CZECH SPELEOLOGICAL SOCIETY

2005–2008

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Contacts:
Czech Speleological Society
Kališnická 4/6
130 00 Praha
Tel. 00420 722 651 110
Office e-mail: sekretariat@speleo.cz
Board e-mail: predsednictvo@speleo.cz
Web page: www.speleo.cz

Dear colleagues,

Let me present you this report on activities of the Czech Speleological Society in 2005 – 2008 period.

On the following pages you can find a short information about activities of all caving clubs, commissions and bureau of CSS. In the second part are more detailed performed the most important discoveries in the Czech republic and abroad , which were realized by the Czech cavers. In the last part are enclosed abstracts of our presentation on 15th ICS in Kerrvill.

The Czech Republic is not a large country, but it is the country with many caves and karst phenomenons and especially with a long history of their exploration and research. First historical exploration in our country was realized in 1723, where Brno's monk Lazarus Schopper descended to -138 m deep Macocha Abyss. Since that time many of serious explorations have been taken and more than 3000 caves were discovered. The Czech Speleological Society – national association of Czech cavers and more than 1,000 of their members continue every day in new work in order to discover, explore, study and document caves in our country.

In their name and in my name too I am very pleased to annonce you, that the Czech republic and the Czech Speleological Society is an official candidate for organizing the 16th International Congress of Speleology in 2013. We would be very happy to welcome a world cavers community in our country and I can promiss you, we are ready to work very hard and do our best to prepare the valuable and unforgettable event.

Thank you for your support of our idea!

Zdenek Motycka

President of The Czech Speleological Society

CONTENT

REPORT ON THE ACTIVITY OF THE CZECH SPELEOLOGICAL SOCIETY IN 2005-2008

At the last general meeting of October 11, 2008, the Czech Speleological Society consisted of 64 caving clubs with 1,143 members.

BOARD OF THE CZECH SPELEOLOGICAL SOCIETY

From 2005 to 2008 he Board operated under this personal coverage:

Zdeněk Motyčka – President
Michal Piškula – Vice-President
Vratislav Ouhrabka – Economy
Oldřich Štos
Roman Šebela
Radko Tásler
Pavel Bosák – resigned in 2006
Mojmír Záviška – substituted for Pavel Bosák in 2006

The activities of the Committee included everyday agenda, organization of traditional events, and formulation of conceptual framework towards a more effective function of the Society and its individual components.
In particular, the following issues were discussed and realized:

SPELEOFORUM

The last Speleoforum Meeting at Rudice was held in 2005. From 2006 on, this meeting was transferred to Sloup, which offers a more spatious meeting venue. The Board of the CSS evaluated and granted traditional awards: the Award for the most significant discovery in The Czech Republic, the Award for the most significant discovery abroad, and the Special Speleoforum Award.

RE-STRUCTURING OF THE CAVE RESCUE SERVICE (CRS)

The principal changes include a reduction of the number of service centres from four to two and a reduction of the total number of staff, accompanied by their better equipment and training. The re-structured CRS of the Society started its function as of January 1, 2007.

TRADEMARKS

The names of the Czech Speleological Society (CSS), the Speleoforum and the Cave Rescue Service of the CSS received the status of trademarks, including their respective logos.

30TH ANNIVERSARY OF THE FOUNDATION OF THE CZECH SPELEOLOGICAL SOCIETY

The 30th anniversary of the CSS foundation is coming close. At this occasion, it has been decided that a book on the activities of the CSS members will be released, and an exposition serving the same purpose will be organized. Both events are planned for the year 2009.

HEALTH-CARE ESSENTIALS

A brochure containing health-care essentials for CSS members was prepared and published by the CRS of the Society.

INTERNATIONAL RELATIONS

Jiří Otava and Zdeněk Motyčka were appointed as a national delegate and a deputy delegate for the 15th International Speleological Congress in the USA in 2009. A booklet on our activities in the period of 2005 to 2008 has been compiled and published in English to promote the Society at this event. A promotion stand has been booked at the Congress to inform about the Society's activities and to present our candidature for the organization of the 16th International Speleological Congress in Brno in 2013.

The general meeting of the CSS did not approve the CSS membership in the FSE.

CAVE RESCUE SERVICE (CRS) OF THE CSS

Headed by Roman Šebela

Upon the proposal of the CRS of the CSS, the Board of the CSS approved a new organization code of the CRS. Representatives of the CRS participated in the 11th International Congress of Cave Rescue Services in Aggtelek, Hungary. The 25th anniversary of the CRS foundation was celebrated in October 2008 under the participation of all major components of the Integrated Rescue System of the Czech Republic.

EMERGENCY INTERVENTIONS

1. Křížův závrt Cave, Moravian Karst, 07/2005, successful intervention, 1 person
2. Velká dohoda Cave, Moravian Karst, 12/ 2005, successful intervention, 1 person
3. Portálová Cave, Bohemian Karst, 10/ 2005, successful intervention, 1 person
4. Barová Cave, Moravian Karst, 07/2007, successful intervention, 1 person
5. Plánivy Cave, Moravian Karst, 11/2007, successful intervention, 1 person
6. Crnělsko Brezno, Slovenia 2007, supportive intervention, 3 persons
7. Hučiajaca vyveračka – Zugo, Slovenia, 08/2008, successful intervention, 2 persons

COMMISSION FOR PSEUDOKARST

The Commission operated under this personal coverage:

Josef Wagner
Jiří Kopecký
Oldřich Jenka
Petr Chvátal
Jan Mertlík.

Meetings of the Commission were also attended by representatives of the CSS local organizations dealing with pseudokarst research and representatives of professional institutions whose activities are related to pseudokarst problems: Administrations of Protected Landscape Areas, Czech Geological Survey, Agency for Nature Conservation and Landscape Protection of the Czech Republic, Institute of Rock Structure and Mechanics AS CR Prague and others.

The prime acivity was the coordination and organization of national events dealing with pseudokarst problems, centralization of the results of pseudokarst research conducted in separate caving clubs of the CSS, organization of seminars and workshops. Some of the realized nation-scale events, usually attended by foreign participants, were the workshops „Kvartér 2005“ (Quaternary 2005), „Kořenové stalagmity 2006“ (Root stalagmites 2006), and „Skalní hřiby“ (Mushroom rocks). The Commission members took part in the organization and preparation of projects „Quaternary sediments and rock carving documentation“, „Conference at the 50th anniversary of the Bohemian Paradise PLA“, „Documentation of historical rock carvings in the Bohemian Paradise“. The Commission members take part in the coordination and practical application of mass movement monitoring using target gauges in the territory of Moravskoslezské Beskydy Mts., Podyjí PLA, Broumovsko PLA, and other regions.

The Commission coordinated the participation of CSS representatives in international events. The most important international activity was our participation in the 9th International Symposium on Pseudokarst in 2006, which was held in pseudokarst terrains of the Carpathian flysch sediments in Poland (Bartkowa). Members of the Commission presented a number of papers here. One member of the Commission for Pseudokarst CSS, Jiří Kopecký Sr., is also a member of the Commission for Pseudokarst of the UIS.

COMMISSION FOR CAVE-DIVING

In the years 2005–2008, the Commission operated under this personal coverage:

Jan Sirotek – Chairman
Jan Herget
Martin Honeš
Michal Piškula
Fraňo Travěnec
Marek Vitovjak
Jiří Hovorka
David Skoumal
Radoslav Husák
Dan Jiroušek
Matin Hóta
Roman Šebela

In the given period, the Commission focused particularly on the following areas:

- preparation of a new concept of the training system
- granting of qualification degrees and keeping record thereof
- appointment of instructors for the intrinsic training system
- collection of data on particular sites and their emergency plans
- coordination of common projects between speleo-divers and the Cave Rescue Service

The Commission keeps on updating the list of all speleo-divers organized within the CSS including all contact data, records of qualification degrees achieved, and experience from the individual sites. A syllabus of lectures for the courses of cave diving was updated and a new textbook on cave diving was elaborated.

COMMISSION FOR SPELEOTHERAPY

The Commission consisted of these members:

Pavel Slavík
Jiří Svozil
Milan Moravec

The Commission agenda included a discussion on a possible extension of the number of Commission members. The need for a preparation of an international symposium on speleotherapy was suggested. Commission members Slavík, Svozil and Sládek met Prof. MUDr. Svetozár Dluholucký, the President of the International Commission for Speleotherapy, in Banská Bystrica and negotiated the Regular 13th Symposium on Speleotherapy to be held at Blansko at the occasion of the 25th anniversary of the

Paediatric Health Centre with speleotherapy at Ostrov u Macochy. This health centre was subsequently asked to organize this international event. The Symposium was held at Blansko on October 23–25, 2008. More detailed information is available through www.speleotherapy.cz.

PUBLICATION ACTIVITIES

In the years 2005–2008, the CSS published four volumes of the Speleoforum journal:

Speleofórum 2005 – vol. 24
Speleofórum 2006 – vol. 25
Speleofórum 2007 – vol. 26
Speleofórum 2008 – vol. 27
Each volume of the journal is published in a number of 700 issues.

In addition, three volumes of the Speleo information bulletin were published each year: volumes 41 to 52 were published in a number of 1400 issues each, in a new full-colour cover.

An internet presentation of the Czech Speleological Society was created and launched in 2008. Its home address is www.speleo.cz .

SHORT REPORTS OF ACTIVITIES OF CAVING CLUBS

LOCAL CAVING CLUBS OF THE CSS

1-02 TETÍN

The Volarská jeskyně Cave (Reg. No. 14-014): prolongation works continued in this cave in the Kavčí lom Quarry (Montánka) near Tetín. Its corridors are almost completely filled with cave sediments. The length of all spaces in the cave reached 83 m, the elevation gain throughout the whole cave is only ca. 7 m. The Tetínská propástka II Cave (Reg. No. 13-024/B): continued prolongation works in this cave in the Tetínská rokle Gorge were focused on a test-pit excavation in the western end of the cave. No free spaces have been found yet. The overall length from the entrance is 20.5 m, the total length of all spaces is 57 m. The U buku Cave: despite the working rally held at this site, no extension has been achieved. The Nová jeskyně Cave at Damil Hill (Reg. No. 12-003): the caving club has decided to supplement the existing mapping and photographic documentation on this cave with a short movie. The Terasová jeskyně Cave (Reg. No. 14-007): the map of the cave was supplemented with some newly mapped narrow passages and cimneys, which increased the cave length to 340 m. The Devítikorunová jeskyně Cave (Reg. No. 14-008): the length of the cave was measured more precisely and amounts 30 m. Activities related to digitization of the documentation archive of the local organization continued as well as photographic documentation of sites. A depot of ca. 850 silver coins, dating to around 1240, was discovered in a crevasse during cave prospection by M. Hahn and M. Martínek. The treasure was retrieved by archaeologists J. Militký, D. Stolz and V. Matoušek. In the summer of 2006, archaeologists were informed about a Slavic burial site at the construction of a road and family houses at the foot of Damil Hill by K. Žák. It was found to be a burial site of exceptional significance, tentatively dated to the first half of the 9th century.

Several members of the club assisted during the salvage paleontological research of karst cavities with Tertiary and Lower Quaternary fill at the Plešivec Quarry near Měňany. The research was led by Dr. Diedrich of the Institute of Geology of the Academy of Sciences CR.

The local caving club conducted a joint research with the Slovak Speleoklub Minotaurus SSS speleological team. Joint activities included the research of the Plešivecká planina

Plateau in the Slovak Karst. Also, surface and subsurface study of Kras was conducted in the Temnice village in Slovenia, speleological and speleo-diving research continued in the caves in Sardinia, Italy, and the Löferer Schacht cave system region was studied and documented in Austria.

1-05 GEOSPELEOS

The Arnika Cave: investigations centered around the site known as Trativod (Drainage Pipe). Additional research continued in the lowermost positioned part of the Trativodná Corridor. The Studniční Cave: the Vaněček Well was excavated to a greater depth. The Pod křížem Cave: cave entrance opening, cave closure furnishing, terrain adjustment around the entrance and deepening of the corridor from the entrance to the portal. A radiotest was undertaken to clarify the connection between the Pod křížem Cave and the Lilijicová Cave. The caving club was further working in the Trativod Cave, Arnoldka Cave and in the Palach Abyss: mapping works including photographic documentation, support installation in the abyss and lake level monitoring. As a part of scientific activities, the caving club was dealing with regular monitoring of physical and chemical parameters of selected springs in the Bohemian Karst territory, study of karst hydrology in the Bohemian Karst and Moravian Karst, study of drip water in the Ochozská Cave, stratigraphic and malacozoological research in the Javoříčko Karst, measurement of some lake levels in caves near the Berounka River using a laser rangefinder. A dilution test was completed in the Dynamitka Cave in May 2005 (single-step injection of NaCl and monitoring of conductivity values for a period of 2 days with a measurement step of one hour), and a one-week tracing test was completed in the Rudické propadání – Býčí skála Cave system (June 2005) using several types of tracers, and an automated sampling device was tested.

1-06 SPELEOLOGICKÝ KLUB PRAHA

Mapping, revision of previous achievements and completion of cross-sections continued at the principal working site of the Netopýří – Srbská Cave. The event called *Rope traverse at Mexiko* was held on September 29, 2007. At the break of July and August 2007, a 10-days' intensive training campaign in speleology and speleoalpinism was organized in collaboration with the Faculty of Sports of the Palacký University in Olomouc, Faculty of Biomedical Engineering of the Czech Technical University in Prague and the Association of Children and Youth for Free Time, Nature and Practical Joke called Duha. The training courses were conducted within a licenced syllabus „Instructor of speleoalpinism and speleology". In August 2007, the event called *European Bat Night* was held at Chlum. The club was further working at the following sites: the quarry at Chlum near Srbsko, the Skalní skrýš Cave, the Krápníková Cave, Kalcitová Cave, Netopýří Cave and Ztracená Cave.

1-08 SPELEOKLUB TÝNČANY

The caving club organized bat population counting in the territory of the Týnčany Karst and its surroundings. Microclimatic measurements and subsurface bat monitoring at

Jarnice are performed year-round, on a one-month basis. Four hydromining operations were undertaken in the Diviš Cave at Bohoušovy Lázně, one hydromining operation and an outcrop exposure were undertaken at Týnčanská Arnika. The club published an information bulletin on the Týnčany Karst, the activities of the caving club and the Czech Speleological Society, and organized an exposition presenting the Týnčany Karst in the municipal museum at Sedlčany in January 2007. New webpages of the club were put into operation.

1-10 SPELEOAQUANAUT

This caving club was involved especially in speleodiving investigations at sites outside the Czech Republic: Skalistý potok Stream, Yucatan Peninsula in Mexico (discovered and mapped 10 000 m) and Bue Marino in Sardinia (discovered 1 000 m and mapped 3 800 m in total).

