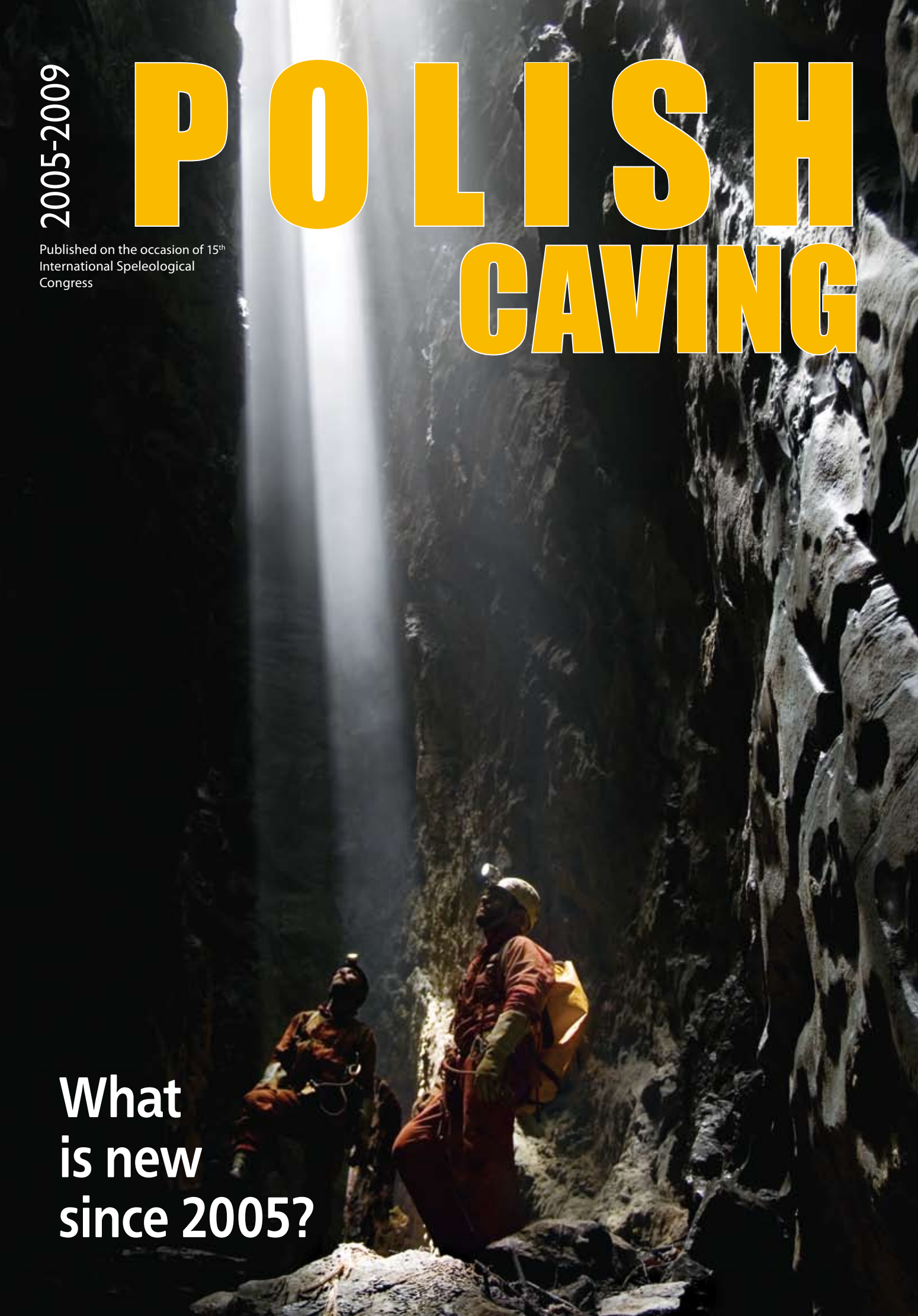
2005-2009

POLISH CAVING

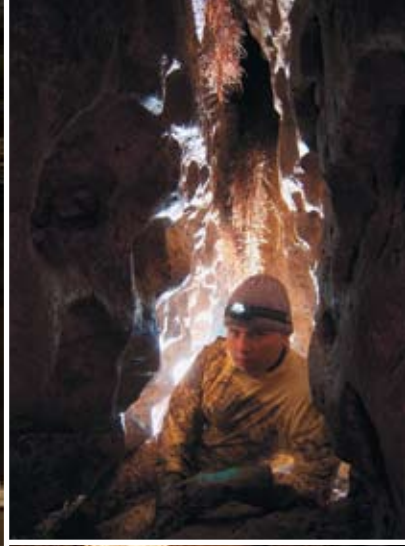
Published on the occasion of 15th International Speleological Congress



What is new since 2005?

JAN KUĆMIERZ

KATARZYNA BIERNACKA, MARCIN GALA



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Caves in Poland

There are more than 4200 known caves in Poland. They are of karst and non-karst (pseudokarst) origin. The former are developed in karst rocks, mainly limestones and dolomites, rarely in gypsum and marbles and exceptionally in rock salt. Although the karstified rocks are widely distributed, the outcrops are rather small and occupy only about 2.5 % of the country area (i.e., about 8000 km^2). Most of the country is covered with loose Cainozoic deposits. The non-karst caves are developed mainly in sandstones. The eight main regions of cave occurrence in Poland are characterized below.

Western Tatra Mountains (Tatry Zachodnie)

The Tatra are the only alpine mountains in Poland. They occupy the area of 785 km^2 (only 175 km^2 in Poland). The karst rocks (limestones and dolomites of Triassic, Jurassic and Cretaceous age) build mainly the Western part of the Tatra range. They occur over the area of 50 km^2. This area is practically the only region in Poland with large and deep caves. Because of that the everyday activity of Polish cavers, both exploration and training is concentrated in this area. Long life anchors were installed in the most popular caves of this region.

More than 805 caves are now known in the Tatra Mountains (775 in the Western Tatra Mts. and 30 caves in the High Tatra Mountains). The total length of these caves exceeds 126 km. The highest outcrops of karst rocks lie at altitudes above 2000 m and the main karst springs are situated at the level of about 1000 m. Most caves are located in the following areas: slopes of the Bobrowiec, Kominiarski Wierch, Kościeliska

Front cover:
Entrance to cave Akemabis, the Sierra Negra, state of Puebla, Mexico, April 2008, photo: Kasia Biernacka / speleo.pl

Valley, Czerwone Wierchy massif, Giewont, Kalacka Turnia and Kopa Magury. The longest and deepest caves are situated mainly in the Czerwone Wierchy massif.

For three years the most significant achievement has been the exploration of Siwy Kocioł cave, located in the Czerwony Wierchy massif (see the article by Filip Filar and Michał Parczewski). The cave is 295 m deep and over 800 m long.

All Tatra caves are situated in the Tatrzański National Park and caving activities are strictly limited by the Park authorities. Only six caves are open for tourists. For visiting other caves special permission is needed. 37 caves are available for caving (this constitutes 80% of the length of all the corridors). At each visit in a cave the cavers are obligated to obtain special permission from the Tatra National Park (TPN). One cave can be visited by maximum 15 people a day.

Pieniny Klippen Belt (Pieniński pas skałkowy)

In this area resistant Mesozoic limestones build up isolated klippen surrounded by non-karst rocks. There are more than 90 caves in this area. Although all these caves are in limestones, most of them are of non-karst (pseudokarst) origin. The longest cave is Jaskinia w Ociemnem, which is 196 m long and 47.5 m deep.

Beskidy Mts. (Beskidy)

The Beskidy Mts. are built of Cretaceous-Paleogene flysch – sandstones and shales. More than 1010 caves are known there, all of non-karst (pseudokarst) origin with sandstones as the host rocks. They originated by gravitational movements of rocks along cracks. The longest and the deepest cave is Miecharska (1 810 m long, 56 m deep) in the Beskid Śląski Mts.

Kraków – Wieluń Upland (Wyżyna Krakowsko-Wieluńska)

This area occupies about 2500 km^2. Nowadays there are more than 1850 known caves. Almost all of them are developed in Upper Jurassic limestones. Only a few occur in Lower Carboniferous limestones and Middle Triassic limestones and dolomites. Jaskinia Wierna, which was explored in 1990 is the longest cave in the Kraków - Wieluń Upland. It is 1027 m long. The caves of this area are mainly horizontal, the deepest is Jaskinia Studnisko -77.5 m deep. Some caves are situated within protected areas (i.e., the Ojcowski National Park and the Jurassic Landscape Parks). The access to these caves requires special permission. Five caves are open for tourists and four of them are lit by electricity.

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Silesian Upland (Wyżyna Śląska)

This area of more than 3900 km^2 is built mainly of Middle Triassic carbonates. More than 165 caves are known in that area. They are rather small. Only one of them exceeds the length of 100 m (Jaskinia w Diablej Górze, 107 m long). The majority of the caves were opened during quarrying. Some of them were afterwards destroyed by exploitation. A few caves were discovered during mining the zinc-lead ores in the Olkusz area north-west of Kraków. These caves are developed in Middle Triassic ore-bearing dolomites.

Świętokrzyskie Mts. (Góry Świętokrzyskie)

Chelosiowa Jama is the longest Polish cave outside the Tatra after its communication with Jaskinia Jaworznicka in spring 1996. The cave is developed in Devonian limestone, it is 3670 m long. Another long cave, Jaskinia Pajęcza, with the length of about 1000 m, is located very close to it. Chelosiowa occupies the ninth place in the list of the longest Polish caves, the other 130 caves occurring in this area are rather small. The caves in the Świętokrzyskie Mts. are developed mainly in Devonian limestones, only subordinately in Jurassic limestone. The best known is Raj (Paradise), famous for its speleothems. This cave is open for tourists and illuminated.

Nida river basin (Niecka Nidziańska)

This is the only area of non-carbonate karst in Poland. Almost all of 115 caves situated in this region are developed in Miocene deposits, mainly in gypsum and only subordinately in kalkarenites, many near groundwater level. The longest is Jaskinia Skorocicka (350 m).

Sudetes Mts. (Sudety)

Most of karst caves in the Sudetes are developed in Precambrian and Palaeozoic

Distribution of caves in Poland; the caves mentioned in text: 1. Jaskinia w Ociemnem, 2. Jaskinia Miecharska, 3. Diabla Dziura w Bukowcu, 4. Kryształowe Groty in Wieliczka salt mine, 5. caves in lead-zinc mines near Olkusz, 6. Jaskinia Wierna , 7. Jaskinia Studnisko, 8. Jaskinia Skorocicka, 9. Chelosiowa Jama, 10. Jaskinia Raj, 11. Jaskinia Niedźwiedzia, 12. Szczelina Wojcieszowska, 13. caves near Inowrocław, 14. caves near Gdańsk

The longest caves in Poland

Cave	Location	Length
Jaskinia Wielka Śnieżna	Tatra Mts, Małołączniak	23 620 m
Śnieżna Studnia	Tatra Mts, Małołączniak	12 050 m
Jaskinia Wysoka - Za Siedmiu Progami	Tatra Mts, Ciemniak	11 660 m
Jaskinia Miętusia	Tatra Mts, Dolina Miętusia	10 725 m
Bańdzioch Kominiarski	Tatra Mts, Kominiarski Wierch	9 550 m
Jaskinia Czarna	Tatra Mts, Dolina Kościeliska	6 500 m
Ptasia Studnia	Tatra Mts, Kozi Grzbiet	6 291 m
Jaskinia Zimna	Tatra Mts, Dolina Kościeliska	4 250 m
Jaskinia Mała w Mułowej	Tatra Mts, Ciemniak	3 760 m
Chelosiowa Jama - Jaworznicka	Świętokrzyskie Mts, Góra Kopaczowa	3 670 m
Jaskinia Kozia	Tatra Mts, Kozi Grzbiet	3 470 m
Jaskinia Niedźwiedzia	Sudety Mts, Masyw Śnieżnika	3 300 m
Jaskinia Kasprowa Niżnia	Tatra Mts, Dolina Kasprowa	3 020 m
Szczelina Chochołowska	Tatra Mts, Ciemniak	2 320 m
Jaskinia Miecharska	Beskid Śląski Mts, Dolina Malinka	1 810 m
Jaskinia Bystrej	Tatra Mts, Dolina Bystrej	1 480 m
Jaskinia Naciekowa	Tatra Mts, Dolina Kościeliska	1 260 m
Jaskinia w Trzech Kopcach	Beskid Śląski Mts, Trzy Kopce	1 244 m
Jaskinia Magurska	Tatra Mts, Dolina Jaworzynki	1 200 m
Jaskinia Pajęcza	Świętokrzyskie Mts, Góra Kopaczowa	1 183 m
Jaskinia Mylna	Tatra Mts, Dolina Kościeliska	1 080 m
Jaskinia Wierna	Jura, Dolina Wiercicy	1 027 m
Studnia w Kazalnicy	Tatra Mts, Dolina Miętusia	1 000 m

The deepest caves in Poland

Cave	Location	Vertical extent
Jaskinia Wielka Śnieżna	Tatra Mts, Małołączniak	824 m (- 808; + 16)
Śnieżna Studnia	Tatra Mts, Małołączniak	763 m (- 726; + 37)
Bańdzioch Kominiarski	Tatra Mts, Kominiarski Wierch	562 m (- 546; + 16)
Jaskinia Mała w Mułowej	Tatra Mts, Ciemniak	-538 m
Jaskinia Wysoka - Za Siedmiu Progami	Tatra Mts, Ciemniak	435 m (- 288; + 147)
Jaskinia Kozia	Tatra Mts, Kozi Grzbiet	389 m (- 376; + 13)
Ptasia Studnia	Tatra Mts, Kozi Grzbiet	-379 m
Jaskinia Miętusia	Tatra Mts, Dolina Miętusia	305 m (- 283; + 22)
Jaskinia Czarna	Tatra Mts, Dolina Kościeliska	304 m (- 242; + 42)
Jaskinia Siwy Kocioł	Tatra Mts, Małołączniak	-295 m
Studnia w Kazalnicy	Tatra Mts, Dolina Miętusia	240 m (- 199; + 41)
Jaskinia Zimna	Tatra Mts, Dolina Kościeliska	176 m (- 16; + 160)
Jaskinia Pod Wantą	Tatra Mts, Małołączniak	172 m (- 158; + 14)
Jaskinia Małołącka	Tatra Mts, Małołączniak	-166 m
Jaskinia Zośka - Zagonna	Tatra Mts, Małołączniak	-163 m
Jaskinia Marmurowa	Tatra Mts, Ciemniak	151 m (- 126; + 25)
Jaskinia Miętusia Wyżnia	Tatra Mts, Dolina Miętusia	145 m (- 108; + 37)
Szczelina Wojcieszowska	Sudety Mts, Góra Połom	113 m (- 93; + 20)

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marbles. Apart from them some karst caves are situated in Permian limestones. Other caves, these of non-karst origin, occur in granites and sandstones. More than 170 caves are known in the Sudetes. The famous one is Niedźwiedzia cave, which is the longest (2320 m) in the Sudetes. Its upper part is open for tourists. The deepest cave of this area is Szczelina Wojcieszowska with vertical extent 113 m (+20, -93). Some of the caves in the Sudetes are situated in a big, still active quarry in Wojcieszów. The access to these caves is strongly prohibited. Some caves have been destructed by quarrying (due to quarry works 1417, 5 m of corridors have been destroyed), while entrances to others have been blocked with rubble.

Other caves in Poland

Some caves in Poland are situated outside of the above characterized regions. Some caves are developed in locally lithified Pleistocene sands in northern Poland. Jaskinia w Mechowej near Gdańsk, is the longest of them (61 m). Other small caves, which are probably exhumed fossil karst forms, are known from Jurrasic limestone quarries near Inowrocław in central Poland. A few caves were discovered during mining of rock salt. The most famous of them are small caves in the Wieliczka salt mine (southeast of Kraków), named Kryształowe Groty (Crystal Caverns) after the giant halite crystals lining their walls. Other similar caves developed in Permian rock-salt occured near Inowrocław. Unfortunately they were flooded after the end of rock-salt mining. A few small caves were also surveyed in Miocene limestones of the Roztocze Upland.

References

The morphometric data on caves mentioned in the text were derived from many sources. Some of them have already been published in the 17 volumes of the inventory of Polish caves published by Polskie Towarzystwo Przyjaciół Nauk o Ziemi (Polish Society of Earth Science Fellows) and edited mainly by J. Grodzicki. The inventory covers the caves situtated in most above mentioned regions. Also used were pubications by A. Armirowicz, J. Baryła, K. Dziubek & M. Gradziński (1995) on caves in the Pieniny National Park, by M. Gradziński % M. Szelerewicz (2004), several volumes of inventory of caves Ojcowski National Park in the Cracow – Wieluń Upland. Many current data have been published in quarterly journal Jaskinie and on Epimenides Cave Page http://www.sktj.pl/epimenides/index_d.html and Krakowski Klub Taternictwa Jaskiniowego www.kktj.pl. The geological data on distribution of karst features in Poland are based on the articles by J. Głazek, T. Dąbrowski & R. Gradziński (1972), as well as by J. Głazek, R. Gradziński & M. Pulina (1982). I was also provided with some personal information by A. Kasza.

Agnieszka Gajewska & Ditta Kicińska

Caving organizations in Poland

Poland is primarily a flat and lowland country. Most caves are situated in either national parks or protected landscape areas, so cave exploration and visiting are possible only with permits from respective authorities (the Tatra National Park, nature reserves in the Kraków - Wieluń Upland). Some caves are situated in or near quarries and industrial sites (Silesian Upland, Sudetes).

The same regulations apply to cavers and speleologists under the agreement between Polish Mountaineering Association (PMA) – Polski Związek Alpinizmu (PZA) and national park authorities. Scientists conducting research under the auspices of scientific institutions can apply for relevant permits. Permits concerning research are seasonal and are limited to particular caves or cave areas. Permits for tourism, recreation or sport activities are issued individually after submitting an application by a caving club associated in PMA. Foreign speleologists can conduct caving activities only after having received a special permit for each group. They are also allowed to cooperate with a Polish caving club, which in this case bears full responsibility for all the members of an expedition.

These regulations do not apply to caves situated outside the protected areas.

Most of the Polish cavers are organized in caving clubs. One can become a member of a club with or without a special caving license. Such caving license is granted after a special course and entitles it holder to apply to local authorities and national park management structures for caving permissions.

In Poland, anyone who so wishes can become a caver. Such person must be over 18, in good health and is obliged to complete a special caving course during which they are taught caving techniques, safe mountaineering rules, climbing and also get acquainted with general knowledge concerning geology, cartography, topography and first aid. Most Polish cavers are interested in exploration of Polish and foreign regions, some just for recreation, while others prefer vertical caving, cave climbing, cave diving or cave photography.

Polish cavers, with climbers and skialpinists, are members of clubs belonging to the Polish Mountaineering Association (PMA, Polski Zwiazek Alpinizmu). PMA is a member of UIS, FSE, UIAA and IFSC. The PMA is represented by a management board, elected every three years by the representatives of all the clubs. The role of PMA is mostly one of representation. It decides on general rules of any sport activities in Polish mountains, supervises training courses and takes care of safety rules. PMA does not influence the activities of the clubs. PMA has some financial means and sometimes does support projects, such as expeditions, trainings and editorial activities.

PMA comprises of: climbing, ski mountaineering, expedition and caving commissions.

The Caving Commission (Komisja Taternictwa Jaskiniowego – KTJ) is also appointed by representatives of all the 23 associated caving clubs for a period of three years. The Caving Commission represents cavers and protects their interests in PMA, holds courses for caving instructors, coordinates joint-club activities and maintains contacts with Polish and international caving and mountaineering organizations.

In the recent years, Polish clubs have been organizing over a dozen exploration expeditions abroad yearly, including those into exotic karst (Rapa Nui, China). We are also participants of explorations conducted by national expeditions of other countries and of international expeditions (Mexico, Russia, Abkhazia). These are conducted under the auspices of PMA and are partially subsidized from PMA funds. Also a number of cyclical training events are organized by Caving Commission: auto-rescuing, rescuing, rescue cave maneuvers, cave surveying courses. Also a whole-country competition in caving techniques is held annually along with 'speleoconfrontations', i.e. post-expedition meeting of the majority of active Polish cavers which is dedicated to presenting the exploration achievements of the year.

The Caving Commission of PMA in cooperation with the Tatra National Park are going to make an inventory of the current state of nature and to monitor the state in the future. For many years the Caving Commission of PMA and the caving clubs have been organized the cleaning caves.

A number of local bulletins is published by regional clubs, and the quarterly 'JASKINIE' (Caves) is the Polish nation-wide caving publication. It focuses on the latest pieces of information on Polish domestic and foreign caving activities; hence relevant contributions from foreign cavers are welcome. The magazine is published in Polish with short English summaries.

Adresses of the Polish caving organisations

Polski Związek Alpinizmu (Polish Mountaineering Association), **Komisja Taternictwa Jaskiniowego** (Caving Commission) ul. Noakowskiego 10 m 12, 00-666 Warszawa (WARSZAWA)
www.pza.org.pl/jaskinie, e-mail: ktj@pza.org.pl

Jaskinie – quartely Polish caving journal, c/o Mariusz Szelerewicz, ul. Ehrenberga 36a, 31-309 Kraków (KRAKÓW), e-mail: szelerewicz@ceti.pl

Epimenides cave page – official Polish caving web page
http://www.sktj.pl/epimenides/index_d.html

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New cave in the Czerwone Wierchy massif

Contrary to the opinions telling that there was no chance of great discoveries in the Tatras, every few years we can hear about finding new big caves or deepening the previously known ones. The calcareous part of the Polish Tatras is a small area and therefore has been recognized well in terms of caving. The possibility of discoveries has been and will be still existing. The only things that have been changed are difficulty and labour consumption of exploration. It was confirmed by the exploration of cave discovered by cavers from Zakopane 3 years ago.

First stage of exploration

In the half of the nineties Szczepan Masny noticed an intriguing sinkhole at the edge of Kotliny wall that slopes down into Niżna Świstówka. But only in August 2005 F. Filar and P. Orawiec found the entrance. On that day they reached the depth of 15 m.

The next two actions carried out by Filar and Orawiec together with G. Albrzykowski were more successful. During the first one they reached the Studnia Szczepana entrance at the depth of about -50 m. The way to that point led through an extended (for the Tatras' conditions) breakdown. Starting at the entrance, the solid walls of the passage are accessible only in few places. The rest is squeezing through not very securely choked blocks, usually cemented by sand mixed with clay.

The next action succeeded in reaching the bottom of vast, about 50-m-deep Studnia Szczepana (Szczepan's Shaft). It has smooth walls but its bottom is choked by debris blocking the way down. The situation in Boczna Sala (Lateral Chamber) looks similarly. It is in fact the bottom of Boczny Komin (Lateral Chimney) parallel to Szczepan's Shaft. Perceptible air current in the breakdown made us look for a passage: at first in the Lateral Chamber, then at the bottom of the Szczepan's Shaft. At the same time the exploration was conducted in every lateral branch of the system.

The most interesting branch begins behind a window in Szczepan's Shaft. Because of the rumble created by air flowing through narrowed passage, that part was called Transformator (Transformer). However, the exploration of that passage stuck at the point where the air current started to fade. So we returned to looking for the passage beyond Studnia Szczepana and then the exploration stopped for a year. In the action mentioned above participated: G. Albrzykowski, F. Filar, P. Grodecki, M. Kowalczyk, W. Kowalski, W. Łukaszczyk, J. Masny, P. Orawiec, M. Parczewski, J. Trojan and K. Zaczyński.

