKÝ DŮM, NEDĚLNÍ DŮM, SPOJNICE, ŠTOLA NADĚJE
ZAKRESLIL: P.VAŠÍK 2015
MĚŘENO DISTEM X : J.VAŠÍK, P.VAŠÍK, M. DOLEŽEL

SVAHOVÁ - OBJEVENA 18.1.2022
ZAKRESLIL: M.BENEŠ
MĚŘENO DISTEM X : P.VAŠÍK, M.BENEŠ, V. KULHÁNEK

VÝROČNÍ DŮM - OBJEVEN 1.3.2022
ZAKRESLIL: M.BENEŠ
MĚŘENO DISTEM X : P.VAŠÍK, M.BENEŠ, V. KULHÁNEK

DÉLKA: 1347 m
DENIVELACE: 60 m

Interconnection of the caves of Lipovecká ventarola and Nová Rasovna, Moravian Karst

Richard Zatloukal, Evžen Zámek (Caving club Holštejn)

The Lipovecká ventarola Cave (part of the Amatérská cave system) is located on the northern edge of the Moravian Karst. The entrance is situated in the upper part of the southern slope of Lipovecký žleb Valley, which hosts the Marianínský Stream. Several ponors functioned in the stream channel in the past, although the valley is mostly developed in impermeable Culm shales. Most of the ponors were, however, buried during the construction of the road from Holštejn to Lipovec in the 1960s.

The cave was discovered by the Holštejn research group in January 1969. It originally consisted of three domes – Balvanitý Dome at the highest level, Mean-

drový Dome below, and the Blátivý Dome at the lowermost level, with its bottom at a depth of 50 meters.

In 2015, the cave was reopened by excavating and securing the collapsed entrance. Later that year, another dome was discovered – the Netopýří Dome (Bat Dome). From then on, activities continued at several other sites in the cave. The corridor leading from the Blátivý Dome, named Tetris, proved to be the right path to future discoveries, although a very demanding one in terms of excavation works. In January 2023, the first large space was discovered – the Páteční Dome with an area of approximately 8 × 20 meters. The significant discovery came on February 4, 2023, when Vlastimil Čoupek managed to enter a dome totally unexpected as for its dimensions and rich dripstone decorations. His feeling that he had most likely entered another dimension is rightly reflected in the name of this exceptional hall: Jiná dimenze (Another Dimension). Its area is approximately 60 x 30 meters, and the ceiling height varies from about 2 meters to 8 meters.

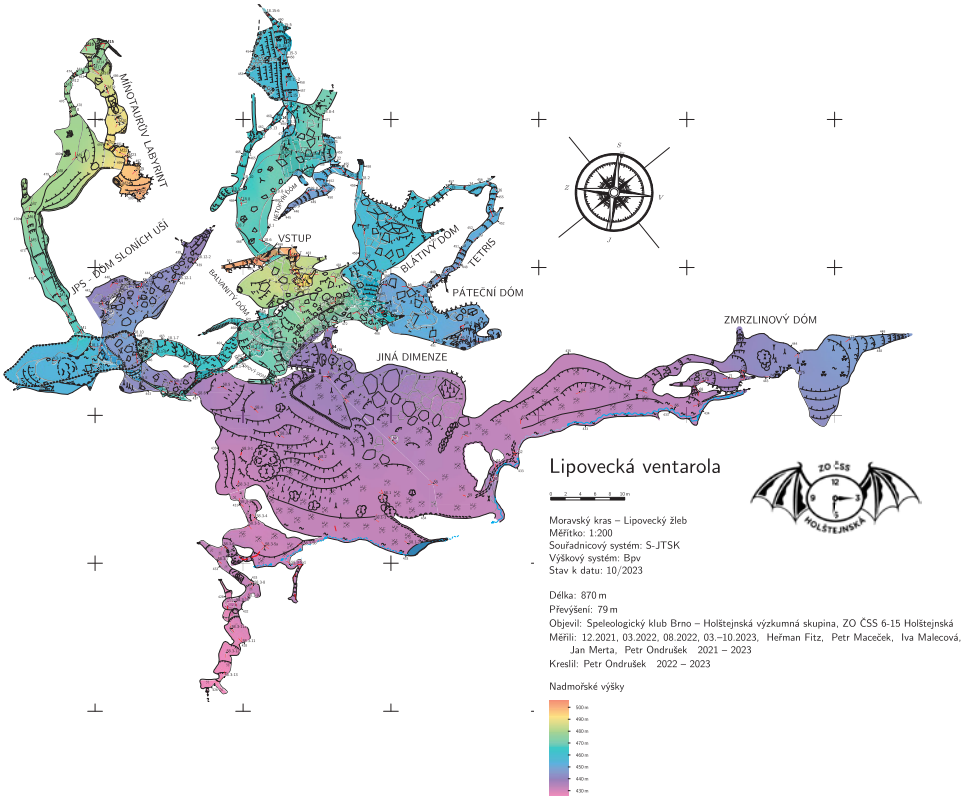
A small, unnamed watercourse flows through the dome, with its water level fluctuating. Conductivity measurements confirmed the logical assumption that it represented groundwater from the Lipovecký žleb Valley. Further upstream to the east, we entered the Zmrzlinový Dome (Ice-cream Dome) 12 × 20 meters in size, with the ceiling height of around eight meters. Although the Zmrzlinový Dome is smaller than the Jiná dimenze Dome, its decorations are more concentrated, dominated by a flowstone mound resembling ice-cream. At the opposite end – in the west, the Jiná dimenze Dome passes into the Dóm šavlozubých veverek (Sabretooth Squirrels Dome). Through this dome, the Lipovecká ventarola Cave was

◄ *Middle part of the Jiná dimenze Dome (Another Dimension Dome), looking east towards the Zmrzlinový Dome (Ice-Cream Dome) (Photo by M. Audy).*

► *A tributary corridor with a stream in the eastern part of the Jiná dimenze Dome (Another Dimension Dome) (Photo by M. Audy).*

interconnected with the neighboring Nová Rasovna Cave on February 18, 2023. The Dóm šavlozubých veverek also poses a connection to the complex chimney system of Minotaurův labyrint (Minotaurus Labyrinth), where exploration works are still in progress.

In 2023, our group managed to survey 870 meters of new corridors. The entire system with the Nová Rasovna Cave now has a length of over 3100 meters. By interconnecting the caves, we have provided a new entry to the rear parts of the Nová Rasovna Cave, which is not threatened by floods. This is important for further research in this system.