1-11 BARRANDIEN

The caving club operated especially in the Nad Kačákem Cave, where a rock ledge was exposed by clay excavation in the Sněmovní dómek Chamber. Prolongation in the Pod Javorkou Cave proceeds quickly: new spaces are discovered every year, and a cave of basically fissure character near the historical Karlštejn Castle has been exteded to a length of ca. 800 m and a depth of over 100 m. In Slovakia, the club was involved in a systematic survey of the Dolný vrch Hill karst including its Hungarian part Aggteleki Némzeti Park, using the GPS technique.

2-01 CHÝNOVSKÁ JESKYNĚ

All activities concentrated on cooperation, particularly in the fields of professional consultancy, prolongation and investigation of the Chýnovská jeskyně Cave together with the Cave Administration of the Czech Republic. The club was further working in the Na Vápenném vrchu Cave, at Velmovice, where three tracing tests were performed. In the Ratibořské Hory – Stará Vožice Ore District, regular counting of hibernating bats was completed and guided tours for members from other CSS organizations were prepared.

2-02 ŠUMAVA

The most significant activity was the continued study of karst phenomena at the principal worksite of the Bližná Quarry mining district near Černá v Pošumaví in the Šumava PLA. In late June, a new karst cave was discovered and called Lipno. The club members further conducted cave investigations of the historical subsurface spaces in the park of the Hluboká nad Vltavou Chateau near the Štekl Hotel. The long-term worksite of the Na Vápenném vrchu Cave in a quarry in the Černá v Pošumaví mining district was the subject of negotiations related to cave protection and other local activities in cooperation with the Cave Administration of the Czech Republic and the 2-01 Chýnovská jeskyně Organization of the CSS. Investigations were also carried out in the historical gold mines

at Kometa u Všeteče, a revision of several old mining sites was made in the Šumava Mts. and its piedmont region. In cooperation with the Historical Mining Club at Stříbro and the Diving Argonaut Club at Stříbro, two club members participated in the study and survey of the Štola Boží vůle (God's Will Gallery) and the heritage gallery of Prokop near Stříbro.

3-03 ŠUMAVSKÝ KRAS

In the early 2007, a new ground collapse revealed old mine workings (after coal miming) in the forest above the village of Kamenný Újezd near Nýřany. The caving club conducted investigations, photographic documentation, sketch drawings. In the Královský Schniloušák Quarry, maintenance of climbing routes was made. Working activities in the Mesačný tieň Cave were realized in collaboration with Slovak cavers. The caving club contributed to cave exploration in the Mt. Robon area in Italy in collaboration with the Circolo Speleologico-Idrologico Friulano, Udine, and to the study of the Kačna Jama system in Slovenia. Collapses into old mine workings after coal extraction were documented at Nýřany in the Plzeň area. Here, elevated CO2 contents were detected with the prospect of further rockfall; therefore, the collapses were backfilled.

4-01 LIBEREC

Together with Polish colleagues from the Wroclaw team, the caving club realized wintertime bat counting in the caves of the Polom Hill. The Hanychovská jeskyně was prolonged within the scientific and investigation activities. The Rokytka II Cave was subjected to maintenance and supportive works, a caving in the Západní jeskyně (Western Cave) was studied, the Hliněná jeskyně and Bartošova pec Caves were prolonged. Other activities, among others in collaboration with Charles University, were conducted in the Ještěd Karst, in the Zeche Mine, in Modré haldy, and in the galleries of Dědičná podtraťová and Vodní. The caving club also contributed to the investigations run in cooperation with the towns of Liberec, Nové Město pod Smrkem and so on.

4-03 LABSKÉ PÍSKOVCE

Principal activities of the caving club rested in the prospection, registration and documentation of relics of surface and subsurface exploration and mining of base metals and brown coal in the territory of the Lužické hory PLA, České středohoří PLA, Labské pískovce PLA, Bohemian Switzerland National Park and in the eastern Krušné hory Mts. Prospection, registration and documentation of pseudokarst phenomena and historical and technical subsurface spaces included field survey in the villages of Dolní Světlá (Brazilka), Mařenice (Zámecký vrch Hill, Stiefelberg Hill), Horní Sedlo (Mechový důl Valley and Sloní kameny Cliffs), Horní Světlá (Stuckenberg Hill), Kunratice (Třídomí), and at Hvozd Hill. Traces after iron mining were revised at Krompach, Horní Sedlo (Havraní skály Cliffs, Modla), Dolní Světlá, Rynoltice (Óbrwégry Cliffs), Mařenice, Janovice, Heřmanice (Limperk), Lomy at Horní Světlá, and at Hvozd Hill. The mine at

Jiřetín pod Jedlovou was also revised. The club also organized visits to the site of Berghaus at Dolní Podluží, the Ploučnice River canal at Noviny, brewery at Mimoň, former vegetable storage rooms at Ve1enice, subsurface quarries at Skalice and Prysk.

5-01 BOZKOV

The main worksites of the caving club were the Propad Na Poušti Depression, where the closure was reconstructed, narrow passages were enlarged and a ropeway was installed, the Na Vraštilově Cave, which was deepened, and the Na Vošmendě Cave. The narrowest tract of the latter cave was tested for hydromining with the assistance of firemen and revealed a small side passage leading away from the massif. Attention was also given to a relatively small karst area below Horská Kamenice.

The 13th Czech Glaciospeleological Expedition to the Spitzbergen, organized by the SPELEO-Řehák Company was attended by two club members. The expedition chiefly continued in the documentation and study of the drainage systems of the Werenskiold, Nannbreen and Torellbreen glaciers. In addition, a precise comparative mapping of selected glacier caves was performed, and positions of the heads of the above mentioned glaciers were determined in relation to climatic changes. The Hyttevika trapper cabin became the base for the works in the Hornsund Fiord area. In the second part of the expedition, the whole team moved across the glaciers to the north, to the Bellsund Fiord area, to the base of the Torun University located in the historical whaler community of Calypsobyen. Here, the team concentrated on basic study of the Renardbreen and Scottbreen Glaciers. New glacier caves and wells were passed through and documented, especially on the former glacier. The club members took part in the Joint International Symposium, Commission Glacier Caves and Cryokarst in Polar and High Mountain Regions „GLACKIPR" UIS Karst Commission IGU at Sosnowiec – Wrocław, Poland, and the 8th Conference of the Polar Section of the Czech Geographic Society AS CR at Špindlerův Mlýn.

5-02 ALBEŘICE

The caving club was devoted to works in the Albeřická jeskyně Cave (Horní Albeřice), where water level and temperature monitoring was continued, and bat counting was undertaken. Another significant site is the Obří důl Valley: prospection for abandoned mine workings and traces after mining activities continued. Other activities centered around the Důlní dílo Kovárna (Obří důl), Důlní dílo Václav (Obří důl) and Důlní dílo Helena (Obří důl). Photographic documentation of karst cavities was supplemented. Photographic documentation was also extended for the lower gallery at Herlíkovické štoly. The same documentation was performed in the gallery near the cabin at Svatý Petr and in galleries Nos. 1 and 5 at Berghaus – stařina (Černý Důl).

5-03 BROUMOV

The caving club conducted detailed, thorough fieldwork at various sites in the areas of Ostaš Hill, Teplické skály and Kočičí skály Cliffs, Góry stolowe Mts. and Supí skály Cliffs.

These included particularly geodetic mesurements and the study of biogenic landforms (root stalagmites). The works also included detailed biospeleological studies and geotechnical works (collaboration with the Institute of Rock Structure and Mechanics AS CR). Besides expeditions to France, Italy, Slovenia and Croatia, the caving club also supervised various educational events and workshops within pseudokarst studies, producing a number of publications in local and superregional periodicals. Publication activities also included a lecture for the Gardening Union at Police nad Metují, lectures and discussions on natural and historical monuments in the Broumov area, contributions for the local Broumov newspaper and so on.

5-05 TRIAS

The caving club continued their work at all sites within the area of interest: in the Podolská and Páterova Caves in the Železné hory Mts., where revisions of hibernating bat populations are performed; the suggested plan within the Extension and deepening of the Prachovice limestone quarry project passed the objection and authorization proceedings. In the Kutná Hora area, mining depressions P1 and P2 at Kaňk are continuously monitored, the Turkaňk Mine and the Fourteen-Helpers Gallery were, however, excluded from the study, although their monitoring will be continued. Speleological and hydrological investigations including radiotests were also carried on in the Muzejní Mine, supplemented by the systematic paleontological and petrographic study of Cretaceous outcrops in the whole mining district. Members of the speleodiving team take part in the activities at Vápenný Podol and in the investigations at sites in the Kutná Hora area. A long-term program of development and testing of diving technology and training is under way. In addition, the club members took part in two trips abroad: to the Lot and Dordogne river basins in France, especially the caves of Ressel, Trou Madame, Treefe and Landenouse. Ideal speleodiving conditions permitted to concentrate on training in UW scooter riding and multi-stage works. The other trip concentrated on prospection in the Fontan de Estramar Cave system: four dives were realized, two of them ultra-deep ones, with the maximum depth reached being –121m.

5-07 ANTROHERPON

Systematic speleological and biospeleological investigations were carried out in the caves in the Czech Republic, Slovakia, Bosnia and Herzegovina, Serbia, Montenegro, Bulgaria, Italy and in volcanic caves of the Tenerife Island. In Montenegro, they resulted in the discovery of seven new caves and abysses with a total length of tens of metres and a depth as much as 160 m. The most important biospeleological discoveries include beetles of the genus Adriaphaenops, and also various species of genera Seracamaurops, Adriaphaenops, Antroherpon, Blattochaeta and Neotrechus as well as new populations of cave ground beetles of genera Adriaphaenops and Scotoplanetes. Representatives of blind scorpions were encountered at several sites. On the Tenerife Island, study of cava caves in the central caldera has been completed. Highly valued is the find of a new Micranops. A new species

of a blind rove beetle of the genus Scopaeus was documented from the volcanic cave in the area of Pico Viejo volcano.

The club members also concentrated on the prospection for biogenic landforms (root stalagmites) in the hilly areas of Jičínská pahorkatina, Děčínská, Broumovská and Drahanská vrchovina. Some of the most valuable fauna finds in the Czech Republic include the discovery of millipede Macrosternodesmus palicola and the discovery of a bizarre, endemic ant-loving beetle (family Staphylinidae) Bryaxis frivaldszkyi.

6-01 BÝČÍ SKÁLA

This caving club was particularly devoted to the problem of the outwash delta of the Jedovnický potok Stream. It was among the first to use "washing technique", i.e. washing of loamy sediments by a water stream and their evacuation. This technique was applied, e.g., to the investigations in the Lopač Cave. Most of the discoveries at this site can be credited to this technique. The principal sites of systematic investigation and monitoring include the area of the Šenkův siphon, Elev. point 314, Hlinitá síň Chamber and their interconnection, and the caves of Májová and Barová. Among the best achievements, 45 m high chimney "Bidelník – Kaskáda" was discovered with corridors ca. 90 m long, a passage through the Štěrková chodba Corridor reached ca. 35 m, and extensive spaces were discovered and documented in the terminal parts of the Brunina jeskyně Cave – the so-called Úterní dóm (Tuesday Dome) ca. 150 m long in total. The oldest cave painting in the Czech Republic was discovered in the Jižní odbočka (Southern Fork), dated to ca. 5200 years B.P. by the ^{14}C method.

The caving club organized the annual "open-door days" for the public, in collaboration with archeologist Martin Golec. For instance, the original situation in the Předsíň was reconstructed precisely according to the notes by Wankel. The club established their webpage www.byciskala.cz.

6-02 VRATÍKOVSKÝ KRAS

The caving club supervised and maintained the caves of Za zahradami, Čmeláčí and Okno. Its members are regular participants of several expeditions to Slovenia (Kanin, Black Jack, Češka Jama and others) and continued their active collaboration with several neighbouring teams in the investigations in the Moravian Karst region.

6-04 RUDICE

Activities of this caving club focused primarily on the problem of the Stará řeka tributary in the Rudické propadání Cave. Based on colouring tests in cooperation with the ČSS 6-14 Suchý Žleb caving club, several attempts were made to penetrate through the Stará řeka siphon. Diving and underwater opening works, however, did not succeed and were abandoned due to safety reasons for the divers and the supportive team as well. Studies in the Rudické propadání Cave are advertized in the superregional museum of Větrný mlýn (Windmill) at Rudice in the form of extensive exposition. Within the investigation of

historical subsurface spaces, a new educational trail Rudické doly was opened by the club members under sponsorship from the European Social Fund.

6-05 KŘTINSKÉ ÚDOLÍ

This caving club was taking care of many important sites in the Moravian Karst: the Stará Drátenická Cave (under conservation), Mariánská Cave (under conservation), Nová Drátenická Cave (under conservation), Výpustek Cave – removal of caving in the Babická chodba Corridor, supervision over the tour guidance together with the Moravian Karst PLA Administration. Several visits into the Ninth Abyss were made to measure water level and repair the so-called Aluminium Chimney, used for descent to the subterranean Křtinský potok Stream. The Škrapový dómek Dome was visited with the aim to find a new passage to the Salmovy prostory (Salm Rooms). Other sites are the Vokounka and Rudolfova caves (under conservation), the Jestřabí skála and Kanibalka caves (under conservation), the Silvestrovka Cave (under conservation), the Na Lazech Doline and the Javorka Cave (investigation, minor prolongation). The club participated in systematic counting of bat populations at these sites, maintained the cave entrances and organized public visits.

6-07 TIŠNOVSKÝ KRAS

Principal activities of the caving club concentrated on the Královu jeskyně Cave at Květnice, where systematic works continued on the interconnection between the upper storey of the Stará část (Old Part) with the Tišnovský Dome and the adjacent spaces. The overall length of the excavated and subsequently adapted Spojnice corridor is 44 m. In the Lažánecko–Heroltický Karst, the team worked in the Úžinová jeskyně Cave and at the Mastný flek site. In the Štěpánovice Karst, widening of a narrow passage proceeded in the Vavříčkova jeskyně Cave with the aim of finding new open spaces.

6-08 DAGMAR

Systematic works were undertaken in the Cave No. 567 Dagmar – organized trip for the public, test pit excavation under a speleothem block in the southern tip of the Dóm konce (End Dome), photodocumentation of the southern branch of the cave, and checked water levels in Abyss II. Entrance portions were secured, old wooden support was removed and photodocumentation was made in the Cave No. 566 U Jedelské cesty and Cave No. 31 Křížovy. Deposited sediments were removed from the Propadání V Jedlích.

6-09 LABYRINT

The caving club concentrated on investigations in the caves of Stovka and Červíkova jeskyně in the Moravian Karst. In the Červíkovy jeskyně Cave, a route to the lower lake on the bottom of the Macocha Abyss was discovered. Several visits in the area of Čtyřicítka/Dolní jezírko were undertaken to substitute for old leading ropes. Some club members took an active participation in expeditions outside the Czech Republic: to Mexico, Bosnia, Sardinia and Croatia, and were present at new discoveries.