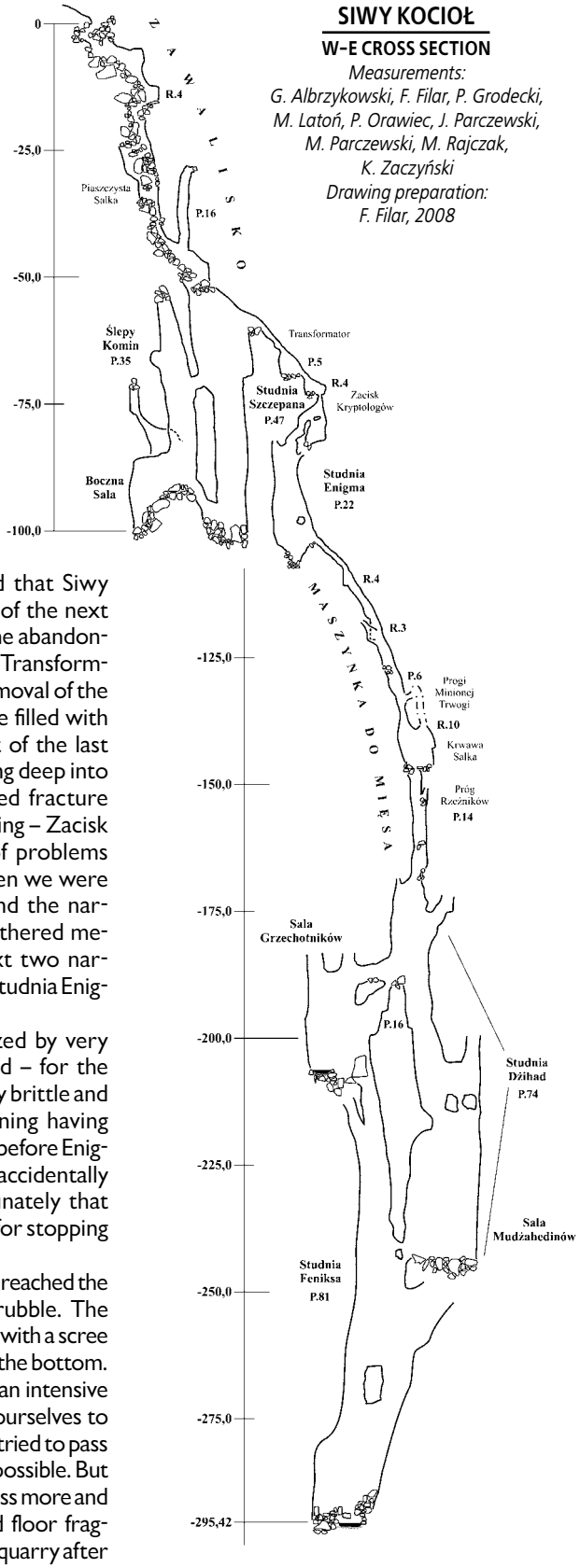
Second stage

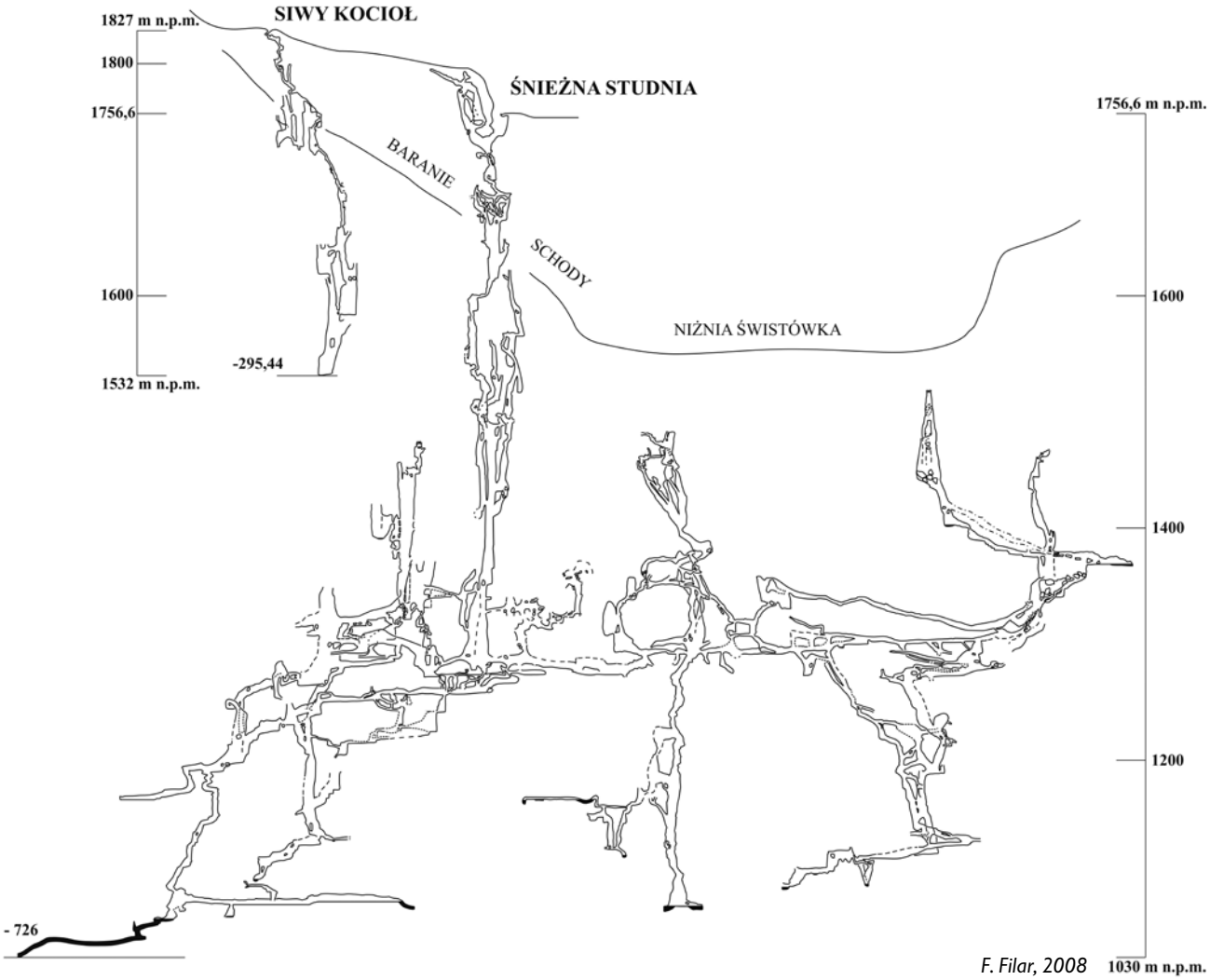
At the end of 2007 and the beginning of 2008 cavers went to the cave with the purpose of surveying the lateral passages and taking out a part of the equipment. No one expected that Siwy Kocioł would give us a chance of the next discoveries. As it turned out, the abandonment of exploration behind the Transformer was a huge mistake. After removal of the alluvium from cramped fracture filled with rubble, located in the NE part of the last chamber, we saw the way leading deep into the massif. Horizontal cramped fracture forms here a very hard narrowing – Zacisk Kryptologów. We had a lot of problems passing through, especially when we were carrying the equipment. Behind the narrowing, the upper level of weathered meander led us, through the next two narrowed passages, above a deep Studnia Enigma (Enigma Shaft).

This passage is characterized by very strong seasonal air current and – for the Tatras' conditions – is extremely brittle and dangerous. At the very beginning having passed through the narrowings before Enigma one caver was hit by rocks accidentally knocked from the roof. Fortunately that event did not become a reason for stopping the exploration.

After 22-m-long descent, we reached the Enigma bottom covered with rubble. The further way led through window with a scree ledge situated few meters above the bottom. Behind it a steep meander with an intensive air current began. We allowed ourselves to be carried away by euphoria and tried to pass the meander as quickly as it was possible. But deep inside we were coming across more and more weathered wall, roof and floor fragments that in parts looked like a quarry after blasting. For our safety, we had to tear out and throw away large pieces of the weathered material. On account of the lack of hiding places we called that part Maszynka do Mięsa (Meat Mincer).

Meander started to become steeper. The two following steps led us to Krwawa Salka (Bloody Room). In its floor, between blocks, we found the passage leading above a several-meters-high Próg Rzeźników (Slaughters' Step). It is built out of not very steadily choked blocks. As the previous two steps, the third one was passed through in an exploratory frenzy, without using a rope. That day we ended exploration at its base (-162 m of depth). Stone thrown into the fracture was falling for a few seconds. There was a deep shaft below but our equipment had already run out below Enigma. The only thing we could have done was retreat. During retreat the cave showed us its bloodier face. Passing through Próg Rzeźników another caver was





hit by falling stones. The sight of blood and an adrenaline jump made our retreat faster. That day both cavers ended exploration visiting a hospital in Zakopane.

The next action took place after over a month. The team in the same line-up with a large equipment reserve moved toward the entrance. Winter conditions made the transport more difficult. Crossing snowdrifts in a strong wind cost us 7 hours of arduous march. The transport of equipment inside the cave was difficult as well. Everyone was carrying 2 large sacks. After reaching the deepest part discovered previously and knocking the dangerous blocks down, we descended about 20 m down to a rock bridge in Studnia Dżihad (Jihad Shaft). The shaft continued with cascades but flowing water discouraged us from further exploration there. Therefore we chose the steps sloping down into opposite direction. At their base (a little over -200 m of depth) there is Sala Grzechotników (Rattlesnakes Chamber) situated. It is the nicest place in the cave so far. Smooth walls without mud and lower brittleness give a sense of security. There is a pond fed with water from chimney above situated in the western part of the chamber.

After short rest we started descending into deep shaft behind a block in the northern part of the chamber. When we cleaned its edge, we moved (using the last two ropes) only about 40 m down. Time of the stone fall let us assume that the same number left to reach the bottom.

The way to the entrance from that point became long and tiring, quite long distances of the shafts and meander had to be covered individually due to falling rocks. After 15 hours spent in the cave, we were greeted with night and snowstorm outside. Hidden in a snow hollow we had to wait until dawn.

High avalanche risk level delayed our next action. The same team came back to the cave after a month. At that time, with rope reserves, we reached the bottom of Studnia Feliksa (-81 m) very quickly. Too quickly because the further way turned out to be closed by a large breakdown choke. The ponds situated in its lowest part and total lack of air current made us go back to Studnia Dżihad which we had left 100 m above. It gave us hope for bypassing the breakdown using the adjacent passage. After moving down through a few cascades we reached Sala Mudżahedinów (Mujaheds' Chamber) which forms the bottom of that 74-m-deep shaft. The chamber in its western part is connected by two windows with Studnia Feniksa. Moreover the water disappearing in the breakdown flows into the previously discovered parallel passage. We also checked a lateral fracture directing eastward below the half of Studnia Dżihad. After all it turned out to be a mouth of lateral meander.

And again there were some surprises during our retreat. Much to our surprise, we found the small entrance passage totally filled with snow. Fortunately digging ourselves out took us half an hour only.

During the next action carried out in the summertime we wanted to make the documentation of our discoveries. The members of Speleoklub Tatrzański: M. Latoń, J. Parczewski and M. Rajczak participated in that survey. Currently the cave is 295-m-deep and over 800-m-long.

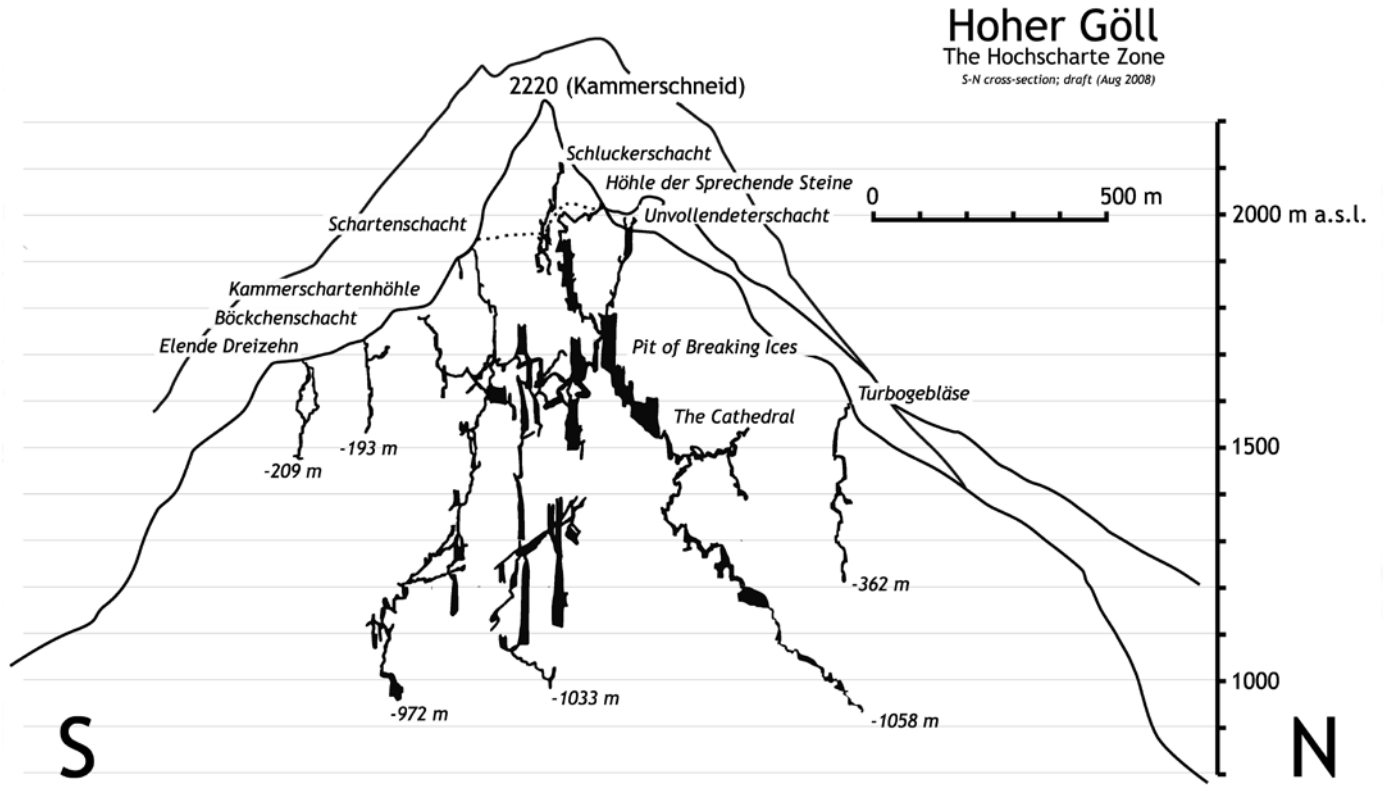
What next?

The cave exploration has not been finished yet. The existence of its connection with Śnieżna Studnia below is contradicted by lack of the air current and stagnant water in the breakdown choke. An intensive air current in the upper parts is caused probably by connections with other, smaller caves in Baranie Schody. Recently our activity has been focused on completing the documentation and climbing exploration of the chimneys diverging from the shaft at the cave bottom. Time will show if we are able to merge Siwy Kocioł with Śnieżna Studnia and form a cave system with denivelation of about 800 meters.

The cave exploration has been conducted by the members of Speleoklub Tatrzański. ❐

Hoher Göll

Mateusz Golicz
Rudzki Klub Grotołazów „Nocek"
Wielkopolski Klub Taternictwa Jaskiniowego



A cross-section of the currently explored zone

Hoher Göll is essentially a narrow, 8-km long ridge in the Salzburger Kalkalpen (Austria) with the highest peak reaching 2522 m above sea level. The place has been attracting Polish cavers for 40 years: in 1969 a small group led by Christian Parma visited the Gruberhornhöhle cave, being at that time the sixth deepest cave in the world. From then on, Göll became a destination of numerous Polish expeditions.

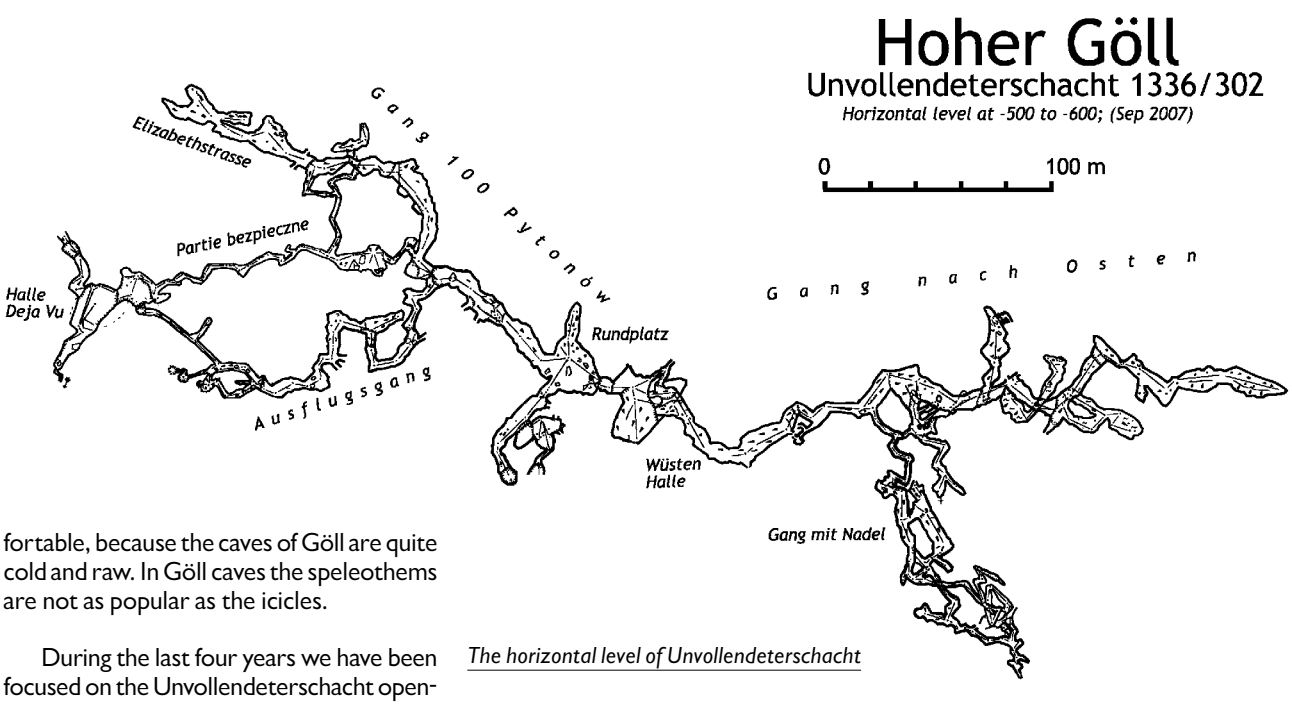
Our group has been exploring caves in the area regularly since 1990. We have been expecting long-term research that could allow us to draw conclusions about the underground water circulation. This seems to be a work for generations – and indeed, many members of the current team are apprentices of those who were leading the exploration a decade ago.

We have already surveyed more than 130 objects. Among the most significant are: the Grutredhöhlensystem (821 m deep), the Koboldschacht (679 m deep), the Schartenschacht (972 m deep) and the Hochschartehöhlensystem (until recently, 1033 m deep).

Z. RYSIECKI

Participants of the 2007 expedition

Most of the caves on Göll are very technically demanding. In some, there are squeezes making the transport of the equipment considerably difficult. On the other hand, the spacious ones tend to be vertical in the strictest sense. In the cave we are exploring now, until -370 m there is not a single place where one could stand safely without self-lining. It is also difficult to feel com-

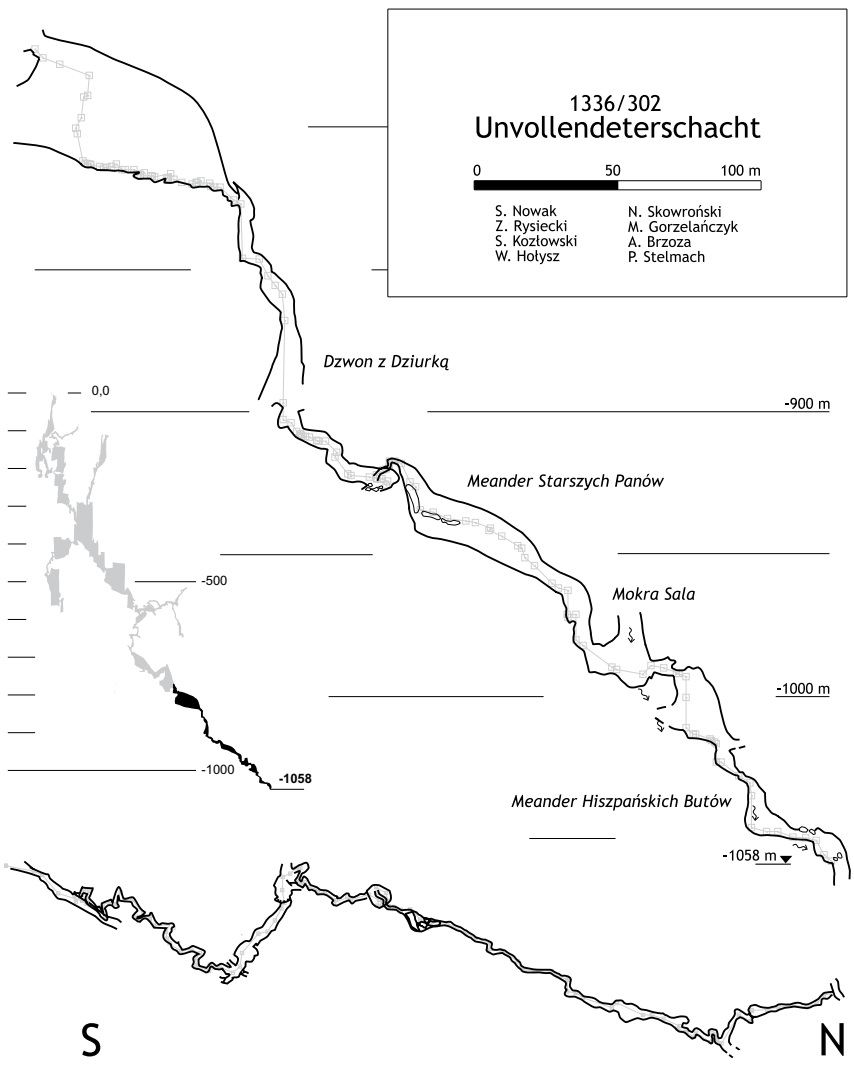


The horizontal level of Unvollendeterschacht

fortable, because the caves of Göll are quite cold and raw. In Göll caves the speleothems are not as popular as the icicles.

During the last four years we have been focused on the Unvollendeterschacht opening. It has been known since 1996, though at that time it hopelessly ended with a snow plug 106 meters below the entrance. In 2004, it occurred that the snow had melted and in the following years it turned out that the opening is in fact connected with Höhle der Sprechende Steine and Kammerschartenhöhle at the depth of about -200 m (see Fig. 1). The three caves meet in so-called Pit of the Breaking Ices – an impressive formation approximately 200-m-high and up to 30 m in diameter. Before the connection was found, we could not rappel into this shaft due to large blocks of ice falling from the roof, endangering our lives. However, reaching the Pit from Unvollendeterschacht allowed us to find a safe descent route. For the first time we reached the Pit's bottom and discovered that it led to an entirely new world of passages. We found a comfortable place to set a bivouac at -450 m (the Cathedral) and started exploring a vast horizontal level (Fig. 2). Leads located on that level are still being verified, with a perspective of reaching surface. In 2008 another camp was set at -750 m to uncover the deepest parts of the cave. Below the cave changed – instead of wide, well-defined shafts, a system of narrow rifts emerges (Fig. 4). Knee-deep mud was the major factor slowing us down in the area.

During the reconnaissance in autumn of 2008 it was determined that another cave – the Schluckerschacht – connects with Höhle der Sprechende Steine. The four caves together make up a 13.4 km long system with denivelation of 1 189 meters. The system seems to be the deepest one discovered entirely by Polish cavers thus far.



Recent discoveries at the bottom of the Unvollendeterschacht

Despite twenty years of systematic research, much still remains undiscovered on Göll. In fact still little is known about the underground water flow to the only resurgence – the Schwarzbachfall. The area situated west of our present camp at the Hochscharte pass has not been extensively explored and probably still hides plenty of unknown entrances. However our main short-term goal is still the Unvollendeterschacht. We know that another spacious pit at the bottom awaits us. ❐

Summary of the activity in the Maganik massif and Mrtvica canyon in Montenegro in the years 2007–2008

Agata Maślanka
Akademicki Klub Grotołazów – Kraków

Maganik situated in the central part of the country is one of the Montenegrin karst massifs. The Maganik range stretches from the NW to the SE. It borders on the Moraca canyon in the east and Mrtvica canyon in the NE (right tributary of the Moraca River). The highest peak of Maganik is called Međeđi vrh. (2139 m a.s.l.). The canyon floor near the kart springs: Jama and Bijeli Nerini is situated at about 200 up to 400 m a.s.l. 4 expeditions organized by AKG Krakow with the approval of Serbian ASAK Beograd (Akademski Speleološko-Alpinistički Klub) and SOB Beograd (Speleološki odsek Beograda) have taken place in this area so far. Those were: surface reconnaissance in the days 9–16 of June 2007; diving trip in August 2007 – target: diving exploration of the Jama karst spring in the Mrtvica canyon; winter trip between the 25th of January and the 3rd of February 2008 – target: further diving in the spring mentioned earlier and exploration of the dry parts of the Jama cave (discovered in August) and an exploratory expedition in the days 4–16 of July 2008 – target: surface and underground exploration.

Reconnaissance 9–16 June 2007

According to the initial project we were supposed to conduct the surface reconnaissance and check the entrances in the Mrtvica canyon. This canyon is about 9-km-long and surrounded by very steep walls. Its depth in some places exceeds 1100 m. Due to its beauty, location close to the trunk line connecting Podgorica with Beograd and nice path leading through its floor, the canyon is frequented by many excursions. Reconnaissance had been planned for a few years. We were informed by the Serbian cavers that there had been only one reconnaissance so far. It took place few tens of years ago without any great discoveries. Later on the locals confirmed that.

5 Polish cavers, 2 Serbian cavers (who we met in Beograd) and one not associated Serbian participated in the expedition. Thanks to the ASAK cavers on our way to Maganik we had the opportunity to visit the Cerjanska Pećina cave (6025 m long, 187 m deep) situated in Cerje, town near Nišu in Serbia.

After our arrival (9 Jun) we changed the initial plans. Having conversation with Serbians we stated (mainly at Sima's prompting) that we would give up looking for the entrances and exploring from the bottom and we would try to look for the caves at the top – inside the Maganik massif.

On the 10th of June Mirek together with Sima and Fric started the exploration. Driving Fric's Lada Niwa they reached Katun Poljana at about 1600 m a.s.l. We got the local's permit for the activity in that area. At the same time the rest of the team went to the Bijeli Nerini spring and its surroundings checking the exploratory possibilities there. On the next day all people moved to Maganik. Thanks to hospitality of the local farmer Zoran Bulatovic we made our camp in Katun Poljana. The following three days we spent looking intensively for the entrances in the south-eastern and eastern parts of Maganik, between Trešteni vrh. (1980 m a.s.l.) and M. Svraševo (1593 m a.s.l.). We were also conducting exploration of the lapies on the eastern side of the ridge between Međeđi vrh. and Babini Zubovi (2111 m a.s.l.). The reconnaissance was intentionally conducted without ropes and other equipment. We wanted to see as extensive area as it was possible and estimate its exploratory potential. After some time we think that it was a good idea. The possibilities of exploration were estimated as being great, the area looked promising for the future. The recognition let us plan an expedition (its area, date and strategy) for the following year. After three days of reconnaissance at the top we moved the camp back to the bottom (to Mrtvica canyon) and went to see the spring in Jama cave paying special attention to the possibilities of caving and diving exploration. It was the last day of our activity.