▲ *A map of the Lipovecká ventarola Cave.*

▲ *The Žebraččino schodiště Dome in the Marinina Cave (Photo by M. Kašing).*

Non-Karst Caves in the Hrubý Jeseník Mountains

Jan Lenart (Caving Club Orcus)

Before 2022, the main ridge of the Hrubý Jeseník Mountains was a speleologically untouched area. Although there are many landslides in the Proterozoic to Paleozoic metamorphic rocks, cavers apparently did not expect any major caves to be found in these rocks. As revealed by the research conducted by cavers from the Orcus Caving Club, this was a wrong assumption. Between 2022 and 2024, we managed to discover several caves, most of which could be entered by free climbing without the need of excavation. Among the most significant discoveries are the Boblig Hole, Good Friday Cave, Last Refuge-Marina Cave and the Border Cave, all of which immediately became the largest non-karst caves in the region.

Hučava Valley

The northern slopes of an unnamed mountain with an elevation of 1016 meters are affected by a massive landslide, known as Kutiště, in the cadastral area of Jindřichov. The central part of the landslide, formed in the orthogneisses of the Velké Vrbno Group, is transected by a series of tensile joints along which collapses were formed.

In the Hučava Valley, we described two caves. The larger one, Sand Cave, is formed along a tensile joint striking ESE–WNW. It has two entrances and a length of 13 meters.

Attila's Grave Cave lies to the northwest of the Sand Cave, above a partial detachment edge of the landslide. It is 5 meters long and is accessible by descending through a conspicuous opening.

Břidličná Mountain

Western slopes of Břidličná Mountain (1358 meters above sea level) are disrupted by a monumental landslide at the altitudes of 800–1100 meters in the cadastral area of Vernířovice. The slopes, formed by biotitic gneiss of the Desná Group, are disrupted by sliding, creating typical landforms. In the central part of the landslide, the front of a partial landslide block with a flat surface shows signs of relaxation. A gravitationally overturned rock ledge created conditions for the origin of a crevice cave. The Moon Cave, 11 meters long, has been reported from Břidličná Mountain.

Malý Klín

A spectacular landslide disrupted the northern slope of Malý Klín Mountain (1099 meters above sea level) at Bělá pod Pradědem. The slope is formed by Proterozoic phyllonites of the Desná Group. The landslide, on a relatively small area of 400 × 200 meters, created an extraordinarily diverse range of geomorphological forms. During the first visits to this place, it was already clear that we were encountering a speleological area that had escaped attention. There are dozens of overhangs and spaces between piled-up and variously overturned huge blocks. In all these cavities, however, daylight is present, or they communicate with the surface through many openings. In spite of this, we discovered and documented eight caves during several survey trips.

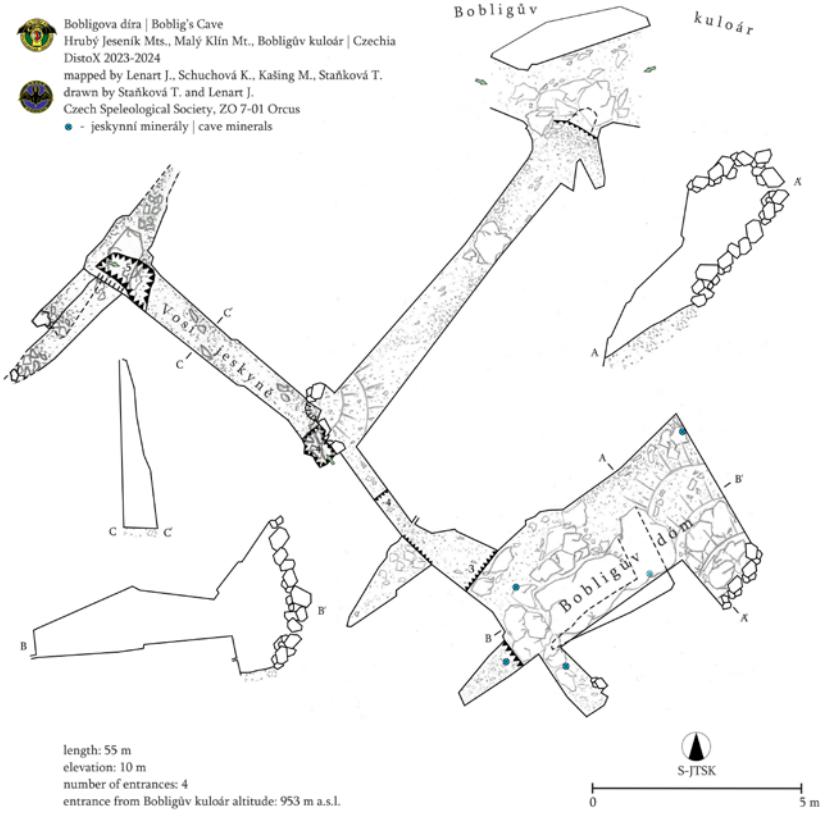
Most of them are short caves. The longer ones include 1) the Border Cave, 28 meters long with a vertical range of 8.5 meters, 2) the Boblig Hole, 55 meters long, and 3) the Good Friday Cave, 56 meters long, including the Shattered Dome 5 × 4 × 3 meter in size. The longest non-karst cave, not only at Malý Klín but also in the Hrubý Jeseník Mts., is the Last Refuge–Marina Cave, 109 meters in length.

Roland Stone

A gneiss tor 20 meters high, called Roland Stone, rises north of Karlova Studánka. The cliff is split by a NE–SW-striking fracture, indicating gravitational deformation of the rock massif. The development of the main fracture is also related to a crevice cave, which is accessible through three entrances at the southern foot of the Roland Stone. This cave, called V Rolandově kameni Cave, is 19 meters long.

Other smaller caves were documented in the areas of the Ludvíkov rock city in the cadastral area of Ludvíkov near Vrbno pod Pradědem and on Na Vyhlídce Hill (978 m a.s.l.) in the cadastral area of Vrbno pod Pradědem.

After three years of exploration, the area of the Hrubý Jeseník Mts. proved important for crevice caves, and the project continues. It can be stated that this neglected mountain range is becoming an area typical for crevice caves, reaching small to medium lengths of up to about 100 meters. A textbook example of cave development is the rocky landslide of Malý Klín, but smaller caves are also important, such as the V Ludvíkovském skalním městě Cave or the V Rolandově kameni Cave.