6-11 KRÁLOVOPOLSKÁ

A long-lasting research in the southern part of the Moravian Karst continued, especially in the Ochozská jeskyně Cave. It concentrated on regular mesurements and evaluation of the lower outflow of karstic waters, using an automated measuring station in the Ochozská jeskyně Cave, manual measurement and sampling, monitoring of drip arrythmicity etc. The effect of tectonic structures on flow directions in the zone of vertical karst circulation was studied in the Pekárna Cave, lying only 10 m under the surface. Tracers of NaCl and KBr were applied to two injection pits. The effect of tectonic structures proved to be weak. Outside the Czech Republic, the club members were active on the Rab Island in Croatia: near the village of Lopar, they outlined the territory of the Lopar Karst, 8.8 km^2 in area, composed mostly of Upper Cretaceous limestones. This area was described for the needs of the Croatian party within the geopark established in 2007.

6-12 SPELEOLOGICKÝ KLUB BRNO

The caving club was regularly involved in the continued cooperation with the Českomoravský cement, joint-stock company, a successor entity in the registration and study of karst phenomena at the Mokrá deposit in the southern part of the Moravian Karst. In addition, several trips abroad were organized (karstic caves of the Sub-Carpathian Ukraine, Moldova, Montenegro) and some other minor sites were supervised in the Moravian Karst region: Mechový závrt Doline (File No. 1422/B). In the Zaječí village (Břeclav County), a hidden system of underground passages under the church and presbytery was explored in cooperation with the Mikulov Museum. An enigmatic collapse under the entrance to the Malčiny Cave was investigated.

6-13 JIHOMORAVSKÝ KRAS

The activities were centered around the Na Turoldu Cave, which was also opened to the public. Other activities were undertaken in the Liščí díra Cave: a chamber 7 by 3 m and max. 2 m high was discovered in the Pohřebiště sintrů (Speleothem Burial Site) area, continuing with a impenetrable narrow passage 3 m long, showing new rooms behind. In a cave, tentatively called "Kedlubna (Kohlrabi)", an erosion-induced fall of blocks, talus and soil some 6 m3 in volume was found above the Damoklova Cave. A register of caves, karst phenomena and pseudokarst caves was established for the Stolová hora and Děvín Nature Reserves, for Svatý kopeček and Kozí hrádek Hill.

6-14 SUCHÝ ŽLEB

The caving club worked especially at the following sites. At Svážná studna, the 1st siphon was penetrated, the passage behind was fully adjusted and the following downward passage with a 20m elevation difference was equipped with a fixed ladder. In Doline No. 18, prolongation was started with the total depth of 4 m achieved until the end of the year. In the Společňák Doline, widening of the passage proceeded and chimneys were penetrated. Other sites were regularly visited and investigated by traditional

caving techniques. Individual club members were giving lectures on Czech as well as foreign sites.

6-15 HOLŠTEJNSKÁ

Cave studies focused primarily on the timber preparation and support construction in the Černý závrt Doline. In the No. 59 U trojičky Doline, soil collapses occurred around the entrance concrete ring. In the No. 551, 551/1 Nová Rasovna Cave, works on the release of a small channel continued in the upper storeys of the cave behind the Černé ozvěny Corridor. In the No. 808/1 Stará Amatérská Cave, penetration and survey of chimneys continued in the Brčkový Dome in the Přítoková Corridor. The promising Glozar Chimney was successfully ascended but was found to end with sound rock split into a series of impenetrable "pipes". In result, spaces indicated by gravity measurements remained hidden. In the No. 151 Černý (807) Doline, excavations were re-started, coupled with new geodetic measurements. The whole caving club was intensively collaborating, besides the neighbouring Moravian-Karst teams, also with their Slovak colleagues from the Nicolaus Speleo-Club.

6-16 TARTAROS

Activities of the caving club concentrated, among others, on terminal points in the Liščí Cave, in the area of the Sex Dome. In the dome itself, chimneys were repeatedly ascended and narrow passages were widened. In the Vintoky Cave, the Kotevní Corridor (connecting the Škrapová Abyss and the Ozvěny Corridor) was ascended again. In the Lopač Cave, pumping test was realized in the terminal siphon. Within a one-week campaign (see Speleoforum 2008 proceedings), water was pumped to the very bottom, which allowed to penetrate through the siphon. After the campaign, hydromining was used in the passage above the terminal siphon. The club members also continued their work at the Hradná vyveračka Resurgence in Slovakia. Here, hydromining was first used: this method created enough space for material disposal and permitted to proceed further towards the outflow. First large open spaces were discovered in the ponor of the Rogendorf Stream in the Kras region: the depth of around 30 m was reached.

6-17 TOPAS

The scope of interest of the Topas caving club includes caves in the Moravian Karst region. In the No. 75A Horní Suchdolský ponor Cave, a considerable amount of work was devoted to the maintenance and deepening of passageways in low corridors. Sand and clay sediments among blocks of red and yellow sandstones (at the absence of limestones) were excavated at the Kančí ponor site. The caving club also works in the Nová Amatérská Cave: guided tours for the public were prepared, photographic documentation of the Eastern Branch was taken, and technical possibilities of bridging the Zadní jezero Lake were assessed with the aim to make a better access to the Konstantní vývěr issue. Based on the agreement with the Moravian Karst PLA Administration, works

in the No. 96A U hrušky Cave included a reconstruction of the closure, installation of new ladders, adjustment of the passageways and technical securing of the entrance shaft.

A new cave 2.8 km long, La Aranha, was discovered and documented within the Tepui 07 expedition in Venezuela. The club members also participated in the Namak 2006 expedition to the salt karst on the Keshun Island in Iran: this expedition penetrated to the Tří naháčů (Three Nudes) Cave through a ponor, extending the length of the cave to 6.5 km. This made the Tří naháčů Cave the longest salt cave in the world. The club members also participated in the international scientific expedition to the quartzite Cueva Charles Brewer Cave in the Chimanta table mountain, Venezuela. Results of the expedition were published in a special issue of Spravodaj SSS, 3/2005, volume 36, and in the Speleofórum 2005 proceedings.

6-18 CUNICUNULUS

The caving club pays a symbolic rent for a part of underground spaces in Jihlava, and – based on an angreement with the municipality – keeps it in a proper state. The club continues the survey of extensive underground spaces in several floors beneath the almost whole Hostěradický kopec Hill. These spaces were excavated in coarse-grained sandstone. The length of mapped corridors exceeds one kilometre. In the Růženina Gallery at Stříbrné Hory, stabilization of a sluice in front of the entrance was made.

6-19 PLÁNIVY

In the Nová Amatérská Cave, the caving club was traditionally engaged with the investigation of chimneys using a climbing pole (the U Poseroutky window in the Pod Městikádí Dome, a chimney in the U dvou velkých Dome and the Michelangelo chimney in the Zemních pyramid Dome). A rope bridge was installed in the Spirálka Cave across the Odtokový siphon: its level has risen due to the 2005 and 2006 floodings. An invasion to the Kalvárie was undertaken (Bahnitý přítok, Speleofórum 1994 proceedings) to revise the geodetic position of this site using a radiowave transmitter. A movie-camera survey was made in the Šílených střelců narrows. In the Ostrý dóm (Sharp Dome), two chimneys were re-ascended and documented: the Omylu and Naděje chimneys. A radiowave transmitter was installed on top of the Naděje chimney to locate its position on the surface. In the 13C Cave, the team succeeded in penetrating through the flooded channel as far as to the Kalcitový dóm (Calcite Dome). A device monitoring movements and tilts of blocks was installed in the Dóm halucinací (Hallucination Dome). A crucial discovery was made in the Křížův Doline, where a boulder was released at a depth of 19 m in the main shaft, revealing a free corridor behind. In the Nový Lopač Cave, the works succeeded after the previous investigations of chimneys in the Velikonoční dóm (Easter Dome). Chimney IV, called Flaškový, was made accessible from Chimney III. The height of 13 m was reached; the chimney ends with an impenetrable boulder accumulation. Measurements of stream channel profiles were also taken in this cave.

Intensive exploratory works abroad were conducted especially in the Kačna jama Cave, in collaboration with the Gregora Žiberny Divača team. The Bajsa Melonka Abyss was also studied from the surface within this trip, but no promising site for further advance was found. In the Kačna jama Cave, an impenetrable site with perceptible air flow was localized at the end of Zahodni rov. Within the Črnělsko Brezno project, the club members organized a rigging operation, during which the cave was rigged from the Veliko Sbrego entrance as far as to Sala Kuga (–820 m). The members also took various geophysical measurements on the Ostrovská plošina Plateau: the very long waves method was applied in the Tannenberg Quarry area, the charged body method in the Bukovinská úvala and georadar measurements in the Malá Dohoda Quarry.

6-20 MORAVSKÝ KRAS

Activities were concentrated to the upper floors of the Skleněné dómy Cave in the space " Za traverzem ", where excavations proceeded for a length of 7 metres with the excavated sediment volume of ca. 1m^3. In co-operation with the Moravian Karst PLA Administration, a net above the boat port near the Punkevní jeskyně Cave was repaired. Tem members also participated in expeditions outside the Czech Republic.

6-21 MYOTIS

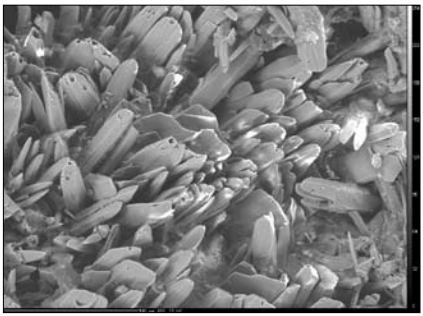
The caving club supervised the Agris Doline on the precinct of the Agris s.r.o. agricultural plant. Here, exploratory works continued after the penetration of a siphon upon pumping and pyrotechnical works. In the Člupek Cave, prolongation continued by removal of sediments from the so-called Ivoškova odbočka Branch. Further advance is complicated by the very difficult material transportation. At the Žďár-ponor site (a doline at Brusná), a collapse occurred in the field in the advance direction; after the permission had been granted, an exploration shaft was excavated and supported by concrete rings. The club members complemented and adjusted the new exposition of the Speleomuseum in the local authority building at Vilémovice.

6-22 DEVON

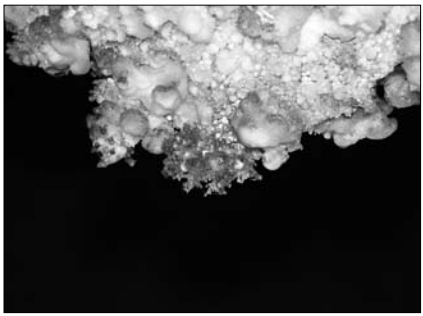
The caving club maintained four sites, e.g. No. 8 Bratří Nečasů Cave. In the No. 100 V Okrouhlíku Cave, deepening of a test pit continued in the U plcha Dome. The access time in the No. 263 Propasťovité bludiště Cave is limited due to bat hibernation. A test pit was realized in the Písečná chodba Corridor under the Písečný Dome. The other site is the Tomášova Cave, as yet with no numbering.

6-23 ARAGONIT

The caving club was active primarily in the Zbrašovské aragonitové jeskyně Cave, where it collaborated with the Agency for Nature Conservation and Landscape Protection CR. These activities included prolongation of an inclined chimney called Mazurka in the area Za vodopádem (Behind the Waterfall), interrupted in 1993. Geological and hydrological



Microbial destruction of aragonite speleothems in Zbrašovské Aragonite Caves; pits formed by microbial activity. SEM photo by: Milan Geršl



Microbial destruction of aragonite speleothems in Zbrašovské Aragonite Caves; macroscopic deponies of air dust and micromycetes. Photo by Milan Geršl

investigations as well as the study of microbial attack on the aragonite decorations were performed at the Opona (Curtain). Outcrops above the technical building were checked and cleaned. Exploratory and maintenance works were also realized in the Jeskyně v Temných skalách Cave: prolongation proceeded in vertical direction with the overall depth of 14 m reached. In the Výroční Doline, excavations continued to only limited scale, the doline was supported by concrete rings to a depth of 4.3 m.

6-25 PUSTÝ ŽLEB

This caving club conducted exploratory works especially in the Nový Sloupský Corridor of the Amatérská Cave, also known as the Broušek Shaft. Here, the study of the Velký komín (Big Chimney) was started in the Šošůvecký Dome: the height of 114 m was achieved and a horizontal cave floor 600 m long was discovered. A complex investigation of the Šošůvecká odbočka Branch was also initiated. It was completed by a successful advance through Siphon No. 8 and a discovery of the so-called Šošůvecký Corridor 1400 m long. Large effort was devoted to the preparation of a pumping test, during which the level of incoming water was supposed to drop, giving a chance to find an interconnection with the system of the Sloupsko-šošůvské Cave. After complex manipulation, the divers managed to emerge in the connective corridor between the Palmová Abyss and Černá Abyss on November 12, 2005. This confirmed the interconnection between the Amatérská Cave and the Sloupsko-šošůvské Cave.

Each year, the caving club organized expeditions to the Dalovica Plain in Montenegro. During these expeditions, 3000 metres of new corridors were discovered and documented. Exploration of the Brno Cave also continued. Divers penetrated to a depth of 50 m along a distance of 150 m in the inflow siphon of the Jurisko Vreljo resurgence. The club members participated in the expedition to the Yucatan Peninsula in Mexico, contributing to the exploration of the caves of Cangrejo, Ich-Kin, Joolis, Koo´x-Baal and other caves. Several educational trips were organized to the Banat region of Rumania and served for the prospection of local karst phenomena.

7-01 ORCUS

The caving club organized one-week training courses of speleoalpinism for students of secondary schools from Ostrava and Karviná in the Mečová centre in the Beskydy Mountains and in the Cyrilka Cave, and for students of the Bohumín secondary school on the cliffs of Kružberk. Several lectures and discussions were held at summer camps for children, focused on the Orcus activities and on nature protection. An 80m long rope traverse was prepared for children from Bohumín above the Gliňoč water reservoir. The same traverse was prepared for children at summer camps in the Beskydy Mts. Professional activities were focused on the adjustment of the entrance to the Kněhyňská Cave, and on the exploration in the Záryjí area at foothills of Radhošť Mt. At the Gírová Ridge, all caves were localized using GPS and complemented with surface prospection. Also, regular check-ups of hibernating bats were made in these caves. A major international event was the Chatyr Dag Expedition (Crimea, Ukraine), during which additional documentation was undertaken in the BimBash Cave and the Kholodnaya Cave on the Chatyr Dag Plateau. Collaboration with the Ternopol cavers was initiated and a joint visit of the Ozernaya Cave was made in the Podol Karst in Ukraine. The Vsetín caving club visited the South Slovak Karst.

7-04 SEVER

At the Nová jeskyně Na Pomezí Cave, wooden support of the entrance shaft was taken down and replaced by a steel grill made from I profiles. Another surveyed site was the Bezejmenná jeskyně Na Pomezí Cave: ca. 10 m long, bent to a 2 m deep, water-filled abyss at its end. The lake was dried and a ca. 1 m deep test pit was excavated. The third site was the Liščí díra Cave, where an attempt was made to penetrate through collapsed rock. In winter, a strong flux of warm air from the cave was observed. In the subsurface, the air flow was localized to come from the collapsed mass, partly cemented with speleothem.