Participants:

Mirosław Latacz – leader (AKG – Kraków), Kaja Fidzińska (AKG – Kraków), Agata Maślanka (AKG – Kraków), Rafał Pietrucha (STJ KW Kraków), Stanisław Wasyluk (KKTJ), Vladimir Ljubojević "Fric" (ASAK Beograd), Zoran Simić "Sima" (SOB Beograd), Jelena Mirković (not associated).

Mrtvica canyon and diving – August 2007

The reconnaissance in June confirmed us in our belief that a complex approach to the Maganik exploration was needed. Therefore we decided to persuade our cave diver Jarosław Kur to dive through the sump in Jama. The sump was to be one of the Maganik karst springs. The locals had known about it for ages, cavers from Serbia and Montenegro – for many years. After consultations with our Serbian friends no one confirmed information about diving in the sump or reaching the dry parts behind it. So we came back to the Mrtvica canyon already in August 2007 with Jarosław Kur, Anna Krzeszowiec, Tomasz Tatar (diving team), Mirosław Latacz and Agata Maślanka as carriers that time. Monika Badurska and Grzegorz Badurski "Docent" both from SDG helping the carriers met us in place.

Next day first Polish diving in Jama performed by Jarek took place (probably the first one at all). It turned out that there were dry parts behind the sump possible to be bypassed. Generally Jarek was able to explore about 140 m of underwater passages and behind the sump he discovered dry parts which demanded climbing. The last discovery induced us to decide to explore the dry parts of Jama in the wintertime, when the water level would be lower. As it later appeared the water level did not depend on the season.

Participants:

Anna Krzeszowiec (AKG – Kraków), Jarosław Kur (AKG – Kraków), Mirosław Latacz (AKG – Kraków), Agata Maślanka (AKG – Kraków), Tomasz Tatar (Krab); guests: Grzegorz Badurski, Monika Badurska.

Mrtvica canyon in the wintertime 25 Jan – 3 Feb 2008

Just as in August, we decided to conduct the exploration together with divers during the winter. We arrived on the 27th of January 2008. Transporting took us one day; we were also able to check the water amount in the sump. Unfortunately it turned out that the water level is few meters higher than earlier. If it had been half meter higher the exploration would have terminated in that place. Fortunately a half-metre gap in the sump and – as it turned out later – still falling water level let us conduct the further exploration.

During the following three days 3 men explored the dry parts of the cave. To reach

M13 – below the entrance shaft

ARTUR ROMANEK

M13 – above the Seventy

ARTUR ROMANEK

them they had to swim through over 40-meters-long pond. It was much easier when done wearing a diving suit and a wetsuit, but the suits made climbing much difficult. They started exploration from a chimney, then bypassing a diverging passage. Unfortunately after few tens of meters it started to slope down and probably ended in a water body. Due to large number of dripstones its branches turned out to be impossible to bypass. We got back to climbing the chimney where we saw great possibilities of exploration. At the end we measured newly discovered parts of the cave. The diving team observed some changes inside the sump (for an instant, the passages discovered earlier that year had been filled with debris). Unfortunately it made further exploration impossible. But it also proved that the water flow was periodically diversified. We terminated our work in that place hoping we would come back in the nearest future.

Participants:

Caving team: Mirosław Latacz – leader (AKG – Kraków), Agata Maślanka (AKG – Kraków), Jan Wołek (KKTJ). Diving team: Paweł Cisowski (Krab), Jarosław Kur (AKG – Kraków), Marta Kadłuczka (Krab), Tomasz Tatar (Krab).

Maganik exploration – 4–16 July 2008

Our next visit in Maganik started with transporting. We were using Land Rover rented in Montenegro. The camp was made in Katun Poljana, the same place as a year before. On the 6th of July we started (as an 8-man expedition) surface exploration of the south-eastern and eastern area of Maganik between Trešteni vrh. and M. Svraševo and the lapies on the eastern side of the range between Međeđi vrh. and Babini Zubovi. During the following 10 days we were able to find and check 34 objects. Most of them were few to few tens of meters in depth and ended with ice or snowy plugs, fractures or breakdown chokes. Some of them due to lack of time were left for the following (next year) expedition. Three caves continued further and it was decided to explore them during the current expedition. First of them, M23, discovered on our way back to the camp, due to its character was named Ice Cave. The second one M13 was discovered by Jan Kucmierz and Artur Romanek. The third was showed by the local farmer, Zoran Bulatović.

The Ice Cave exploration

During the first three actions the cave was explored by Robert and Wojtek. On the first day they reached a depth of about 50 meters moving through ice and snowy cascades. On the next day they cleaned the area at the entrance and set up ropes down to about -70 meters. The cave entrance started with about 7-meters-deep shaft turning into the first ramp. Then few-meters-high rock step and next about 25-meters-long ramp ap-

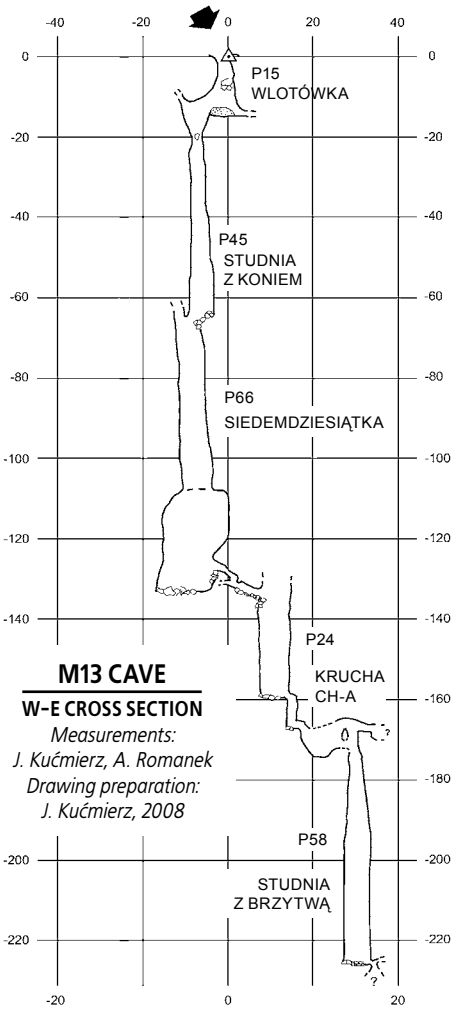
Zoran Jama

ARTUR ROMANEK

peared. At a depth of 30-35 meters a passage with window (that needs to be climbed up) diverged from the main one. That problem (as well as few ones more) was put off for the next year expedition. In the main passage there was another few-meters-high step and an ice ramp. On that day Robert and Wojtek also went through 7-meters-long traverse above 60-meters-deep shaft and moved about 15 meters down. After a day-rest during the next action they surveyed the cave and reached the bottom of the shaft. On the following day Miloš Vuković joined them. The three of them measured and checked the passage at the bottom. At the end they checked also the bottom of the Great Fracture (see section M23) finding further possibilities of exploration. On the last day of the Ice Cave exploration they set up ropes and explored the Ice Cascades, reached passages free of ice, moved down through a 9-meters-high step towards the dry parts, measured the newly discovered passages and removed ropes due to necessity of using them in the other caves. Kaja, Robert, Staszek and Wojtek participated in the exploration. The problem remained open.

The M13 cave exploration

On the first day Janek and Artur explored about 60 meters of the cave. They moved down through the entrance shaft which after 15 meters turned out to be blocked with an ice plug. They were able to find a fracture that led them to 45-meters-deep shaft (Shaft with Horse). When they went down they found another shaft. On the next day they surveyed the cave and move down through 66-meters-deep shaft. It led them to a quite big chamber. They checked few little passages filled with debris at the end of the chamber but all of them ended with narrowings. They finally managed to move through a passage at the chamber bottom that led them to a ramp ending with another shaft. After a day-rest Janek and Artur cleaned and moved down through 24-meters-high shaft. At its bottom they found a passage that led them to a high meander. Moving forward at different levels they reached the edge of another shaft called later Shaft with Cut-Throat Razor. On the fourth day in M13 there were 4 people exploring: Janek and Artur were surveying between the Seventy and the Shaft with Cut-Throat Razor; Kaja and Staszek were setting up ropes down to meander and exploring the Shaft with Cut-Throat Razor. 5 people participated in the last action: Agata, Artur, Janek, Mirek and Robert. Janek and Artur measured the Shaft with Cut-Throat Razor and discovered extended parts leading to another two shafts at the end of the meander. All five removed the ropes and transported the equipment back to our camp.

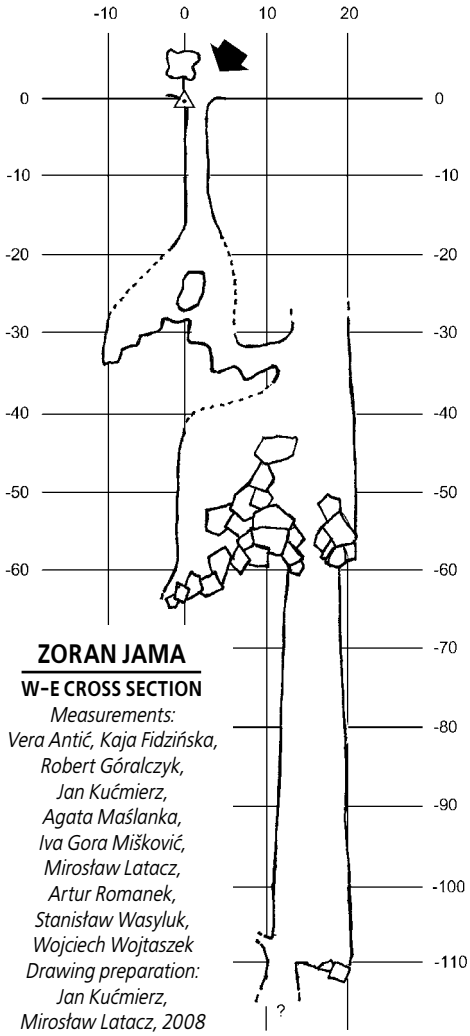


M13 CAVE
W-E CROSS SECTION
Measurements:
J. Kućmierz, A. Romanek
Drawing preparation:
J. Kućmierz, 2008

After 3 days of surface and underground exploration we decided to establish a base camp day. Agata, Mirek and Robert went to see an entrance showed by Zoran Bulatović. It was assessed as interesting therefore we decided to check it during the current expedition. The cave was called Zoran Jama. On the fifth day Serbian cavers: Iva, Miloš and Vera joined us. They were accompanying us during the following three days.

The Zoran Jama (M73) exploration

On the first day of Zoran Jama exploration Agata and Mirek went down through the entrance shaft and explored the cave down to the second meander (behind the Shaft with Ram) to a depth of about 50 meters. On the second day Iva and Vera joined Agata and Mirek. Previously discovered parts were measured and the set up ropes were improved. Behind the second meander the team moved down of about 20 meters to the Breakdown Chamber. On the third day Janek, Artur and Wojtek moved through a stone block at the bottom of the Breakdown Chamber and reached the edge of about 100-m-deep shaft. After cleaning the shaft, they moved down and stopped about 40 meters above its bottom as the rope ended. On their way up they surveyed the previously discovered part of the cave. On the fourth day Kaja, Robert and Staszek checked



ZORAN JAMA
W-E CROSS SECTION
Measurements:
Vera Antić, Kaja Fidzińska, Robert Góralczyk, Jan Kućmierz, Agata Maślanka, Iva Gora Mišković, Mirosław Latacz, Artur Romanek, Stanisław Wasyluk, Wojciech Wojtaszek
Drawing preparation:
Jan Kućmierz, Mirosław Latacz, 2008

the ropes and moved down to the end of 100-meters shaft and stopped at the edge of another deep one. As they had not got enough time they left the shaft unexplored. On their way up they removed the ropes.

On the 17th of July, after 10 days of activity in Maganik we took the tents down hoping we would come back. ❐

Summary:

During the expedition we explored about 1000 m of shafts and passages. The area is thought to be prospective.

Participants:

Mirosław Latacz – leader (AKG – Kraków), Kaja Fidzińska (KKTJ), Robert Góralczyk (KKTJ), Jan Kućmierz (KKTJ), Agata Maślanka (AKG – Kraków), Artur Romanek (KKTJ), Stanisław Wasyluk (KKTJ), Wojciech Wojtaszek (KKTJ), Vera Antić (ASAK), Iva Gora Mišković (ASAK), Miloš Vuković (ASAK).

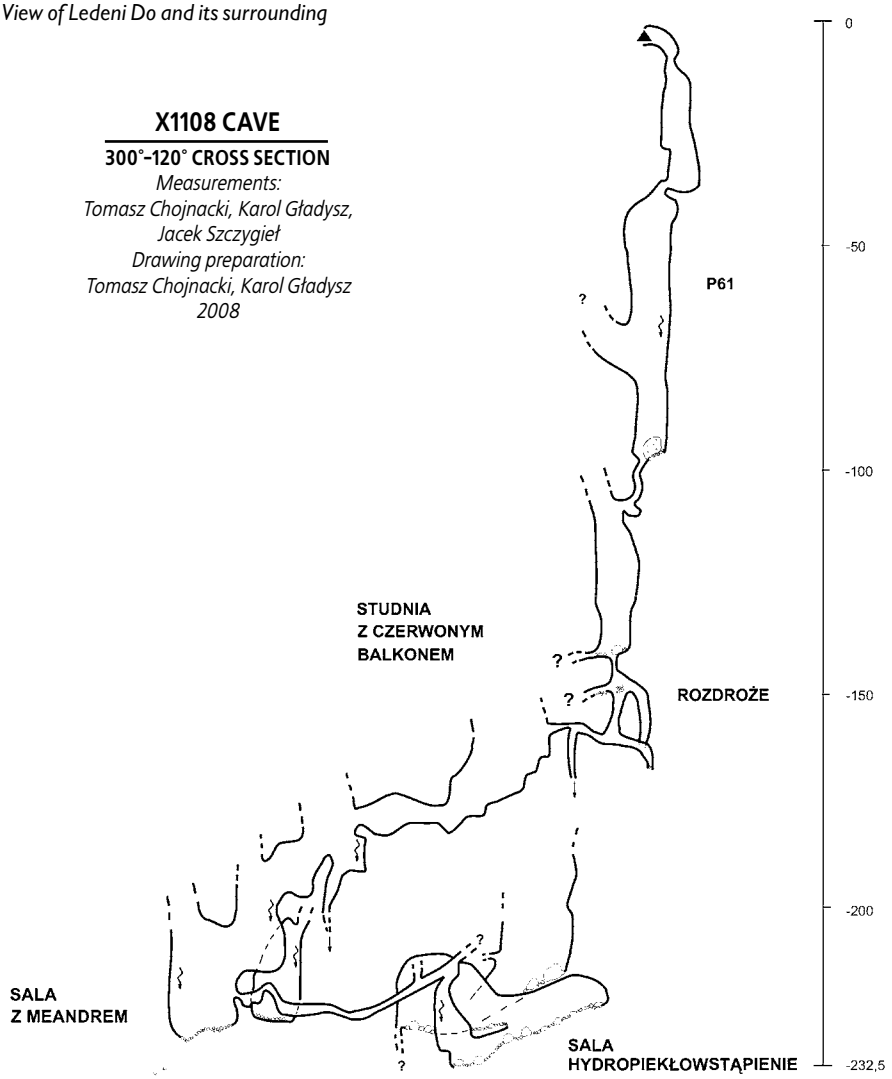
We would like to thank Vladimir Ljubojević "Fric", Zoran Simić "Sima" and Zoran Bulatović for helping and supporting us. Without their help the expedition probably would not have taken place.

Tomek Chojnacki
Tarnogórski Klub Taternictwa Jaskiniowego

Three years in Durmitor

KAROL GŁADYSZ

View of Ledeni Do and its surrounding



Our last year's expedition to Durmitor, Montenegro, has been the third one so far. Considering all circumstances it was quite successful and we are planning to come to the massif back this year.

That short summary could suffice for those less interested in the subject, but some readers might be more attentive, so let's start from the beginning.

The massif

Durmitor is a massif of the Dynaric Alps in Montenegro. According to geologists its karst is not homogeneous. The mountains are mainly built of so called Durmitor Flysch and limestones. That complex structure is easy to see at first glance as all layers are totally mixed up. As above so below. This complexity makes the exploration of the area a demanding task. All the known big caves are located only in the Durmitor flysch layers. In some areas all entrances situated in the limestone nappe that covers the flysch turned out to be chocked with rubble.

On the top of that groundwater drains into two opposite directions i.e. to the Tara and Komarnica Rivers.

Short history of exploration in Durmitor

The Polish cavers have been interested in the massif since the 1960s. In the early 80s cavers from KKS (Katowicki Klub Speleologiczny) participated in several international caving expeditions to the massif, during which they started the exploration of Jama Na Vjetrenim Brdima (-775 m), the deepest cave in Durmitor. Many other Polish expeditions (mainly from the AKG AGH club) were working in Durmitor later on. Several deep caves ranging from about -200 to -775 have been explored up to now.

In 2006, about twenty years after the exploration carried out by the members of KKS, we decided to renew old contacts with cavers from the ASAK Belgrade and undertake the exploration again.

2006 and 2007

During our first expedition we focused on two problems: an attempt to enlarge the Jama Na Vjetrenim Brdima cave and an exploration of two twin valleys: Mali and Velki Lomni Do. Unfortunately, due to numerous adverse factors (car accidents, endless rain etc.) our discoveries were of minor character. Our main discovery was the X2/2006 cave connected with the U Velkom Lomnom Dolu cave at the depth of -60 m. Our attempts to deepen the latter failed. When it

comes to Jama Na Vjetrenim Brdima, some new problems (mainly previously unknown windows) were checked, but no significant discoveries were made.

Despite the difficulties in 2007 we tried to push forward the exploration of the deepest cave in Montenegro. Unfortunately, in that year we did not find anything interesting either. Despite our exploration in the Na Vjetrenim Brdima not being successful, the whole expedition provided very valuable information as we checked several parts of Durmitor that were completely new to us. This way we acquired some knowledge about features typical for each area.

One team tried to continue exploration of the Velki Lomni Do but all the entrances turned out to be chocked with rubble, snow and ice at the depth ranging from -40 to -60 m.

Another team tried to explore the Sedlena Greda area, but no cave deeper than -30 meters was found. Moreover a surface research was conducted in Lojanik, a region which had been regarded as very promising due to its typical karstic landscape. Unlike the rest of Durmitor, this part of the mountains is built of limestones. And again, all of the checked entrances were blocked with rubble.

Finally, at our Serbian friends' suggestions we turned our attention to the Valoviti Do and Bandijerna areas. Because of the lack of time and people several interesting entrances found in this area were supposed to be checked the following year.

Simultaneously with the exploration we tried to inventory the caves in the explored areas, both known and newly discovered. As we saw during that expedition one of the biggest problems of Durmitor is a shortage of the inventory and systematic coordination of exploration carried out by many groups, which results in confusion and doubts when discovering new caves.

2008

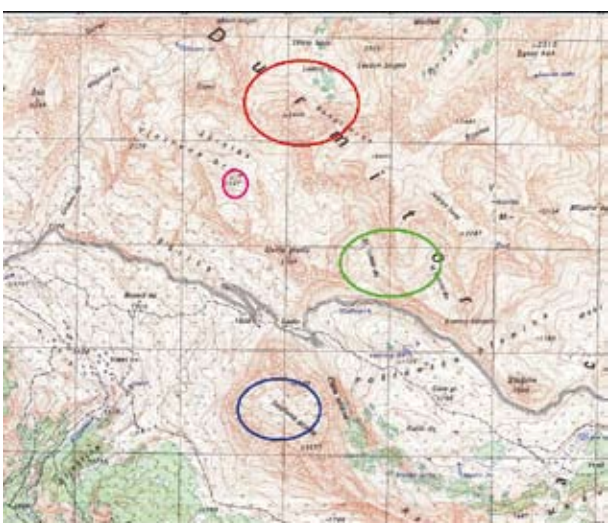
And finally, the above-mentioned last year's expedition. That time we set up our camp in Valoviti Do together with a numerous group of our friends from the ASAK Belgrade. As it became clear, our work was determined by their discoveries. After their leaving for home we "inherited" their main discovery – the X1108. The cave found and explored by Serbian cavers to the depth of about -90 m was later deepened to -230 m. The cave's bottom at the moment is a huge chamber (approx. 90x40 m) reaching the height of 30 m. Due to its dimensions and its complex character we did not manage to explore it thoroughly, but two possible leads were discovered. In total, 800 meters of new passages were found.

Among other new caves checked in the Ledeni Do the deepest one was L0308 (-62 m), a cave discovered by Belgians earlier that year. The surface exploration of the valley is going to be carried on the following year.

When one group was working in the Ledeni Do, another team tried to climb new passages in the Jama Na Vjetrenim Brdima cave in order to bypass the sump at -437 m. The exploration resulted in finding only some short stretches leading upwards. Further exploration of those parts requires use of climbing techniques. Besides, the members of the group state that the sump could be dived through. It is supposed to be the main point of the next year's activity in this cave. ❐

Summary:

The very nature of the article does not allow to go on at length about the subject, but one thing we may state for sure: Three-years-long time period is too short to explore such a vast and complex massif as Durmitor. In our opinion it is a very prospective area and we hope our work in Durmitor will continue.



Map of Durmitor with the explored areas

DARIUSZ SAPIESZKO

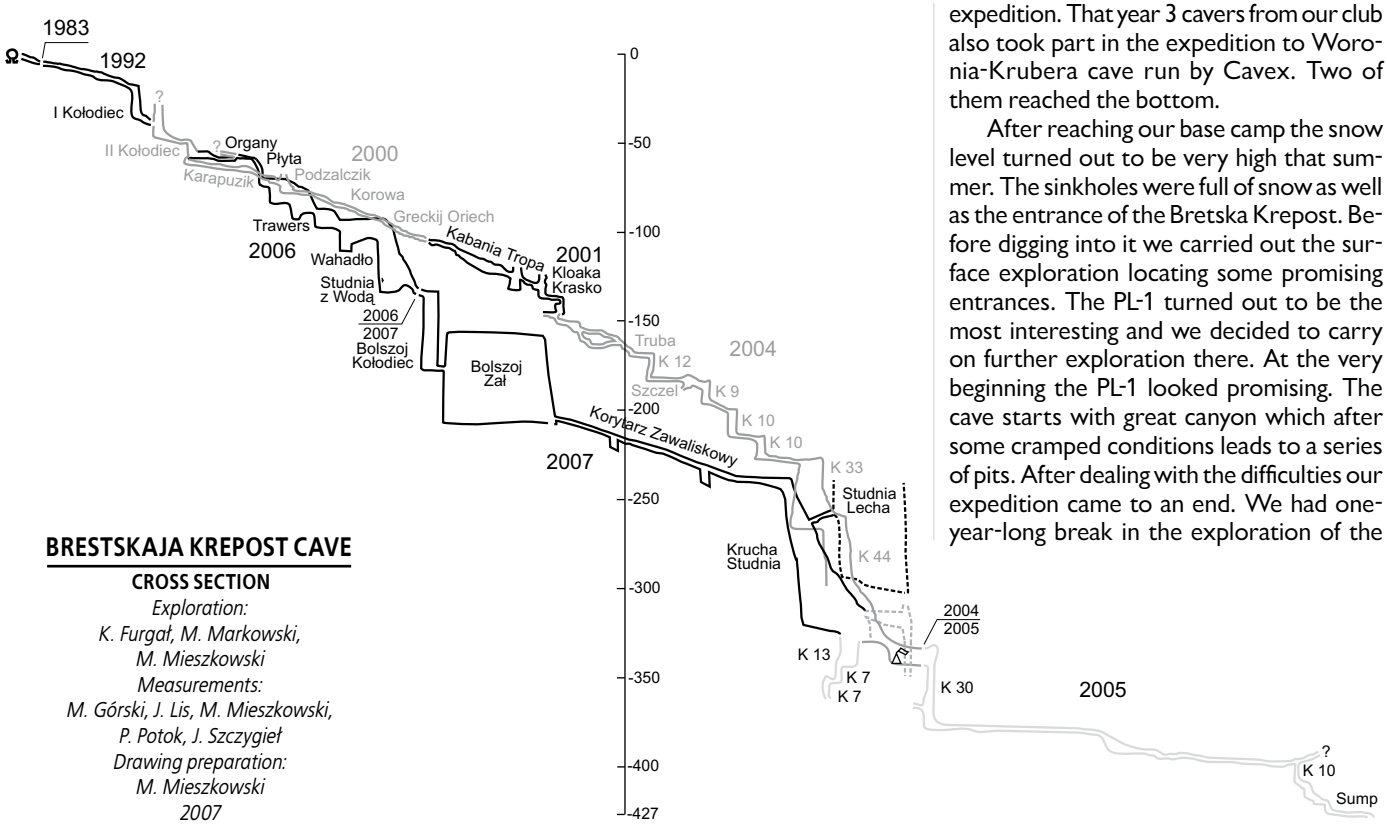
Members of 2008 expedition

Michał Górski
Marek Markowski
Sekcja Grotołazów Wrocław

Arabika – Western Caucasus

Our adventure in the Caucasus Mountains started in 2005 when our friend Włodek Szymanowski was invited by Speleoclub Geliktit TM from Minsk. Unfortunately his sudden death in a cave diving accident had not let him see the beauty of Arabica. However, our club Sekcja Grotołazów Wrocław decided to start Włodek's project, that was the exploration of the Western Caucasus.