► *A map of the Boblig Hole Cave.*

Non-Karst Area of Broumovsko, Tygří pruhy Cave

Jan Moravec (Caving Club Tetín),
Pavel Čáp (Caving Club Suchý žleb)

The Czech Republic is rich in sandstone rock areas, where non-karst underground spaces (caves sensu lato) are formed. The rock cities of the Adršpašsko-teplické skály Cliffs and Broumovské stěny Cliffs on the northeastern edge of Bohemia are dominated by deep fissure caves on plateaus and in extensive blocky talus fields in gorges. The most significant of these is the Teplická Cave, approximately 1,500 meters long. Between 2022 and 2024, detailed survey and photographic documentation of 25 selected sites were made in this area, and 3D survey of the Teplická Cave

◀ *The main dome of the Tygří pruhy Cave (Tiger Stripes Cave) (Photo by J. Moravec).*

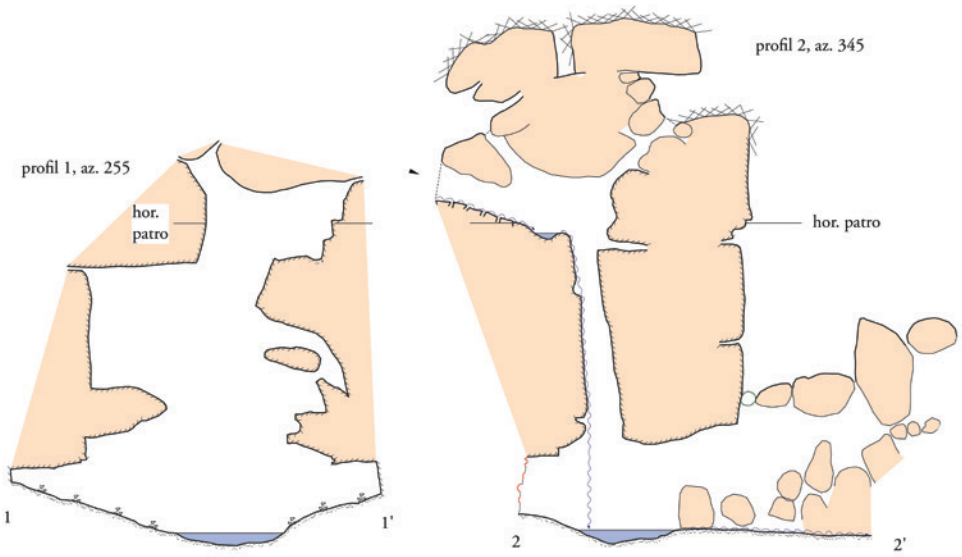
using LiDAR was initiated. Fourteen new caves with a total length of 266 meters were described. Two extensive blocky talus fields [or: talus/block caves] 500–1000 meters in size in uneasily accessible parts of Teplické skály Cliffs were identified for further exploration.

A separate note should be made on the Tygří pruhy Cave (Tiger stripes Cave), small in extent but remarkable from a geological viewpoint. It was discovered in 2020, and detailed geological research took place in 2022, with partial results published in the Speleoforum 2023 proceedings.

The cave was formed on an active stream, which creates a 10-meter-high waterfall in a joint in the rock massif beneath a layer of fallen blocks. This waterfall intersects a sharp lithological boundary and erodes the lower strata of weakly cemented sandstone. This created a space with a horizontal dimension of 10 meters and a height of 0.5–2 meters, with a lake in the middle at the point of the waterfall's impact. In downstream direction, the space is closed by a blocky accumulation, which intakes the stream water. In upstream direction, a unique section is exposed, where beds of white and red coloration alternate regularly.

The flat ceiling of the cave is controlled by the mentioned lithological boundary. It is composed of quartzose sandstone, strongly cemented with silica, just like the entire hangingwall forming the relief of the rocky gorge. The eroded lower strata are exposed in the rear wall of the cave. Alternating benches of lighter coloration with a thickness of 10–30 cm alternate with thinner (up to 10 cm) recessed red-colored beds. On the exposed section, seven periods of alternation are visible across a vertical distance of 1.4 meters, but the total thickness of the strata cannot be determined. Analyses of samples from the white and reddish intervals revealed that this is an alternation of sedimentation regimes. White intervals are completely dominated by quartz, macroscopically better sorted. Reddish intervals are composed of sandstone with poorer sorting (wider range of clast sizes); in general, however, the content of larger clasts is smaller, so the ochre intervals are finer-grained than the white intervals. Notable is the content of ochre-colored ferruginous cement (probably hematite or goethite) finely dispersed in the sandstone. The presence of bioturbations – ichnofossils of the genera Thalassinoides, Asterosoma and Planolites – is evident in the white intervals.

The probable explanation is the alternation of rapid, practically instantaneous sedimentation events (white, sorted intervals) with periods of slow sedimentation influenced by chaotic processes, including the activity of living organisms (reddish intervals). Many fundamental questions remain unanswered and arouse curiosity. Primarily: the real time scale of sedimentation and the reasons for the observed periodicity (external geological, tectonic and climatic controls), as well as the



Tygří pruhy

JESO: P164422D-J-00128
měřili: Jan Moravec, Jiří Novotný 8. 8. 2020
orientováno na geogr. západ

Legenda

- měřický bod
- vchod
- spojení map
- stěna
- závaly
- písek
- příčný řez
- stupeň
- okraj stropu
- propast
- stupeň stropu
- okno ve stropě
- svah
- kameny
- štěrk
- písek
- hlína, detrit
- ohraničení
- vodní plocha
- vodní tok
- stropní balvan
- červená vrstva
- průhled na den
- kláda
- mech, borůvčí
- bílá vrstva
- stěna (pevná skála)
- kvádrový pískovec (v profilech)

mechanism of enrichment of the reddish intervals with ferruginous cement during diagenesis process. It should be added that the Teplice Formation, which includes the described locality, was deposited in the Late Turonian (approximately 90 million years BP) within the Bohemian Cretaceous Basin.

The effort to find the same periodic sedimentary facies at other places and determine its horizontal extent has not been successful yet; the Tygří pruhy Cave remains unique.

