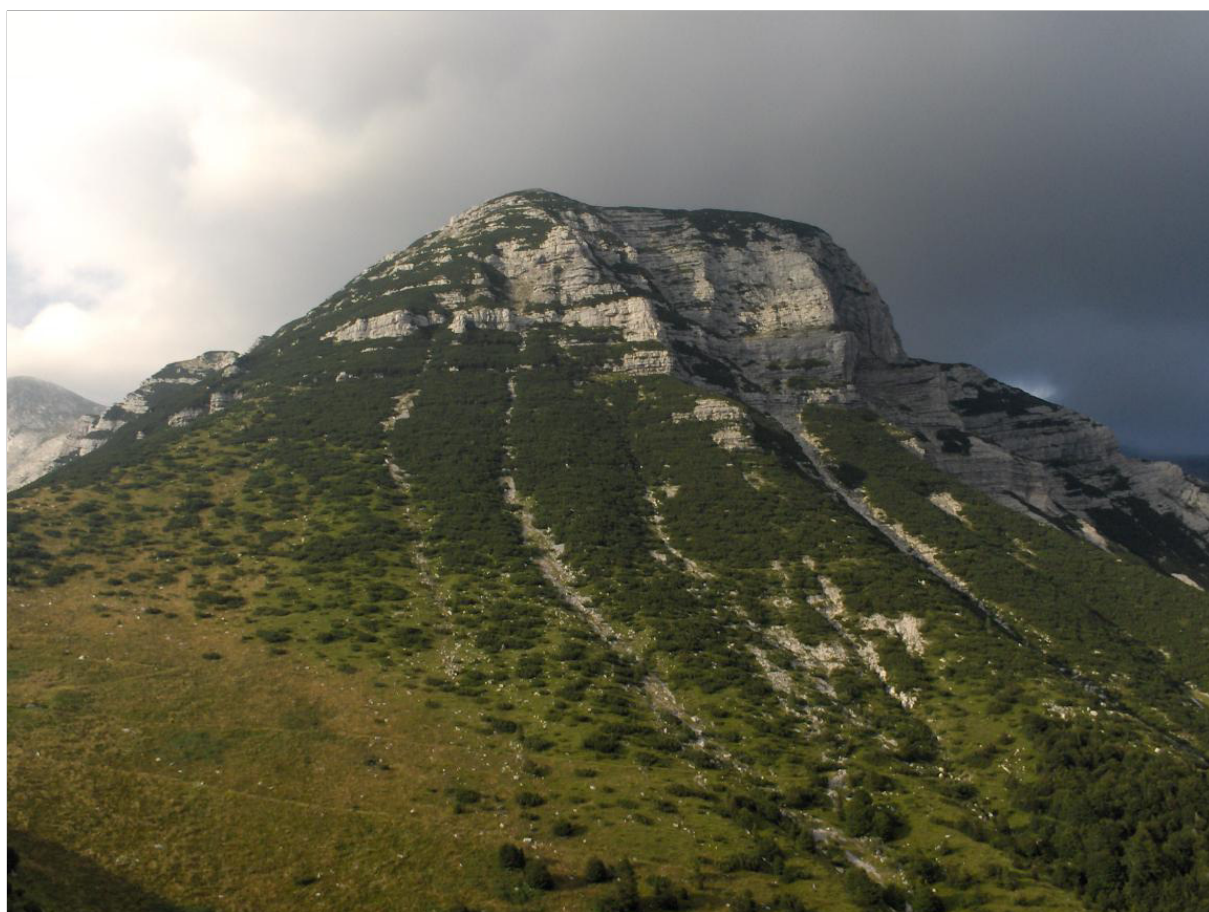


IMPERIAL COLLEGE CAVING CLUB  
JAMARSKA SEKCIJA PLANINSKEGA DRUŠTVA TOLMIN

# THE HOLLOW MOUNTAIN III



EXPLORATIONS UNDER TOLMINSKI MIGOVEC 2013–2017



*This book is dedicated to everyone who contributed to the history of the HOLLOW MOUNTAIN. It is traditional to wish that heights ever newer may be reached in the pursuit of an enterprise so protracted, but in this case, it is certainly more accurate to hope that new depths may be attained, that unseen passages be for the first time painted with light or that long enduring friendships be forged in the spirit of exploration.*



## Editorial

Every square metre of the Earth's surface has been mapped, either by men on the ground or since the advent of satellites, by cameras orbiting high above Earth's atmosphere. The motivation behind the adventures of this journal rests on the search for places impossible to sense remotely, for places untraced and unseen.