During the summer of 2005 five people from our club together with cavers from Byelorussia and Russia participated in the expedition organized by Speleoclub Geliktit TM Minsk. That year the political situation in Abkhazia was very tense due to the conflict with Georgia. The borders were guarded by Russian Army, no media or foreign



BRESTSKAJA KREPOST CAVE

CROSS SECTION

Exploration:
K. Furgał, M. Markowski,
M. Mieszkowski
Measurements:
M. Górski, J. Lis, M. Mieszkowski,
P. Potok, J. Szczygieł
Drawing preparation:
M. Mieszkowski
2007

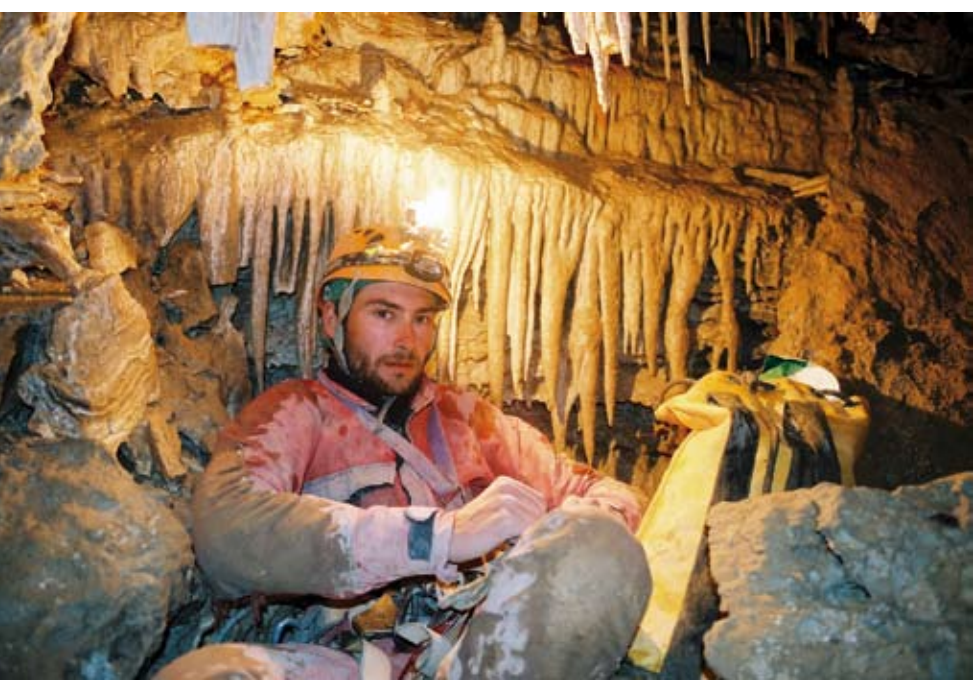
nationals could have entered the republic. The only exceptions were holders of the former USSR passports but we managed to get in thanks to our friends´ contacts. To reach our destination, starting in Wroclaw, our city, we needed a week. The beauty of those mountains and extraordinary potential for deep caves rewarded us for the time sacrificed to get there.

The main purpose of the expedition was exploration of the about-400-meters-deep Bretska Krepost cave discovered by Byelorussians in 1983. The entry parts consist of young and narrow passages with active water flow. At minus 200 meters the cave changes its character as the passages turn into older trunk which ends in a sizable siphon. Our first objective was to find its bypass. Unfortunately it did not happen despite a lot of work put into it. It was too dangerous and difficult to disassemble the debris pile, moreover the other passages did not yield at all. During the return trips we found some interesting mouths that looked promising for the next year.

In 2006 our friends from Byelorussia decided to invite 11 cavers, and that was how we had become the main group on the expedition. That year 3 cavers from our club also took part in the expedition to Woronia-Krubera cave run by Cavex. Two of them reached the bottom.

After reaching our base camp the snow level turned out to be very high that summer. The sinkholes were full of snow as well as the entrance of the Bretska Krepost. Before digging into it we carried out the surface exploration locating some promising entrances. The PL-1 turned out to be the most interesting and we decided to carry on further exploration there. At the very beginning the PL-1 looked promising. The cave starts with great canyon which after some cramped conditions leads to a series of pits. After dealing with the difficulties our expedition came to an end. We had one-year-long break in the exploration of the first polish cave in that area. In the mean time after digging into the Bretska Krepost cave we returned to our earlier plan, which was the exploration of two caves at the same time. The cave is located in the bottom of the valley what means that a large amount of water flows through it, therefore reaching of the terminal sump was impossible for us. The cavers would be in a great danger of being cut off so we focused on the parts situated near the entrance, which had been skipped during the former expeditions. After getting through the debris pile we found old meander that led to an unexplored pit. During the following days more discoveries were made. Newly discovered parts of the cave were more dried and different from the previously explored ones. We finished the expedition when our ropes ended over a pit that looked promising enough to come back there next year.

Year 2007 turned out to be also a good one in Arabica. 14 cavers from our club took part in the expedition. In the Bretska Krepost cave we returned to the pit above which we stopped exploring a year before. It turned out to be 50-meters-deep and have a meander leading to another pit at its bottom. We estimated its depth at about 30 meters. The echo of stones that we were throwing into it told us that the cave continues with larger chamber. After getting down we found a chamber of size we have never seen before in Arabica. It was 80-meters-long, 50-meters-wide and over 40-meters-high. The joy of the discovery was great as the passage led us to the next pit. Unfortunately when we went down it appeared that we had reached previously explored parts of the cave.



Chamber with Organ

The exploration of the Bretska Krepost cave took place at the same time as our work in the PL-1. We returned to a pit left during the previous expedition. Going further down we followed series of pits that led us to a tight meander. This part brought us a lot of problems. The meander was tall, had multiple levels and cramped conditions. It took us a couple of days finding a way through but we thought that time was not wasted as we reached two large pits. As it often happens the pits ended in a debris pile and we had to look for another way down. During the withdrawal another meander was found. At the end of the expedition it led us to another pit. We finished cartographic works, packed up and decided to come back next year.

The following year, 2008, was full of surprises in the PL1. Not everything went as we had expected earlier. After coming back to the place where we stopped previous work we abseiled down the last explored pit. It turned out to be 50-meters-wide and 130-meters-deep. We called it the Shaft of Lost Hopes. We started to look for a passage through it. We spent many days camping in the cave acting without success. All the pits we found joined in with the big one or were blocked with the debris pile. A tight meander at the bottom of the Shaft of Lost Hopes remained our last hope. We managed to go through two major clamps there, but we quickly ran into other ones. We stopped the exploration at that level hoping to return the following year.

In the Bretska Krepost cave thanks to having found the easier way to the bottom during the previous expedition we looked for another passage to bypass the sump. It appeared the only way through is very dangerous, involving pulling rocks out of the debris pile over the cavers head. Because of this situation we finished exploration.

During the following years we would like to focus on the PL-1 and the surface exploration. We believe that in such a big massif with such a large amount of caves the main discoveries await us in the future. ❐

B.K. entrance

Polish cave activity in the Kanin massif, Slovenia in the years 2005–2009

Paweł Ramatowski
STJ KW-Kraków

For the last four years, our group (STJ KW Krakow) was concentrated on exploration of the BC4 Cave (Polijska Jama). The entrance had been localized in 2003. The next year, having passed extremely narrow meanders at -200 m, we were able to reach the depth of -300 m (Polish Caving 2001––2005). That was a turning point of our expedition. The activity in Slovenia that lasted 10 years ended successfully.

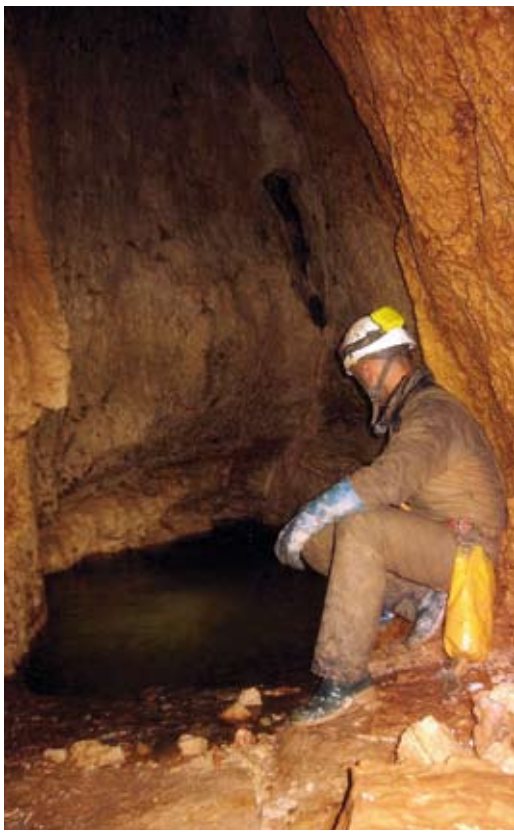
The Julian Alps are the first mountain barrier separating the Mediterranean from continental Central Europe. Kanin is the massif in the Julian Alps, situated at the border of Italy and Slovenia in the north-western part of Slovenia. The Polish area is situated between Mali Dol and Mali Graben, directly above the upper parts of Mala Boka at altitudes from 1650 to 2000 a.s.l.

2005

The main target of our research was nothing else but BC4 Cave. We hoped we would discover the upper entrance of Mala Boka. Our expedition in 2004 ended in the Cape of Good Hope, where we found two separated vertical branches. One of them leading through Studnia Baryly p50 ended in an active water passage. The cave continued as a narrow meander that ended with a breakdown chamber. During the further exploration we discovered a tiny window choked with debris. It appeared to be the top of huge cascade pitch P250 called „Dwusetka" ("Two Hundred"). Somehow, we had the feeling that BC4 would be the entrance to Mala Boka that we had been looking for so long. At the bottom of "Dwusetka" we went through the next shaft p45 and at that point the cave character changed. We entered quite muddy horizontal meander "Mor". Finally in 2005 we reached the depth of -700m (the total length was of 1 km). The BC4 exploration was one of the toughest, mostly because of the extreme narrowness, lack of underground camps and really bad weather conditions on the surface. BC4 was obviously the deepest cave we had managed to explore in that region. The face we left open. After comparing measurements, it seemed that we were near (about 150 m vertically) the main passage of Mala Boka. We assumed that the connection would be in the upper part of Boka in the Millennial Gallery. That is why we left our equipment there and started planning the next expedition...

In December 2005 we had heard about the discovery of the connection made by the Slovenian and Italian cavers. That event

PIOTR SIENKIEWICZ



Marmite

MAGDA WRONA

Amazing karst features are seen everywhere

was widely criticized by the cavers' society all over the world. For those interested in this subject: there is a very good article in Jaskinie, Speleology Issue 8, December 2006.

The new cave system Mala Boka-BC4 is the fifth 1000-m-long and the second deepest cave in Slovenia. With its depth of 1319 m and length of 8 km, it has become the second deepest world caving traverse. Thanks to the connection with BC4, Mala Boka became available during the whole year (not only in the wintertime as it had been before). It has also increased the safety of the exploring cavers.

2006

During the next expedition of STJ KW--Kraków that took place in 2006, we were continuing the exploration of BC4 and looking for new entrances on the surface. We discovered six new cave objects, named consecutively from BC13 to BC19, located mostly above the BC4 entrance. 400 m of new passages were surveyed in Polijska Jama. We managed to reach the passage of parallel shafts at the depth of -200 m. The Fear Pitch connected with the main passage of BC4 in the Cape of Good Hope Gallery.

2007

During the 2007 expedition we returned to the BC10 cave. It was discovered in 2004 and explored to the depth of -160 m. Its entrance was located exactly above the Wilenska Gallery in the Mala Boka system. That cave, like the others in the area, is quite tough to be explored due to its narrowness. At the bottom we found S-directing meander with strong air current. The exploration of its next few meters was very hard but finally we were able to cover the distance 200 m.

Our next target was to check the F23 cave (-190 m). That was a typical aven. After passing by few dangerous and brittle pitches, we reached the final breakdown choke. Unfortunately our exploration stuck at that point.

That year we were able to localize few new entrances (BC20-BC33). None of them exceeded the depth of 50 m.

2008

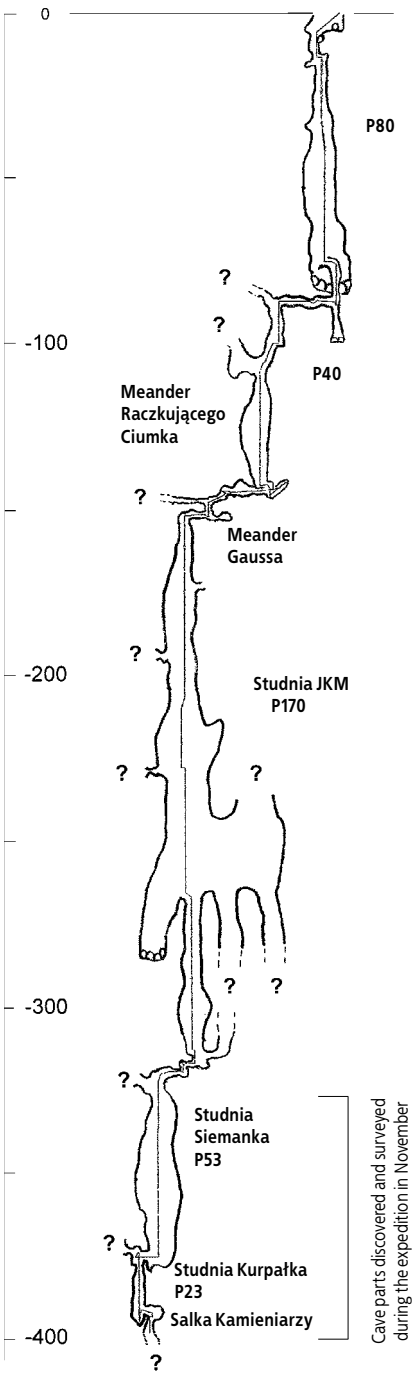
During summer expedition in 2008 we concentrated our exploration on the BC10 cave. After several attempts, we passed through the Meander "Raczkującego Ciumka" and the "Gausse" Meander. The JKM p170 pitch led us to the depth of -300 m. Going down deeper through a narrow meander, we found another deep pitch.

In the meantime our team localized two interesting cave entrances at 1900 m a.s.l.

In November 2008 we were continuing the exploration of BC10 reaching the depth of -450 m. We expected it to connect BC10 with the Mala Boka – BC4 system. The Wilenska Gallery appeared to be the connection point. That would have been the fastest and the easiest way to get to the forepart of Boka. Directly over the BC10 entrance we found the BC1 cave (-270 m), which was thought to be connected with BC10 as well.

To sum up, Kanin Massif is characterized by the denivelation of about 1900 m. Our main goal is to connect the caves forming one deeper and longer system. The exploration in this area is hard to be conducted because of narrow passages and difficult weather conditions. It took us ten years to come to this point. However, we are not going to give up because it is worth our effort.

The members of our expedition participate also in the Speleoproject Kanin – 2000 exploring the Skalarjevo Brezno Cave (-911 m). ❐



BC10 CAVE

E-W CROSS SECTION

Measurements:
M. Wrona, M. Kuryłowicz,
T. Tomaszek, P. Ramantowski,
P. Sienkiewicz
Drawing preparation:
P. Sienkiewicz, P. Ramantowski, 2008

text: Kasia Biernacka
photos: Kasia Biernacka, Marcin Gala / speleo.pl
Speleoklub Warszawski

2009 J2 Expedition

Two months in the rain forest, a couple of weeks underground, diving at -1200... exploration of the deepest cave system of the western hemisphere is underway .

The divers and Dr Bill Stone, the leader of the 2009 J2 Expedition, left on the 13th of March from Bill's ranch in Texas. The rest of the team joined them in Mexico and 3 days later 15 members of the expedition set up tents in El Ocotal – a village at the foot of the mountain in Sierra Juarez (in the state of Oaxaca).

We needed 3 more days to pack all the gear and to get from the local government permission for caving. Eventually we were ready to go to the mountain. The base camp was set up in the same place as in 2004, 2005 and 2006, a 20 minute walk from the J2 entrance.

The cave entrance was found 5 years ago during a reconnaissance trip to this area. That year the cave was explored and surveyed to -391 m. The next year a depth of -1101 m was reached, despite finding a sump at -762 m. Sump 1 (aka the Ex-Sump) was bypassed first by a scuba diver, but eventually we were able to pass it without diving gear with our heads partially submerged.

In 2006 J2 terminated in a second sump (aka Sifon de los Piratas) at the depth of -1209 m and the cave reached a length of about 10 km. During exploratory diving into Sifon de los Piratas another sump, Sump 3, was found beyond. Passing Sumps 2 and 3 and continuing exploration of the air-filled passages beyond were the goals of that year's expedition.

We expected that the passages beyond the sumps would lead towards the lower parts of Cueva Cheve which is not far away. The connection of J2 and Cheve would give a cave system more than 2-km-deep. The connection of Cheve and its resurgence Cueva de la Mano would result in denivelation of -2597 m. That year's expedition to J2 was a part of Proyecto Cheve led by Dr Bill Stone and the US Deep Caving Team.

We met Bill Stone in Mexico in 2001 and since then we have participated in many of his expeditions to Mexico. This time we also invited Magda Aksman, Lucyna Cieślik, Marcin Derlatka and Paulina Olinkiewicz to go with us to the cave hidden in a cloud forest.

Once the base camp was made, we started to check the ropes in the cave and change the rigging in some of the shafts and passages. Then we started to transport the camp gear, the food and the dive gear from the entrance to the Sifon de los Piratas. This mission required complicated logistics and a coordinated effort of all the 30 members of the team. J2 is wet, 10 km long and difficult. Its beginning is tight. At -762 m we had to swim through Sump 1, which was so narrow that we had to take off our helmets. Before we arrived to Camp 2A, we had had

Paulina Olinkiewicz during 6-days-long transport of diving equipment down to the Pirates' Sump. In tent of 2A camp up to 7 people can sleep. The more people sleep the warmer it is. Toothbrushing: Magda Aksman, Kasia Biernacka and Paulina Olinkiewicz

Matt Covington (US) during the dip measurements of Red Wall beds (between camp 2A and 3)

Kasia and Zuzia with light composite cylinders made by Structural Composites Industries

Marcin Gala diving (open-cycle) in another sump

Today every boy gets an Irokee haircut

to swim through a couple of lakes. To reach Camp 3 from the surface, an experienced caver carrying a heavy duffel bag needs 2 days. From the camp it takes another 2 hours to get to the Sifon de los Piratas. The rock around Sump 2 is very shattered and therefore there is a danger of falling down with a piece of stone in your hand. The hauling trips into the J2 took from 6 to more than 10 days, because sometimes we shuttled the gear between the underground camps. We had to stop the transports two times because of the Surprise Sump – a lake just after the Ex-Sump that after a heavy rain when the water level rises can cut off the way to the lower parts of the cave. One team had to spend two additional days 'imprisoned' beyond the Surprise Sump.

The Polish cavers were mainly transporting gear. Marcin Gala was also responsible for the rope tests that all the participants had to pass before entering the cave. He also cared about the proper rigging of the cave.

The main sponsor of the 2009 J2 Expedition was Poseidon Diving Systems, which supplied us with 6 brand new briefcase-sized Mk6 rebreathers. The Mk6, at less than 15 kg, allows the diver to work underwater for over 3 hours at 60 m depth. Pre-expedition trainings on the rebreathers took place in Texas in October 2008 and March 2009. The divers used another innovative piece of equipment – composite tanks made by Structural Composites Industries. As they weigh not much more than a bottle of mineral water, the 3-liter 'plastic' tanks are a big advantage during the hauling.

After one month of the expedition all the diving gear had been transported to the Sifon de los Piratas. Then the lead divers could start their job. They set the dive line and a rope to transport the camp gear through Sump 2 with maximal depth of about 10 m and 200-m-long. On the downstream side of the sump they discovered a fissure that wasn't found in 2006 and looked like a possible way to bypass Sump 3.

Marcin Gala and Matt Covington spent 5 days beyond Sump 2. They explored 830 m of new passages, mostly looping, sponge-like and muddy. The most promising passage was a borehole heading NNW. At the end they were stopped by a flowstone wall. Matt free climbed it, but it seemed to be choked. Then they came back to the lower level where they swam through a 40-m-long lake (Lake 41). At the end of the lake they found another sump with stalactites hanging underwater. As they were short with oxygen they could not use the rebreathers. So Marcin dived the sump beyond Lake 41 with open circuit gear. It's very short (25 m) and shallow (7 m). At the end of the sump he found an underwater sand dune with ripples showing a potential flow. On the other side, Marcin explored another 40-m-long lake, choked at the end. He thought that there is a continuation of this lead underwater, but due to the consumables shortage he was not able to continue the exploration. When we left the expedition at the beginning of May, another diving team was entering the cave. They wanted to check the underwater tunnels around Lake 41. In the last one, Bash, a cave found in April 2005 in the lower parts of the J2 valley, close to the junction with the Aguacate Canyon, the depth of -510 m was reached. It goes smooth and vertical mostly but has some tight and wet spots as well. It needs another 200 m vertically and about 600 m horizontally to connect with the J2 near the 2A camp (where we think it may connect). ❐

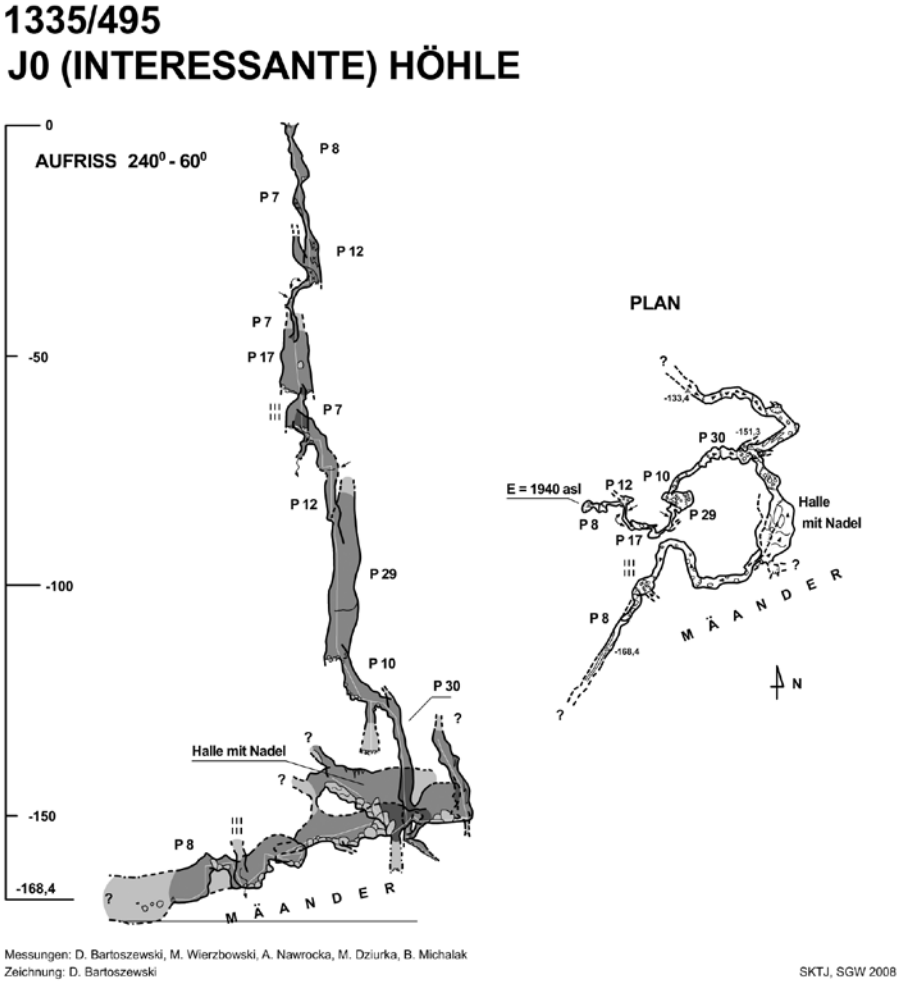
Summary:

30 cavers participated in the 2009 J2 Expedition, most of them from the US. The Polish team was the second biggest one. We're grateful to the Polish company Santi for providing us a specially designed dry bag to transport the drill batteries through the sumps.

The diver diving in the small lake before the Sump 4. Before the expedition we had promised Zuzia that we would build her a house on a tree. She had her furniture made from recycled materials and made parties for us there. She survived over two months' stay in the wood excellently.