◀ *A map of the Tygří pruhy Cave.*

Trinity Cave in the Kosov Quarry near Beroun

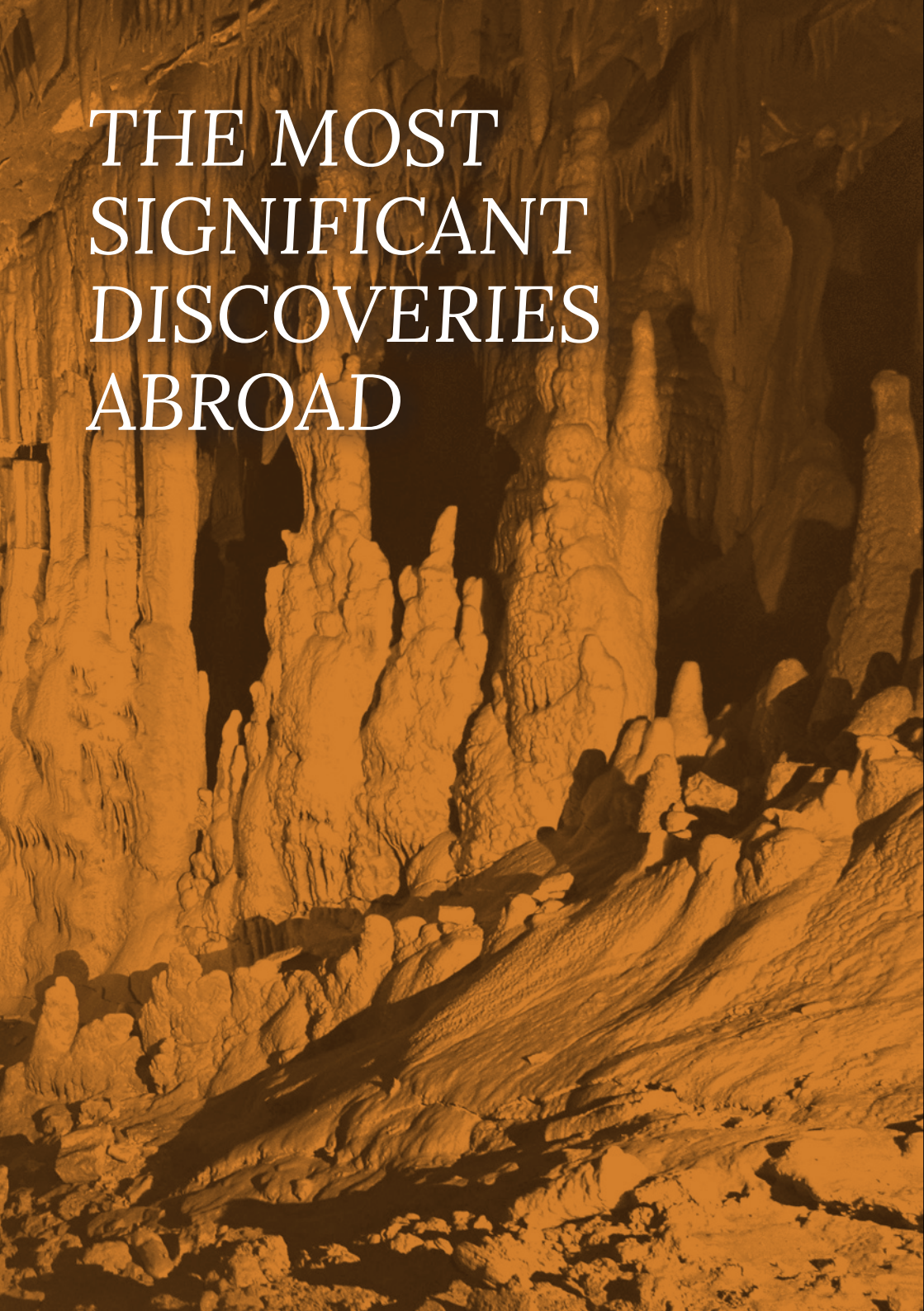
Michal Hejna (Caving Club Tetín)

The Trinity Cave was discovered in the Kopanina Limestone in the Kosov Quarry near Beroun by Božena Vrabcová in 2023. This quarry was extracting Silurian shales, volcanics and limestones as cement correction raw materials from the end of the 19th century until 2003.

Despite being a short cave, only 21 meters long, the Trinity Cave is interesting in its genesis. It was formed along a N–S-striking fault. Its eastern wall is formed by bedded limestone with very sparse shale intercalations. The western wall is formed by thinly bedded limestones with individual beds ranging from 4 cm to 12 cm in thickness, intercalated with disintegrating shale intercalations of about the same thickness. It is in these sediments that the cave was formed.

Two samples were taken from the cave wall. The first was intact black shale, and the second was a rust-colored crust on the surface of the shale. The intact shale is dominated by quartz (35.8 %) and carbonates (22.3 % calcite and 9.3 % dolomite) and contains over 4 % pyrite. The second sample lacks carbonates and pyrite, and quartz (30.2 %) and gypsum (34.4 %) play a dominant role. Decay of pyrite is visible here: ferrous iron is transformed into ferric iron through a series of chemical reactions in an oxidizing environment in the vadose zone or at the boundary of the vadose and phreatic zones. This way, iron oxides are formed. Sulfur reacts with oxygen and water to form sulfuric acid, which converts limestone to gypsum. Gypsum is two orders of magnitude more soluble than limestone, thus accelerating karstification. The insoluble residue of the shale is then mechanically washed away. The cave can thus be very young, and its development is not yet complete. Not only within the Czech Republic is this a rare process of cave genesis.

◀ *The ceiling and the eastern (left) wall of the Trinity Cave are formed by thickly bedded limestones of the Kopanina Member, the western wall (on the right) is formed by bedded limestones of the Kopanina Member with intercalations of calcareous shales (Photo by R. Gaďurek).*



THE MOST SIGNIFICANT DISCOVERIES ABROAD

Between 2022 and 2024, Czech cavers participated in discoveries in many countries around the world, organizing expeditions themselves or participating in international expeditions. These were long-term projects and one-time expeditions, taking place not only in Europe (Albania, Bulgaria, Montenegro, Georgia, Norway, Austria, Slovakia, Slovenia) but also in Asia (China, Israel, Yemen, Oman, Uzbekistan) and on the American continent (Mexico). The most significant projects will be presented in the following chapters.

▼ *A small scorpion Neobisium, a depigmented linyphiid spider in the rear – Breška Cave (Turtle Cave), Albania (Photo by R. Rescu).*

Hypogene Karst of Southern Albania

By Marek Audy (Caving Club Topas), adapted by the Editorial Board

Nine hypogene caves were explored by 2021. The formation of the caves of Sulfur, Shpella Breshkë, Dvacítka and Atmos is still active, being driven by hypogene processes. These caves host warm springs rich in H2S; all the discovered springs have a very similar temperature of 26 °C. The maximum air temperature in the caves is 29 °C.

In 2022, two expeditions were organized. New caves were discovered and documented: Perlová, Orlí hnízdo, Propástka II., Hulvát and Vedle Dvacítky. Other caves with active flows and thermal springs were also explored: the Atmos Abyss, Gejzírová Cave and the Bajaja Cave. The Dvacítka Cave was re-surveyed, and the highest concentrations of H2S (22 ppm) were repeatedly measured here.

The most spectacular and the biggest discovery was the Atmos Cave, an abyss 128 meters deep, with a thermal lake named Neuron, 150 meters in length. During the 2023 expedition, the volume of the dome in the Atmos cave was measured at 113,370 m^3, making it the largest European dome in hypogene caves. In 2024, the cave and the Neuron Lake were scanned with the Geoslam Horizon mobile scanner. Bathymetry of the thermal cave lake at the cave bottom was also measured. The lake contains 8,335.0 m^3 of water having a temperature of 26 °C and rich in hydrogen sulfide. Scanning confirmed that it is the largest known underground thermal lake in the world.

During the same expedition, all hydrothermally active hypogene caves in the Vromoner area near the Sarandaporo River were scanned. Bathymetry was also measured for another large thermal lake at the bottom of the Turtle Cave. A tracing test of the outflow from the Neuron Lake was conducted, confirming the previous result. Water from the Neuron Lake flows into all springs in the valley except for the Xomos baths.

Due to the uniqueness and complexity of the caves, the former exclusively Czech expeditions changed into international multidisciplinary scientific expeditions aimed at comprehensive research of hypogene thermal caves, including geology, hydrogeology and now also biology. Research was conducted in two areas in Albania: the Vromoner area on the Sarandaporo River and the Bënjës area on the Lëngaricë River, as well as near the Kavasila spa in Greece.

