

MIGOVEC 1998

Interim Report Imperial College Caving Expeditions

Written by Jim Evans, Jan Evetts and Paul Huggins

Summary

The 1998 Migovec expedition continued previous work of the last 4 years, a further 2.3 km of cave was found making the cave system 9.5km long, the third longest in Slovenia and at 970m deep the 5th deepest. Work continued in the geological mapping of the area and the study of the hydrology by the use of dye tracing. The cave has become a focus of interest in the Slovenian caving community and its structure is unique within deep caves in this geological area (no other cave has revealed such complexity at depth as the Migovec System). Recent work has been presented at National and European caving conferences and has been the subject of caving articles in the international press. The ubiquity of unexplored shafts and leads suggests that only a small fraction of the cave system has as yet been uncovered and the mountain holds many secrets yet to be explored. The cave seems certain to become the second longest cave in Slovenia in 1999.

Introduction

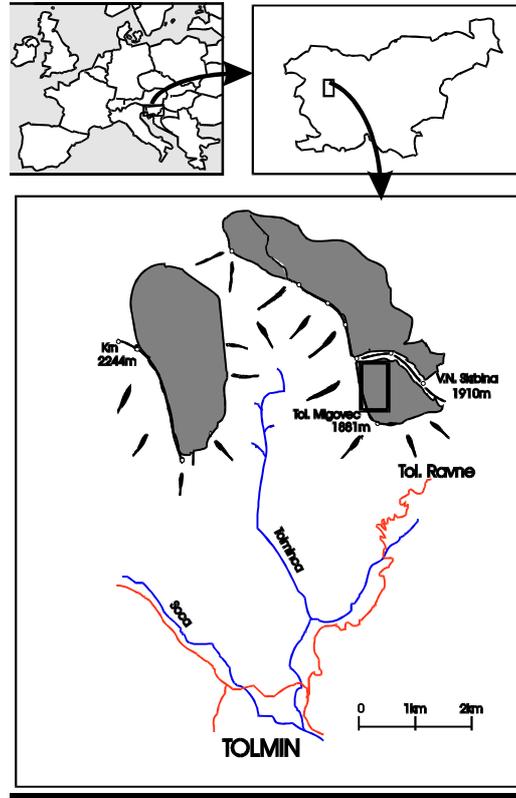
The exploration of Migovec over the last 5 years has been hugely successful and resulted in the uncovering of cave system which now ranks as one of the biggest ever discovered by a British group⁴ and has attracted considerable international interest^{5,6}. A summary of the exploration was recently presented at the European Speological Conference and recent work was also the subject of two lectures and a poster presentation at the National Caving Conference of the British Cave Research Association.

The challenge facing this year's expedition was as great as ever because of the logistical and physical challenges of exploration at depth. Improvements in the underground advanced camp meant that deep exploration was very efficient and enabled considerable exploration below the underground camp at -600m depth. It was also the intention of the expedition to investigate higher level leads coming off Exhibition Road, the major horizontal passage at -300m. A complicated system of draughts at this level leads to the belief that there are still major voids and passages to be discovered in this area.

It was also the intention of this year's project to continue the work of locating and mapping of other related local cave entrances and geological mapping of the surface. This will build up a more complete understanding of the cave within the plateau and the structural controls, which have been imposed on the system by the faults, and orientation of bedding within the massive. The discovery of a major river below the camp in 1997 resulted in interest in investigating the course of this drainage through the mountain to its ultimate resurgence. It was intended to use dye tracing techniques to identify the resurgences associated with the system. Previous work in 1996 was unsuccessful in obtaining a positive dye trace and this was partly attributed to the very small rivers which were the only known rivers in the system at that time.

The system, which has evolved over the years to enable effective cave exploration involves three camps: A base camp in the ravine at 900m altitude, an advanced base camp on the plateau at 1800m and an underground camp at -605m within the cave. Once the initial week of portage has transferred caving, camping and dried food supplies to the plateau, the expedition becomes centred around the A.B.C. Living on the harsh plateau environment invokes its own logistical problems.

A major earthquake in February this year (5.5 on the Richter scale), the epicentre of which was two miles from the plateau, meant there was considerable uncertainty over how the cave and the geology of the area may have changed. The earthquake had damaged the structures of the local farm buildings, and a local scout group spent the summer assisting the farmers with the day to day running of the farm. Members of the expedition were able to assist the farmer who as usual was very supportive of the expedition, giving use of his house as a base camp. Expedition members have become good friends with the local farmers and this year a party was held at the end of the expedition to thank the locals who have helped over the years. In fact once cave exploration started it became clear that the earthquake had had no effect on the cave structure. Additionally, the after tremors of the earthquake, which were still occurring during the summer, could not be felt underground (but could be on the surface).