Seven years in Hagengebirge

Marek Wierzbowski
Sekcja Grotołazów Wrocław,
Sopocki Klub Taternictwa Jaskiniowego



PAWEŁ OSTROWSKI

Studnia -80 m

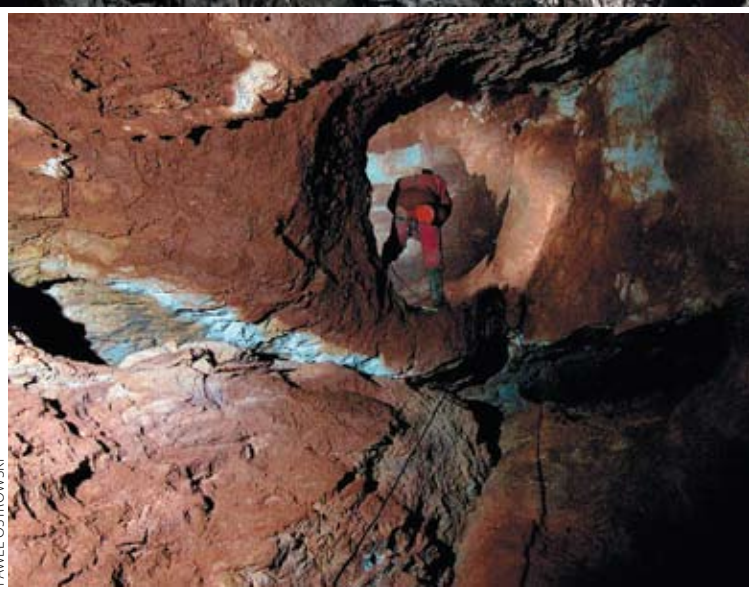
The Hagengebirge are located in the Salzburger Alps. Their steep walls and large plateaus are surrounded by other massifs as Hoher Göll, Tenengebirge, Hochkönig and Watzman. All of them are known to many speleologists for caves located there and the extensive exploration. The majority of the present drainage runs parallel to the main valley of the Salzach River, namely from south to north. In the past the Hagengebirge massif was a site of many different expeditions, which were run mostly by Austrians and Poles, but other nations also participated. In its southern part two major caves were explored: Tantalhöhle (435-m-deep, 33-km-long) and Jagerbruntrog System (1078-m-deep, and 28-km-long). The geology of this region is complex as there are some less soluble beds alternated with the soluble ones. Therefore recently, finding the cave entrances not blocked by boulders is very difficult.

In 2002 after long absence of the Polish cavers in the massif Sekcja Grotołazów Wrocław together with Sopocki Klub Taternictwa Jaskiniowego finally organized an expedition. Consequently during following years 7 expeditions to this area took place. The main accomplishment of all of them was discovery and exploration of the Höhle in Roten Steinen, 855-m-deep cave, being currently the second deepest one in the massif. The cave mainly consists of young and uncomfortable canyons with active water flow and is similar to many other caves located on the central plateau of the Hagengebirge massif. The main passage of the cave sumps existed on a lower depth but old and dry passage leads to the current bottom. The cave in its lowest section is very tight and is characterized by the occurrence of many difficult canyons with large quantities of very sticky mud. The exploration is still unfinished; however most of the passages at the cave bottom have been and explored.

It is worth mentioning other two caves explored by our group. Those are: Respektschacht and Alvermannschacht. Both of them have a character similar to the Höhle in Roten Steinen, thus are young canyons with active water flow. The first one was discovered in 2007 and unfortunately ended in a breakdown. The second one was discovered in 1985 by Italians and terminated in a sump. They are characterized by periodically strong airflows of unknown sources. The pits were checked very well and an extensive climbing was done to reach many windows. It yielded some new discoveries but no major breakthrough was made.

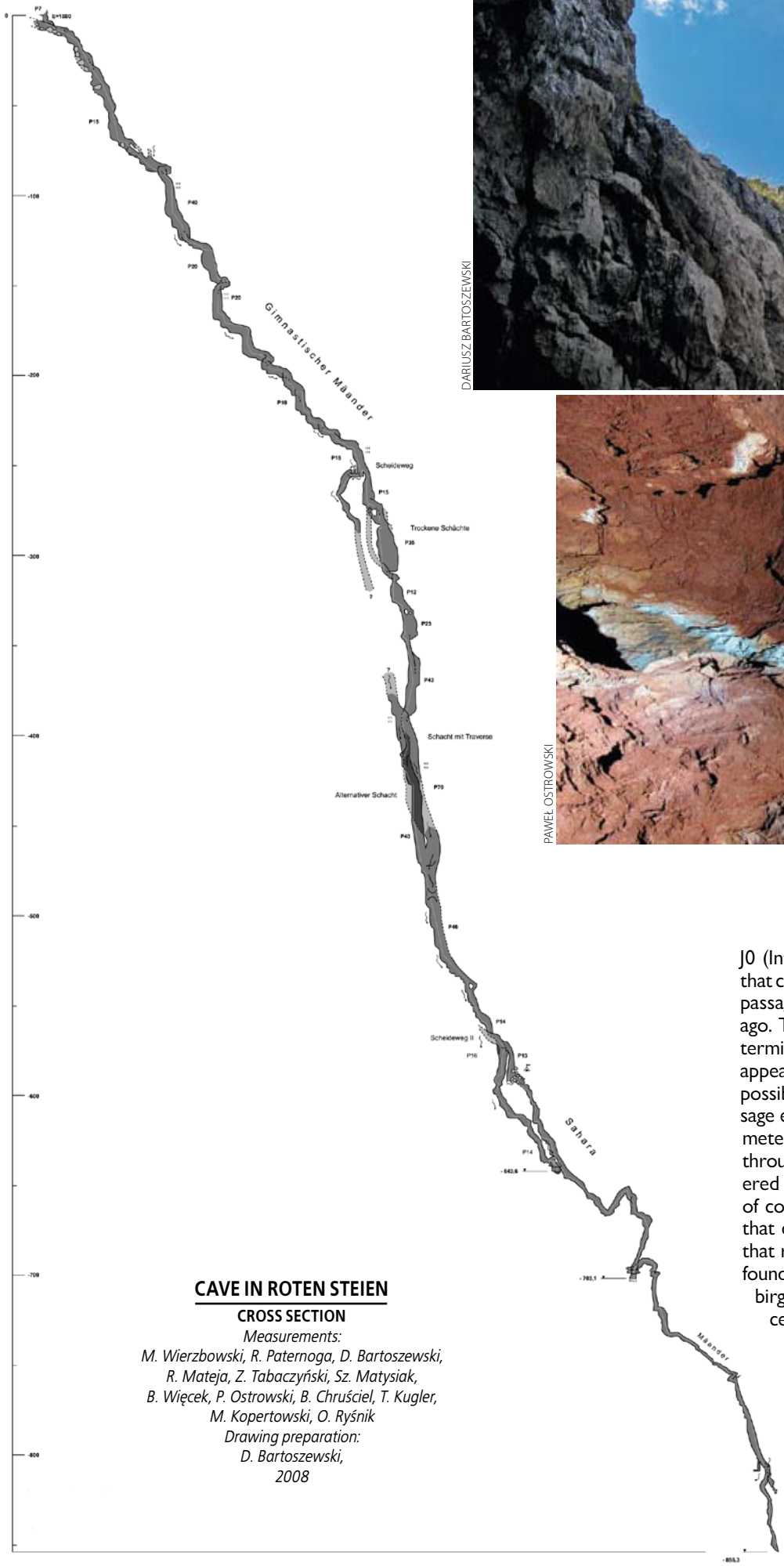
The last two discoveries that have to be mentioned are: the Kastanienhöhle and the

DARIUSZ BARTOSZEWSKI



PAWEŁ OSTROWSKI

Surface exploration;
below: Dry shafts at ~350 m



CAVE IN ROTEN STEIEN

CROSS SECTION

Measurements:
M. Wierzbowski, R. Paternoga, D. Bartoszewski, R. Mateja, Z. Tabaczyński, Sz. Matysiak, B. Więcek, P. Ostrowski, B. Chruściel, T. Kugler, M. Kopertowski, O. Ryśnik
Drawing preparation:
D. Bartoszewski,
2008

J0 (Interessante) Höhle. These are caves that consist mainly of dry, often horizontal passages abandoned by water long time ago. The exploration of the first one was terminated very early; the moving air disappears in a canyon, very narrow and impossible to bypass, whereas the main passage ends in a narrow sump that after 20 meters turned out to be too tight to dive through. The second cave has been discovered recently and is composed of a series of constricted and uncomfortable shafts that drop into a huge horizontal canyon that resembles the majority of the caves found in the southern part of the Hagengebirge unlike the ones located within the central plateau. The exploration is still unfinished and we hope that it brings us many discoveries above those that we have made before.

At the end we would like to thank our friends from Landesverein fur Hölenkunde Salzburg for their help in the vital logistics of our exploration works. ❐

Exploration in Norway

Karolina Filipczak
Sekcja Taternictwa Jaskiniowego KW-Kraków

IZABELA KRACZKOWSKA

KAROLINA FILIPCZAK

Tjorve area surface exploration 2007; below: Slunkajavree 2005

ANNA CZAS

Tjorve 2007, here: Bjorn Egil Johansen

The first summary on the Polish caving expeditions to Norway were presented in the previous edition of the Polish Caving magazine in 2004 by Marcel Nawrot (Three times in Nordland). After a year-long break we returned to Norway. In July/August 2005 a group of eight cavers led by Marcel Nawrot went to Nordland again.

Our goal was to join the Norsk Grotteforbund (Norwegian Caving Association) annual meeting camp taking place in Bona. At first we visited an interesting and still unexplored area of the Slungajavre Lake. The idea was to check the extension of narrow marble belt – which Tjoarvekrajgge cave is developed in. Tjoarve – the longest cave of Norway – is located only few kilometres further. During our 10-days stay in the area we found several small objects and 12 caves up to 202 meters long. Two of them reached the depth of 20 meters. Our exploration was marked by different ice caps, freezing resurgences, sharp rock and traces of the local wildlife including a meeting with wolverine. Two weeks later we finally moved to Bona village, where Scandinavian cavers were camping. We were involved in exploration of Tjorve as well as Stoppenålen cave located in the opposite valley wall. The passages of these two caves are mutually intertwined, so we were quite convinced that their connection would be only a matter of time. Our activity brought approximately 350 meters of the new corridors in Tjorve and 120 meters in Sttopenålen. In Steinaksla cave we have surveyed more than 1176 meters of passages what gave the total cave length of 2900 meters (10th place among the top ten of the Norwegian longest caves).

The fifth trip to Norway took place in August 2006. The total length of Tjorve exceeded 20 kilometres. We also came back to Stoppenålen adding another 30 meters of the surveyed passages. The cave became 15 meters deeper. Unfortunately during our activity we came across a large siphon which shattered our hopes of the connection of both caves. During our surface activity in the area surrounding Tjorve we found an interesting object, 100 meters long, called Ogergrotta (the Cave of the Ogres). Last days of our Norwegian adventure we spent exploring the Burfjellet massif located on the southern side of the Svartisen Glacier. Norwegian speleologist Hans Øivind Aarstad invited us to participate in a research project of Brat-

IZABELA KRACZKOWSKA

IZABELA KRACZKOWSKA

IZABELA KRACZKOWSKA

Above: Tjorve area surface exploration 2007; top right: Burfjellet 2007; Edvardheimgrotta entrance 2007

tligrotta cave (Rolling Stones Cave) which we were familiar with since 2003. In Brattligrotta we dug through a sandy passage (squeeze) which led us to a pitch and gave reason to come back the following year.

During summer 2007 we continued exploration of Tjorve, however our major goal was the exploration in Burfjellet. Our idea was to find a connection between the three biggest caves in the massif: Edvardheimgrotta, Brattligrotta and Storligrotta. We found few hundred meters of unexplored passages, cascades and water meanders but the most important event took place during Edvardheimgrotta's exploration. Behind narrow squeeze, called the Swedish Squeeze (found by our friend – Johannes Lundberg), several hundred meters of the new passages were found. The biggest discovery was 70-meters-deep pit with a huge waterfall called Polskefossen (the Polish Waterfall) which turned out to be the largest underground waterfall in Scandinavia. Further exploration could not have been conducted that time due to high water level inside the cave. Anyway, more than 1500 meters of the new passages were surveyed in Burfjellet that year.

In 2008 the annual meeting of the Norwegian cavers was organized in Burfjellet, gathering about 50 cavers from different countries including: Norway, Sweden, Italy and the UK. A priority of the exploration of Edvardheimgrotta and Brattligrotta was given to the Polish cavers. Water level inside the cave was much lower than a year before what helped us to reach the bottom of the waterfall. 30-meters-deep pit ended with a huge boulder chock. Another 18-meters-long vertical passage led us to a place which turned out to be the First Canyon in Brattligrotta cave. The whole system with its depth of 218 meters became one of the largest in the whole Scandinavian Peninsula. The total length of the system has not been established precisely yet however it is estimated at about 4 kilometres. The Storligrotta was also surveyed reaching the total length of 2237 meters and depth of 97 meters. We have indicated several interesting places in the cave for the further exploration.

Every year we come back to Norway with a great enthusiasm. Common exploration meetings and exchange of different experiences with the Norwegian cavers resulted in a big friendship. I would like to thank sincerely everyone who was involved in the exploration of the Norwegian caves, especially the members of the Norsk Grotteforbundt for their hospitality and invaluable help.

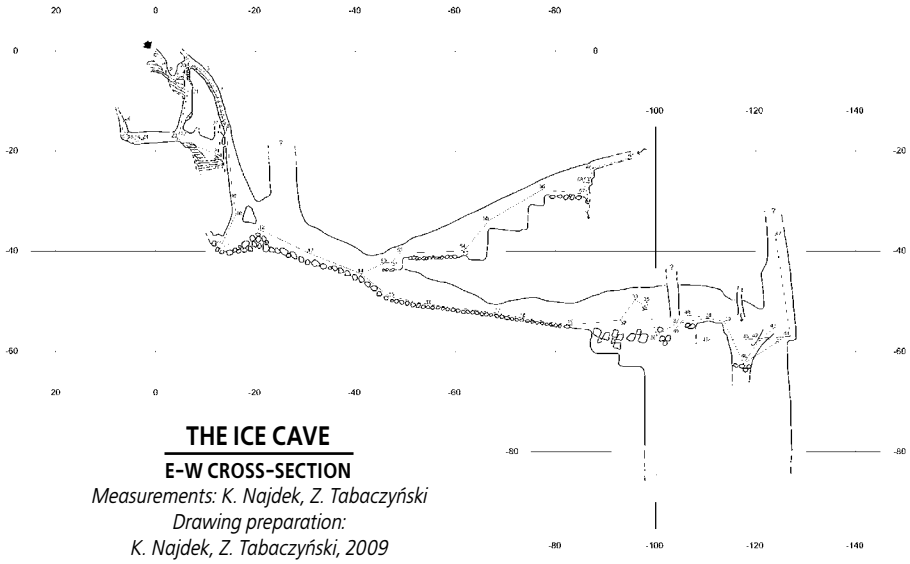
STJ KW-KRAKÓW participants: Marcel Nawrot (leader 2005), Robert Białkowski (2005), Piotr Fryś (2005, 2006, 2007, 2008), Karolina Filipczak (2005, leader of 2006, 2007, 2008), Anna Czas (2006, 2007), Karina Stefaniszyn (2006, 2007), Bartosz Czapski (2006, 2007), Tomasz Jagła (2006), Rafał Pietrucha (2008)

KKTJ participants: Wojciech Sieprawski (2005, 2008), Bartosz Berdel (2005), Mirosław Pindel (2008)

Unassociated participants: Izabela Kraczkowska (2006,2007,2008), Maja Tomaszewska (2005), Piotr Zieliński (2005), Mateusz Damrat (2007), Marian Szczygieł (2007), Sabina Filipczak (2008). ❐

Prokletije (Bjeshket e Namuna) 2006–2009

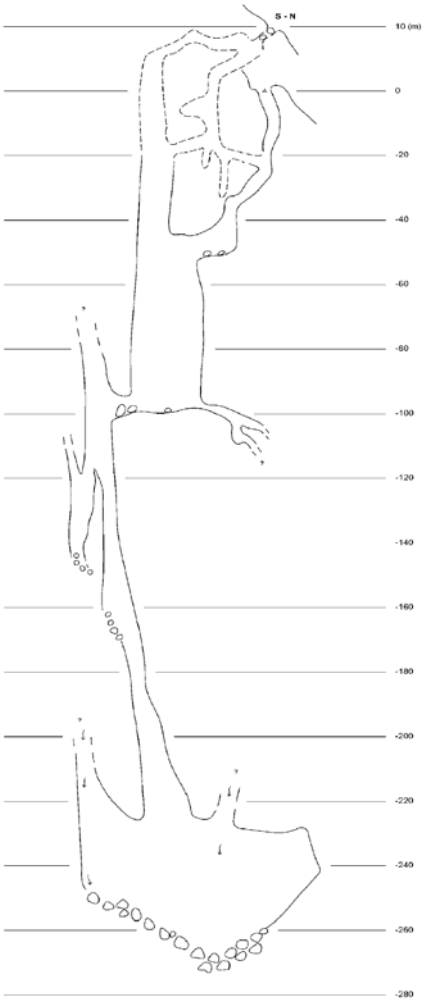
Natalia Biegała,
Ditta Kicińska,
Krzysztof Najdek
Wielkopolski Klub Taternictwa Jaskiniowego



THE ICE CAVE
E-W CROSS-SECTION
Measurements: K. Najdek, Z. Tabaczyński
Drawing preparation:
K. Najdek, Z. Tabaczyński, 2009

Z. TABACZYŃSKI

The Ice Cave

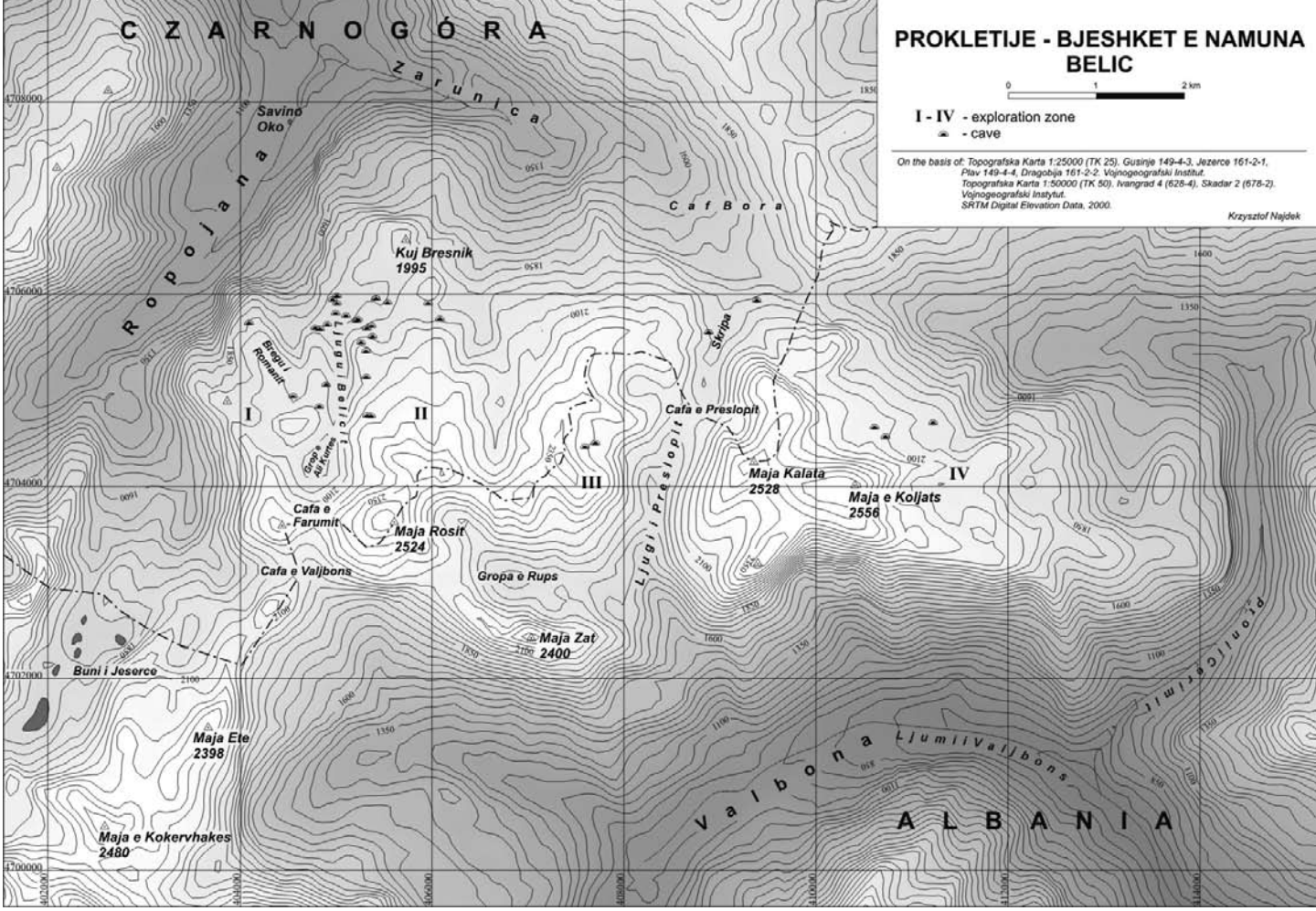


CAVE TO SAVINO OKO
S–N CROSS-SECTION
Measurements:
A. Pegan, P. Niziołek
Drawing preparation:
Z. Tabaczyński, 2008

The Prokletije Mts. are known as Bjeshket e Namuna (in Albanian), the Northern Albanian Alps or the Albanian Alps. They are located at the boundary between Albania, Montenegro and Kosovo. The highest peaks are: Jezerski Vrh/Maja Jezerce (2694 m) in Albania, Djeravica (2656 m) in Kosovo and Kolac/Maja Kolata (2534 m) in Montenegro. These are also the highest peaks in the Dinarides, where denivelation between them and the bottom of valleys reaches 1000 m.

The exploration has been taking place near Gusinje, a little town situated in the Ljučy valley (near the Albanian boundary). Two mouths of big glacial valleys: Ropojana and Grbaja occur in this area. These structures are separated by the Karanfili-Brada range, a vast calcareous region drained by two karst springs of great discharges: Alipašni Izvori and Savino Oko. The Alipašni Izvori, a 300-m-long zone of springs, is located in the Vrujskie Polje at 925 m a.s.l. It has discharge from 1-1,5 m^3/s in the summertime up to 3 m^3/s in spring. From this point water flows as a Vruja stream toward the Ljuča river.

Geologically, this region belongs to the High Karst unit composed of Mesozoic limestones and dolomites. Every series of carbonate rocks can occur few times in one profile as a result of folding and faulting. It makes this region resemble the Tatras or



BelicMapa

the Alps. Our exploration area is composed mainly of the Middle and Upper Triassic limestones overthrusted by Upper Jurassic ones. Geological complexity of this region has significantly influenced the geomorphological processes (as karst). Faults play a key part in drainage of the atmospheric water and debris transport determining also the development of explored caves. In Prokletije one can find not only karst but also glacial features. U-shaped and hanging valleys, moraines and cirques occur in great numbers.

During the period 2006–2009 4 exploratory expeditions took place: into the Belic massif, Zastan Grbajski and Ploče in the Grbaja valley.

In 2006 exploration was conducted in the Ploce region, an extensive karst plateau situated at 1800 m a.s.l. in the direction of the Karanfili range. Several dozen of entrances were checked in the lapies. Unfortunately all of the caves terminated with snowy plugs, debris or narrowing passages impossible to pass. The deepest one was the Ice Cave (Jaskinia Lodowa, -115 m). The other caves are up to 50 m in depth or length, like for example: the Cave at the Ljuljašvič's Karanfil, Cave in Breccia, Hidden Cave or the Cave under the Grey Stone. We were also looking for the entrances in the Mečin Do and Ljubokuč valleys descending into the Grbaja valley. Initial exploration was also conducted in the Ropojana valley.