◀ *Ceilings of the drainage halls in the Atmos Cave are covered with sulfur coatings (Photo by M. Audy and R. Bouda).*

The results of the expeditions were also handed over to the administrative office at Leskovik and to the chargé d'affaires Ilirian Kuka of the Albanian Embassy in Prague, to the prof. Perikli Qiriazi from Academy of Sciences of Albania (Akademia e Shkencave e Shqipërisë) and to the prof. Romeo Eftimi from University of Tirana and Ministry of Environment and Tourism of Albania (Ministrisë së Turizmit dhe Mjedisit).

▲ *A view from the last step of the entrance shaft showing the southern quarter of the gigantic thermal lake on the bottom of the Atmos Cave (Photo by M. Audy and R. Bouda).*

Tropical Karst of Socotra (Yemen)

Michal Hejna (Caving Club Tetín)

The caves on the Island of Socotra were previously studied by the Socotra Karst Project, led by Belgian cavers. Between 2000 and 2008, more than 30 caves were documented with a total length of approximately 30 km, including the Giniba Cave over thirteen kilometers long. Czech cavers followed up with two expeditions in 2021 and 2023 with the following results.

Momi Plateau

It lies in the eastern part of the island, stretching in the west–east direction. On its northeastern slope, two of Socotra's most significant caves are located twelve

kilometers apart: the Hoq Cave 3,112 meters in length and the Erher Cave 1,615 meters in length. Hundreds of cave entrances lie between the two caves, partly belonging to caves of flank margin type, partly to caves of non-karst origin. These are mostly shallow abri several meters deep but with vast entrances up to a few tens of meters in size. Only the 86-meter-long Erher West Cave was newly registered. At the southeastern foothill, we discovered and documented two caves of flank margin type (the Bijaanib Dim Cave 86 m long and the Hameroh Cave 249 m long) in a roughly 2 km long series of rock outcrops, and especially the paleo-resurgence of Falamg Dim, 415 meters long.

Shibereh Plateau

It lies at the western end of Socotra near the town of Qalansia. Here, the Liya Qualansia Cave was newly documented. The cave has an entrance 26 meters wide and 25 meters high, continues with a corridor 85 meters long, and rises to the second entrance 5 meters wide and 18 meters high. The total length of the cave is 151 meters with a vertical range of 53 meters.

Rewget Plateau

It is triangular in outline, being located southwest of Hadiba. All slopes of the plateau contain many overhangs. We documented five caves, mostly of small dimensions, in the summit part of the plateau. These are the Rewget 1 Cave, 26 meters

◄ *The entrance of the Ayeen Akarah Cave (Photo by M. Jakovenko).*

► *The Dancing Hall in the Qan Dimin Qeremish Cave (Photo by M. Novák).*

deep and 43 meters long, the occasional ponor of Rewget 2, 75 meters long, the Tana Bazen Cave, 30 meters long, the Taribah di Abdullah Cave, 19 meters long, and the Ayeen Akarah Cave of an equal length. The longest cave in this part of the plateau is Ayeen Kainah, consisting mainly of a single big hall 38 × 34 meters in size and 6 meters in height. The total length of the cave is 56 meters.

Two smaller caves were documented on the southern slope of the plateau above the village of Qadub. These are the Qadub 1 Cave, having a corridor 30 meters long with an entrance of 16 meters in width and 11 meters in height, and the Qadub 2 Cave with a slightly rising corridor 27 meters long with a vertical range of 3 meters.

The last two caves lie in the Ayhaft Valley below the Rewget Plateau. These are the Ayhaft 1 Cave, 10 meters long, and the Ayhaft 2 Cave, 11 meters in length.

Firmihin Plateau

Located in the central part of the island, it is a part of the extensive Deksam/Shebenah Plateau. There are no caves on the Firmihin Plateau itself but well-developed surface karst phenomena can be found, mainly the pavement-type karren.

Mahlez Plateau

It lies near the northwestern coast of Socotra, south of the town of Qalansiya. The length of the plateau is 25 km in the east–west direction and a maximum of 6 km in the north–south direction. The average altitude of the plateau is 600 meters, reaching its highest point at its northwestern edge, which lies at the altitude of 820 meters. One cave was documented on this plateau: the Qan Dimin Qeremish Cave. Its largest space, called the Dancing Hall, is 35 meters high and mainly 60 meters long and 100 meters wide, making it the largest underground space on the Mahlez Plateau and one of the largest cave spaces on Socotra. The length of the cave is 182 meters with a depth of 53 meters.

The two expeditions to the Island of Socotra resulted in the new documentation of 16 caves with a total length of 1,489 meters.

► *The entrance of the Hameru Cave (Photo by M. Hejna)*

SEATOSUMMIT

Caves in the Maganik Mountains (Montenegro)

Zdeněk Dvořák (Caving Club Suchý žleb)

Research in the Maganik Mountains started in 2009. Right at the beginning, the Nyx abyss (-622 meters) was discovered, containing a 429 meters deep vertical shaft. Later on, during the first expeditions, another mammoth-sized vertical shaft of Aither (356 meters) and the Abyss under Mededica were discovered. During these expeditions, the summit plateau of Trešteni vrh (1920 meters above sea level), formed by a fantastic labyrinth of cracks, was also thoroughly explored but no other underground objects were found.

The most crucial discovery for the first stage of research, lasting from 2009 to 2014, was an entrance at the foot of the cliff faces of Trešteni vrh, which opened the way to a cave system now known as the Iron Deep Cave. Several limestone intervals in the cave alternate with horizontal levels and vertical sequences. The most interesting is the upper interval, about 300 meters thick, usually containing deep shafts, and the following level formed by dark, less soluble limestones, where massive shafts pass into long meanders or impassable narrows. The deepest part of the cave is again formed by a long horizontal tract with several inflows that disappear in narrow cracks and cannot be further traced. Waters from this part of the cave re-appear in the right flank of the Mrtvica River canyon at the Bijeli Nerini resurgence. The only chance for a progress is a dive in the terminal, flood sump at a depth of 1173 meters.

In 2016, together with French researcher Daniel Colliard, we first attempted to pass through the Vranštica paleo-resurgence near the settlement of Mrtvo Duboko but several days of rain closed the way further into the massif. In the remaining time, we focused on exploring the terrain above the Mrtvica River canyon, around Medjurječki katun, Tisovo brdo and Nikina Glava. The expeditions discovered several promising entrances with a strong draft. This phase lasted from 2016 to 2020,

◀ *A bivouac called Pulmonary Sanatorium, Iron Deep Cave (Photo by P. Chaloupský).*

resulting mainly in the discovery of the Iron Breath Cave, which eventually proved to be interconnected with the Iron Deep Cave at a level of about -1000 meters.