7-07 OSTRAVA

Principal caving activities were, as usually, focused on the Pouťová Cave in the Štramberk Karst. After the water level dropped to 10 metres, a speleodiving surveywas made with the intention to find a runoff channel; no such feature was, however, found. The caving club also organized expeditions to Rumania and Slovenia (training ascents in the Mt. Triglav area, visits of the public-access caves of Pivka jama, Križna jama, Predjamski grad and others; the Divača jama Cave with no public access was visited in the final days of the expedition), to the Muntii Apuseni in Rumania and other regions.

7-09 ESTAVELA

Exploratory works concentrated on the principal site in the Javoříčské Cave, namely on test-pit excavation on collapsed rocks in the Olomoucký Dome. A detailed mapping of the terminal portion of the dome with the collapse was started to get a better knowledge of the setting in this area. The map originated this way was connected with an emerging map of

the Ivošovy Cave, which was also surveyed in this period. At the Střední patro (Medium Floor), removal of debris and free blocks resulted in widening of some passages in the access abyss from the Svěcená díra to the Hlinité Aleje. This made an easier access to the Medium Floor and increased safety. Investigation of all chimneys in the Hlinité jeskyně Cave was completed but did not produce any new positive finds as for the cave continuation. Nevertheless, several sites were selected for future testing by means of test-pit excavations. Based on previous maps of the Hlinité jeskyně Cave (Loučková-Michovská J., 1963), geodetic survey was started to obtain data for a digital 3-D cave model construction. Spaces Nad Chaosem (Above Chaos) were partly measured. Pseudokarst studies continued in the Svitavy area: investigation and mapping of a crevasse cave in marlstones at Rozhrání – Bradlné (P151 71 lB J 00007). Mapping of the Upper Floor was finished, including cross-sections, with a total mapped length of ca. 60 metres at the Lower Floor.

7-10 HÁDES

This caving club was involved mostly in guided tours and expeditions. The visited sites include subsurface spaces in the Železné Hory area (Příčná hora – Modrá štola site), the mine at Mníšek pod Brdy, and the site of Hodruša Hámre in Slovakia. A guided tour was undertaken to the Barbora Mine, supervised by the DIAMO state enterprise, OKD mine district.

7-14 LUDMÍROV - ŠTYMBERK

Exploratory works continued in the Vráženská Cave. Here, cave floor was reached, and the spaces were cleared. Excavations continued at the Sv. Mikuláš site. The total length of the cave currently amounts at almost 25 m.

THE MOST IMPORTANT DISCOVERIES IN THE CZECH REPUBLIC

NEW DISCOVERIES IN THE AMATÉRSKÁ CAVE – THE LONGEST CAVE SYSTEM OF THE CZECH REPUBLIC

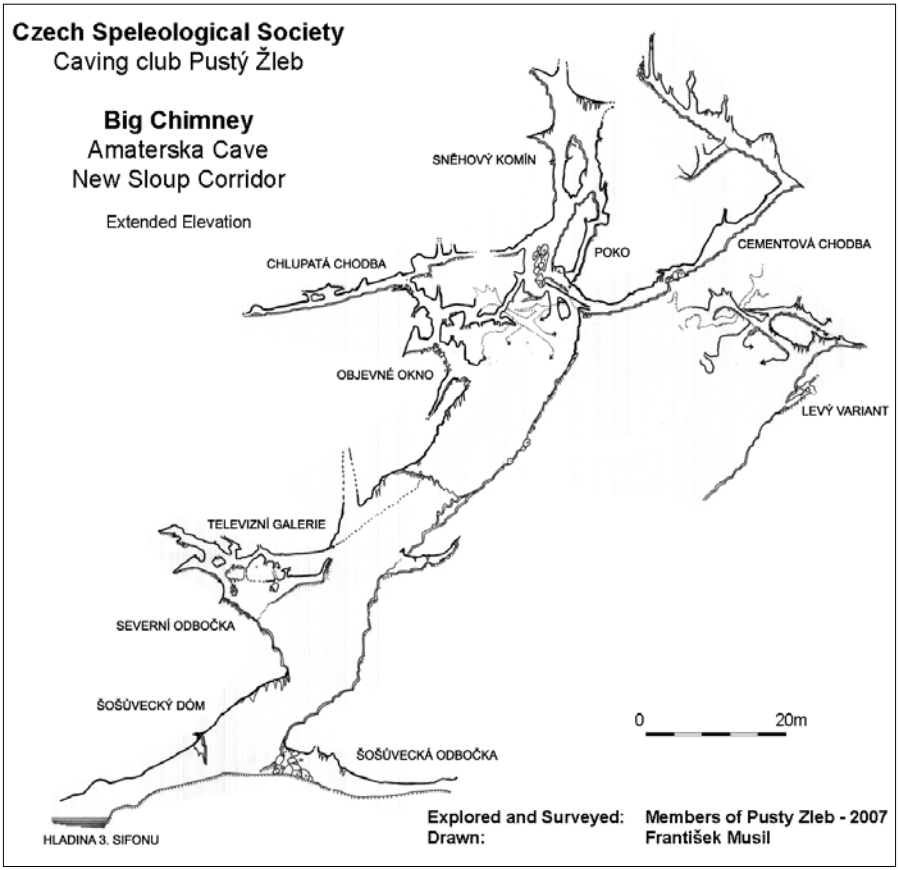
Zdeněk Motyčka

The Amatérská Cave is situated in the northern part of the Moravian Karst – the largest karst area in the Czech Republic. The cave was discovered by members of the Planivy Club in 1969. Its exploration was organized by the Institute of Geography between 1970 and 1993, and by the Czech Speleological Society from 1993, when a new project was started. Between 2000 and 2004, the greatest achievement were the discoveries in the New Sloup Corridor (Fig. 1). As of the end of 2003, altogether 400 m of new passages were discovered in the barely accessible sections behind four siphons. To continue these explorations, it was necessary to find an easier and safer access to these sections. Gradually, several chimneys were climbed and it was decided to open a new entrance in one of them. This happened between 2003–2005 by digging a shaft 21 m deep, its stabilization and installation of permanent ladders to the depth of –70 m.

From 2005 on, thanks to this new opened entrance, a more detailed exploration of the New Sloup Corridor could begin in the northern part of the Amatérská Cave. At first, the entire known section of the New Sloup Corridor was mapped and all branch lines were explored in detail. This brought a whole range of small discoveries and then the discovery of a new 300 m long area, the so called "Connection to Sosuvka", which bypassed two siphons and interconnected the main tunnel of the New Sloup Corridor and the Sosuvka branch.

A pumping attempt was organized in a siphon that closed the northern end of the main tunnel in late 2005. The siphon dropped by about 6 m, but it still did not lead to a bypass. However, during the next diving attempt, a connection was found between the Amatérská Cave and the Sloupsko-Sosuvske Cave during the next diving attempt.

Between years 2006 and 2007, the main effort concentrated at climbing a chimney in the New Sloup Corridor. A total of eight chimneys were climbed. In the two of them, large



Map of Big Chimney, Amatérská Cave, Czech Republic

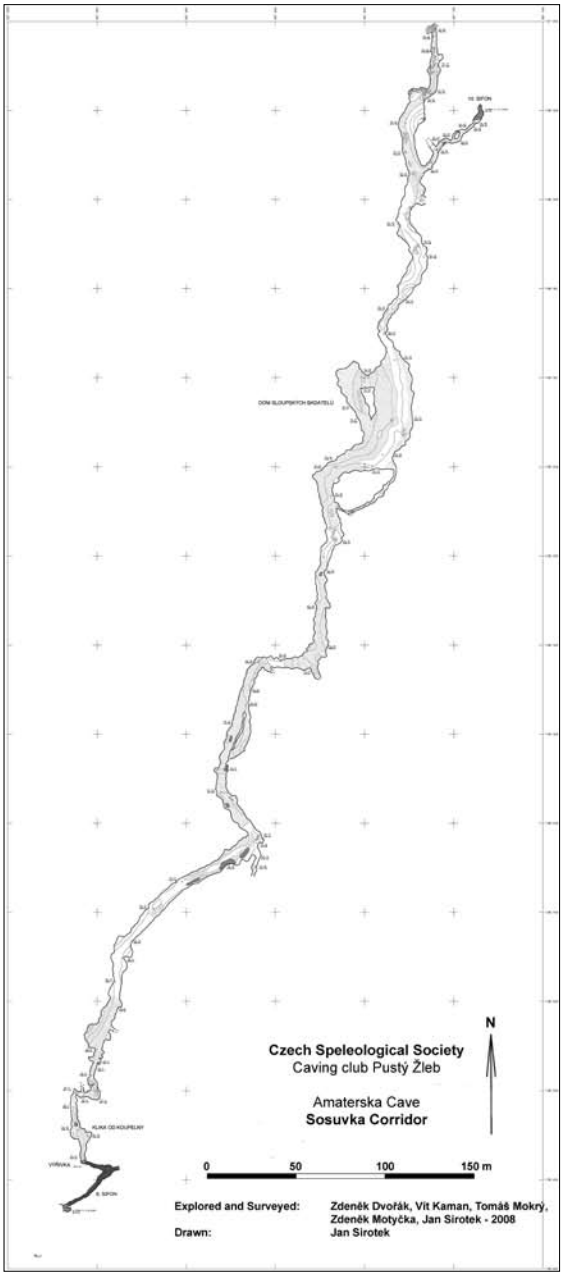
upper floors were found. The first find was the discovery of a new horizontal floor 75m high and a new 200 m long. Both finds were made in the EEK chimney. The next success came in the Big Chimney. It was climbed 90 m up, and there, through a small window, a 600 m long labyrinth of smaller passages was discovered. Some parts are decorated with excentriques. The highest point of this labyrinth is located at a height of 114 m, making it the highest chimney in the Amatérská Cave.

In 2008 a diving reattempt was made in the so-called siphon No. 8 at the end of the Sosuvka branch line. During the first attempt in 2000, a depth of 16 m was reached, but there was no way to continue. Now a new way was found through a very narrow part after 50 m under the water. Behind the siphon, a system of dry narrow passages continues to a huge tunnel, leading almost one kilometre to the north, to a big hall 70 m long and 40 m wide. It is called the "Dom Sloupskych Badatelu". There is a cross-road 300 m long behind

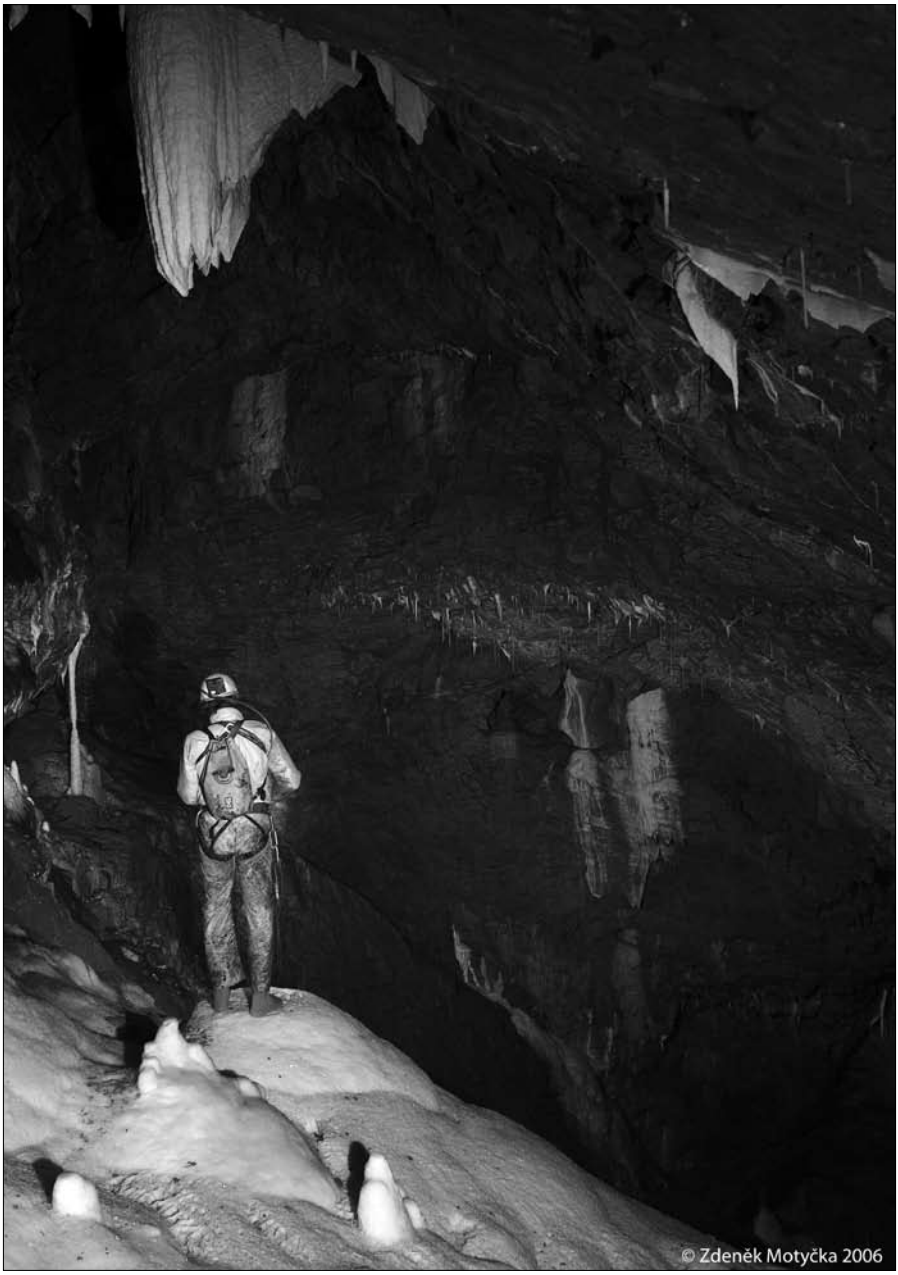
it. The first passage ends in a large collapse, the second one is finished by a siphon, which has not been explored yet. Owing to the mild climatic conditions in late 2008, the shallow siphon at the end of the Do Zlebu corridor dried up. Behind, about 300 m of new spaces were discovered and the exploration still continues.

In other parts of the Amatérská Cave, several chimneys were climbed in the Labyrinth of Milan Slechta, but these did not reach higher horizontal cave floors. The diving research of the Predmacossky siphon was renewed in 2007. This siphon divides the Amatérská Cave from the Macocha Abyss. Till then, this siphon was explored only once in 1975. Now, during six diving operations, the siphon 311 m long and 20 m deep was surveyed and a new underwater tunnel was discovered. It is 340 m long and 50 m deep and runs parallel to the main siphon.

As for the new documentation of the cave, there is no positive news. Almost half of the cave is still surveyed to original, very old, and not very exact maps. Because of this fact it is not possible to confirm the length of the cave – the supposed length is 40 km.