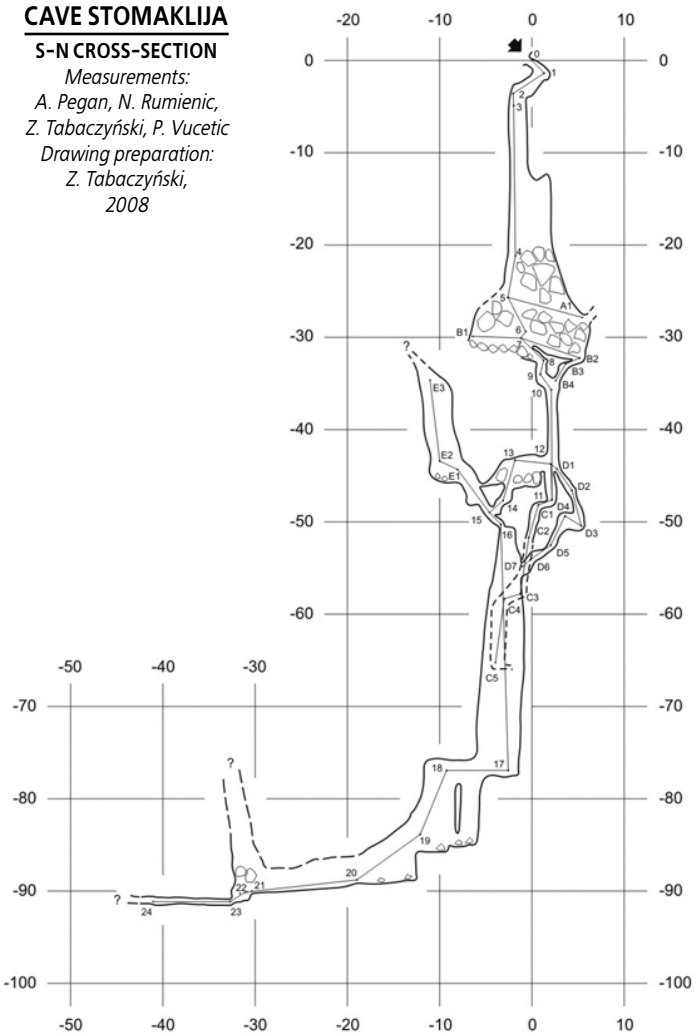
In 2007 the expedition took place in 3 different areas: Zastan Grbajski, Volusnica and Belic. As a result we checked tens of caves, which turned out to be over 20-m-deep shafts. 20 of them have been surveyed. In the Belić massif we discovered such caves as Setka (A Hundred; 95 m in depth) and Jaskinia Lodowego Smoka (Ice Dragon Cave) surveyed down to 130 m with unfinished exploration. This area appeared to be the most prospective

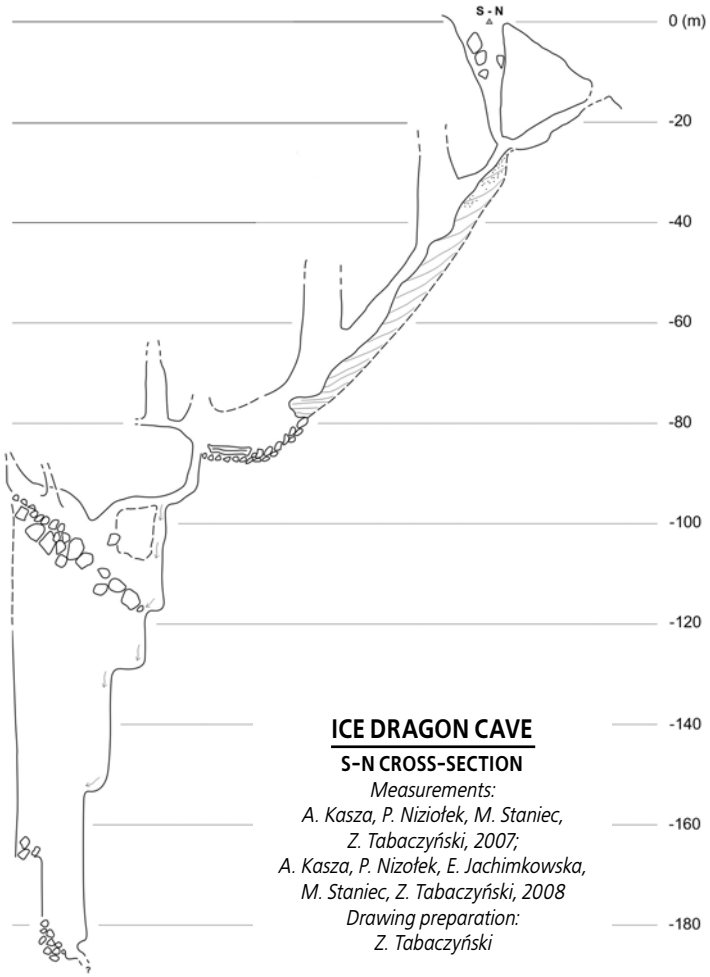
The Belič massif covering an area of about 80 km^2 is bounded by Ropojana glacial valley with the Savino Oko karst spring

CAVE STOMAKLIJA

S-N CROSS-SECTION

Measurements: A. Pegan, N. Rumienic, Z. Tabaczyński, P. Vucetic
Drawing preparation: Z. Tabaczyński, 2008

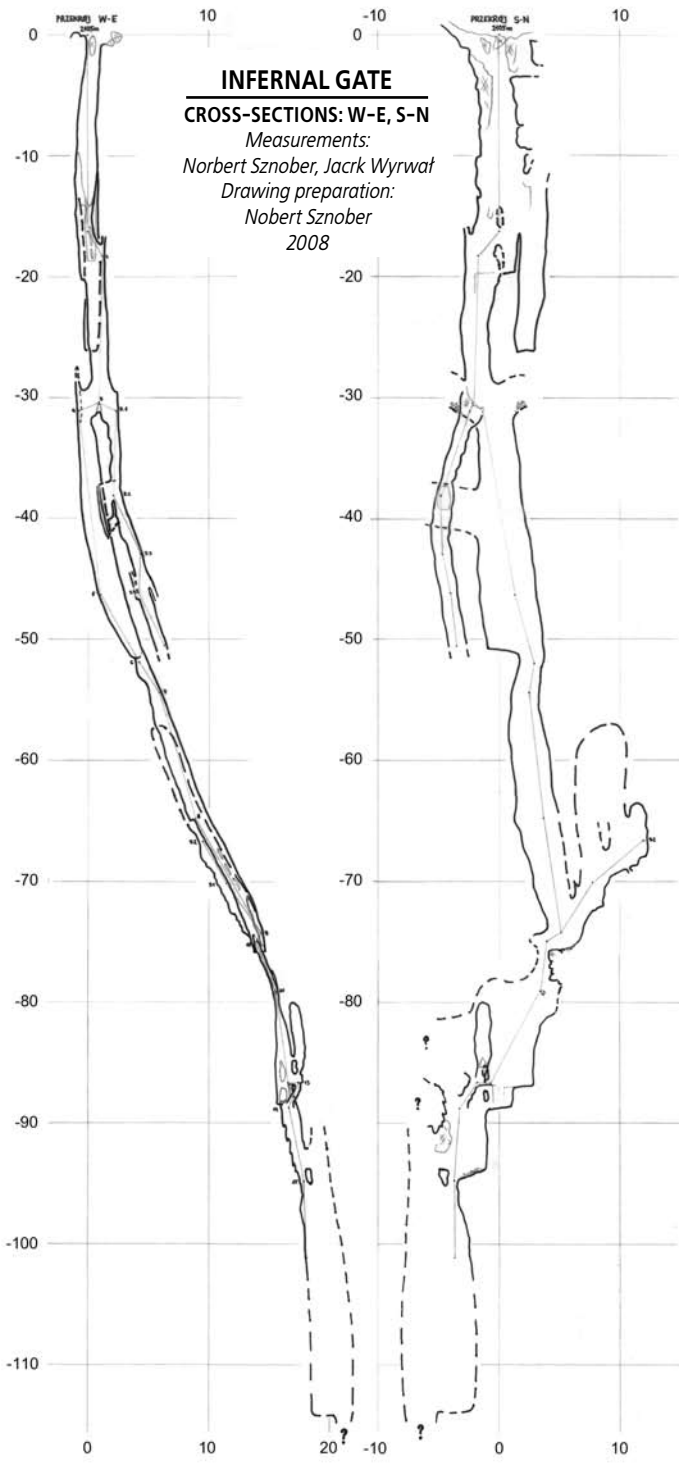




ICE DRAGON CAVE

S-N CROSS-SECTION

Measurements:
A. Kasza, P. Niziołek, M. Staniec, Z. Tabaczyński, 2007;
A. Kasza, P. Nizołek, E. Jachimkowska, M. Staniec, Z. Tabaczyński, 2008
Drawing preparation:
Z. Tabaczyński



INFERNAL GATE

CROSS-SECTIONS: W-E, S-N

Measurements:
Norbert Sznober, Jacrk Wyrwał
Drawing preparation:
Nobert Sznober
2008

K. NAJDEK

Savino Oko

(being an entrance of a 90-m-deep cave; see: www.scientificdiving.eu, http://gnj.org.pl) to the west; valley of Zarunica (formed along the border between carbonate and clastic formations) to the north; valley of the Proni i Cerimit stream to the east; and Valbona glacial valley to the south. Due to its morphology Belić has been divided into 4 exploratory zones. The main target of our activity in every zone is creating the cave cadastre.

During the summer of 2008 two upper base camps were set up on the Belić massif: first in the exploratory zone I and second – in the zone II, at 2000 and 1900 m a.s.l. respectively. The distance between them (about one hour walk) let us conduct the exploration over much more extended area. Due to the shortage of surface snow we were forced to take it out from the nearby caves using the caving equipment. We made a documentation of 26 caves during the expedition. Most of the shafts terminate at the depth of few tens of meters. The deepest ones are: Cave to Savino Oko – 03 006 (-265 m), Ice Dragon Cave - 03 003 (-186 m), Infernal Gate – 03 066 (-101 m). In a few caves the exploratory works have not been finished.

In the springtime of 2009 we organized the next exploratory expedition. It took place in the eastern part of Belić (exploratory zones III and IV) near Maja Kalata summit (2528 m a.s.l.). Our action was aimed at localizing new cave entrances and checking the ones found during the previous expedition. In the upper part of the Ice Cave (03110) we were able to survey passages almost 0,5 km long. We are going to continue its exploration during this year's summer expedition. ❐

Marek Jędrzejczak,
Tomasz Haba
Speleoclub Wrocław

Picos de Europa – El Cornion

General Information

The Picos de Europa situated in the northern part of the Iberian Peninsula is the highest range of the Cantabrian Mountains. Huge massifs of limestone rocks emerging from the Atlantic Ocean have allured interests of the tourists, climbers, cavers and scientists from various fields: biologists, geologists and geographers for years.

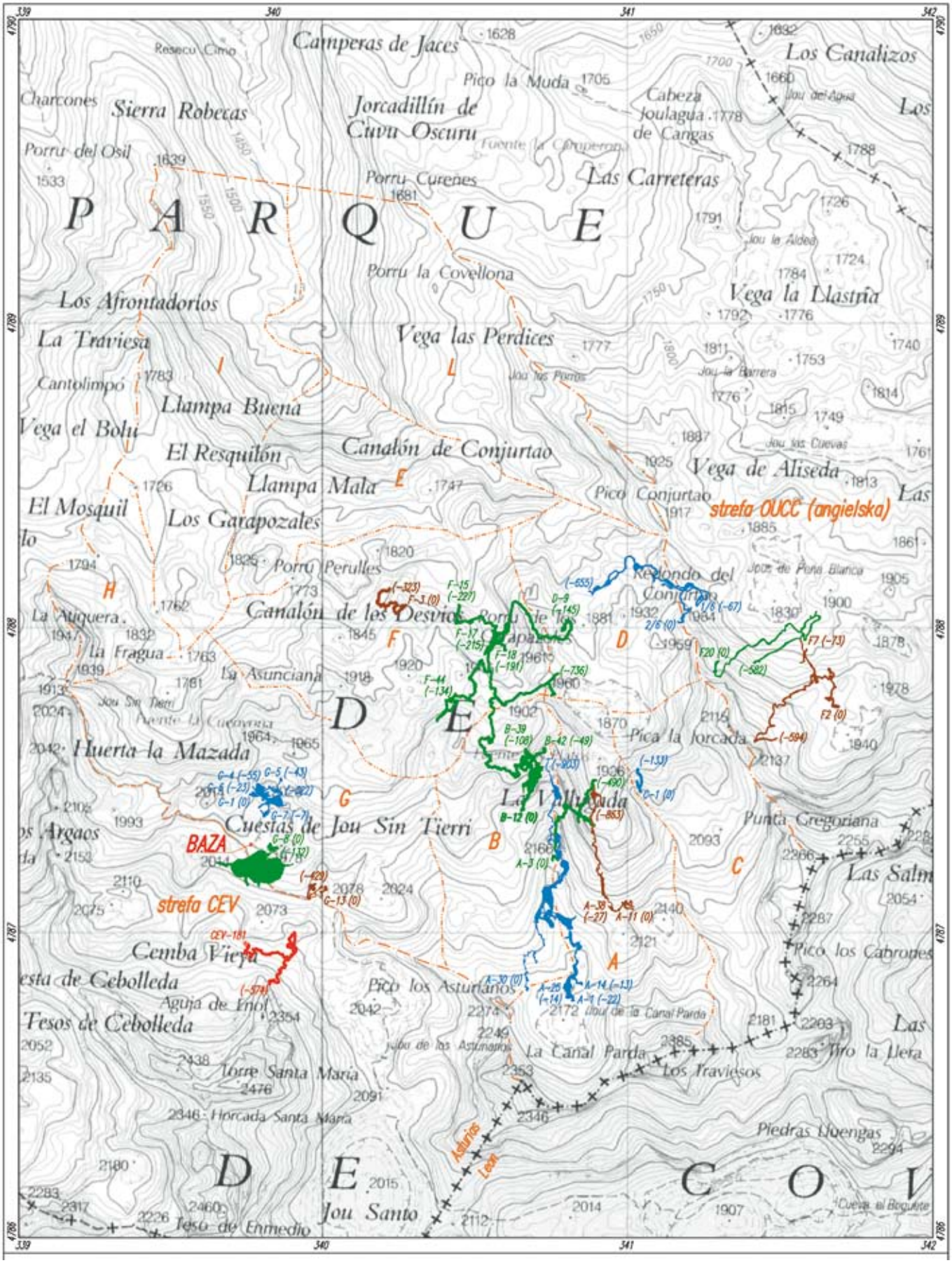
The fact that these mountains are located between the main range of the Cantabrian Mountains and the ocean coast means that one has to do with great altitude differences. The northern slopes descend abruptly from the height of approximately 2500 m to a narrow 10 km wide shore belt, while the southern slopes are gentler. The north-flowing rivers: Rio Sella, Rio Cares, Rio Duja and Rio Deva separate the Picos from the adjacent areas with their valleys up to 1500-m-deep and dissect them into three massifs: the western massif – El Cornion (Peńa Santa de Castilla 2596 m a.s.l.), the central massif – Los Urrieles (Torre de Cerreu 2648 m a.s.l.) and the eastern massif – La Andra (Morra de Lechugales 2444 m a.s.l.). The whole Picos de Europa occupies an area of 500 km^2 (with length of 35 km in the E-W direction and width of 15 km from north to south). They are situated over the territories of three different Spanish provinces: Asturia, Cantabria and León. This has been the main area of activity for the members of Spanish, French, English and Swiss caving and climbing organizations. Poles have also been present in the Picos de Europa for years.

"The Polish exploration zone"

Poles having been visiting the Western massif (El Cornion) of Picos de Europa since 1978, were entitled by Parque Nacional de Picos de Europa, through Federacion Asturiana de Espeleologia, to explore a vast area (4.5 km^2) in the Asturian part of the massif. The area includes the northern slopes of the summits: Torre Santa Maria and Torre del Alba. The highest point is the summit of Torre del Alba with the altitude of 2390 m, whereas the lowest – the bottom of the Hoos de Resecu cirque at the altitude of 1460 m.

Polish activity in "The Polish exploration zone"

The first Polish expedition was a reconnaissance organized in 1978 by Warsaw Speleoclub. The exploration conducted in this area by Speleoclub Wrocław started in 1991. At first it was a continued exploration of Pozu del Picu de los Asturianos (A-30) and Sima de la Torre de los Traviesos (Torre del Alba) o de los Organos (A-1), what resulted in discovery of the connection between these caves in 1995 (Sistema del Hou de la Canal Parda A30/A-14/A-25/A-1) and in reaching the depth of 903 m in 1996. Moreover, in 1994 began a two-year exploration of Sistema del Canalon de los Des-



vios (F-18/F-17/F-15; -501 m). During the period 1997–2000 expeditions were looking for the new exploration goals and conducting hydrogeological research.

In the years 2001–2003 Sistema del Canalon de los Desvios (F-18/F-17/F-15) had been explored again. The cave system extended through discovery of the connections with two other caves: B-12 and D-9. Consequently, its depth increased from -542 to -736 meters and its length – from 2118 to 4800 meters.

Between 2003 and 2005 we were returning to the unfinished problem of the A-3 cave. We succeeded in deepening the cave only from -432 to -490 meters without reaching the sump zone, and finally in 2005 we decided not to come back to this object again.

THE DEEPEST CAVES IN THE POLISH EXPLORATION ZONE IN THE WESTERN MASSIF OF THE PICOS DE EUROPA

	Name	Entrance Symbols	Depth [m]	Length [m]	Horizontal extent [m]	Year, club, result
1	Sistema del Hou de la Canal Parda (Pozu del Picu de los Asturianos – Sima de la Torre del Alba o de los Organos)	A-30 (0) A-24 (-13) A-25 (-14) A-1 (-22)	-903	4 401 + ca. 450	760	1974, SCOF, -330 in A-1 1975, SCOF, -416 in A-1 **1988, SG, -100 in A-30** **1989, SG, -265 in A-30** **1991, SCW, -552 in A-30** **1994, SCW, -726 in A-30** **1995, SCW, connection of A-1 with A-30** **1996, SCW, -903**
2	Pozu del Porru la Capilla	A-11 (0) A-38 (-27)	-863	1 754	440	**1984, SG, -180** **1986, STJC, -400** **1987, SG, -863** **2003, SCW, connection of A-38 with A-11**
3	Sistema del Canalon de los Desvios	B-12 (0) B-42 (-43) B-39 (-104) F-44 (-134) D-9 (-148) F-18 (-202) F-17 (-226) F-15 (-239)	-736	6 610 + ca 50	706	**1994, SCW, -501 in F-18/F-17** **1995, SCW, connection of F-15 with F-18/F-17** **1998, SCW, -542 in F-18/F-17/F-15** **2001, SCW, -404 in B-12** **2002, SCW, connection of B-12 with F-18/F-17/F-15** **SCW, -324 in D-9** **2003, SCW, connection of D-9 with F-18/F-17** **2005, SCW, connection of B-39 with B-12** **SCW, connection of B-42 with B-12** **2006, SCW, connection of F-44 with F-18/F-17/F-15/D-9**
4	Pozu de la Aguja de Enol (CEV zone)	CEV 181	-574	1 314	189	1989, CEV, -30 1990, CEV, -207 2006, CEV, -499 **2008, CEV and SCW, -574**
5	Pozu del Porru de los Garapozales	A-3	-490	1 250	298	1975 ?, SCOF ?, -60 ? **1998, SCW, -432** **2003, SCW, -457** **2004, SCW, -490**
6	Pozu les Barrastoses	G-13	-429	623	82	**1989, SGKWW, -429**
7	Pozu los Desvios	F-3 F-3B (-3)	-323	702	97	1973, shepherd, -100 1975, SCOF, -280 **1980, SG, -323** **2000, SCW, connection of with F-3B**
8	Rede los Barrastroses	G-1 (0) G-7 (-7) G-4 (-55) G-5 (-43)	-322	?	145	1972, SCOF, -215 in G-7 1973, SCOF, -315 in G-7, connection of G-4 with G-7 1975, SCOF, connection of G-5 with G-4/G-7 **1998, SCW, -322, connection of G-1 with G-4/G-7/G-5**
9		SCP 134	-240	?	42	1984, SCP, -38 1985, SCP, -157 **1986, SCP and KKS, -240**
10	Sima Profunda	Prof.	-204	?	?	**1979, SG, -188** **1980, SG, -204**

KKS Katowicki Klub Speleologiczny
SCW Speleoclub Wrocław
SG Speleoklub Gliwice
SGKWW Sekcja Grotołazów Klubu Wysokogórskiego Wrocław
STJC Sekcja Taternictwa Jaskiniowego Częstochowa

CEV Sección de Exploraciones Subterráneas de Centro Excursionista de Valencia, Spain
SCOF Speleo Club Orsay Faculte, Orsay, France
SCP Espeleo - Club de la Universidad Politecnica de Valencia, Spain

The following expeditions, in 2005 and 2006, brought in the further extension of the Sistema del Canalon de los Desvios. Thanks to systematic surface exploration we were able to find three new caves that connect with this system: B-42, B-39 and F-44. Recently the system has 8 entrances, its depth has not been changed (-736 meters) and its total length is of 6610 meters. It is worth mentioning that most of the entrances connect near the bottom, in so called „river" – about 500-m-long horizontal collector that ends with a sump. Previous discoveries proved that the system has a structure allowing it to drain radially the surface around Canalon de los Desvios leading water under the Hoon de los Desvios.

During the 2008 expedition we started to cooperate with the Spanish organization – Seccion de Exploraciones Subterraneas de Centro Excursionista de Valencia (SES CEV). Our exploration area in the southern part was adjacent to the Spanish one. In July 2008 we were exploring the Pozu de la Aguja de Enol cave (CEV 181) together, deepening it from -499 to -574 meters. This cave was discovered in 1989; for years the further exploration was impossible because of the snowy-ice plug near the entrance (down to -80 m). Finally in 2006 conditions inside the cave allowed us to continue exploration that reached -499 meters. Due to strong permanent water flow the cave was a very demanding one.

During the 2009 expedition we are planning to continue the exploration (again with SES CEV) of the CEV 181 cave, which we terminated in 2008 because of the lack of time. In the CEV 181 there is a potential to reach the sump zone at the depth of about 800 meters. ❐

We would like to thank our friends: Armando Alonso Bernardo Fernandez and Juan Jose Gonzalez Suarez of Federation Austrian de Speleological and all of those Spaniards thanks to whose geniality our expeditions to the Picos will be remembered as something very special.

Feichtnerschacht -1145 m

JAKUB NOWAK

Feichtnerschacht -220 m

JAKUB NOWAK

Jakub Nowak
Krakowski Klub Taternictwa Jaskiniowego

Minus 1145 m in Feichtnerschacht

The Feichtnerschacht cave is located in the Kitzsteinhorn massif (3203 m a.s.l., Hohe Tauern, Austria). It developed in rocks not very typical for the karst processes – carbonate-mica schists. Its genesis is connected with glacier still existing in this area. Polish activity started in 1982. Krakowski Klub Taternictwa Jaskiniowego (KKTJ) has been continuing the Richard Feichtner's exploration since 1998. Feichtner discovered the cave in 1984 and explored down to -500 m. Until 2005 Feichtnerschacht reached the length of 4,8 km and depth of 1088 m.

2006

The target of the expedition was simple – continuation of the exploration at the 4th bottom at a depth of 1088 m. We started with the camp at -450 m and reached the KKTJ sump at a depth of 1145 m. We tried to find a bypass, unfortunately without success. After having finished surveying we started to carry the equipment out of the cave, checking the windows in the shafts on our way back. Thus we backed up to the depth of 680 m below the chimneys that we started to climb up in 2002. The last days of the expedition we spent transporting the equipment as the distances covered during the exploration were so great.

2007

The expedition showed some features characteristic for "the second stage of the exploration". We were mainly climbing, checking the side passages and windows. We were exploring at the depths of -350 and -480 m. At -500 we made a 500-m-long loop but the most interesting thing turned out to be the chimneys at -680 m. 70 m above them we entered into a large chamber (Sala Kubatury/Cubature Chamber) with many branches, a chimney and a sump. Unfortunately we did not have enough time to check all of them.

2008

It was our tenth expedition into this cave. The activity was very intensive as we made two parallel underground camps. The aim of the first one was digging through a sandy sump at a depth of -350 m. Behind it we discovered a line of cascades and ramps forming another loop. The aim of the second camp at -450 m was further exploration starting from a big chamber at -610 m. Using the fact that the sump behind the chamber was dry that year, we checked

FEICHTNERSCHACHTHÖHLE

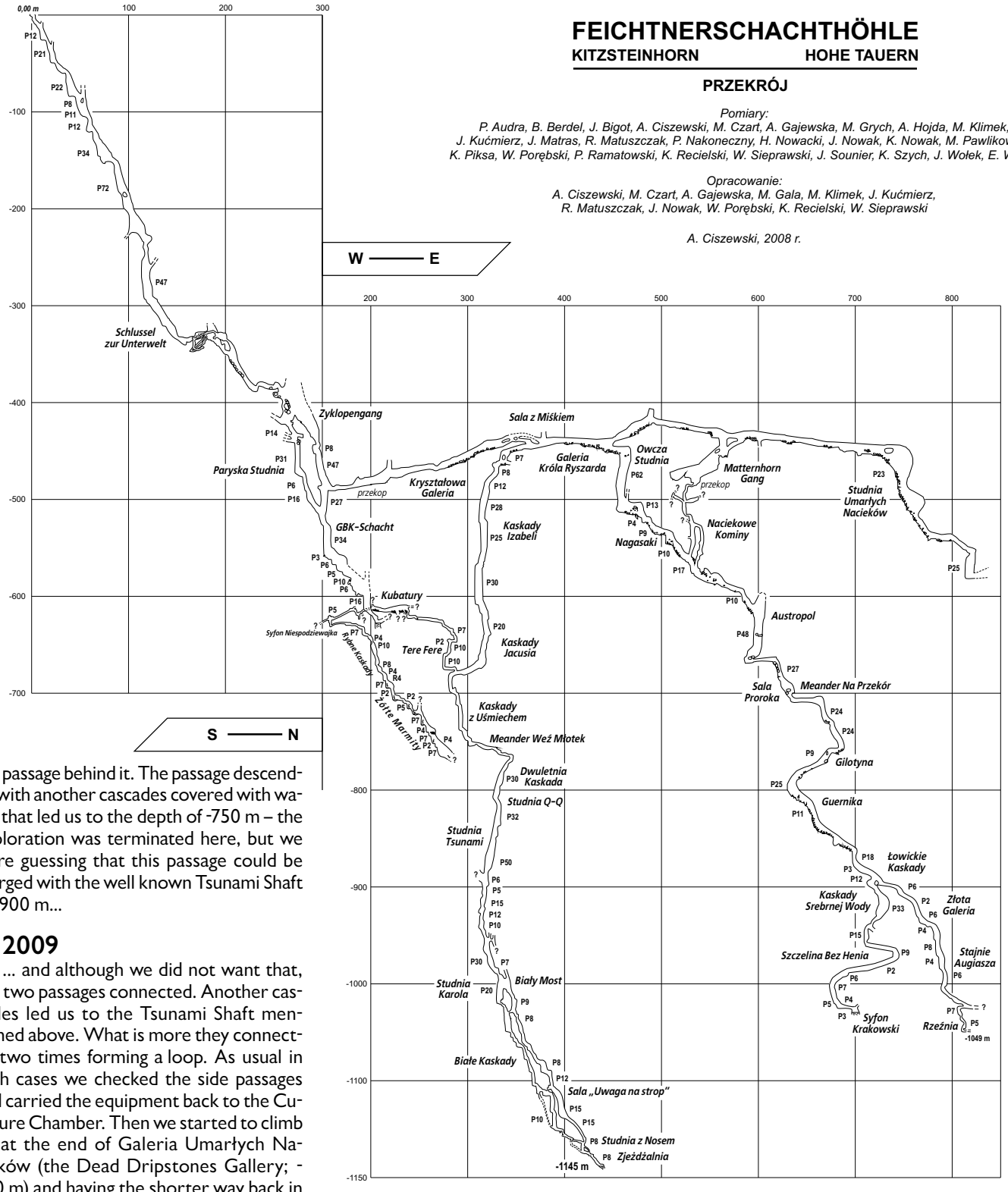
KITZSTEINHORN HOHE TAUERN

PRZEKRÓJ

Pomiary:
P. Audra, B. Berdel, J. Bigot, A. Ciszewski, M. Czart, A. Gajewska, M. Grych, A. Hojda, M. Klimek, J. Kućmierz, J. Matras, R. Matuszczak, P. Nakoneczny, H. Nowacki, J. Nowak, K. Nowak, M. Pawlikowski, K. Piksa, W. Porębski, P. Ramatowski, K. Recielski, W. Sieprawski, J. Sounier, K. Szych, J. Wołek, E. Wójcik

Opracowanie:
A. Ciszewski, M. Czart, A. Gajewska, M. Gala, M. Klimek, J. Kućmierz, R. Matuszczak, J. Nowak, W. Porębski, K. Recielski, W. Sieprawski

A. Ciszewski, 2008 r.



the passage behind it. The passage descended with another cascades covered with water that led us to the depth of -750 m – the exploration was terminated here, but we were guessing that this passage could be merged with the well known Tsunami Shaft at -900 m...