During the third stage starting in 2021, we continued exploring the so-called Old Meanders in the Iron Deep Cave, located at a depth of 450 meters. Four expeditions resulted in the discoveries of richly decorated horizontals and several other vertical branches. Two of them reached a depth of nearly 800 meters, and the total length of the system was extended to almost 9400 meters.

In recent years, we focused on the resurgence area of the Maganik Range again. First, under more favorable conditions, we managed to pass through the Vranštica Cave to the place where the French expeditions stopped. We advanced a bit further. Survey of this predominantly horizontal cave has been continued since 2024 but so far only about a quarter of the known spaces have been documented.

◀ *The Vranštica Cave (Photo by L. Trtílek).*

Racha Project 2022–2024 (Georgia)

Vratislav Ouhrabka (Caving club Bozkov)

The Racha project was launched by Czech cavers in 2016. Three expeditions with serial numbers seven to nine took place in 2022–2024.

The seventh expedition in 2022 included repairs and reinstallation of dataloggers in the Arsena Okrodzhanashvili Cave and in the Turču Polje. In the Bgheri Cave, an ascent to the window in the terminal tract was started. Given the nature of the cave wall, which is covered with weathered speleothems and a layer of mud at several places, the climbers secured only a few meters of the ascent and ended the event for safety reasons. The survey team managed to complete the map in the so-called Dunivý Traverse, which is the high-positioned, approximately 50 m long connection between the Pod medvědem Dome and the tributary corridors of the Staré rečiště (Old Riverbed).

The eighth expedition in 2023 was traditionally organized in cooperation with cavers of the Georgian Speleological Club and employees of the Agency of Protected Areas of Georgia. The main task of the expedition was to continue the documentation and the initiated exploration of the so-called Tskaltubo Cave system. The expedition was attended by cavers who examined the possible continuation of the tributary channels in the so-called Mud Meanders. Due to the slim prospect of further meaningful continuation, the corridors were surveyed only for orientation. Despite the general reluctance to set off to the Mud Corridor of the Melouri Cave again, more than 0.5 km of corridors were newly documented here.

The last free days of the eighth expedition were used to document and re-install the Opicho II Cave, located in a semi-blind vent valley near the Prometheus Cave, now open to the public. The cave became exposed to the surface after a torrential rain several years ago. The entrance is a 25 m deep fissure abyss, which leads to horizontal sections with a total length of approximately 440 m.

The ninth expedition took place in September 2024. The expedition plans included completion of the survey and documentation of the Bgheri Cave and reconnaissance of other locations around the Prometheus Cave. Two teams were work-

◀ *Collapsed domes in the Bgheri Cave (Photo by O. Skalský).*

ing in the Bgheri Cave. The climbing team was ready to re-install safety elements in the vertical sections, including the discovery ascent. However, the climbers had to abandon further progress for safety reasons. The diving team attempted a dive in the lake at the end of the cave, but they were unable to find a continuation. On the way back, the divers explored the outflow sump in the Dome of the Czech–Georgian Cooperation. This sump is the last place where an active flow was encountered in the past. Thanks to the low water level, this part could be freelytraversed by swimming. Behind the semi-sump, the cave system continues with an active flow in a length of 1,826 m and a vertical range of 100 m. The main section with the

active flow displays characteristic vertical profiles and ends with low, wide corridors filled with gravel and an impassable terminal sump.

On the last day of the expedition, a cave dive was successfully made into the resurgence of the Ghliana Cave, which is located not far from the Prometheus Cave. During the dive, 420 meters were mapped in three sumps and three dry intervals with lakes.

▼ *The White Gallery in the terminal part of big domes of an old inflow branch of the Bgheri Cave (Photo by O. Skalský).*

The latest explorations of the Czech and Slovak Speleological Societies in cave systems in Riviera Maya, Mexico

Zdeněk Motyčka (Caving club Pustý žleb)

Introduction

A total of 22 speleological expeditions were organized by the Czech and Slovak Speleological Societies between 2003 and 2021 to the Yucatan Peninsula in Mexico. In the area between the villages of Chemuyi and Akumal, located on the eastern coast in Quintana Roo state, hundreds of cenotes were explored and significant underwater and dry caves were discovered there in a total length of 140 km. The most important underwater cave systems explored and surveyed by members of the Czech and Slovak Speleological Societies during that period included Sistema

◀ *Newly discovered spaces in the Yum Kaax Cave, called Zvonkohra (Glockenspiel). Quintana Roo, Mexico (Photo by J. Sirotek).*

K´oox Baal, Sistema Sak Kay, Sistema Tatich, Sistema Cangrejo-Ich Kin, Sistema Tatich and Sistema Joolis. The most important dry cave system discovered by the Czech and Slovak speleologists at the same time was Sistema Yum Kaax. The purpose of this brief contribution is to report on the new results of exploration in the Sak Kay and Yum Kaax Cave systems and in several smaller caves between 2022 and 2024. The following members participated: Dušan Hablovič, Zdenko Hochmuth, Petr Chmel, Vít Kaman, Radek Jančar, Karol Kyska, Miroslav Manhart, Libor Matuška, Lada Matušková, Zdeněk Motyčka and Jan Sirotek.

Yum Kaax and Sak Kay Cave systems

The first entrance to the Yum Kaax Cave system was discovered in 2017. By the end of 2021, an extensive labyrinth of corridors 9,416 m in total length was discovered and documented. Exploration continued in 2022, when another 1,771 m of new spaces were discovered including two new halls – Nem Tu and Cirgulo. New parts were discovered in the northwestern part of the cave in 2023, having a total length of 920 m. Additional 695 m were discovered in the central part in 2024, so the Yum Kaax is now 12,802 m long and is the longest dry cave in the Akumal area. A documentary movie about the exploration of Yum Kaax and its beauties was filmed in 2023.

Exploration in other caves

Besides the exploration in Yum Kaax and Sak Kay, several new cenotes were also explored between 2022 and 2024. A new cenote called Mehagauya was explored, and 873 m of underwater passages were discovered. The new parts, 700 m in length, were discovered in a previously known cenote Thum Ben Ha, which gives the present cave length 1,478 m in total. Two other cenotes were explored and surveyed near Akumal: Yot is 346 m long, and Fish Spa is 314 m long.

Exploration in the central part of the Yucatan Peninsula started in 2024, and a new cave called Grotte Xchayil was discovered near the small village of Hunuku. Here, 210 m of cave passages were surveyed. In addition, a huge cenote bearing the same name was explored nearby, and a final depth of –51 m was reached.

Conclusion

Three expeditions to the Yucatan Peninsula were organized by the Czech and Slovak Speleological Societies between years 2022 and 2024. In total 3,386 m of new cave passages were discovered in the Yum Kaax Cave system, which is now 12,802 m long, and 2,054 m of cave spaces were discovered in the Sak Kay Cave system, now 13,692 m long. In other caves altogether 3,272 m was discovered.