Map of Šošůvecký koridor, Amatérská Cave, Czech Republic



Middle part of Big Chimney, Amatérská Cave, Czech Republic. Photo by: Zdenek Motyčka

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Excentriques in Big Chimney, Amatérská Cave, Czech Republic.
Photo by: Zdenek Motyčka

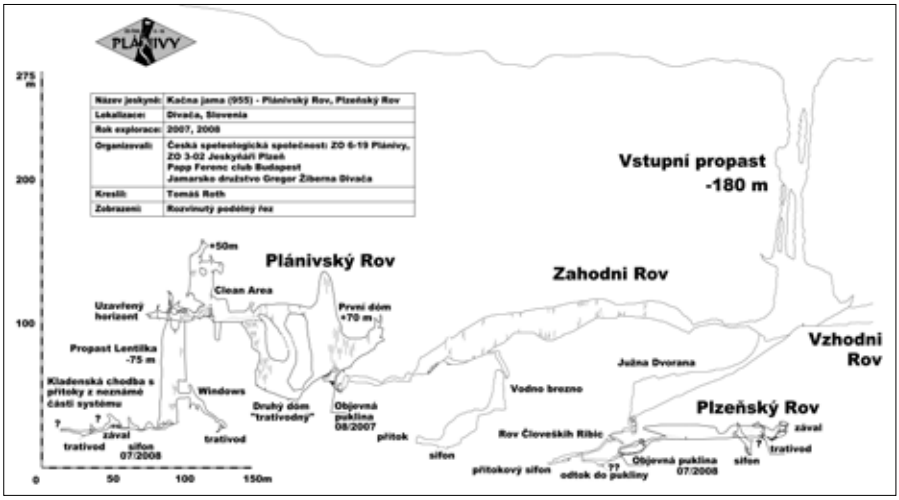
THE MOST IMPORTANT DISCOVERIES ABROAD

KAČNA JAMA (THE SNAKE CAVE), DIVAČA, SLOVENIA

Petr Polák

We came to the Divača region in 2004. Our caving club Plánivy took up former cooperation with local caving club Gregor Žiberna from Divača. Our interest was aimed at the Kačna Jama Cave, a cave system 12.75 km long hosting the Reka River. This river disappears in the UNESCO's World Natural Heritage Škocjanske Jame Cave (2 km long, gigantic underground canyon) and, after 0.75 km, continues in the Kačna Jama Cave with a complex labyrinth of corridors and galleries.

After the first easy visits in Kačna Jama Cave, we decided to organize an expedition to the resurgence part of the cave – the flood corridor. In summer 2005, during a one-week



Extended Elevation of Kacna Cave, Slovenia

trip, we passed almost the whole resurgence part of the cave but we stopped above a 12 m deep pit, 350 m before the end siphon. We turned back because of difficult way and the absence of rigging material. In conclusion, we found this part of the cave very interesting for research but also very dangerous due to fast flooding.

In 2006 we tried to find upper entrance to these resurgence parts from the surface, but with no satisfactory results.

In 2007 we came back to the Kačna Jama Cave, to the Zahodni Rov branch (Western Corridor), approximately 450 m long. The Vzhodni Rov (Eastern Corriodor) lies opposite to the Zahodni Rov and leads to a 12 km long portion of the cave with the active Reka River. This was the reason why we attacked a roof collapse with boulders in the rear parts of the Zahodni Rov. We went through the place with periodic draught and this place took us to an unbelievable discovery. Suddenly we saw an astonishing corridor! The corridor consists of two big domes with very high ceilings. Its length is about 100 m. The lowest point is in the second dome. It is formed by many drained places – mud holes. Above this second dome, we climbed a 45 m high canyon chimney. This place was called Chimney of Liquid Nutela after two shelves covered with mud, which complicated the whole ascent. At the height of 45 meters, we discovered a great horizontal floor full of wonderful decorations, called the Clean Area. This place looks like other Kačna Jama Cave corridors which were flooded by high water. This explains the numerous mud places. After we explored the Clean Area corridor, we continued to the main corridor which ends at a distance of 50 m by speleothem and mud plug. A deep abyss was located along the right wall of this corridor. We descended there into the depth of 75 m. Its bottom with many drained places was affected by frequent floods. At the lowest point, a corridor leads to a small dome with a siphon. This siphon was dived through during the summer 2008trip. Behind the siphon we passed underdrain corridors which lead approximately 200 m from the P75 abyss, and we traced up other inflows from an unknown part of the cave system. This site is located about 20 m above the active river level but the access to these parts is very difficult.

The most remarkable result of the year 2008 is the discovery of the 200 m long Plzeňský Rov (Pilsner Corridor) because it brought new knowledge about hydrological situation in the Kačna Jama Cave. This corridor lies almost beneath the entrance abyss and it ends by a collapse. At the end of the Plzeňský Rov, we got to the direct distance of 400 m from the terminal siphon where the active flow of the Reka River disappears in the underground cave-in. This is perhaps the most promising site for a discovery of other continuation.

As yet, we have discovered 1050 m of new corridors in the Kačna Jama Cave. Our exploration shifted the Kačna Jama Cave from rank 3 to rank 2 in the list of the longest caves in Slovenia. With its new length of 13.80 km, it overtakes the Predjama Cave (13,092 km) and gets closer to the longest cave system of the Postojna Jama Cave (20,570 km).

Speaking about our results, we must mention our revision survey of the whole branch of Zahodni Rov, Južna Dvorana and Rov Človenških Ribic where we measured a polygon 920 m long. We elaborated an important documentation to the discovery map as well.

Our thanks belong to all members of the Czech Speleological Society who contributed to new knowledge of the Kačna Jama Cave with their high effort. I wish to thank all friends-cavers from the Hungarian Papp Ferenc caving club who assisted in the discoveries, and from the Slovenian Gregor Žiberna caving club from Divača for their help in the organization of the expeditions, providing the housing and the opportunity to continue our discoveries in their territory.

DALOVICA PECINA, MONTENEGRO

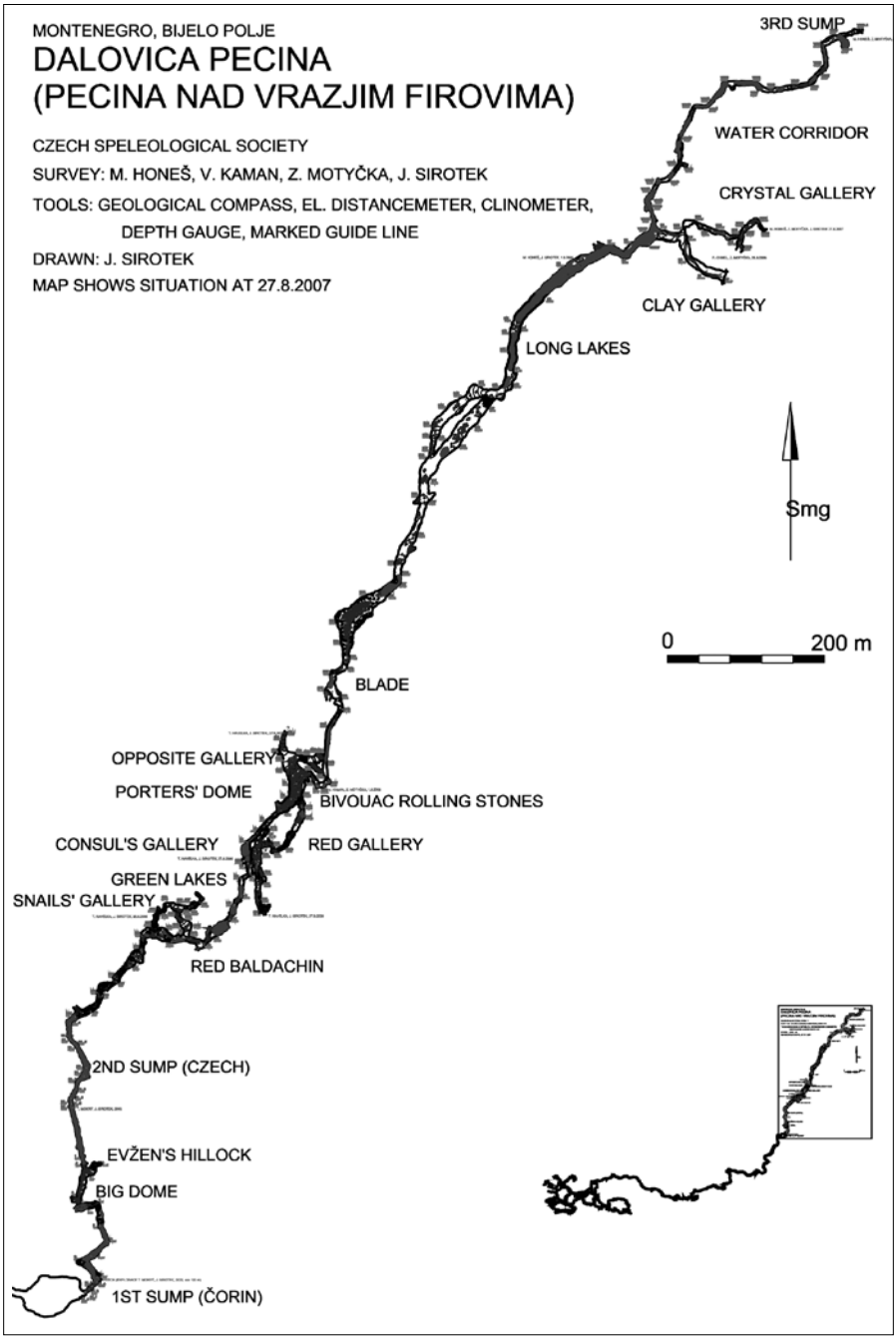
Jan Sirotek

We made the first trip to Montenegro in 2003. We were asked to take up to the exploration done by Serbian cavers from Belgrade from 1980's in the Dalovica Cave. The Dalovica Cave (also known as Pecina Nad Vrazjim Firovima which means Cave over Devils' Whirlpools) is the longest cave system in former Yugoslavia. It is situated at the border between Montenegro and Serbia on the Dalovica Plateau at the altitude of 1000–1300 m and not very far from the town of Bijelo Polje situated at the edge of the Pester mountains. The plateau and the cave were both named after the Dalovic family, which has been living here for ages. The cave has been explored since 1987 and when we started with our exploration its length was 13 km. The Dalovica Cave is very rugged, with several floors of different genesis and age.

The target of our first expedition was to get behind the first siphon at the end of the cave. Serbian cavers dived through the siphon earlier, however, a detailed description of the situation behind the siphon was missing. 2 divers had to transport 10 bags through the main corridors of the cave 7 km long. Without big problems we passed the 30 m long and 4 m deep siphon and continued swimming till the end of a 50 m long lake. We found that the lake was supplied by a small stream. We followed its course upstream as well as downstream. In the downstream direction, after crossing another big dome, we discovered the second siphon. We estimated that the total length of the corridors behind the siphon was 1 km. Therefore, we planned a new expedition in 2004.

We came back to the Dalovica Cave in August 2004. We already knew the conditions in the cave, therefore, we had better devices for the transport of diving equipment. Unfortunately, water level did not allow us to reach the first siphon as the lakes in the final corridor were full of water.

Our expedition in 2005 was a turning point. We came to the Dalovica Plateau at the end of summer again. Thanks to a very dry season we got to the first siphon without problems.


MONTENEGRO, BIJELO POLJE
DALOVICA PECINA
(PECINA NAD VRAZJIM FIROVIMA)
CZECH SPELEOLOGICAL SOCIETY
SURVEY: M. HONEŠ, V. KAMAN, Z. MOTYČKA, J. SIROTEK
TOOLS: GEOLOGICAL COMPASS, EL. DISTANCEMETER, CLINOMETER,
DEPTH GAUGE, MARKED GUIDE LINE
DRAWN: J. SIROTEK
MAP SHOWS SITUATION AT 27.8.2007
3RD SUMP
WATER CORRIDOR
CRYSTAL GALLERY
CLAY GALLERY
LONG LAKES
Smg
0
200 m
BLADE
OPPOSITE GALLERY
PORTERS' DOME
BIVOUAC ROLLING STONES
CONSUL'S GALLERY
RED GALLERY
GREEN LAKES
SNAILS' GALLERY
RED BALDACHIN
2ND SUMP (CZECH)
EVŽEN'S HILLOCK
BIG DOME
1ST SUMP (ČORIN)

Equipped with 2 x 7 l tanks we dived through the first siphon and crossed the complicated terrain between the first and second siphon. The second siphon was 70 m long with a depth of 8–10 m. It opened up into a set of lakes, followed by huge corridors and domes. During our expedition in 2005, we made two more trips behind the second siphon where we found and reported almost 2 km of new passages including 2 large domes – 'Porters' Dome' and 'Big Brother Dome'. The latter has the size of 100 x 30 x 30 m and is definitely the largest one in the whole cave. We finished our exploration in the middle of a lake 300 m far from the Big Brother Dome. It was obvious that without a bivouac we did not have many chances to continue with our exploration in this part of the cave.

In 2006 and 2007 we organized two big expeditions and stayed a couple of days behind the second siphon. We explored the "Crystal Gallery" at the end of the above mentioned lake behind the Big Brother Dome with unique decorations and large crystals of calcite. In 2007 we found new passages which ended up with another siphon where we did not attempt to dive. We explored most of the chimneys and galleries we could safely enter and created a map of the whole system.

Crystal Gallery, Dalovica Cave, Monte Negro. Photo by: Zdenek Motycka

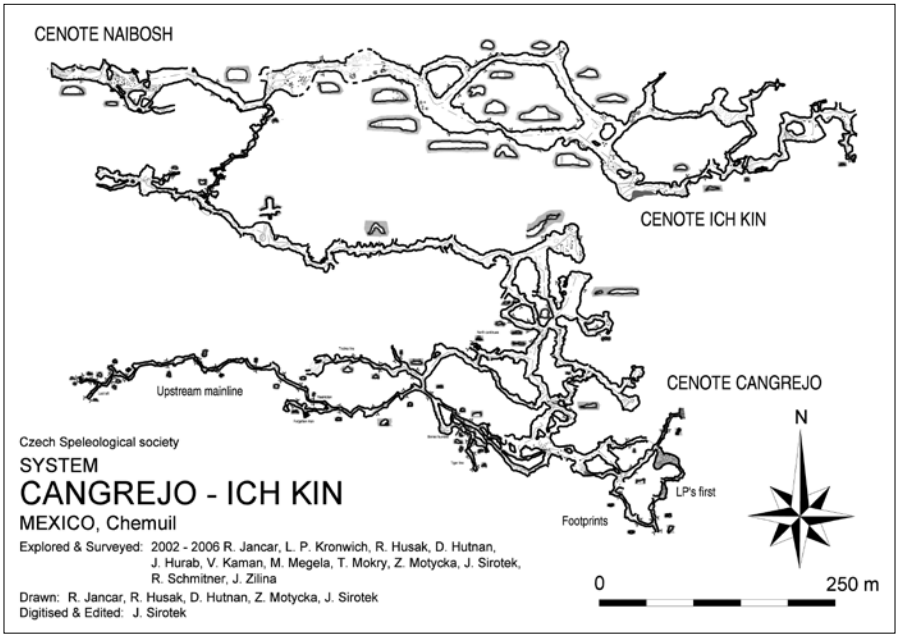
Newly discovered parts have a different character than the parts before the siphons. They are much younger. High corridors bear signs of corrosion. A stream flowing from the third siphon completely follows newly explored passages and, at many places, it feeds lakes where it is necessary to swim. Several large domes with many big fallen blocks break the corridors. The cave constantly trends to the NE.