2009

... and although we did not want that, the two passages connected. Another cascades led us to the Tsunami Shaft mentioned above. What is more they connected two times forming a loop. As usual in such cases we checked the side passages and carried the equipment back to the Cubature Chamber. Then we started to climb up at the end of Galeria Umarłych Nacieków (the Dead Dripstones Gallery; -450 m) and having the shorter way back in mind, we set up the ropes down to the Old Bottom (-623 m) and started to look for the connection with not very distant Cubature Chamber. Will we make it? It will turn out in 2010. ❐

Summary:

In the years 2006–2009 4 expeditions of Krakowski Klub Taternictwa Jaskiniowego took place under Andrzej Ciszewski's and Wojciech Sieprawski's management. During that time about 1,5 km of passages and shafts was discovered deepening the cave down to the depth of 1145 m. Its length is currently 6,25 km.

JAKUB NOWAK

Feichtnerschacht -450 m

Andrzej Ciszewski
Krakowski Klub Taternictwa Jaskiniowego

Leoganger Steinberge


MICHAŁ CISZEWSKI


JAKUB NOWAK


JAKUB NOWAK

During the last three years summer expeditions have been organized in August when the cave entrances situated in the upper part of the massif are not covered with snow.

In 2006 we acted in Nebelsbergkar in the CL-3 cave, unsuccessfully trying to move a little to the north as we needed only 100 m to connect with the Lamprechtsofen system. Unfortunately we did not make it though discovery of the new entrance can also be regarded as a success. The Veteranenschacht cave (this is how we named it) connected with z CL-3 at a depth of only hundred and a few tens of meters. This junction helped us significantly reach the breakdown parts where the exploration was unfinished. The CL-3 exceeded the length of 7 km and the great exploratory potential would let us work there during few following years.

Our second target was the Furkaschacht cave at 2473 m a.s.l. (1811 m higher than the entrance of Lamprechtsofen). Strong current of air felt encouraging. The only problem was a very cramped 200-m-long meander that had to be widened. Finally we went through it and reached a 30-m-high cascade. At its bottom there was another gaping shaft. We were at a depth of -300 m but the distance to the furthest southern parts of Lamprechtsofen was about 800 m. It was a very long distance to cover.

Simultaneously during that expedition a four-man reconnaissance group acted in a neighbouring cirque separated from Nebelsbergkar by a ridge going down northwards from the peak of Birnhorn massif. Durrkar is much smaller and surrounded by much steeper walls than Nebelsbergkar. No serious exploratory activity had taken place there by that time. During two-weeks-long reconnaissance few tens of entrances were checked and the most promising ones were chosen.

The following expeditions in 2007 and 2008 acted in the Durrkar area. The group appeared to be tired of the exploration in Nebelsbergkar therefore the area were changed.

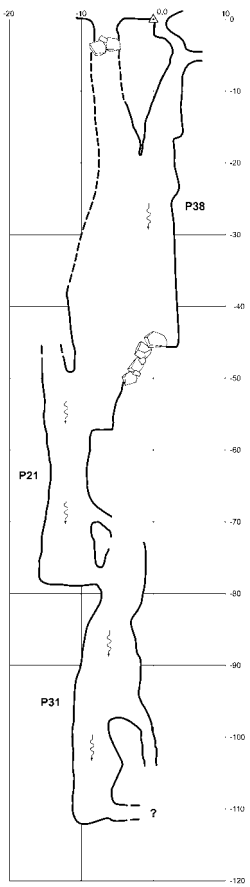
In 2007 the base camp in Durrkar was made. We also had to transport enormous amounts of our equipment, conduct the surface exploration checking the previously found entrances at the same time. The most interesting entrances turned out to be situated above 2100 m a.s.l. in the highest part of the cirque close to the ridge. In the lower parts of Durrkar the caves usually terminated after few tens of meters with cramped fractures formed in dolomite. In the upper parts of the cirque caves cut through that zone becoming more extensive ones.

In 2007 we reached zones of greater extensivenesses in two caves situated 300 m from each other. It was Tropikhohle where we reached the depth of -185 m halfway down in a shaft with two waterfalls. The other explored cave called Viertelhohle had 4 entrances and very complicated system with numerous cramped meanders. In this one we reached the depth of -170 m.

In 2008 we found large amounts of snow covering our area. The entrance of Tropikhohle is situated at 2305 m a.s.l. Fortunately, strong current of air melted the snow covering the entrance. The Viertelhohle entrance had to be dug out of snow what we were able

Klin -150 m;

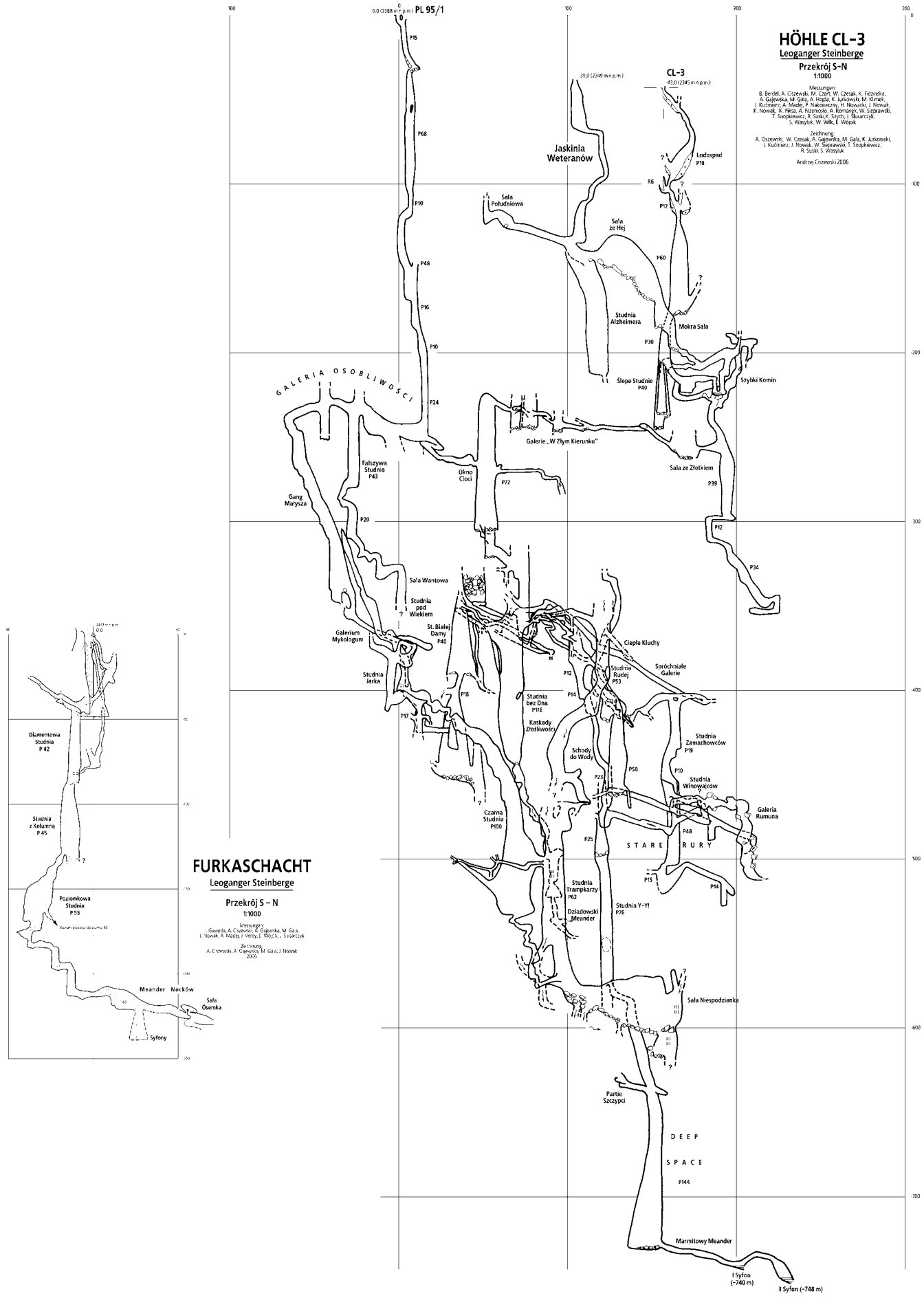
Meander Wsteczny -210 m



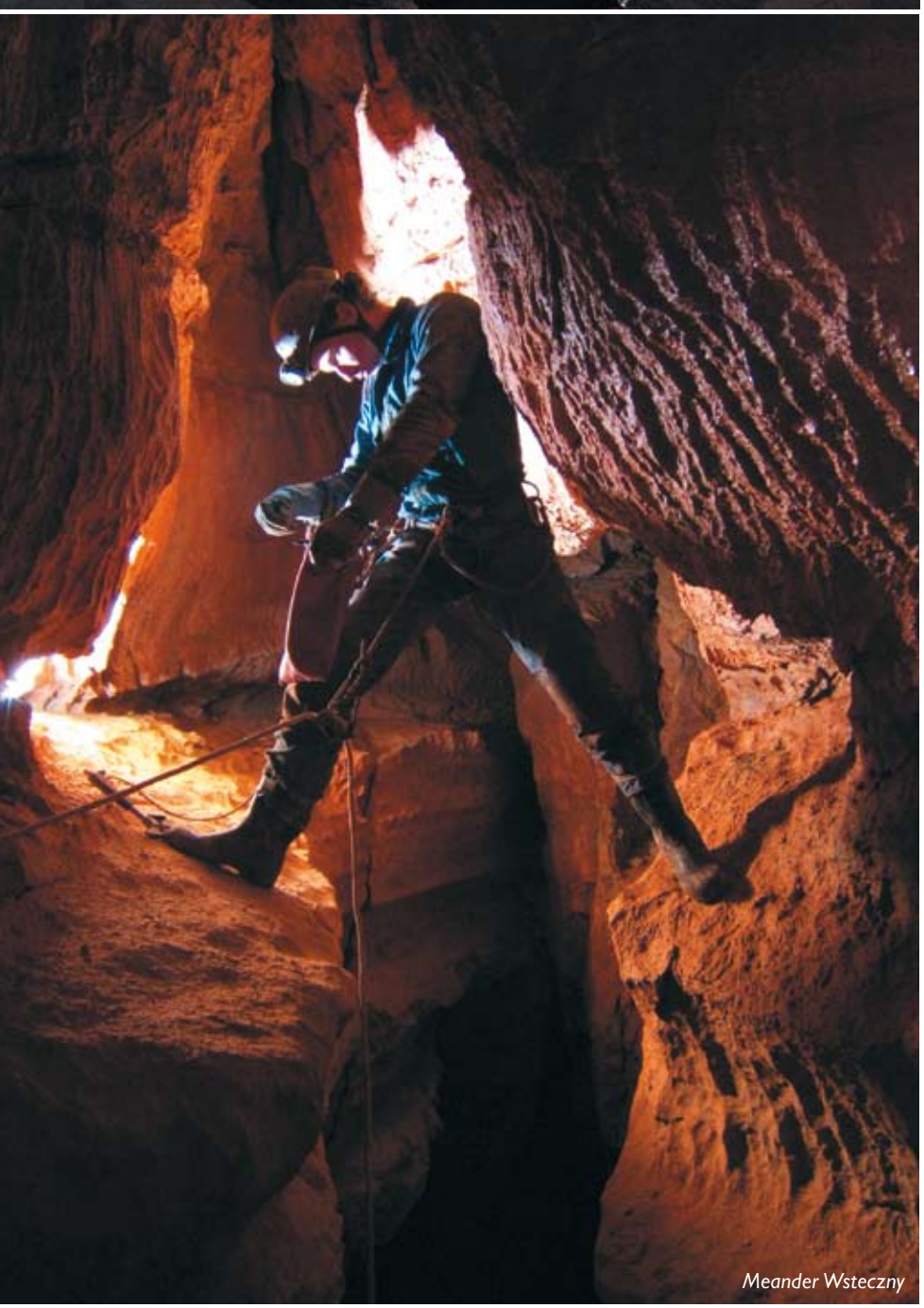
HÖHLE DEN GUTEN HÖFFNUNGS

S–N CROSS SECTION

Measurements:
M. Dryjański, T. Snopkiewicz, R. Kardaś.
Drawing preparation:
R. Kardaś
2007

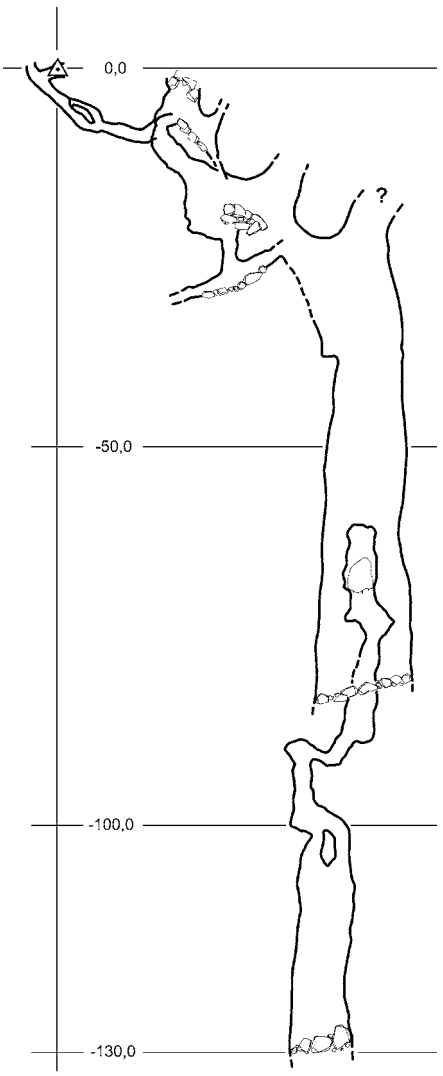

PL 95/1
HÖHLE CL-3
Leoganger Steinberge
Przekrój S–N
1:1000
Messungen:
B. Berdel, A. Ciszewski, M. Czart, W. Czesak, K. Fidzinska, A. Gajewska, M. Gala, A. Hoda, K. Jurkowski, M. Klimek, J. Kuc'mierz, A. Madej, P. Nakoneczny, H. Nowacki, J. Nowak, K. Nowak, K. Pelsa, A. Pizemoslo, A. Romanek, W. Sieprawski, T. Snopkiewicz, R. Suski, K. Szych, J. Skwarczyk, S. Wasyluk, W. Wilk, E. Wojcik
Zeichnung:
A. Ciszewski, W. Czesak, A. Gajewska, M. Gala, K. Jurkowski, J. Kuc'mierz, J. Nowak, W. Sieprawski, T. Snopkiewicz, R. Suski, S. Wasyluk
Andrzej Ciszewski 2006
CL-3
39,0 (2349 m n.p.m.)
43,0 (2345 m n.p.m.)
Jaskinia Weteranów
Lodospad
Sala Południowa
Sala że Hej
Studnia Alzheimera
Mokra Sala
Ślepe Studnie
Szybki Komin
GALERIA OSOBLIWOŚCI
Galerie „W Złym Kierunku"
Sala ze Złotkiem
Fałszywa Studnia
Okno Cioci
Gang Małysza
Sala Wantowa
Studnia pod Wiekiem
Galerium Mykologum
St. Białej Damy
Studnia Jarka
Ciepłe Kluchy
Spróchniałe Galerie
Studnia Rudej
Studnia bez Dna
Kaskady Złośliwości
Schody do Wody
Studnia Zamachowców
Studnia Winowajców
Galeria Rumuna
Czarna Studnia
STARE RURY
Studnia Trampkarzy
Dziadowski „Meander
Studnia Y-Y!
Sala Niespodzianka
Partie Szczypci
DEEP SPACE
Marmitowy Meander
I Syfon (–740 m)
II Syfon (–748 m)
FURKASCHACHT
Leoganger Steinberge
Przekrój S – N
1:1000
Messungen:
Gawęda, A. Ciszewski, A. Gajewska, M. Gala, J. Nowak, A. Madej, J. Verley, E. Wójcik, K. Susarczyk
Zeichnung:
A. Ciszewski, A. Gajewska, M. Gala, J. Nowak
2006
Diamentowa Studnia P 42
Studnia z Kolumną P 45
Poziomkowa Studnia P 55
Meander Nocków
Sala Ósemka
Syfony

Studnia Spiralna -240 m



Meander Wsteczny

JOANNA NOWAK



MICHAŁ CISZEWSKI

JASKINIA POD PAPROTKĄ

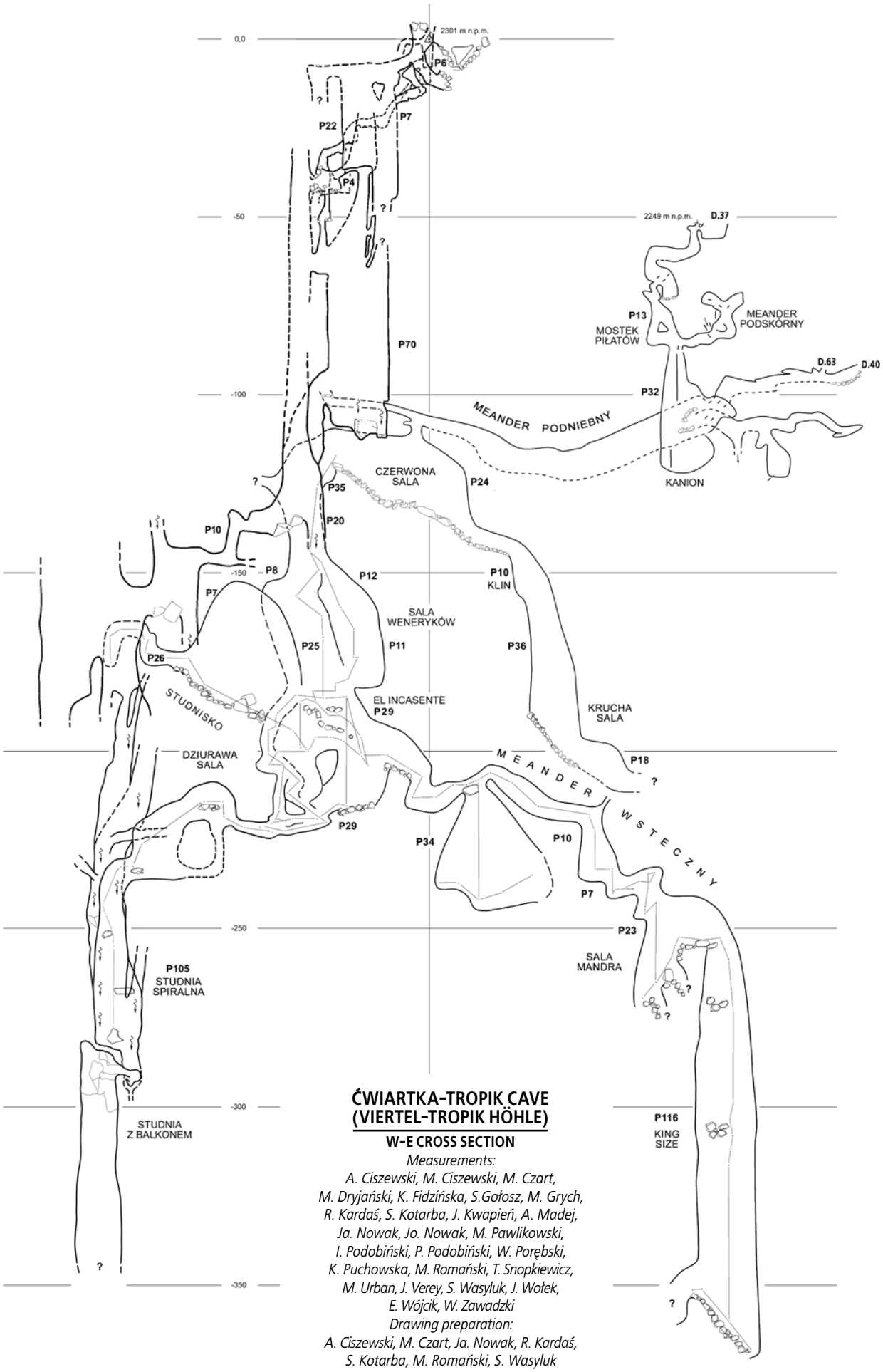
S–N CROSS SECTION

Measurements:
M. Czart, A. Ciszewski,
M. Ciszewski, W. Porębski, E. Wójcik
Drawing preparation:
A. Ciszewski
2008

to do after 10 days. The exploration in both caves started at the same time.

In Viertelhohle we came across an extended system of parallel shafts and chambers. One of the passages started to develop into large spaces directing to SE. In Tropikhohle we reached the depth of -330 m terminating the exploration few tens of meters above the bottom due to the lack of the equipment. Towards the end of expedition the caves unexpectedly met. The total length of the system is ca. 3 km with two opened shaft passages:

-330 m in Tropikhohle and -370 m in Viertelhohle. The most interesting thing is that the cave crossed the ridge and some of the passages are located in Nebelbergkar in the direction of Lamprechtsofen. Therefore we are waiting eagerly for this year expedition hoping to find new unexplored branches of the system. ❐



ĆWIARTKA-TROPIK CAVE
(VIERTEL-TROPIK HÖHLE)

W-E CROSS SECTION

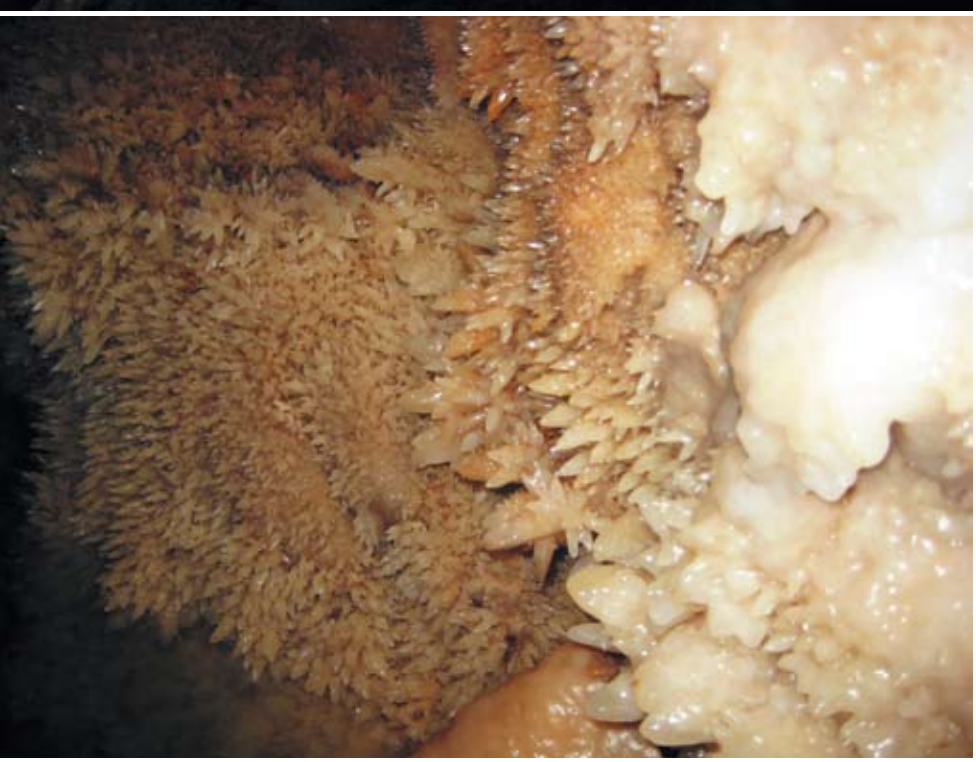
Measurements:
A. Ciszewski, M. Ciszewski, M. Czart, M. Dryjański, K. Fidzińska, S.Gołosz, M. Grych, R. Kardaś, S. Kotarba, J. Kwapień, A. Madej, Ja. Nowak, Jo. Nowak, M. Pawlikowski, I. Podobiński, P. Podobiński, W. Porębski, K. Puchowska, M. Romański, T. Snopkiewicz, M. Urban, J. Verey, S. Wasyluk, J. Wołek, E. Wójcik, W. Zawadzki
Drawing preparation:
A. Ciszewski, M. Czart, Ja. Nowak, R. Kardaś, S. Kotarba, M. Romański, S. Wasyluk
2008

Rajmund Kondratowicz
Speleoklub "Bobry", Żagań, Poland

The eastern part of the Tennen Mountains (Tennengebirge), Austria

In July 2003 during the expedition organized by Speleoclub Bobry of Zagan in the Tennengebirge, Jacek Wiśniowski and Daniel Oleksy bumped into an inconspicuous cave entrance hidden in the stones. They looked inside and when they told us about their first impression we knew that the cave could turn out to be a large one. After first visit our conjectures proved correct. The cave P-D.12 Jack Daniels started to develop into one of the biggest in our exploratory area. Few long shafts led us down to a depth of -270 m. But starting in that place the exploration became slower and more difficult. It was caused by endless meander not very cramped but long, with numerous narrowings and shallow shafts. The expedition came to an end so the exploration had to be terminated over a few-metres-long shaft, at a depth of -396 m. The following expeditions in the years 2004–2008 were devoted mainly to that cave.