Cavers from the local town, Tolmin, have been exploring with the Imperial College expedition since it started. Some of these cavers continue exploring areas during the winter months. The exploration has become of interest to the local people and two slide shows have now been given within Tolmin in order to describe the exploration of the cave. The exploration was also the subject of a one-hour radio program on Radio Slovenia, in which members of the expedition were interviewed.

Exploration

The exploration of the cave system can be divided into two areas. Exploration based around the underground camp was at levels below -500m termed 'low level' and exploration at higher levels based around the large horizontal passage, Exhibition Road, which can be undertaken through day trips from the surface, termed 'high level' exploration. The installation of the underground camp is critical to exploration at depth and will be described briefly.

Underground camping

Exploration below 500m required an underground camp, Hotel Tolminka at -620m. The camp is installed during a siege operation which involves transporting 12 tackle bags of camping and exploration equipment to the suitable camping location. The camp was seldom empty over the 4 week period it was set-up, it has improved enormously through experience. A total of 8 camping trips each lasting three days and involving nineteen cavers, including seven Slovenians, explored and surveyed from there. One major improvement to the camping made this year was enabled by the kind donation of Polartec fleece material. Underground clothing and sleeping liners were made by expedition members which considerably improved comfort within the camp, the only complaints from the sleeping arrangements came from one member who claimed he was too hot!

Low level exploration

Late in the 1997 expedition a dry horizontal passage with a strong draught (Paradox passage) was discovered off an obscure squeeze from the main passage at the Rameses intersection (--720m). Paradox has a number of shafts leading off it and these shafts were a priority for exploration this year. Following the driest shaft down a rift series led to a nasty crawling section (Antivox) and an unpleasant muddy rift. Following this rift south and traversing over a few shafts a promising 30m shaft was descended leading to a further rift, following the same structural orientation. A few short climbs were then negotiated until a major River joined from the left. A 20m pitch was descended and then the cave became steeply sloping passage which carried on down to a sump at -967m (pencil sump). Following the inlet stream upwards the passage continued for 100m of high rift passage (Marwood Inlet) to a pitch up of around 10m, which would require aid climbing for further exploration.

During the trips to install the underground camp an intersecting rift was discovered in the stream passage about 50m higher up than Hotel Tolminka. Following this passage, it was initially thought that this was an inlet, but it soon became clear that the passage was sloping down and heading North into a 'blank' area of the mountain. The passage became known as 'the Northern Line' and further exploration of this area came to a 25m pitch into a large chamber (Elephant chamber). Investigating Elephant chamber a number of extensions were found. A small passage heading Southeast led to a short pitch and a further 50m of large passage before this route (trunk passage) suddenly and disappointingly closed down. A route through the boulder at the foot of elephant chamber led to a 30 m pitch followed immediately by a 15 m pitch into a huge chamber (Waterloo), many possible ways led of this chamber and only a few were investigated. The pitch at the end was found to be 25m and led to a small and unpleasant crawling passage which eventually closed down after 20m. A number of promising leads were noted at Waterloo chamber, but time constraints prevented further exploration.

An undescended pitch, which has to be traversed to reach the camp, was finally explored in 1998. Wonderstuff was found to be a large and dry passage, mainly rift passage occasionally breaking into boulder chambers and then back into rifts. A series of climbs, pitches and steeply sloping passages leads this route a further 300m down from the camp level vertically until it becomes too tight at -937m (Earthquake Way). Many side passages were noted off the Wonderstuff series but unfortunately time

constraints prevented their full exploration, this area is thought to have good potential for further discoveries.

The wet way down the original 'Glory Boys' route had been investigated on the 1997 expedition and pushed to a very wet 30m pitch (FA999). Further exploration was stopped in the interests of safety. Revisiting this area in the winter (when the cave system is much drier) our Slovenian collaborators were able to continue exploration down a further 10m pitch. This was followed by a sloping river passage, punctuated with deep pools (Water Hope), which led to a sump at -970m, this is currently the deepest section of the cave.

High level exploration

The first discoveries of the expedition were made leading off from the Titanic traverse in Level 2. The limit of last year's exploration was an impressive 80m shaft known as Britannic, which ended in a tight rift at -320m. This was passed and a series of three large pitches followed, separated by awkward rifts which made the going tough. Eventually at -520m the passage almost thankfully became too tight. Had the way continued it would have required a food and equipment dump, or possibly even a camp. The last trip explored and de-rigged in this area in a 20-hour trip.

Several leads were explored off Level 2. An obvious undescended shaft (Waffles) and a small passageway, which lead to a large pitch (Poltergeist), were connected some 70m below Exhibition Road with no obvious ways on.