This report focuses on the the story of exploration under Migovec as seen and experienced by individuals involved. The aim of this publication is to relate the achievements in a chronological framework, to give a glimpse of what it felt like for the explorers and provide a basis for further exploration. It therefore consists of a mix of reports, photographs, maps and logbook entries and follows the adventures of ICCC and JSPDT cavers over the years 2013-2017.

I must first thank all contributors to this publication: authors, photographers, cartoonists, songwriters... reviewing this source material has been a joy and perhaps more often than I care to admit, an excuse to delve back into the magical world of Migovec. Flawed as it is, I hope this report will be of some help for any future explorers cutting their teeth under the Hollow Mountain.

It is also my sincere hope that the many friendships forged during the exploration of Sistem Migovec remain strong. Let the privileged relationship between the Imperial College Caving Club and Jamarska Sekcija PD Tolmin continue to flourish, for as long as true alpine exploration takes place under Migovec.

### **Tanguy Racine**

Zgodba o Sistemu Migovec – najdaljši jami v Sloveniji se nadaljuje. Po povezavi sistema Vrtnarija s sistemom Migovec se raziskovanja med leti 2013 – 2015 nadaljujejo v jami Vrtnarija. Konec leta 2015 pa ponoven velik uspeh, saj se najdaljšem sistemu pridruži še zadnji večji sistem na Migovcu in sicer sistem Primadona. Celoten Sistem Migovec je torej sestavljen iz treh večjih sistemov oziroma kar osmih jamskih vhodov. Odgovor na vprašanje, kaj bo cilj odprave za leto 2016, je bil na dlani – jama Primadona, za katero vemo, da še ni v celoti raziskana. V letih 2016 ter 2017 se torej raziskovanja skoncentrirajo v Primadoni in jo v dveh letih podaljšamo, za kar 3.5 km. Dna še nismo dosegli... Upam, da bo ta tretja publikacija o "Votli gori" vsaj malce približala obseg raziskovanj tega mogočnega sistema. ICCC in JSPDT sta lahko več kot ponosna na doseženo in naj bo to skupno sodelovanje v zgled, da se vse da če je volja, sodelovanje ter seveda

vztrajnost. Ta zgodba še zdaleč ni končana. Veliko je še neodkritega; še vedno nismo presegli magičnih -1000 m, pa izvedli večje jamske potope. Slediti vodi, ter ne nazadnje kaj vse nam sama geologija pove o samem nastanku. Upam, da se bodo prijateljstva nadaljevala, novi Mig jamarji opogumili ter raziskovanja nadaljevala.

**Jana Čarga**

\* \* \*

This book is divided in three parts. The introduction consists of an overview of the history of exploration and cursory glance at the geography of TOLMINSKI MIGOVEC. Follows the main body of text, selected stories from expedition cavers in chronological order, by no means a definitive account of all the excursions under the mountain. It would also be a mistake to believe that the recounted stories all follow a logical chain of events; indeed, some are interesting diversions and tangents from what we could term the main flow of exploration, some are physical but not necessarily narrative dead ends. Some are fruitless endeavours or with the benefit of hindsight futile pursuits only taken up in the heat of exploration. Yet in the midst of this flurry of apparently uncoordinated outings, there will be (more often than not) tales of huge success, some anticipated, others coming out of left field. Overall, these stories span the years 2013-2017, which saw systematic summer expeditions by ICC and continuous JSPDT action. A third part provides a more detailed description of possible trips within the mountain, augmented with larger scale surveys: they are intended for expedition cavers craving to see more of this nearly 40km alpine system.

\* \* \*

It's been a long way, but we're here.

**Alan Shepard**

*Opening page photograph: The face of  
TOLMINSKI MIGOVEC  Christopher  
Rogers*

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## Part I

# Introduction

**S**ISTEM MIGOVEC, tucked away at the western edge of the TRIGLAVSKI NARODNI PARK is the longest cave system in Slovenia. It has held that title since 2012, when, defying expectations after a half a decade of effort, the connection between the 'Old System' (M2-M16-M18) and the newer VRTNARIJA (Gardeners' World) and VILINSKA JAMA cave was forged after a routine pushing trip at -600 m.