RAJMUND KONDRATOWICZ

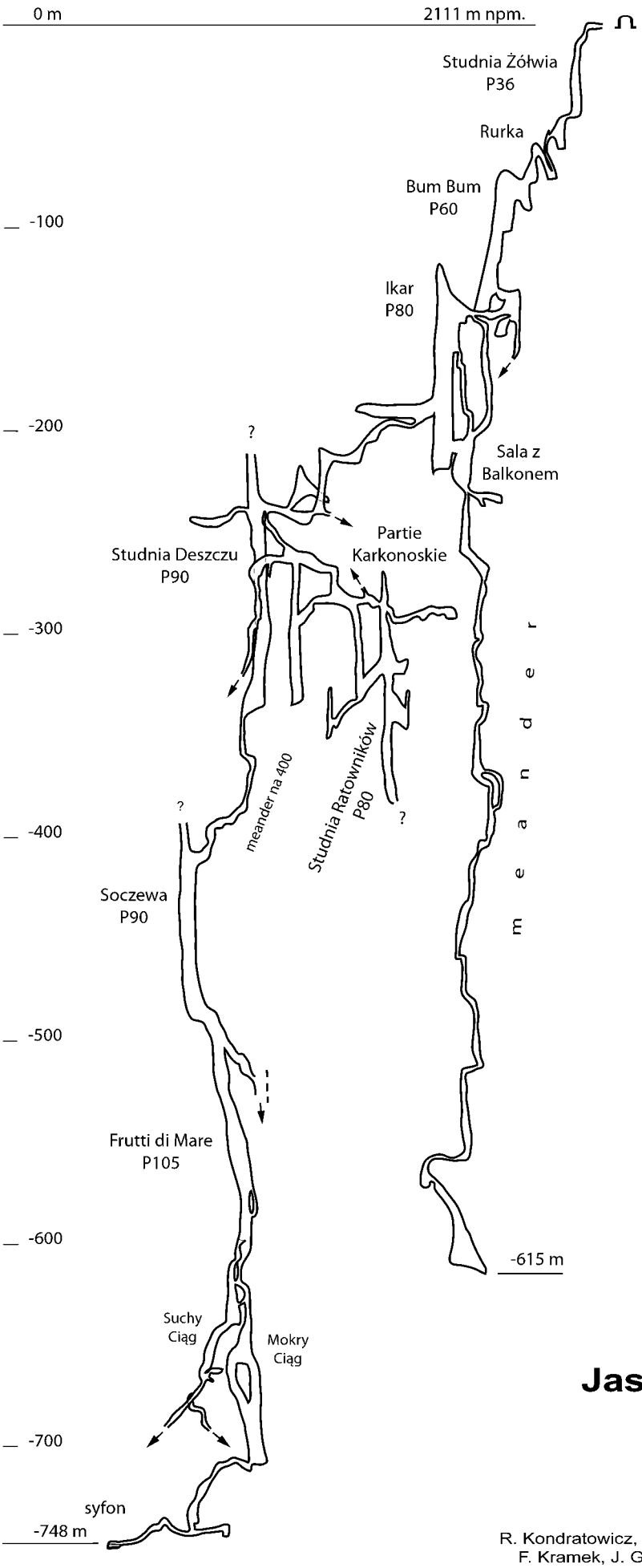


WIT DOKUPIL

Jack Daniels w Studni Żółwia;
Jack Daniels – crystals

Meandering passages and fractures that were explored starting at -270 m ended with the first bottom at a depth of -615 m. Works in that part of the cave were finished. Further exploration was conducted in another part starting at -200 m, galleries behind Loża (the Box) in the Ikar's Shaft. Extensive passages led us to the crossroads at the Rain Shaft (August 2004). During the period 2005–2007 the exploratory works were not being conducted so fast. Wet Passage continuing behind the Rain Shaft (90 m of depth) made up by beautiful cascades with many waterfalls and the next deep shafts (Soczewa P80, Frutti di Mare P105) terminated unexpectedly with a water- and mud-filled sump at a depth of -748 m. Other unexplored passages also existed but the lack of time and unfortunate weather made it impossible for further work. Regardless of the achieved exploration result we had a feeling that the Jack Daniels cave with all the 2,5-km-long passages has not shown us all of its corners yet. At the end of August 2007 we were looking into the future seeing Jack Daniels as – if not the deepest – the longest cave of the eastern part of the massif explored by cavers from our club. Ending the expedition we left ropes set up down to the crossroads at a depth of -619 m to make the exploratory works in the next year faster.

During the expedition of August 2008 we checked and closed the other parts of the Wet Passage below the -600 m level. Although we had not deepened Jack Daniels we reached its third bottom (-691 m). In this situation, the only thing left was setting up the ropes in all the passages behind the Rain Shaft as far as the horizontal corridor at -240 m (crossroads above the Rain Shaft) checking again thoroughly every corner in the cave. We noticed a passage diverging to the left of the crossroads above the Rain Shaft. After a several-meters-long traverse above 60-m-deep shaft we reached the window we had seen earlier. It turned out to be a gallery running northwards. We named it Partie Karkonoskie. These passages have totally different character than the previously explored ones. In a horizontal gallery numerous dripstones can be found. It developed along big fracture running in the



NNW direction. We reached a depth of -380 m and left the cave for the exploration in the following year. The Jack Daniels cave exceeded a depth of 3,5 km.

In the years 2005–2008 apart from the exploration of Jack Daniels we were also looking for new caves in this area. Most of them turned out to be not very big (up to few tens of metres in length and depth). We have to mention the following caves: P-A.13/P-A.14 connected in 2008 (Lodowa Studnia/Ice Shaft, denivelation of ca. 130 m and possibility of further discoveries), P-C.2 and P-D.16. We also visited P-84 Pod Śnieżnymi Korkami/Below the Snowy Plugs (3650 m) which we explored few years earlier. The passages of this still longest cave in the area are situated close to and partly converging (horizontally and vertically) with the corridors of P-19 Czerwony Pająk/Red Spider (3200 m in length) and P-77 Pod Modrzewiem/Under the Larch (over 800 m). There is a possibility of merging them what would create an over-8-km-long cave system. During two short visits we tried to explore the western end of the cave and the bottom zone at a depth of -280 m. Without success. The caves certainly have the same genesis therefore discovery of their connection is only a matter of time. We will come back there for sure. Apart from the underground exploratory works we also numbered and determined coordinates of about 100 entrances. ❐

Summary:

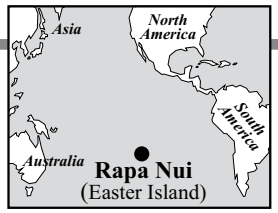
Participants of the exploratory expeditions in the Tennen Mts. in the years 2005–2008: Marian Bochynek, Rafał Brzeski, Przemysław Chmielowiec, Wit Dokupil, Marek Famulski, Krzysztof Formanowski, Marcin Furtak – manager of 2 expeditions, Piotr Jakubowicz, Edward Kęsek, Rajmund Kondratowicz – manager of 2 expeditions, Zenon Kondratowicz, Franciszek Kramek, Tomasz Krotowski, Tomasz Kuźnicki, Katarzyna Lapunow, Ryszard Maciejewski, Grzegorz Muszalski, Daniel Oleksy, Marcin Oleksy, Andrzej Pisarczyk, Marek Sawicki, Robert Sawicz, Jan Urszulak, Jacek Wiśniowski, Łukasz Wójtowicz, Henryk Zyzański, Maria Zyzańska – (Speleoklub Bobry Żagań), Agnieszka Matejuk (Speleoklub Dąbrowa Górnicza), Bartosz Sierota (Wałbrzyski Klub Górski i Jaskiniowy), Jerzy Ganszer and Jerzy Pukowski (Speleoklub Bielsko Biała).

Jaskinia Jack Daniels

1511 / 859
Austria, Tennengebirge

przekrój 240° - 60°

R. Kondratowicz, W. Dokupil, J. Wiśniowski, T. Kuźnicki, M. Oleksy, F. Kramek, J. Ganszer, P. Jakubowicz, M. Sawicki, T. Krotowski
Speleoklub Bobry, Żagań, 2004-2008



Andrzej Ciszewski
Krakowski Klub Taternictwa Jaskiniowego

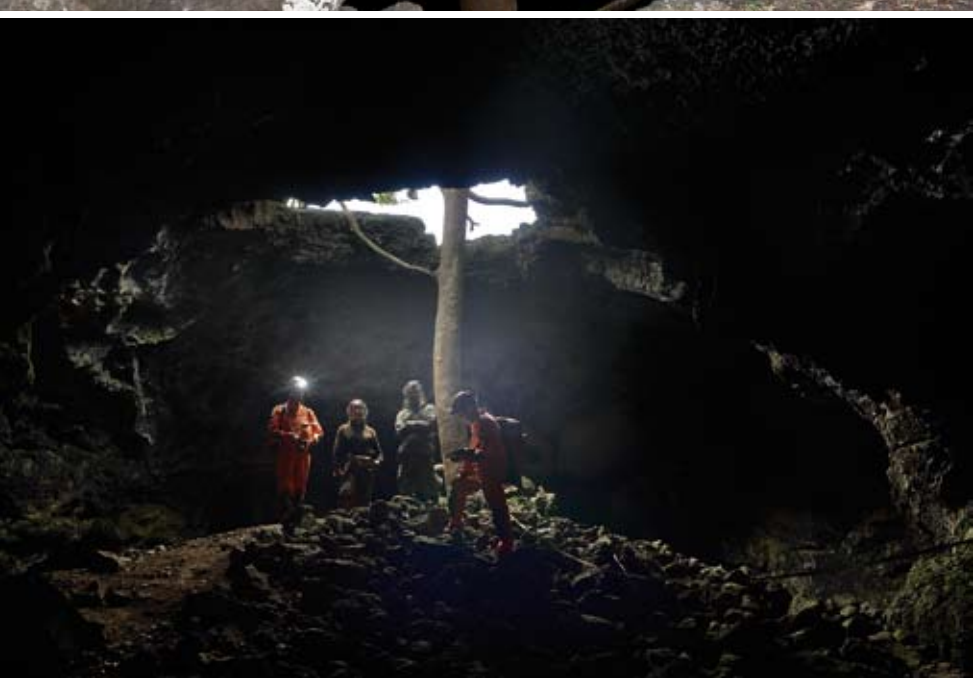
RAPA NUI 2008

During the first days of November 2008 18-man-expedition to the Easter Island took place again to continue activity started in 2001. At first, a little bit of history.

The interest in caves is as old as local civilization of the Easter Island. Probably there does not exist another place where caves would play such an important role in the culture and life of the community. This is a result of terrain and climatic conditions as well as the ones connected with civilization and culture. Caves have not only been used as gardens, storehouses and houses but also as fortifications, graves and places of worship. The small surface area (about 120 km2) of the island causes noticeable concentration of functions in most caves.


MARIUSZ SZELEREWICZ


JERZY ZYGMUNT


JERZY ZYGMUNT

For a long time the caves have been one of the most inspiring environmental and cultural elements. Despite the fact that some of them were subjects of geological and environmental as well as archaeological and paleontological research in comparison with the surface monuments research and inventory, the level of underground recognition was much lower. The speleological activity started with Catalonian expeditions, but still there did not exist any complete inventory of the island caves.

The inspiration for us was Jerzy Grodzicki's visit on the island. He participated in a conservation project aiming at working out the protection technology against the surface devastation of the famous statues connected with the influence of atmospheric factors.

We were able to organize the first expedition in 2001. At first, for almost a year we had had to make many efforts to obtain all necessary permits. This was the result of the special meaning the caves had for historic and daily life of the island as well as many institutions, both local and Chilean ones, overseeing every activity taking place on the island. The National Forestry Corporation (CONAF) is the main supervisory body. The other ones are: the National Monuments Council being in charge of all objects of historical values, Consejo de Los Ancianes representing the indigenous residents of the island and the administrative organizations also that are: the Island Governor's Office and the City Council of Mera Hanga Roa, the only town of the island. We had to obtain permits from all of the organizations.

The expedition of 2001 was a reconnaissance one. We acted in a few tens of

caves surveying about 2300 m of passages. At the end of the expedition we knew that the island caves number exceeded significantly the quantity we had confirmed. I was estimating the number at 300-400 objects. Time showed I had been wrong and it was much higher quantity. During the following years we were trying to start a systematic activity, unfortunately due to the financial considerations we did not make it.

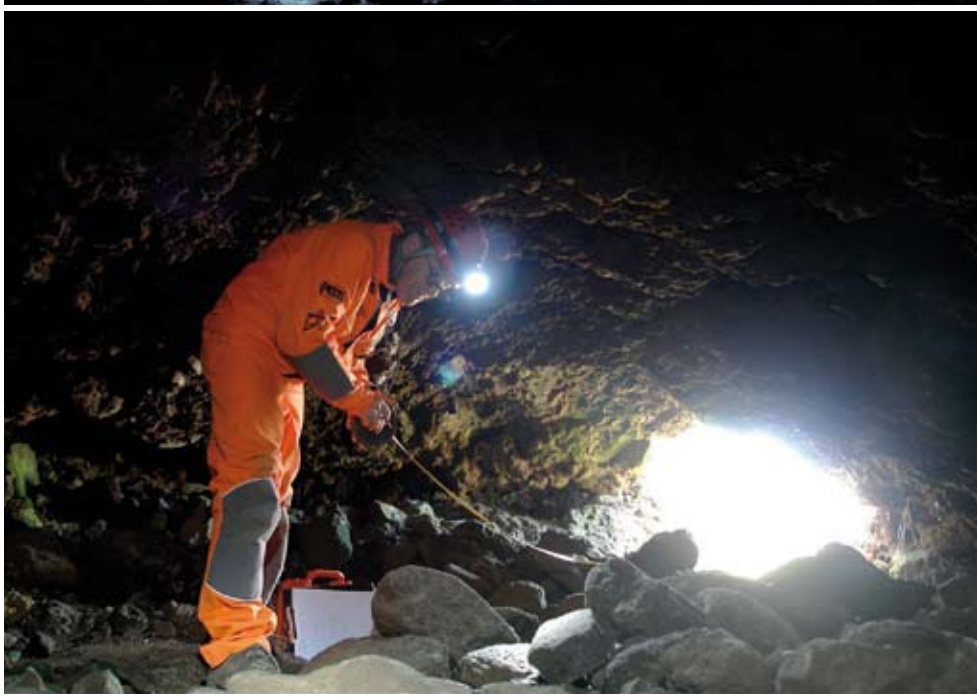
In 2004 as a three-man-group we were exploring a part of the Roiho lava field finding a few formerly unknown entrances. It determined me to act more intensively. In cooperation with Marcin Jamkowski, the editor-in-chief of National Geographic Poland at that time, we applied to National Geographic for a grant which we got in spring 2008. It also appeared that during our expedition the National Geographic Channel was going to make an hour-long documentary movie.

In the spring of 2008 together with Zdzisław Ryn and Czesław Dąbrowski we flew to the island to take care of the formalities and logistically prepare the expedition. We wanted to save as much time and money as it was possible for the approaching expedition. We obtained preliminary permits, hired cars and found a house to rent.

18-man-expedition started in the first days of November 2008. Before it started, serious complications and personal changes had happened due to missing of one member of the Ojos del Salado conquerors group. Two members of that group were supposed to participate in our expedition. On November 11th the team met on the island. I and Zdzisław Ryn had arrived there 4 days earlier to prepare everything. As usual, most formalities we had to take care of from the beginning, what took us few days. Fortunately, when we met the others, the worst was behind us. We had a house with big garden rented situated close to the Pacific coast. It was possible to pitch our tents in front of the house. Two off-road vehicles made it easier to move through the island. It took us another few days to obtain the final permit from CONAF, moreover it was charged with many limitations and narrowed the area of our activity (from 4 to 3 sub-areas). But the three left were the most interesting cave areas on the island: Roiho lava field abounding in caves, the area between Ovaho beach and the summit of Poike volcano and – to the south – few-km-long coast between the runway of the Mateveri airport and southern slopes of the Rano Raraku volcano. At first, we were surprised at those limitations but quickly it turned out there was no need to.

After one day of reconnaissance 2-3-man groups started exploring and surveying. At first, in a better known and richer in entrances Roiho field. During that day most of the expedition members had some difficulties in finding the entrances as it was their exploratory debut in volcanic rocks that are totally different from limestones. After few days there were no such problems anymore.

JERZY ZYGMUNT



JERZY ZYGMUNT

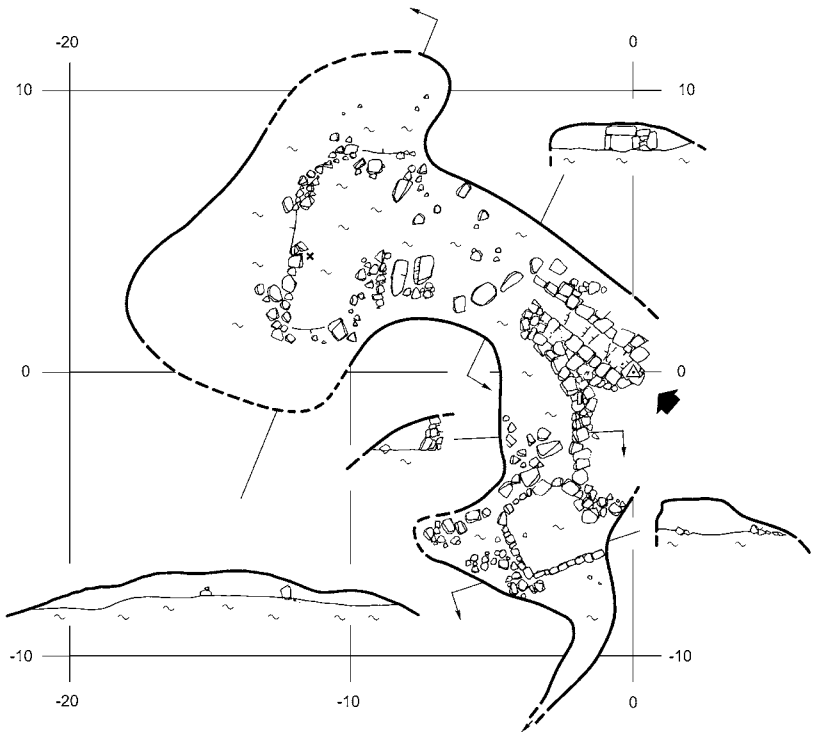
Field works were our daily life during the expedition. But at the end of the day, results had to be worked out and maps had to be drawn. We were trying to do that as fast as it was possible as we were surveying so intensively that there was possibility of making too many mistakes. At first, we were marking the entrances using paint but due to the number of entrances, CONAF recognized that it would destroy the beauty of the landscape. Therefore we had to be satisfied using GPS to locate the entrances. To avoid the data duplicating we had to enter the coordinates of every cave into our database and copy them to all GPS devices everyday. Cave measurements were conducted mainly using laser rangefinders LEICA A3 with built-in azimuth and dip measuring system. We were also using standard devices as Suunto or Sisteco connected with rangefinders LEICA A8. The rock composition was a great problem as it often contained iron and the margin of measurements error was not easy to determine.

When we finished the exploration in Roiho, we moved into the other areas. Many times it was turning out that due to accidental discoveries or information got from the local people we had to move back to the area explored earlier.

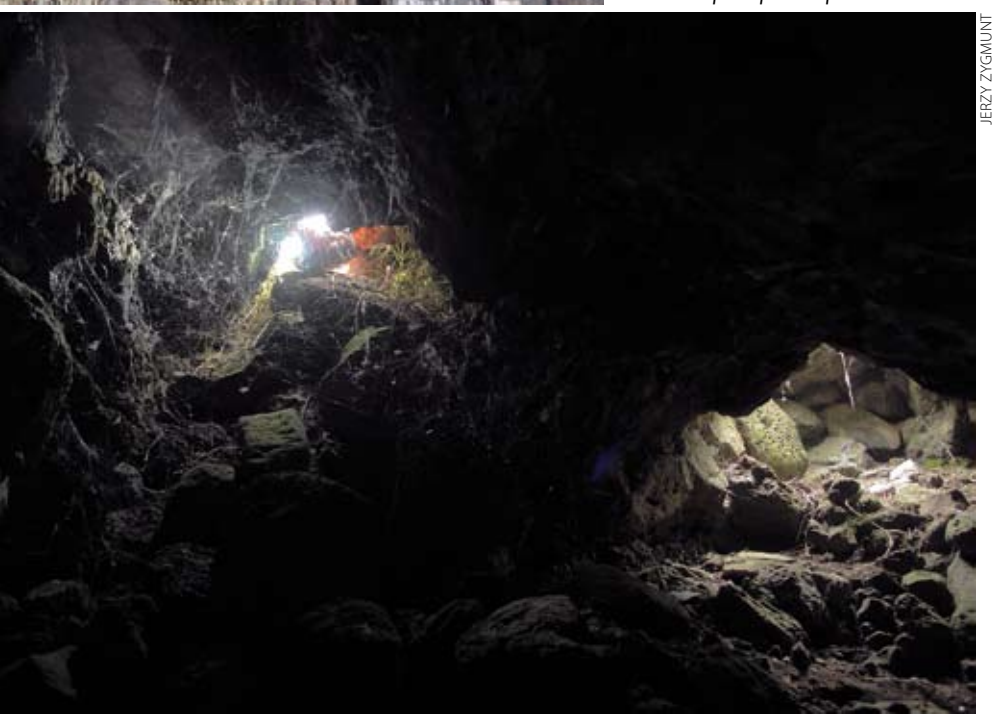
In the surveyed caves we were making the estimation of archaeological value. In the most interesting ones there was our archaeologist Maciej Sobczyk working together with Susana Pahoe from CONAF. They were making an inventory of the most important findings.

Those were remains of human beings, bonfires, homesteads, old stone structures, many kinds of tools made of bones and stone. A list of all those things was made and in the end everything arrived to the place where it had been found. In every area which we were exploring when we came across mythic entrances bricked in by the locals, the CONAF had to decide if it was to be dug up. In several cases the entrances have remained closed.

MARIUSZ SZELEREWICZ



One of 200 caves recognised in the Roiho Field, next to the plan: photo of the vertical entrance to the cave



JERZY ZYGMUNT

During the final stage of the expedition we conducted the exploration on the cliffs in the northern part of the island. The cliffs drop into the Pacific with very brittle often almost vertical up-to-300-m-high walls. They have few levels of visible lava tunnels inside. The descends to the entrances were one of the most exciting ventures. The ropes were set up starting with sharpened reinforced bars sunk into the tuff at the edge of the cliff. Due to fantastic lava shapes we would have to set up the ropes sometimes only every couple of meters.

That way after almost a month we had about 300 caves surveyed. At the same time Marcin Jamkowski with local divers were penetrating the northern parts of the coast what resulted in discovering of several submarine caves.

At the end of the expedition we felt tired and disappointed by the fact that we did not have enough time to do everything we wanted to. The Americans from National Geographic Chanel arrived. Great professionals. They were working with us very hard, both underground and on the surface. The results of their work are to be seen soon.

We were also able (with help of Zdzisław Ryn who took the weight of contacts with the locals upon himself) to strengthen relationships with many of the inhabitants. Thanks to that fact we started to name the caves using original Rapa Nui language. That was the last moment to do that as the knowledge and memory is starting to die together with the oldest inhabitants of the island. We spent the last two days saying good-bye, working out and verifying the inventory to avoid mistakes.

We succeeded in something that does not happen very often during expedition. We brought to Poland maps and descriptions of 320 caves we had surveyed. Most of them are not very big, but among them there are also the longest ones ever discovered. If everything goes as expected, this year the first cave inventory of the Easter Island will come out. It will not be complete yet. But we hope we could finish it in the future. The more so because the team maintains we have to come back there. As I have already experienced after 4 visits, the island attracts people in some way. The statues provoking reflections, friendly though culturally different people and unique smell of grass, which you cannot find anywhere outside the Pacific islands. ❐

Summary:

Date:

02.11 – 3.12. 2008

Members:

Andrzej Ciszewski – manager, Rafał Kardaś, Beata Michalak, Mariusz Szelerewicz, Piotr Słupiński, Henryk Nowacki, Ewa Wójcik, Tomasz Snopkiewicz, Miłosz Dryjański, Mirosław Pindel, Marcin Kubarek, Jerzy Zygmunt, Zbigniew Wiśniewski, Włodzimierz Porębski, Jan Wołek, Jan Ryn, Marcin Jamkowski, Maciej Sobczyk

DAMIAN SPRYCHA

MARCIN GALA

JAKUB NOWAK

ANDRZEJ WOJTOŃ

JAKUB NOWAK

WOJCIECH SIEPRAWSKI