NEW DISCOVERIES IN UNDERWATER CAVE SYSTEMS IN RIVIERA MAYA, MEXICO

Zdeněk Motyčka

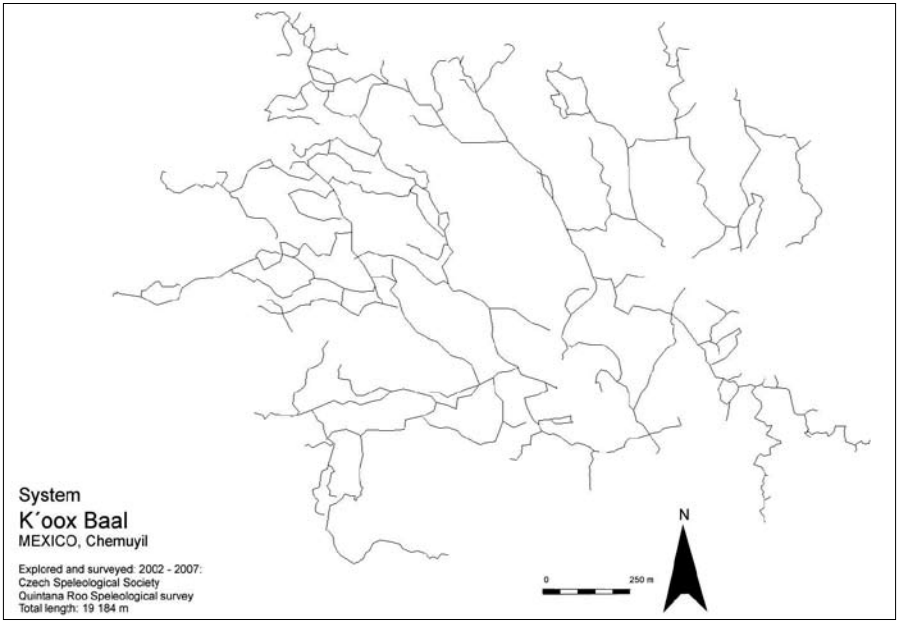
In 2006, the exploration continued in the underwater cave systems on the Yucatan Peninsula in Mexico. The first expedition took place in February and March, the second one in October. The first expedition started with the exploration on the Cangrejo cenote, where the continuation was discovered in 2005. We discovered almost 1000 m of new corridors and a connection with the Ich-Kin cenote. The total length of the connected Cangrejo – Ich Kin system is 5131m. After that, the main effort was focused back to the Sistema Joolis, found in 2004 with the length of 3.5 km. We explored again some parts and finished the documentation of the system. After several dives, 700 m of new corridors were discovered and surveyed in the part of Hoyt, 1.3 km of corridors in the part of Polo. So, the total length of the Joolis is 5.3 km now.

Then, the expedition moved to the K´oox Baal cenote, explored between 2002–2004 by members of the Quintana Roo Speleological Survey (QRSS). During several dives, a huge tunnel with the height of up to 6 m and the width of max. 40 m was discovered, and 3 km



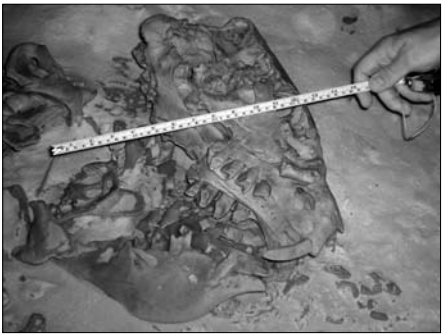
Map of Cangrejo – Ich Kin Cave System, Yucatan Peninsula, Mexico

New discovered part in K´oox Baal Cave, Yucatan Peninsula, Mexico. Photo by: Radoslav Husák



Sketch map of K´oox Baal Cave, Yucatan Peninsula, Mexico.

Skeleton of unknown animal species, K´oox Baal Cave, Yucatan Peninsula, Mexico. Photo by: Miroslav Manhart



Large skull of unknown animal species, K´oox Baal Cave, Yucatan Peninsula, Mexico. Photo by: Miroslav Manhart

of new passages were discovered in total! In October, another expedition started in the southern entrances – the Castillo cenotes – and discovered more than 1 km of new tunnels. After obtaining a permission to the main entrance to the K'oox Baal, exploration of the northern part could continue: we discovered 1 km of new corridors. The total length of the K´oox Ball system was 9.8 km at the end of 2006.

In 2007, main effort was focused on the exploration of the K´oox Baal. The exploration began in the western part, where the third tunnel, trending NE–SW, was already found. The westernmost parts form a labyrinth of joined corridors, and all attempts for another prolongation ended in low profiles. Another advance was also possible only in the SW direction where the third tunnel approached the second one to finally merge with it. In this part, the originally huge dimensions of the central tunnels branch out and become smaller to the limit of passing through. In spite of this fact, 7 km of new corridors have been already found in the western and southern parts of the cave. In the second part of the expedition, after the evaluation of the discoveries in the western part, we estimated that a similar situation could exist to the east from the main tunnel as well. Then, the access hole was discovered in the eastern wall of the main tunnel and we were successful in penetrating to another parallel tunnel, again trending NE–SW, to the east from the previous one. The width of the tunnel is more than 30 m and its height is 6 m. A huge collapse was found at the NE end of the tunnel while its SW continuation leads to a new big cenote. The following exploration discovered a continuation to the east and other corridors leading to the NE and SW, although just of small size. One of them leads to the same cenote as the previous huge tunnel. Till the end of the expedition, we discovered 3 km of new corridors also in this part of the cave. The total length of the K´oox Ball system reached respectable 19,178 m.

At the turn of February and March 2008, another expedition to the Mexican Yucatan Peninsula was organized. After our last successful expeditions in 2007, when we discovered a new continuation for almost 10 km in the K`oox Baal system, we wanted to con-

centrate on a possible interconnection of the system with the Joolis system, because the known parts of both caves are only a few tens of metres apart from each other. After a long exploration in the northern part of the K`oox Baal, we found no continuation. Not even an exploration in the westernmost parts of the system did bring any discovers of new sizeable corridors. So we finished the divings. Nevertheless we managed to extend the length of the caves for almost one kilometre to the current length of 20,087 metres.

During one dive, we discovered a very hale animal skeleton of large proportions. This happened during a detailed research in the course of one of the last dives to the western parts. It is almost the whole skeleton with a hale skull 35 cm long attached ro a hip in almost physiological position. The skull also bears prominent teeth. The length of the spine is 2.5 metres and the animal must have been almost 1.5 metres tall. All of the hale parts are covered with a thin layer of speleothem. It probably protected the skeleton against damage by ambient water. The age of the animal can be estimated based on the speleothem coating. The animal must have lived when the local caves were dry, so before flooding, which occurred during the last sea transgression about 18,000 years ago. Based on the first statement of Prof. Dr. Oldřich Fejfar from the Faculty of Science of Charles University in Prague, the skeleton is a kind of an extinct sloth from the family Megalonychidae, but according to the following consultation with Dr. Greg McDonald – a senior consultant on Natural History from the Park Museum Management Program of National Park Service – it is a new animal genus, not known for science yet! In addition, a new cenote was found, where we discovered corridors 650 metres long and connected it to the Sistema Joolis, which is now 5908 metres long.

Between 2006 and 2008, the Czech Speleological Society organized four expeditions to the area and discovered and surveyed 25 km of new underwater passages in total.

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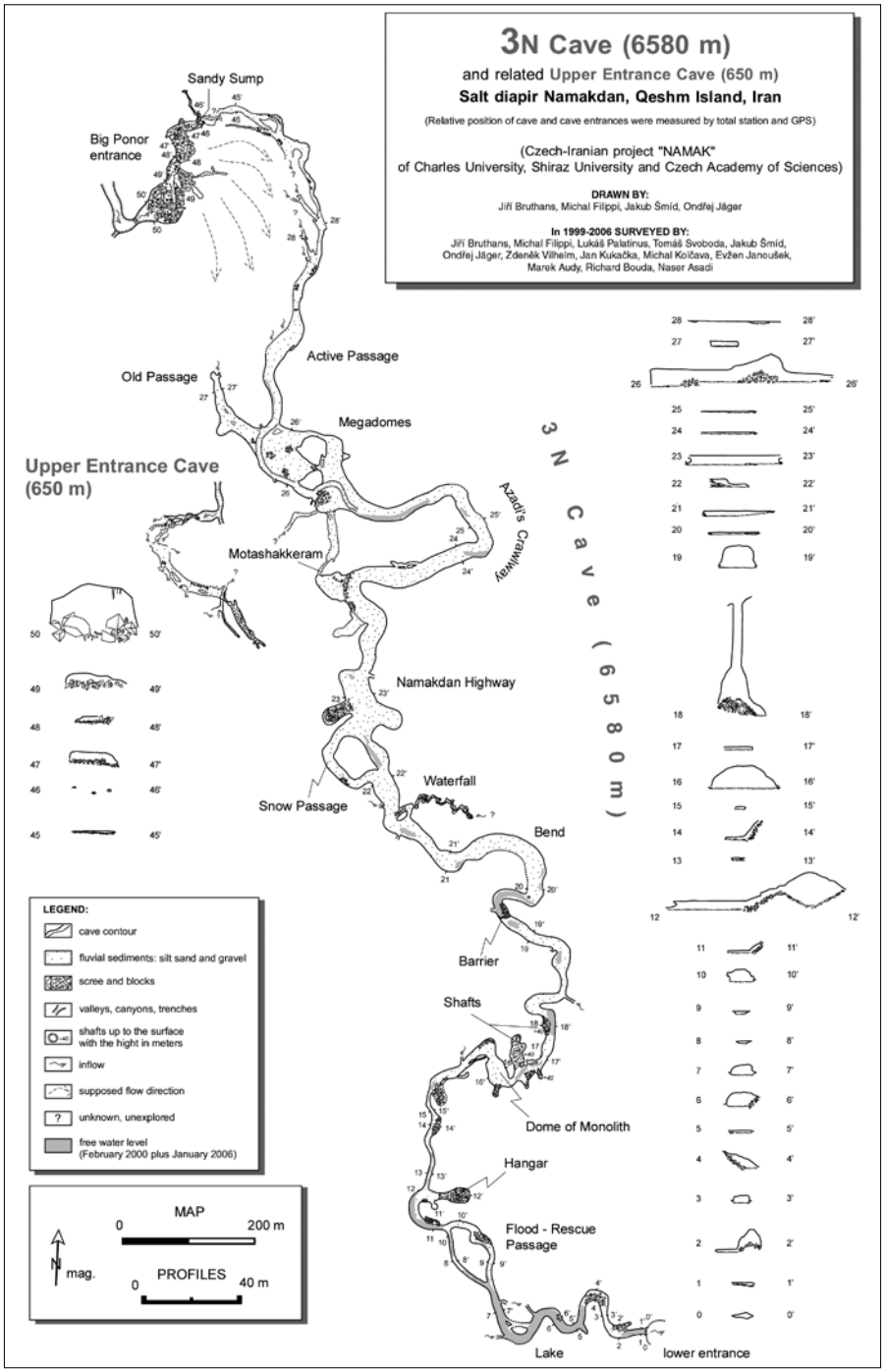
CZECH-IRANIAN RESEARCH IN SALT KARST (SE IRAN, ZAGROS MTS.): PROJECT NAMAK IN THE PERIOD 2005–2008

Michal Filippi, Jiří Bruthans

Project NAMAK continued by 4 ca one-month expeditions in the period 2005–2008. These trips follow the previous exploration and research done in the area between 1998–2004 (see the previous report published by Bruthans et al., 2005). Project NAMAK (means salt in Farsi) started in 1998 and it associates geologist and speleologist who cooperate on exploration and research of unique salt karst in SE Iran (Zagros Mts.). This research is jointly held by members of the Czech Speleological Society, workers of the Charles University Prague, Czech Academy of Sciences (both Czech Republic), Shiraz University (Shiraz, Iran).

About 15 salt diapirs were visited until now (by the year 2008). The most exciting finding was made on the Namakdan salt diapir (Qeshm Island, Persian Gulf). During the January 2006 expedition, the Big Ponor Cave was connected with the Cave of Tří

Dissolving surface of the salt glacier on the Namak salt diapir, Busher Province, Iran. Photo by: M. Filippi



Map of the 3N and Upper Entrance Caves.

Dramatically sharp Rillencarren make the movement on the surface of the Namak salt diapir difficult, Busher Province, Iran. Photo by: M. Filippi

Naháčů (Cave of Three Naked Man). The resulting world's longest salt cave was named 3N Cave (Ghar-e 3N in Farsi) and altogether with newly mapped parts reaches the total length of 6,580 m. It is some 900 m longer than Malham Cave (5,685 m, Mt. Sedom, Israel) now being the second. More information about the 3N Cave in English is presented by Bruthans et al. (2006) and in French by Filippi et al. (2006).

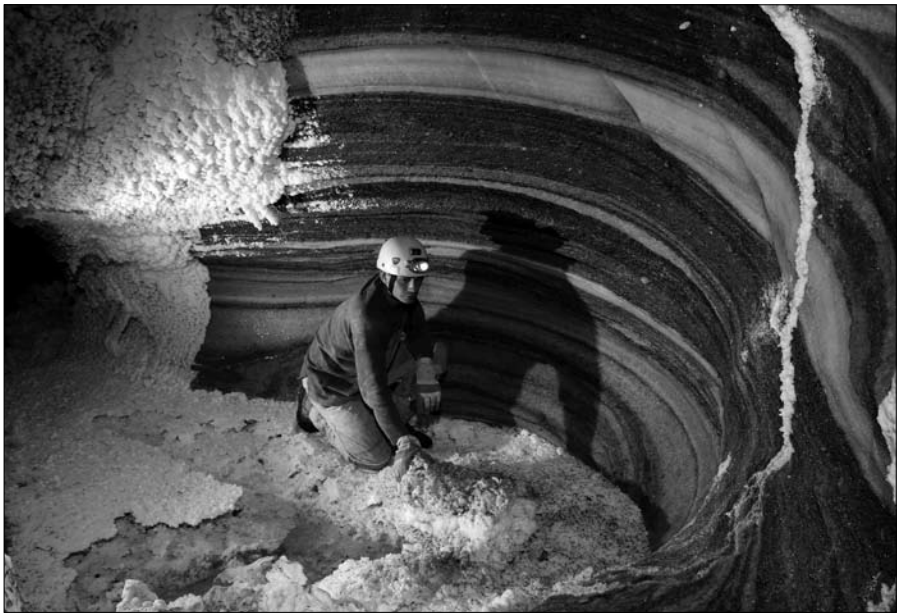
The 3N Cave is unique not only by its length (6580 m) and width of passage (up to 40 m) but also by its origin and development. Cave passage changes its position during time. After rainstorms the stream cuts into the cave wall on one side and in the same time it fills the free space completely by the sediments on the other side. The cave thus migrates similarly as meandering river in the flood plain. Real width of the passages including parts completely filled by sediments is thus not known and based on evidence in the upper part of the cave, it can reach higher tens or lower hundreds of meters!