Thirty eight years after the first explorations underneath TOLMINSKI MIGOVEC, or 'Mig' as it is affectionately named, this connection made the national news.

Since then, and rather more discreetly, Imperial College (ICCC) and Jamarska Sekcija PD Tolmin (JSPDT) cavers have repeatedly spent their part of their summers searching for more empty space under the Hollow Mountain. Bit by bit, other pieces of the puzzle were extended and connected to the main system.

In 2015, three Slovene cavers found a way between the PRIMADONA-MONATIP-UBEND571 cave system and one of the high level passages of SISTEM MIGOVEC, bringing the sum total to 35.6km of interconnected passage.

As of 2018, it stood at 39.2 km, with, it is hoped, plenty more tales of exploration and adventure to come...



*'If we find 500 meters of easy-walking passage, we are gonna name it wheat field!'*

Figure 1: Drawn by Larry Jiyu Jiang

# Overview

## *The pre-2013 story*

*The following is a concise summary of exploration between 1974 and 2012. All intervening expeditions and findings are described in greater detail in The Hollow Mountain volumes I and II*

### **1974-1994 — The early days**

The JSPDT members initiated exploration around MIGOVEC in 1974, with the logging of 17 caves entrances (M1 through to M17). There were two notable findings: M2 - pushed from 1974 to 1978 - and M16 - pushed from 1982 and 1985, which at -350m and -547m were the then deepest caves of Yugoslavia, and contained a huge underground cavern named GALAKTIKA. After 1985, the JSPDT focused their man power on exploring the MALA BOKA resurgence. MIGOVEC was left virtually untouched for another decade.

### **1994-2000 ICCC arrives in Slovenia**

The first ICCC expedition to MIGOVEC took place in 1994; notable discoveries included M18 (cave of the TORN T-SHIRT), then 78m deep. The return visit in 1995 saw significant horizontal development (NCB passage) and the set-up of an underground camp (CLUB MIG). Although relatively shallow, the awkwardness of the SHREDDIES series added several hours to each pushing trip into M18 and reduced the number of man-hours at the coal face. This new setting paved the way for several breakthroughs the following year and connection of M2, M18 and M16. SISTEM MIGOVEC was born... The following years saw a consistent probing of half a dozen different shaft series accessed by one single trunk route. Of these, only one (XXX-SAJETA) accessed deeper levels. HOTEL TOLMINKA was chosen as underground camp.

### **2000-2006 — A new deep cave**

In the year 2000 VRTNARIJA or GARDENERS' WORLD entrance, which had been found several years earlier was dug out to reach a tight squeeze overlooking a loose pitch. Over the following days, pitch after pitch the cave continued gradually getting larger until the impressive PICO pitch was discovered. This 10m wide shaft plunged



Figure 2: A limestone pavement is where the story begins for the water, not so for cavers who prefer larger entrances to a cave system 📷 Jana Čarga



Figure 3: The bottom of ALCHEMY in VRTNARIJA with its conspicuous flat floor and significant amount of water 📷 Jana Čarga



Figure 4: The 2003-04 expedition findings included a plethora of interconnected passages below BIG ROCK CANDY MOUNTAIN such as the sandy oxbow overlooking HIGHWAY 32 streamway 📷 David Wilson

right into the heart of the mountain and carried both a strong draught and an anomalous amount of water.

Below PICO, the 2000 and 2001 expeditions explored a clean washed and well watered shaft series spanning -200 to -500m, bolting down relentlessly to reach ZIMMER (P50). At the bottom a horizontal passage beckoned: the GALLERY OF ANGLO-SLOVENE FRIENDSHIP. Some 400m of easy passage, following the chilling draught then led to a black void, the tantalising limit of exploration for 2001.

We set up an underground camp in FRIENDSHIP GALLERY in 2003 and set out to descend the new pitch BIG ROCK CANDY MOUNTAIN, and the passages below. Over the next two years, the abandoned, sandy abandoned passages at depths between -700m and -800m led north into hitherto completely blank mountain, ending at a terminal looking sump, underneath TOLMINSKI KUK.

During the 2004 derig — a process where the ropes of the entrance series were brought up the pitches, and metalwork taken out the cave — Tetley spotted a window off the side of PICO, bolted a route and swung into what appeared to be an excellent new, shallow lead. The 2005 expedition focussed on this branch. Awkward pitches and tight passages were the bread and butter of CAPTAIN KANGAROO explorers and was left as a major lead after an aborted camping trip toward the end of the expedition.