▲ *White speleothems in the eastern part of Sistema Sak Kay, Quintana Roo, Mexico (photo by K. Kýška).*

Medúza expeditions to the Đalovića Plateau in Montenegro 2022–2024

Jan Sirotek (Caving club Pustý žleb)

Systematic explorations of Czech speleologists on the Đalovića Plateau in Montenegro have been in progress since 2003. The 20th expedition took place in 2023. It was regularly organized by the Pustý žleb Caving club and was attended by speleologists from several other clubs of the Czech Speleological Society and from abroad.

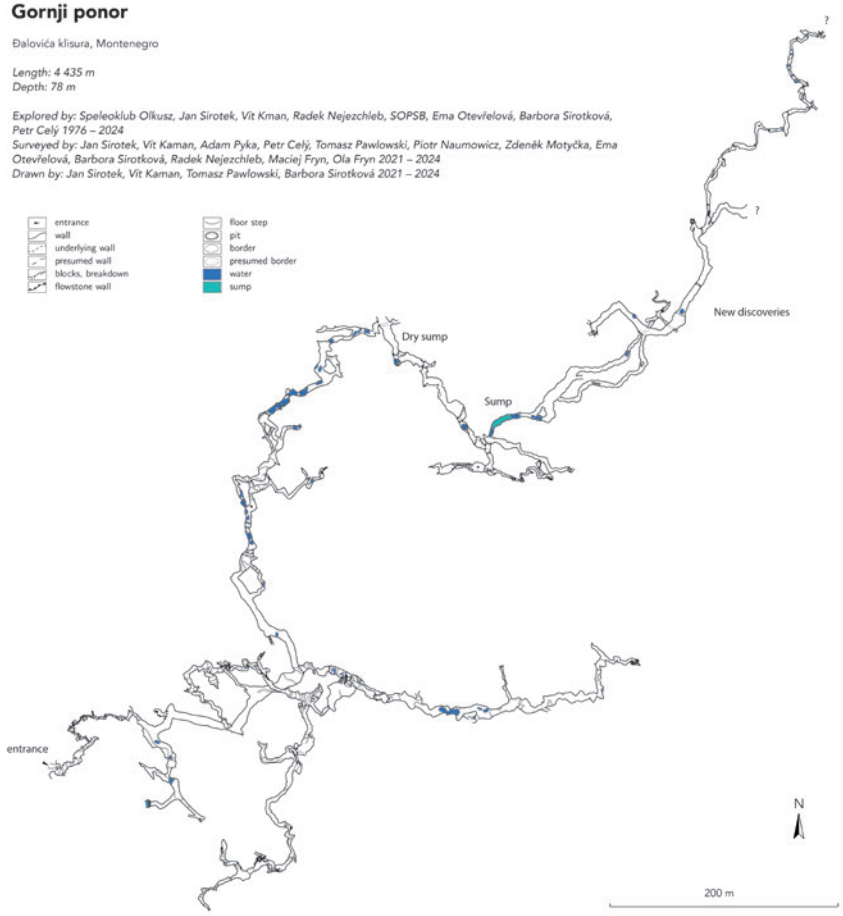
After a long time, we returned to the diving exploration of the Juriško vrelo Spring during the two expeditions in 2022 and 2024. Further exploration beyond the 1st sump, which was passed in 2012, was unrealistic with the use of conventional equipment, so rebreathers had to come into play. In 2022, diver Petr Chmel, accompanied by diver Matija Petkovič, managed to pass the 1st sump again, swim through another 2nd sump, and partially peek into the 3rd sump during the second event. Here, Petr had to turn back at a depth of 70 m. During the second event,

when Petr Chmel and Radek Nejezchleb reached the 2nd sump, they managed to advance 170 m further in the 3rd sump. Equipped with two rebreathers, Petr Chmel continued his exploration at a depth of over 80 m but he still failed to reach the ascending part of the sump. Due to the onset of decompression, he had to end the dive. In total, the Juriško vrelo Cave was prolonged by 845 m. All newly discovered passages were surveyed.

The 2023 expedition was significantly attended by a group of geologists who conducted basic geological documentation of the most important caves in the Đalovića Canyon. The results of this work will be published separately.

◀ *Petr Chmel diving in the Juriško vrelo Cave (Photo by J. Sirotek).*

▼ *A map of the Gornji ponor Cave.*



Juriško vrelo

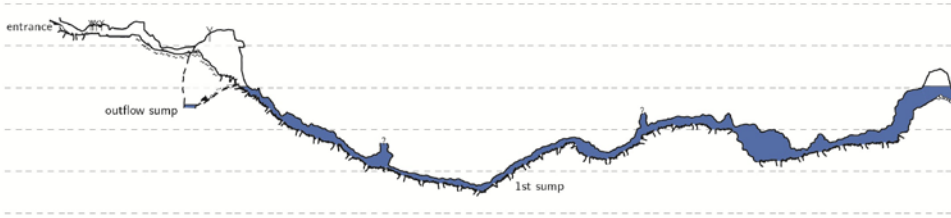
Đalovića klisura, Montenegro
Explored during expeditions Medúza 2006 – 2008, 2012, 2022, 2024

Length: 953 m
Depth: 99 m

Explored by: Petr Chmel, Radoslav Husák, Jan Sirotek, Jiří Čermák, Radek Nejezchleb, Matija Petkovic
Surveyed by: Petr Chmel, Vít Kaman, Vojtěch Pazderka, Matija Petkovic 2012 – 2024
Drawn by: Petr Chmel, Vít Kaman, Matija Petkovic, Jan Sirotek 2012 – 2024