The following salt diapirs – Gach, Jakani, Kuhmarreh Sorkhi, Larak, Mangrak (=Khonar Siah), Mesijune, Namak, Namakdan, Saadat Abad, and Sarvestan were visited and more or less explored during the last 4 expeditions. In total, more than 3 km of new salt cave passages were discovered and, of these, ca. 1600 m were mapped. The most important new salt caves are: Caracal Cave (634 m) and Cave of the Lost Bats (408 m) on Saadat Abad diapir and Khaki Cave (225 m) and Candy Floss Cave (120 m) on Namak diapir.

Several tens of ponors and springs were located. Unfortunately, most of the discovered ponors finish in shafts and their downward continuation is often blocked by fluvial sediments and collapsed blocks. Moreover, entrance parts of these ponors are unstable and any activities are problematic due to very limited anchoring options (absence of trees or firm rocks) close to shaft opening.

Scientific research of the salt karst continues as well. Solid samples were collected from several diapirs for analyzing their chemical composition and age (including ^{14}C and OSL – optically stimulated luminiscence). Basic parameters for water characterization (pH, Eh, conductivity, temperature) were measured on springs and streams. All together we collected 40 kg of water samples for determination of its chemistry, gas and isotopic composition. This amount represents more than 60 plastic or glass bottles that were transported in bags by domestic and international airlines. On the Jahani and Namak diapirs we installed several lysimeters and rain gauges. The results are continuously published in international scientific journals (see e.g., Bruthans et al., 2006, 2008, 2009).

Obtained results of the NAMAK project are continuously published in scientific and popular journals and in audio-visual media. Namely due to the discovery and documentation of the 3N Cave by the NAMAK team, part of the Qeshm Island was established as National geopark and in 2006 it was registered by the UNESCO Network of Geoparks.



Typical passage in the Candy Floss Cave: layered salt exposed in the wall and secondary sinters on the bottom, slightly floured by bats excrements. Photo by: M. Filippi, L. Palatinus, S. Šlechta

ACKNOWLEDGEMENT:

Members of the NAMAK team thank the staff of the Department of Earth Sciences of Shiraz University, Queshm Free Zone organization for their support during the work. The research in Iran is supported by projects No. KJB301110501 and KJB315040801 of the Grant Agency of the Academy of Sciences of the Czech Republic, research project MSM00216220855 (Charles University in Prague) and Institutional Research Plan No. AV0Z30130516 (Institute of Geology, AS CR, Prague).

Additional information about the project NAMAK could be found on the following webpage:

http://www.saltcaves.info/.

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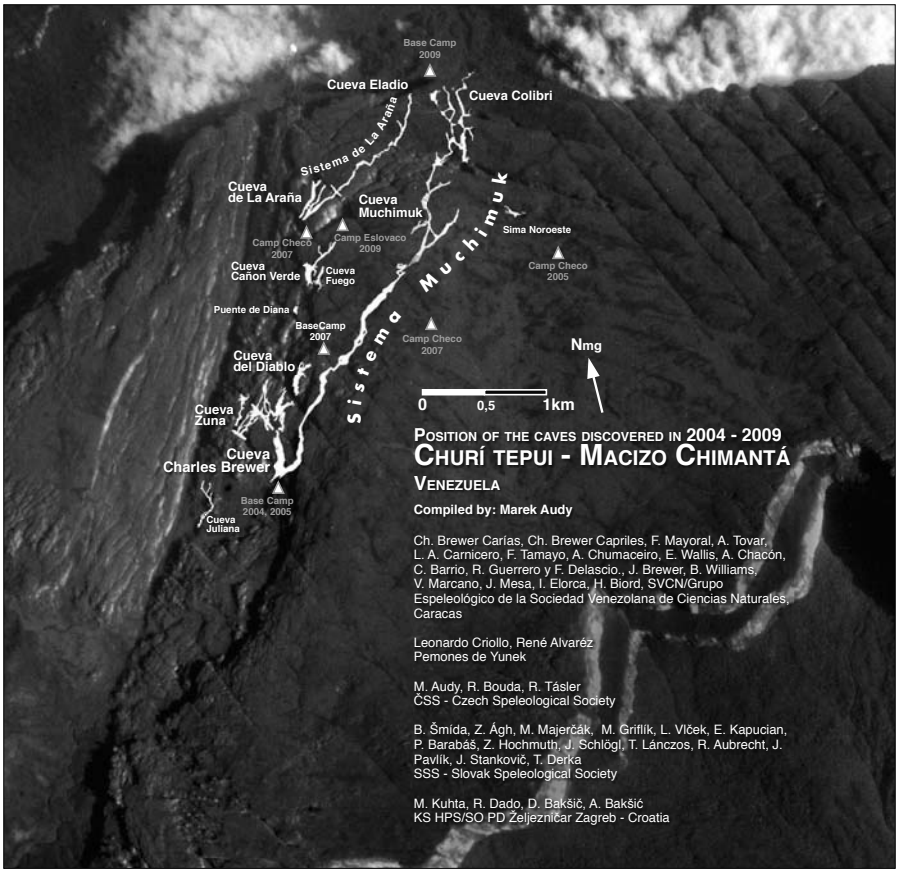
TEPUI — SPELEOLOGICAL EXPEDITIONS TO THE QUARTZ CAVES OF VENEZUELA

Marek Audy, Charles Brewer Carías

The table mountains of the Guyana highlands are one of the least explored places in the world thanks to their inaccessibility. The local Indians call these mesa "tepui" and consider them to be the home of the gods. The area of the Guyana highlands reaches almost 1 million km^2 and is roughly demarcated by the flow of the Orinoco from the north and the Amazon to the south. In political terms, these highlands are part of three countries – Brazil, Venezuela and Guyana.



Map of position of the caves discovered on Churi Tepui, Venezuela

Galería de los Pemones, Ojos de Cristal Cave, Roraima Tepui, Venezuela. Photo by: M. Audy & R. Bouda

High rock walls separate individual biotopes with a high level of endemism. The climate of the tepui has remained practically unchanged for hundreds of millions of years. The temperature fluctuates between 8°C at night and 24°C during the day. On most days the peaks of the tepui are shrouded in damp foggy clouds. During the rainy season there are also fierce storms with a substantial amount of rainfall. Most highland plateaus are only accessible for scientific expeditions with the aid of a helicopter.

GEOLOGY AND THE GENESIS OF THE TABLE MOUNTAINS

Quartz sands began to settle on the Precambrian granite base (2.3 billion years old) known as the Guyana Shield 2 billion years ago. The horizontal sandstone deposits were pierced near the present-day Roraima tepui 1.4 to 1.8 billion years ago by massive volcanic intrusions, which locally metamorphosised them into quartzite. Similar intrusions occurred on Chimanta later, 200 million years ago. The ash ejected by the eruptions was spread over the surrounding area. After landing on the surface, it slowly sank to the seabed made up of quartz sands. Microscopic layers of ash rock and the metamorphosis of sandstone into quartzite influenced the composition and also the properties of individual deposits. The water permeability changed in individual layers. Some are completely impermeable, others completely porous. This phenomenon is one of the basic elements responsible for the creation of quartzite caves.

The upthrow of the rocks from which the tepui later eroded, did not occur until the turn of the Mesozoic and the Cainozoic (100 to 65 million years ago). The upthrow lasted

a relatively long time due to the effect of the shift in the tectonic plates. However, the last hypothesis also speaks of the possibility of a sudden upthrow caused by the impact of a meteorite.

After the upthrow at the beginning of the Cainozoic, the table mountains were separated and denuded due to the effect of fluvial erosion – lowering of the surrounding surface right to the level of the present savannahs. Caves started to form at the same time.

ENDEMISM

The isolated nature of the highland plateaus also caused the endemism of the herpetofauna on the table mountains. This most frequently concerns tree frogs *Hyla sp. or Stefania sp.* Mammals constitute a special group of animal on the tepui. They are also found on the plateaus, but only on the massifs to which access exists from the lower altitudes above sea level. The largest living mammal on the highland plateaus of the table mountains is the coatimundi *Nasua nasua vittata* and together with the Rhipidomys macconnelli mouse and the Anoura caudifera bat, they are the only mammal that permanently lives on the peaks of the table mountains.

Plants resemble the vegetation from the period of the Mesozoic and are also endemic in terms of individual tepui. The quartzite bedrock is covered by only a small layer of humus soil cover and does not provide sufficient nutrients. Plants have to withstand extreme climatic fluctuations – differences in temperature between the night and day of twenty degrees, life underwater or having to withstand a high level of UV radiation. Adaptation of the flora to this environment led to unique carnivorous mechanisms. Plants use several strategies for "hunting": from simple sticking their prey – *drosera* and „drowning" insects in rainwater – *heliaphora, brocchinia* right through to an ingenious valve system of the bladderwort *utricularia*.

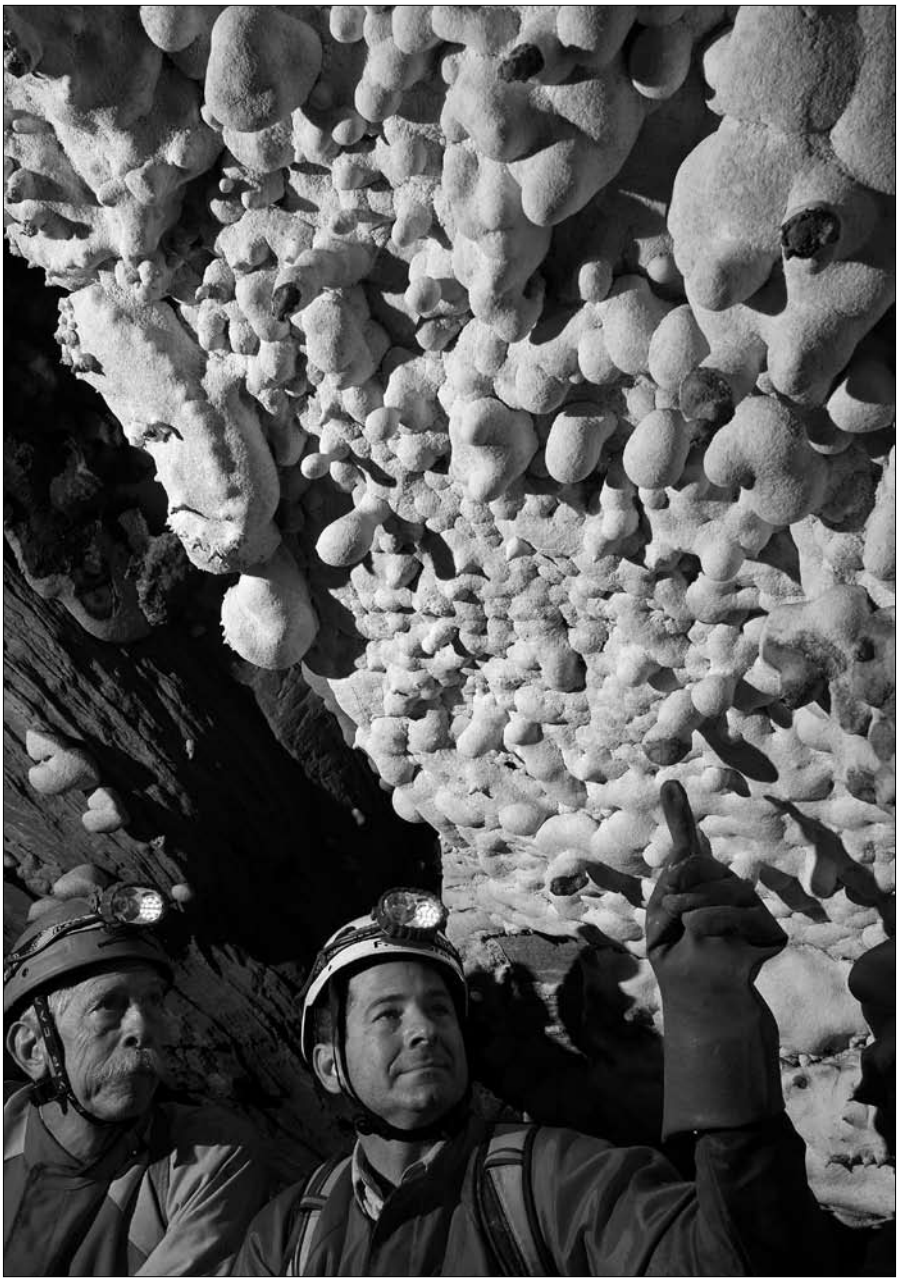
SPELEOLOGICAL EXPEDITION TO THE TEPUI

The first quartz cave in the Guyana highlands - Cueva Autana – was first mentioned in 1792 by the missionary Salvator Gilij. But systematic speleological exploration of one of the oldest karsts in the world is still in its infancy. The first to be documented was Cueva Autana in terms of an expedition led by Charles Brewer Carías in 1970. This cave intersects the whole of the Cerro Autana Mountain.

The first descent into the deep abyss of Sima Mayor in 1974 is still one of the most daring international speleological enterprises to this very day. Explorers led again by Charles Brewer Carías descended to a depth of 314 m and similarly as was the case at Cerro Autana used rope ladders for their return.

Scientists mapped the abyss in detail. A volume of 18 million m^3 ranked Sima Mayor among the five largest karst cavities in the world.

A mixed Czech and Slovak expedition discovered the Cueva Ojos de Cristal (Crystal eyes) cave in 2002 on Roraima tepui. Roraima tepui with its peak Ford Maverick (2810 m above sea level) was first drawn into the maps in 1839 by the Schomburgk



Opal stromatolites (biospeleothems) in the Eladio Cave, Churí Tepui, Venezula. Photo by: M. Audy & R. Bouda

brothers. The highland plateau takes up an area of 40 km^2 and is a border point between Venezuela, Guyana and Brazil. The quartzite cave of Cueva Ojos de Cristal was different from all quartzite locations presented until then. The labyrinth of wide fluvial corridors was documented by the Czechs and Slovaks over the course of 2003 - 2005 to a distance of 8.2 km. The Cueva Ojos de Cristal system to the south of Roraima tepui makes up the longest cave system found in quartz rock in the world. Discovery of the Cueva Ojos de Cristal cave was an historical turning point in the understanding of karst phenomena in quartz rock.