2006 was a year without ICCC summer expeditions, but Jarvist Frost and Jana Čarga conducted an Autumn recce on the plateau, investigating the valleys to the west of the PLATEAU as well as AREA N, a wilder plateau on the north side of TOLMINSKI KUK.

### 2007-2009 — Hard toil in Captain K branch

With plenty of new surface leads to push, the years 2007-2008 saw a concerted effort to find the next 'big cave' under the mountain. In parallel, the CAPTAIN KANGAROO branch was extended further and found to head towards the bottom of M2 cave raising hopes for a connection between VRTNARIJA and SYSMIG, bringing the combined cave to just over 20km, thereby forging the second longest system in Slovenia as a reward for 15 years of nearly continuous exploration.

In 2009, METAL CAMP was set up in the newly found passages of KILL'EM ALL. Whilst no connection to M2 was made, the pitches increased in size again (WET HAMMER, MIRAGE CANYON, HAPPY MONDAY), and dropped back to -550m, where a connection with FRIENDSHIP GALLERY was forged.

### 2010-2012 — A return to the deep Vrtnarija

M2 was revisited, its closest approach to Vrtnarija artificially enlarged over the course of several years. The two caves were well within survey error but no way through was found.

Meanwhile, FRIENDSHIP GALLERY was again used as a camp site location. On the back of the new improvements brought along with

METAL CAMP and with a 4 person hot-bedding system in place the camp at X-RAY became a palatial location, which played no small part in supporting true, deep alpine exploration. Indeed, from X-RAY the cave was extended in three main directions: the TOLMINSKA KORITA, CHEETAH, the ALBERT HALL.

Below ZIMMER, the TOLMINSKA KORITA. The continuation of the stream passage led to several short pitches, an assortment of sumps and unlikely bypasses, which eventually connected with the deep phreatic levels of 2003-2004.

Below CHEETAH pitch, the cave continued, dry collapse chambers and muddy pitches in short succession. The fortunate finding of KAMIKAZE extended the cave further east than ever before, into the RED BARON traverse and the ascension to the THRONE ROOM. More development to the SE led to STUCK IN PARADISE, an extremely muddy pitch, and the eventual discovery of 'hundreds of metres of (mostly) walking passages heading south: the ATLANTIS extensions.

Beyond the ALBERT HALL, well decorated passages abounded, including the PALACE OF KING MINOS. The muddy climb up the QUEEN'S BED CHAMBER was eventually conquered, yielding more draughting, horizontal passages. This led to a high, windy rift which broke into a large chamber, with, in its centre, a little piece of paper - a permanent survey station- which had been placed nearly 14 years previously. VRTNARIJA and SYSTEM MIGOVEC, thus connected now made the longest cave system in Slovenia.

\* \* \*

## 2013 — *We're not alone*

When the reports of a live creature sighting came back to the surface, (more information on page 30) they were first met with disbelief. Tetley, one of the long standing members of the expedition and Sam Page, a then second year student had spent several days underground, poking at the previous year's 'connection' passages, hoping that in the rush for the finish line, side passages may have been missed.

Since 2010, the expedition relied on camping in the GALLERY OF ANGLO-SLOVENE FRIENDSHIP, a horizontal, abandoned phreatic 550m below the surface, a gallery from which it was possible to access the rapidly expanding pushing fronts under 3 hours. The entrance series to the cave was relatively hassle-free and direct, barring the ultimate pitch, whose spectacular free-hanging descent was ever so slightly wet, but this had its own advantages: it provided a ready source of water and untapped washing power; indeed any cutlery and cooking pots left for a couple of hours would inevitably come out spotless.

It was from this palatial camp that the exploratory duo went for a visit to the southern branch of the system, a series of muddy, but



Figure 5: The MINOTAUR RIFT was one of the findings of 2010, and one key element of the dry passage series that ended connecting VRTNARIJA and SYSMIG 📷 *Jarvist Frost*



Figure 6: A lot of the 2013-2015 exploration took place in the deep VRTNARIJA levels

📷 Jarvist Frost



Figure 7: 2014-15 saw more action from camp X-RAY

📷 Jarvist Frost

essential bone dry, strongly draughting and horizontal galleries. Recent extensions were headed due south, along an old phreatic tunnel, modified by breakdown in places, and, extraordinarily for this particular alpine system, decorated with stalactites. The encounter happened at one of the rare spots where water trickles in from the roof, right at the foot of an extremely muddy pitch. They caught a glimpse of a live dormouse, furry tail and all, right at the heart of the mountain and lived to tell the tale. Where had it come from?