Geological/ Dye tracing work

System Migovec now stands at a depth of 970m and a total surveyed length of 9.46 km. The theoretical depth potential to the probable resurgence in the Tolminka valley is ca 1200m, while the length potential is huge, as the mountain appears to be a single void with slithers of rock every so often. The current deepest part of the cave comprises a series of four vadose passage/shaft systems, three of which are within the same steeply dipping fault zone and the fourth is in a parallel fault zone nearby. Unfortunately, all four passages sump at about the same depth. A similar perched sump at the same elevation is seen in the Poloska Jama cave on the other, Krn, side of the Tolminka valley, leading to the hope that the Migovec sumps are also just local perched sumps associated in some way with the fault zones. There is still hope that if deep leads can be found in other parts of the cave, out of the fault zone, and they surely exist, then there is a good probability of by-passing the sumps down to the main water table.

Dye-testing, geochemistry and physical observations (i.e. temperature) were undertaken in the two rivers either side of the Migovec Plateau. Unfortunately, no conclusive dye-test results were obtained though it is believed, from the observed hydrology pattern, that the main resurgence is located in the Tolminka valley.

Mike Rogerson, a final year UG Geology student for a project as part of his course, will use geological and hydrological data collected on the expedition and on previous expeditions. Mike was an expedition member on the 1997 expedition.

A number of surface entrances were logged and literature search was conducted in order to obtain survey data for other caves in the local area (i.e. Poloska Jama and the caves of Krn). Letters have been written to the Czech explorers of the caves of Krn to try to arrange an exchange of data for the caves they have discovered. It is the intention after obtaining this information to plot all the caves together in order to see the relationship between them. It is thought that they may originally have been (or possibly may still be) part of the same overall system.

New techniques

A major development in the rigging this year was the installation of a steel cable tension traverse over a chamber which traditionally requires a down pitch and up pitch with tension guidelines via a rock pillar in the middle of the chamber. A length of steel cable, crimps and 'rock' bolts were bought from the hardware store and the brother of a local caver made some 'hangers'. Several trips and drill batteries later the traverse was in place.

Because of the large amount of traffic through the cave, much of the upper series was re-bolted and rigged in a more permanent manner with thicker ropes. More attention paid to ease of passage as well as just safe rigging.

The Battery solar charging system was improved further this year and for the first time was capable of delivering sufficient charge to all our electrical needs (i.e. lights, laptop and drill batteries).

Expedition members

Kathryn Atherton, Tadej Begus (*), Phil Brooks, Colm Carroll, Cecile Chabot Janet Cotter-Howells, Bruce Drinkwater, Jackie Evans, Jim Evans, Mark Evans, Jan Evetts (Leader), Andrej Fratnik (*), Miche Gaberscek (*), Clewin Griffith, James Hooper, Paul Huggins, Zetko Matkaz (*), Martin McGowan, Iain McKenna, Ben Osborne, Clive Orrock, Hugh Penney, Stephane Pier, Dejan Ristic (*), Rok Stopar (*), Dave Wilson, Sarah Wingrove, Tim Wright,
(*) Slovenian Participants

Acknowledgements

Grants and Supporting Bodies

Imperial College Exploration Board, Royal Geographic Society, Goldsmiths, Imperial College Union.

Individuals

John Harrison, Tony Waltham, Alan Speight (YSS), Bob Schroter, Nigel Wheatley, Andrew Royle, Alan Swann, Nick Williams (NCA), Wookey (Survex and surveying equipment), Stefanie van den Boom.

Supporting Companies

- Hardware

Panasonic (Laptop Computer), Marlec Eng. Co. Ltd. (Solar Panels), Merck Ltd (Watertight containers)

- Food

Spring Fine Foods (Flapjacks), Direct Food, McVitees (Assorted biscuits and chocolate bars), Westmill Foods Ltd (Flour), Van den Bergh Ltd, Whitworths (dried fruit and pulses).

References

1. Evans, J.J. and M.J. Evans, Caves of Migovec. Caves and Caving, Bulletin of the BCRA, 1995. 67: p. 12-16.
2. Evans, M.J. and J.J. Evans, More on Migovec. Caves and Caving, Bulletin of the BCRA, 1996. 72: p. 21-25.
3. Evans, J.J., M.J. Evans, and D. Wilson, The Migovec System. Caves and Caving, Bulletin of the BCRA, 1997. 76: p. 20-24.
4. Evans, J.J. and J.N. Hooper, Migovec goes Deep. Caves and Caving, Bulletin of the BCRA, 1998. 80: p. 23-28.
5. Evans, J.J. and M.J. Evans, Recentes Explorations sous le Plateau de Migovec. Regard, Bulletin de L'Union Belge de Spéléologie, 1997. 27: p. 2-7.
6. Visconti, J., J. Evans, and M. Evans, Utilisation du GPS pour le repérage de cavités en Slovénie. Spelunca, Fédération Francaise de Spéléologie, 1996. 64: p. 37-40.