Until then, the most important and monumental quartz caves in the world - Charles Brewer cave, had been discovered in the spring of 2004 in the Chimanta massif by Venezuelan - Czech -Slovak expedition.

The rugged Chimanta massif takes up an area of around 1470 km^2. The highest peak is Murey tepui (2698 m above sea level). Charles Brewer was already exploring Chimanta tepui in 1977 when he led a multidisciplinary scientific exhibition there. In 2002 during a flyover he noticed a substantial spring, which signalised an underground system.

The entrance to the spring cave opens to a 150 m wide and 40 m high portal, from which two monumental corridors lead off. Access was ensured by helicopter, which made a breakneck landing directly under the entrance overhang. A river flows though the main stretch of the cave with a flow rate of 0.5 m3/s. However the flow rate periodically increases to several m^3/s when it rains. This then creates lakes and siphons sometimes hundreds of metres long underground. The water again subsides over the space of several hours. Exploration during the rainy season is risky.

The Charles Brewer cave, which is 4.8 km long, outdid the most fantastic of dreams with its dimensions. The underground domes with their rectangular cross section characteristic for quartz rock reach a width of up to 100 m in places. The dimensions, if you like, the volume of the underground space is comparable with the largest cave corridors described until then in the limestone rocks of Borneo or New Guinea.

The entrance to the Sistema de la Araña cave was located in the Chimanta massif by Charles Brewer Carías in 2005. It was explored by a Czech group during an international expedition in 2007. All development stages of quartz caves were discovered in this location. A complete hypothesis for the development of the quartz karst phenomena in the Guyana highlands was expounded on the basis of the findings from this cave.

The last two expeditions were carried out by the members of CSS in January and May 2009.

The January one was devoted to an exploration of the mesa of Auyán tepui and to documentation activity in the cave of Ojos de Cristal at Roraima tepui.

On the other hand the May one was devoted solely to the northern side of Churi tepui.

At first the measurements of Cueva Eladio were taken. This site was visited by the Italian group La Venta. 1.5-kilometer long Cueva Eladio is the spring of the hydrological system of Cueva Araňa and Cueva Cortina.

Sandstone columns in Galería Cocotal, Sistema de la Araña, Chimantá, Venezuela. Photo by: M. Audy, R. Bouda, R. Tásler

The connection is caved in.

Cueva Eladio, similarily to Colibri (4.6 km), discovered in January 2009 by Slovak – Croatian expedition, are fossil bathy caves.

Their inflow passages emerge in the northern wall out of the mesa . The particular swallow holes do not exist nowadays and get flooded by a system of vertical, geologically younger tectonic crevices.

The most significant discovery of 2009 was the Cave of Muchimuk, which connects Cueva Colibri and Cueva Charles Brewer (5.2 km).

The Cave of Muchimuk named after a demonic bird from a legend of local Indians is characterizes by huge passages through which active streams flow. In the last gigantic dome of Gran Salón Světlana the River Sajoco is generated and it disappears in the end cave-in. The cave-in already connects to the spaces in Cueva Brewer, but a physical connection has not been discovered thus far.

After adding Cueva Diablo (2.3 km) to Cueva Zuna (2.5 km), which were recently added by Slovak cave explorers, the longest system in quartz sandstone in the world, in the length of 17.8 km, thus comes into being.

GENESIS OF THE QUARTZ CAVES

Rainwater flowing through tectonic rifts is held underground by the impervious layer in significant areas – up to several km^2 (Cueva Ojos de Cristal, Roraima). This then leads to irrigation of the higher, more porous spongy layers. The binding agent between the grains of the quartz sands is dissolved and washed out and this leads to a significant weakening of the diagenesis (hardening of the sandstone) in the superstrata.

The next phase of development of the cave is erosion. Thanks to the abrasive activity of the sands and rain storms this is very dynamic. The characteristic mark of phreatic sandstone channels is the large number of supporting columns in the shape of hourglasses (Sistema de la Araña). As soon as these columns are eroded away, slabs of rock begin to peel off from the flat ceilings several metres in size. The massive cave-ins created are continuously eroded from the bottom up by underground currents. The cave areas are continuously increasing in size upwards on the basis of this principle (Cueva Charles Brewer, Chimanta).

The karst process this continues by breaching the ceiling of the underground domes onto the surface (Sima Mayor and Sima Menor, Sarisariňama).

SECONDARY FILLINGS – BIOSPELEOTHEMES

We found a range of unusual secondary fillings in the Venezuelan quartz caves with a diverse range of shapes. These unique mineralogical finds are made up exclusively of cryptocrystalline varieties of SiO_2, mostly its pure form – the opal.

It was frequently simple microorganisms that contributed to the creation of these fillings and this is why we defined them as „biospeleothemes“. We gradually named these biospeleothemes according to their characteristic shapes and colouring as follows: champignons, figurines, corals or spider stalactites.

Single-cell organisms – diatoms – contributed to the creation of the attractive white shapes – the “champignons”. Diatoms are wrapped in a casing called frustula, which is made up of polymerised silicon dioxide (with water). The crystalline structure is the same as with opal.

The basic structural element in terms of the development of so-called “spider stalactites” are clusters of damaged old spider webs. The mineral content of karst water, if you like, the aerosol from the waterfalls and cascades of underground rivers, cause silicification of the constantly renewed spider filaments.

Other than speleological exploration and documentation of the underground corridors, members of the expedition on the tepui deal with research of undocumented forms of life with Venezuelan and Slovak botanists, zoologists, herpetologists and specialists in the tropical area of table mountains of the Guyana highlands. The multi-scientific character of the expedition attempts to achieve the most complete understanding possible of the endemic quartzite karst phenomena.

ABSTRACTS OF PRESENTATIONS ON THE 15TH ICS IN KERRVILL 2009

DALOVICA PECINA, MONTENEGRO

Jan Sirotek, Zdeněk Motyčka
Czech Speleological Society – Pustý Žleb

ABSTRACT:
Cavers from the caving club 'Pustý Žleb' of the Czech Speleological Society have been organizing expeditions to the Dalovica plateau in Montenegro since 2003. 6 expeditions have been focused mainly on exploration of the Dalovica cave, one of the largest cave system in the Balkans. The Dalovica cave (also known as Pecina Nad Vrazjim Firovima) was explored in 1980's by Serbian cavers from Belgrade. Their exploration stopped at the first sump at the end of the cave. They dived through but did not continue further. During our third expedition we successfully passed the second sump and systematically explored the new part of the cave. Several bivouacs were organized and we explored more than 3 km of new corridors. The biggest dome of the cave called the Big Brother Dome (100 x 40 x 20 m) was found as well. Exploration was complicated mainly due to hard logistics connected with transportation of heavy diving equipment through a passage several kilometres long.

Another 500 m long cave in the Dalovica canyon above the emergence of the Bistrica River was explored and named Brno. Two dives were also organized in the emergence called Jurisko Vreljo that reached the distance of 300 m and the depth of 50 m. During the expeditions we were searching for new cave entrances on the Dalovica plateau as well. All the newly explored areas were surveyed and a movie about the expeditions was created. Our expeditions were organized in cooperation with Montenegrin cavers.

NEW DISCOVERIES IN THE AMATÉRSKÁ CAVE – THE LONGEST CAVE SYSTEM OF THE CZECH REPUBLIC

Zdenek Motycka
Czech Speleological Society, Na Kralovkach 894, Kurim 664 34, Czech Republic

ABSTRACT:
Between 2004 and 2008 several important discoveries were realized in the longest cave system in the Czech Republic – Amatérská Cave. In 2005, thanks to a newly opened entrance, faster and safer access to the Sloupsky koridor could start a new period of exploration and documentation in this part of Amatérská Cave. Many small discoveries were made adding one km of new passages. At the end of 2005, 282 years after the first person entered the Macocha Abyss, the last missing connection with a nearby cave was found. So the total length of Amatérská Cave system exceeded 40 km. In 2006 and 2007 several chimneys were climbed and 500 m of new passages with unique eccentricities were found. In 2008 a small, narrow sump in Sosuvsky koridor was passed and 1300 m of new tunnels were discovered and documented. The resurvey and drafting of a new map of some parts of Amasterska Cave have continued.

NEW DISCOVERIES IN UNDERWATER CAVE SYSTEMS IN RIVIERA MAYA, MEXICO

Zdenek Motycka
Czech Speleological Society, Na Kralovkach 894, Kurim 664 34, Czech Republic

ABSTRACT:
Between 2006–2008 several new cave systems and new underwater passages were discovered during a cave diving expediton, organized by the Czech Speleological Society, in the Chemuyil area on Riviera Maya – part of eastern coast of Yucatan Peninsula. These expeditions discovered, explored and surveyed 17 km of new passages in the Koo´x Baal cave system, 3 km in Sistema Joolis and a new cave system was created by connecting Cangrejo and Ich Kin cenotes. Several animal skeletons and bones were discovered including the surprising find of an entire skeleton of a new animal species, a type of giant sloth, found in the Koo´x Baal cave system. All caves were surveyed, mapped, and extensively photo documented.

PALAEOMAGNETISM AND MAGNETOSTRATIGRAPHY OF CAVE SEDIMENTS IN SLOVENIA

Pavel Bosák[1, 2], Petr Pruner[1], Nadja Zuapan Hajna [2], Andrej Mihevc[2]

[1]*Institute of Geology AS CR, v.v.i., Rozvojová 269, 165 00 Praha 6, Czech Republic*
[2]*Karst Research Institute ZRC SAZU, Titov trg 2, 6230 Postojna, Slovenia*

ABSTRACT:
In research of karst in Slovenia we have been applying palaeomagentic and magnetostratigraphy method for more than 10 years. The research covered the most important karst regions from lowlands to high mountains, including Classical karst sites. The research extended across an extensive region with different geological structure and geomorphologic situations, containing a number of cave and fragments of cave systems. Good profiles of cave sediments were not abundant, so we focused on the most available and accessible ones. Different genetic types of caves were studied – from hypogenic (e.g., Jama pod Babjim zobom) and phreatic ones (e.g., Grofova jama, Zguba jama) to ideal water-table cave systems (e.g., Postojnska jama, Markov spodmol). Results from individual sites and their discussion clearly indicated some similarities in evolution both of caves and their fills. They are also provided information on the evolution of the surface, weathering conditions, pedogenesis, etc.

Dating of cave sediments (flowstones and clastic sediments) by the application of the palaeomagnetic method is a difficult and sometimes risky task, as the method is comparative in its principles and does not provide numerical ages. Repeated sampling in some profiles have shown that only dense sampling (high-resolution approach with sampling distance of 2–4 cm), can ensure reliable results. Correlation of the magnetostratigraphic results we obtained, and the interpretations tentatively placed upon them has shown that in the majority of cases, application of an additional dating method is needed to either reinforce the palaeomagnetic data or to help to match them with the geomagnetic polarity timescale.

The application of complete palaeomagnetic analysis, both by thermal demagnetization and alternating field demagnetization, only to pilot samples and the shortened selected field/step approach to other samples does not offer sufficient data set for interpretation. It is necessary to apply complete demagnetization to obtain reliable data. Measured data should be subjected to multi-component analysis of the remanence. The individual components must be precisely established to determine the ChRM directions. Mean ChRM directions must be analyzed using the statistics for spheres but small number of samples could not be used for a reliable interpretation.

The dynamic character of cave fill deposition is reflected in the start or termination of individual magnetozones at unconformities in a number of profiles, which is compa-

rable with situation reported on a number of Quaternary carbonate platforms. The general character of cave depositional environments with their numbers of post-depositional changes, hiatuses, reworking and re-deposition does not allow precise calculation of the temporal duration of individual interpreted magnetozones. All these factors contribute to the fact that exact calibration of the geometric characteristics of the magnetostratigraphic logs with the GPTS cannot be attained at all or only with problems, if it is not adjusted using results of other dating and geomorphic methods.

Nevertheless, the application of the method on a large scale, as was done by our team during the past ten years in Slovenia has produced much new data and opened new horizons for the interpretation of karst and cave evolution, both in individual geomorphologic units and over such extensive areas as the Dinaric and Alpine karsts.

KARST SEDIMENTS AGE IN SLOVENIA

Nadja Zuapna Hajna[1], Andrej Mihevc[1], Petr Pruner[2], Pavel Bosák[2, 1]

[1]Karst Research Institute ZRC SAZU, Titov trg 2, 6230 Postojna, Slovenia
[2]Institute of Geology AS CR, v.v.i., Rozvojová 269, 165 00 Praha 6, Czech Republic

ABSTRACT:
The territory of Slovenia, with its numerous karst regions from the Alps to the Mediterranean, long history of karst evolution and relatively good knowledge of karst sediments represents an ideal place for dating of cave sediments with different dating methods. The results enable to interpret the time span of karst evolution, age of karst surfaces, speleogenesis and rates of the processes. The majority of karst sediment dating has been carried out in the south-western Slovenia (Kras) where Eocene flysch is the last marine deposit preserved in the geologic record. The Oligocene to Quaternary period represented mostly terrestrial phase with prevailing surface denudation and erosion processes related to tectonic evolution of the area. Therefore only karst sediments can record karst evolution and its age.
The palaeomagnetic research was carried out in Slovenia from 1997 to 2007. There were a total of 21 sites (19 in Slovenia and 2 in Italy) with 36 profiles; all except one were cave or karst surface sediments. The sites are located mainly in the Dinarski kras (Kras, Matarsko podolje, Podgorski kras, Notranjski kras, Dolenjski kras) and four of them in other areas, especially due to the fact that localities with suitable sediments are nearly absent in the Alps. Two sites from Julian Alps, one inn the Isolated Karst of the pre-Alps and Plio/Quaternary fluvial sediments from the tectonic Velenje basin were also analysed.

The most important result is the discovery that cave fills have substantially older ages than generally expected earlier (max. about 350 ka). Palaeomagnetic data in combination with other dating methods, especially biostratigraphy, have shifted the possible beginning not only of the speleogenesis but also of the cave filling processes in Slovenia far below the Tertiary/Quaternary boundary. Results suggest that there were probably some distinct phases of massive deposition in caves. The oldest one took place from about 1.8 to more than 5.4 Ma (with two phases at 1.8 – 3.6 and about 4.1 – 5.4 Ma). The data support and better define the estimated ages of the surface and cave sediments that were based on geomorphic evidences, especially from unroofed caves. The evolution of the caves took part within one karstification period, which began with the regression of Eocene sea and exposing of limestones at the surface within complicated overthrusted structure, which formed principally during Oligocene to early Miocene.

Research in the Dinaric, Alpine and Isolated karsts opened new horizons for the interpretation of karst and cave evolution, both of individual geomorphologic units and of extensive areas. The data inform us that a number of common features and evolutionary trends exist in all the studied areas. On the other hand, there are distinct differences of evolution of smaller geomorphic units within the more extensive ones, which result mostly from differential tectonic movements.


ČESKÁ
SPELEOLOGICKÁ SPOLEČNOST