While this question did not fuel a mad break for the surface, steady exploration of the southern branches by Rhys Tyers, Dave Kirkpatrick, Clare Tan and myself over the following years yielded more and more evidence that these mammals do occasionally wander into and litter our cave system.

### *2014-2015 — The cave goes South*

In 2014, we went further into the ATLANTIS branch, finding a sizeable stream at the far end of the large, sediment filled HELM'S DEEP chamber. The interest went soon over to a north-south oriented rift, draughting very strongly outwards and heading towards the southern face of TOLMINSKI MIGOVEC. This puzzled us for a while: a vertical maze of climbs and drops where metres of passage were hard won. There, we first found the mouldy remains of dormouse at the foot of a small climb. For want of rope and time, we left this for the next expedition to resolve.

2015 saw us eager to find a way out of the cave: the first trip had found more rift, bringing the surface to fewer than 500m horizontally. On the surface, Jack Hare plotted the known end of the cave against the topographical map, more information on page 113, and with rough coordinates in the GPS set out to discover the lower entrance. This was successful: by climbing up a N-S oriented canyon, he and Rhys stumbled upon a possible opening which had a good draught, whistling through a mud and boulder blockage.

We quickly broke through that choke, descended a 25m pitch where I pointed out the exposed fault planes which had obviously guided its current morphology, and at the bottom rejoined the main, abandoned phreatic level, stretching all the way to ATLANTIS for more than a kilometre. This led us south, and excited as we were to be treading the easy walking passage of the MERIDIAN WAY, we couldn't help but notice scratch marks, hair, bones and excrement littering the gallery floor. The next team pushed this even further, getting to within 250m from the surface, held up at a constriction...

### *2000-2015 — The twelve battles of Monatip*

Back in the early 2000's, while ICCC were busy pushing VRTNARIJA, entering the mountain from the eastern side, cavers from the JSPDT investigated a large entrance situated half-way down the west-



ern cliff, named PRIMADONA. Early day trip explorations extended the cave to over 600m in depth, and it wasn't until 2007 that another entrance on the cliffside, roughly 100m north was spotted: this became MONATIP cave. The system proved a training ground for the younger members of the JSPDT from 2008 onwards, after these two western caves were connected. Exploration picked up in earnest after the well publicised 2012 connection as the added 5km of PRIMADONA-MONATIP-UBEND571 would put SISTEM MIGOVEC out of reach of its more famous contender, POSTOJNSKA JAMA, but many cavers doubted there could be a connection, due to a large surface fault, coinciding with hitherto unexplored, blank mountain. The way through did exist however.

One of the key members of the later exploration of MONATIP was Dejan Ristić, who, over the course of twelve assaults, therefore mirroring the more sinister WWI SOČA battles, forged the connection between MONATIP, and SISTEM MIGOVEC. Together with Andrej Fratnik, long-standing MIGOVEC explorer and Iztok Možir, they traversed, and squeezed and dug, and eventually emerged in NCB passage. This ground, first tread in 1995 by ICCC cavers had proved time and again critical in the connection stories of the MIGOVEC caves, its discovery playing no small part in the early survival of the IC expeditions. The successful trio fittingly exited via M2, the oldest explored entrance which is kept permanently rigged.

## 2016 — *The road less traveled*

This is how things stood in the closing months of 2015. Plans to move to the deeper, and possibly still fertile ground of PRIMADONA were formed. Some of the newer expedition members, myself included wanted to start bolting deeper pitches, and the rerigging project we formulated provided just that. We would be able to take novices on easier bounce trip, allured by the promise of shallow leads left unpushed in a bid for greater depth.

The cave, while far from perfect provided many surprises. For almost all of the ICCC cavers, this was *terra incognita* from the onset. Why, it took us four days, and an aborted attempt down the wrong valley to locate and reach the entrance. By that time, I'd put in more bolts with a drill than for two previous expeditions, but then, we got some help from the JSPDT. Zdenko, aside from bringing the appreciated *Žganje*<sup>1</sup> and local deer sausage, showed us the way on, giving names to places, which we shamefully anglicised. SEJNA SOBA, the meeting room, became 'SANE AND SOBER' something Migovec cavers as a whole cannot be accused of being. He showed and pointed at openings 'I've never been, we think it goes towards X... always go left you will find blank mountain...' Clearly, there was potential.