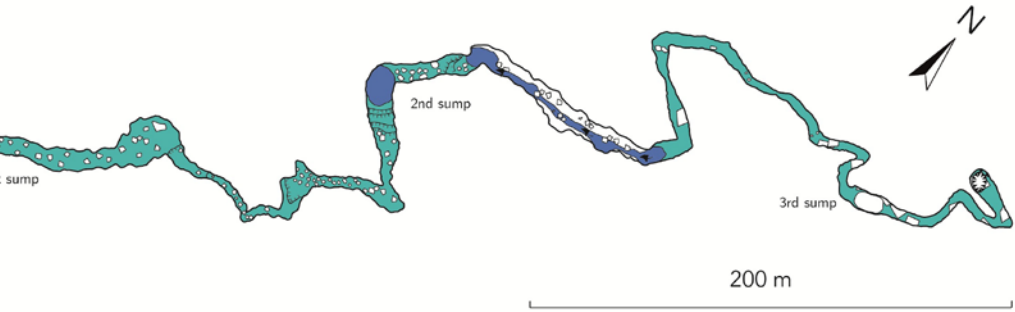
Plan

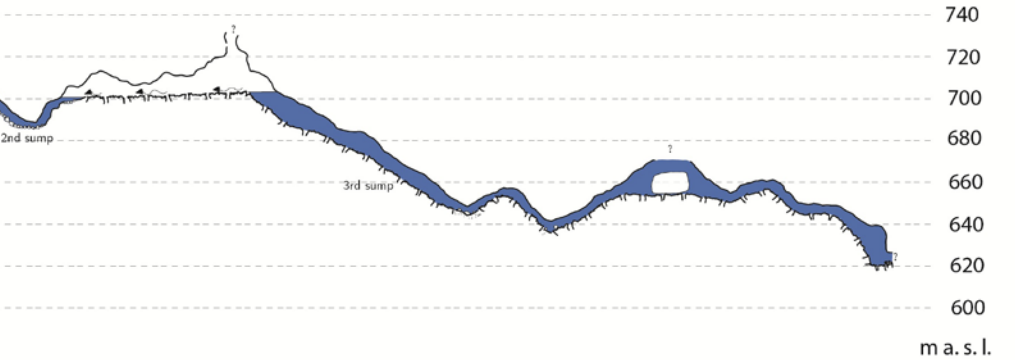
Extended elevation



▲ *A map of the Juriško vrelo Spring.*

◄ *Decorations in the newly discovered passage in the Đalovića pećina Cave (Photo by J. Sirotek).*





We also continued the exploration of the Gornji Ponor Cave, formerly also known as the Secret Cave. In 2022, a detailed map documentation of the cave was completed. Cooperation with Polish colleagues from Olkusz could not be established, so both groups operated in the cave independently. In 2024, significant discoveries were made at the end of the cave owing to the dry terminal sump. Behind this sump, a chimney was climbed and an extensive continuation of the cave was discovered, 300 m long. After passing a short sump, massive passages were discovered in places, with an additional length of 1,200 m.

In the main cave of Đalovića pećina Cave (Pećina nad Vražjim firovima), several new branches were explored near the Cathedral. In 2024, M. and O. Fryń managed to discover, after climbing the chimney between the Termitniak and the Ključno jezero Lake, a distinctive horizontal level with rich crystal decorations and helictites, approximately 400 m long. This level is a potential connection point with the Gornji Ponor Cave.

Discoveries in the Xiaonanhai karst area, Shaanxi province, Central China

Zdeněk Motyčka (Caving club Pustý žleb)
Michal Filippi (Institute of Geology of the Czech Academy of Sciences)

◀ *Entrance part of the Taipingdong Cave, Shaanxi Province, China (Photo by R. Husák).*

Introduction

Between 2016 and 2024, eight expeditions were organized under the joint name "Shaanxi Project". The purpose of this Czech–Chinese speleological project is to explore and document karst areas in the Shaanxi Province. The project is realized through cooperation between the Czech Speleological Society, Institute of Karst Geology of the Chinese Academy of Geological Sciences, the Institute of Geology of the Czech Academy of Sciences and with a highly valuable support of the Shaanxi Institute of Geological Survey. The main interest of this project is focused on the Xiaonanhai area (Nanzheng County south of Hanzhong). This area consists especially of the north- to northeast-sloping limestone plateau called the Daya Mountain. History of exploration in this area, speleological results (till 2022) and scientific potential were presented by Filippi et al. (2022).

Results of expeditions in 2023 and 2024

Two expeditions took place at the turn of April and May 2023 and 2024. The main exploration activities concentrated on the following caves: the Tianxingyan (Sky Star) Cave, Boniukeng Cave, Heiwodong (Black) Cave, Guain (Teple) Cave and the Dafodong Cave. During the Shaanxi 2023 expedition, a new progress was made in the Tianxingyan Cave (1,530 m of new spaces) and in the Boniukeng Cave (1,620 m of new spaces). Unfortunately, the interconnection of these two caves has not been found yet. Final parts of the Tianxingyan Cave are represented by a sump at the end of the Streaky Hall and by an inaccessibly narrow passage at the end of the Final Corridor. Final parts of the Boniukeng Cave are represented by a huge rock collapse called the Big Collapse and two drain corridors (the Missing Sump and an unnamed passage trending north–east). Reaching the final parts of both caves is very time-consuming. In the almost 15 km long Tianxingyan Cave, one has to surpass steps with rope techniques first, then long free climbing and wading in a difficult terrain and also cross the flooded sections twice. With an elevation difference of almost 500 m, the Boniukeng Cave is a very difficult cave in general with many pitches and pools at the bottoms of high corridors. Future exploration in both caves will be very difficult, as the second bivouac needs to be built in the Tianxingyan Cave and a bivouac is already needed also in the Boniukeng Cave. However, there are almost no suitable places for the bivouac here.

Progress in the Heiwodong Cave was significant in 2024, when 2,398 m of new passages, shafts and halls were discovered. The cave is now 3,631 m long and -419 m deep.

This cave currently ends with the Balrog's Abyss of an unknown depth, which is a continuation of a vertical drop of about 50 meters below the floor of a massive

unstable dome called Moria. The cave currently has the greatest potential in the area, both in terms of length and elevation difference (which may reach up to around 1000 m).

Several new caves and abysses were discovered on the Daya karst plateau. The longest caves are the Taipingdong Cave (1,246 m long and -254 m deep) and the Huoshigou Cave (592 m long and -149 m deep). During the expeditions, interesting geological phenomena are documented – mainly speleothems and cave sediments. Vast majority of speleothems are formed by calcite, but locally gypsum is common. Much less common are fine crystalline crusts of whitish to yellowish calcite together with whitish to pale-blue ball-like aggregates of celestite (SrSO4). Manganese and/or iron (oxyhydr)oxides covering both clasts and speleothems are locally common in some caves.

Especially in some parts of the Tianxingyan Cave, clay- and silt-dominated sediments (i.e., "mud deposits") represent a very interesting phenomenon. Water action gives rise to formations like dripholes with conulites (i.e., cone-shaped deposits lining the walls of the holes/mud funnels), ripple marks, "mud speleothems" formed due to splashing and down-flowing water, etc.

References

Filippi M., Zhang Y., Motyčka Z., Rowsell P., Havlíček D., Zhang J. (2022): Identification and potential of newly emerging geoheritage karst areas south of Hanzhong, central China. Geoheritage. 14, 125.

▲ *Large and nicely colored Streaky Hall – a space above the Final Sump, Tianxingyan Cave, Shaanxi Province, China (Photo by M. Filippi).*

▼ *A massive corridor in the Heiwodong Cave, Shaanxi Province, China (Photo by R. Husák).*

CZECH SPELEOLOGICAL SOCIETY 2022–2024

Edited by: Michal Hejna and the Editorial Board of the CSS
Linguistic revision: Jiří Adamovič
Layout, typography: Studio Machart (Tomáš Jirouch, Vlastimil Souba)

ISBN 978-80-87857-58-8
Address: Czech Speleological Society, Na Březince 14, 150 00 Praha 5, Czech Republic
Office e-mail: sekretariat@speleo.cz
Board e-mail: predsednictvo@speleo.cz
Web page: www.speleo.cz

A massive river corridor in the Heiwodong Cave, China (Photo by R. Husák).