We pooled our newly gained knowledge of the cave and to our surprise we started treading new ground: pitches which had been rigged but not descended, obscure climbs which led to vast caverns, a parallel shaft series which we connected back to the old way down



Figure 8: Discovery of HAMMERHEAD chamber one of the later findings of 2017 📷 Jarvist Frost



Figure 9: The relatively large entrance chamber of PRIMADONA collects winter snow 📷 Rhys Tyers

<sup>1</sup> *Žganje* is a Slovene schnapps, made from a variety of distilled fruits - with e.g. plums it becomes *slivovka*

deep. And somehow, the old objective of going down deep was forgotten: we were side tracked at every level by a complex series of connected, horizontal passages. Yet, the almost mythical left turn into blank mountain eluded us.

### *2017 — Divine intervention*

The 2017 team approached the cave differently. For the returning cavers, the novelty had worn off, we'd mulled over our best leads during eleven months, and we were keen to make our knowledge count. So we almost tacitly concentrated our efforts to three areas of PRIMADONA: the GALERIJA, TTT and FENESTRATOR branches.

The TTT branch, which I'd become familiar with in 2016 was the original way to the deepest point of PRIMADONA. A side passage which I'd spotted led to a series of chambers and pitches, ending in a draughting, high aven where the boulder collapse was pervasive. We ran out of steam there: the trips were long and strenuous, the cave never particularly friendly.

Over to the west, Jack Hare bolted a metal-rich traverse over a 40m drop to gain the continuing horizontal passage at the far end of GALERIJA. This was very successful and promising: a memorable push led to increasingly large pitches (P5, P10, P22), ending at yet another drop. Eventually, this provided a stunning abseil through the roof of the HALL OF THE MOUNTAIN KING (P42), a cavern found the previous year: the exploration met a satisfying end.

It was further up the cave, very close to a small rest-stop we'd set up - and nicknamed MARY'S CAFÉ - that the most significant discoveries of the year took place. Little by little, an obscure SE trending rift led away from the main tangle of passages. Credit goes to undoubtedly goes to Rhys, as he braved the ever changing nature of the pushing front, now a muddy phreatic (PLUMBERS' PARADISE), now a vadose stream (HALLELUJAH), now a clean-washed pitch series (SWEET BABY JESUS), and extended this branch far into the blank mountain we'd been advised to explore.

### *The outlook*

So what next? There's plenty of interest for the upcoming the 2018 expedition, where we hope to be camping in PRIMADONA and finally push the deeper levels. One thing is for certain, the successful annual expeditions have helped cement a true club spirit and prepare the newer cavers for the leadership roles they naturally assumed coming back to the UK.

**Tanguy Racine**



Figure 10: Storm clouds from the Adriatic sea break over the high limestone ranges and the resulting precipitation finds its way underground and resurges as two stunningly blue streams: the TOLMINKA and ZAD-LAŠČICA rivers, photographed near their confluence 📷 *Cecilia Kan*

## Some figures

The following data are found on the Slovenian kataster.



### Number Crunching

#### The 10 longest caves in Slovenia

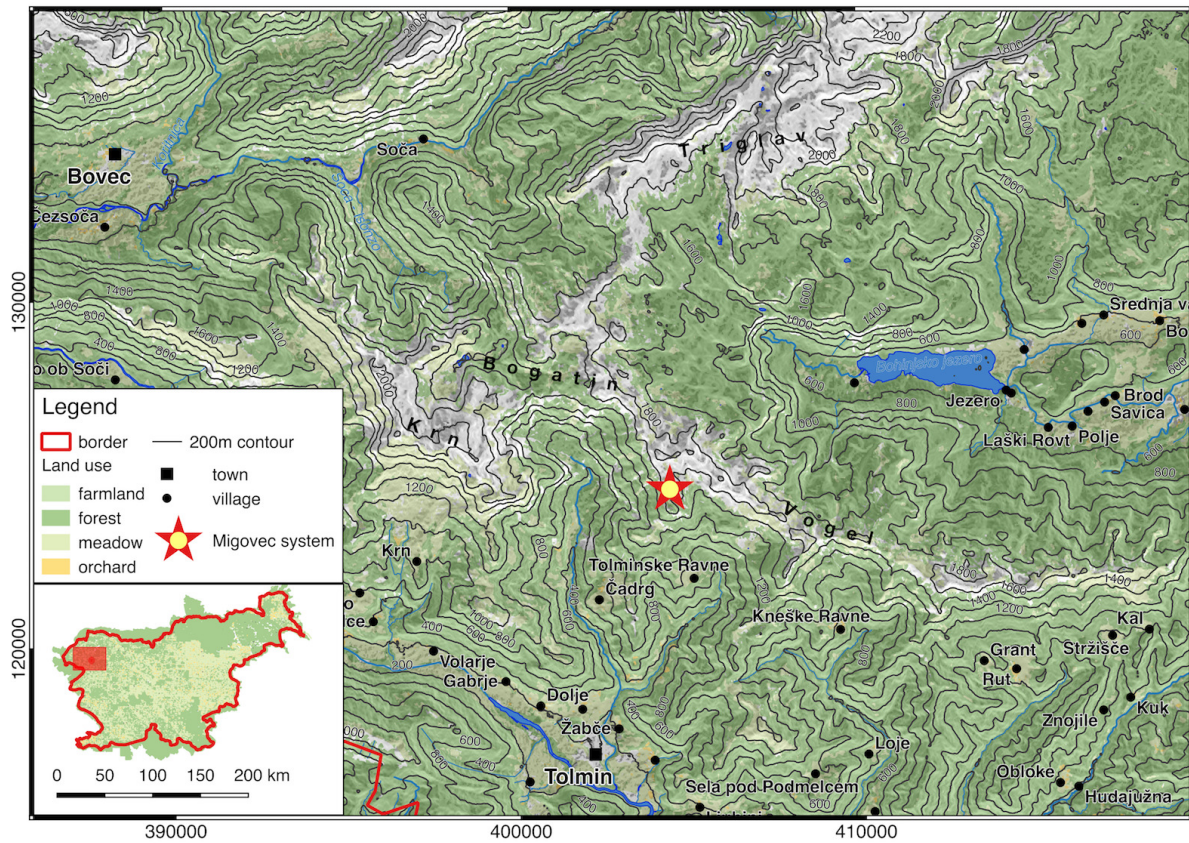
Rank	Cadastral n.	Name	Length	Depth	Area
1	6001	<b>Sistem Migovec</b>	<b>37162</b>	<b>972</b>	<b>zaledje Tolminke</b>
2	747	Jamski sistem Postojnska jama	24120	115	Pivška kotlina
3	955	Kačna jama (sistem)	15181	280	Divaški kras
4	734	Predjamski sistem	13877	168	Pivška kotlina
5	6040	Črnelsko brezno (sistem)	12307	1247	Rombonski podi
6	3000	Pološka jama	10800	704	zaledje Tolminke
7	65	Križna jama	8273	32	Loško polje
8	3200	Sistem Mala Boka - BC4	8168	1319	Bovška kotlina
9	87	Karlovce (sistem)	8057	12	Cerkniško polje
10	911	Vodna jama v Lozi	7748	75	Slavinski ravnik



### Number Crunching


#### The 10 deepest caves in Slovenia

Rank	Cadastral n.	Name	Length	Depth	Area
1	6200	Čehi 2	5536	1505	Rombonski podi
2	7090	Renejevo brezno	5847	1322	Kaninski podi
3	3200	Sistem Mala Boka - BC4	8168	1319	Bovška kotlina
4	6040	Črnelsko brezno (sistem)	12307	1247	Rombonski podi
5	6452	Vandima	2500	1182	Rombonski podi
6	6300	Sistem Molička Peč	3892	1131	Dleskovška planota
7	6050	Brezno Hudi Vršič *	4525	1026	Rombonski podi
8	10730	Macola	2232	1002	Kaninski podi
9	1529	P4 (Kanin)	1844	1002	Kaninski podi
10	6001	<b>Sistem Migovec</b>	<b>37162</b>	<b>972</b>	<b>zaledje Tolminke</b>



Map 1: A topographical map of the Triglav National Park area, 1996 Slovene National Grid (EPSG:3794)



Figure 11: The southern face of MIGOVEC, seen from the summit of GRUŠNICA, with a view of the PLANINA KAL alp  Tanguy Racine