

Pivo Moz 2015 - expedition report



Figure 1 - View of Krn from Migovec - At Camp X-Ray

Abstract

With 2.2 km discovered in Vrtnarija, all below 600 m, Pivo Moz 2015 was another successful year for ICCC. Significant work went into the pushing of the leads off Sic Semper Tyrannis which led to the closure of an 840m loop in the south, while Colorado Duck was passed with a further 270m found beyond, in the northern reaches of the cave. Aven climbing at Strap on the Nitro enabled the discovery of 294 m of south trending passage heading towards Wonderstuff in the 'old system'.

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Overview

The 20th ICCC to Migovec, North West Slovenia took place between July 10th and August 16th 2015. A total of 23 British cavers and 4 Slovenes contributed to the exploration of the cave system, which amounts to 2.2 km of additional passage below 600 m and several metres gained on surface digs. At 30.8 km, the Migovec-Vrtnarija system is now over a symbolic 30km long and this year’s expedition further confirms its position as longest in Slovenia.

For the first time in Migovec exploration two underground camps were operational at the same time: Camp X-Ray at -650 m, a 4 berth camp set up in a central position, and Camp Deep Core II at -850 m near Red Cow, a 2 berth camp set up by divers Jarvist Frost and Connor Roe for future use as access to the Watership Down sump, and used this year by them as a staging post for the northern extensions. Camp X-Ray remained the main exploration camp. All leads however are now more than 2.5 hours away, raising the possibility of setting up another camp, closer to the southern leads in Sic Semper Tyrannis.

Worn rope was replaced in a number of areas during the expedition. Most particularly, a couple of rebelays on Pico (- 200 m) and the ultimate hang on Zimmer (- 550 m) were replaced, and considerable rebolting & rerigging was done in the lower-level phreatic section between Big Rock and Colarado Sump, and the (hitherto unprotected) climbs up into Republica (- 800 m).

We had six new cavers (who only started caving in 2014) on expedition this year. Five of them managed to camp at X-Ray, all of them contributing to the exploration, by either helping with setting up or dismantling the camp, and exploring new cave themselves. A sixth fresher helped the expedition objectives with exploring the surface leads.

Prospects

Prospects for future years of exploration are as good as any other year. Although leads close to X-Ray are progressively exhausted, the possibility of a lower entrance to the cave is stronger than ever, with a shortest distance to the surface being 282m above the southern extensions. In the North, 'new cave' was visited by passing a partially flooded section of cave.

This area appears to be the bottom of other active cave systems, which from our mapping, must correspond to cave passage beneath the area to the north of Tolminski Kuk. An unexpected succession of crawls and larger chambers - Lazarus - was also found off this deep level, and left as a going lead for 2016.

Expedition Logistics

A nine seater minibus was hired from Imperial College Union for five weeks and two days. This was driven from South Kensington to Tolmin, Slovenia in under 24 hours - including a Dover-Calais ferry journey. Special permission was acquired by the JSPDT to camp in the Triglav National Park. The van was driven up to Tolminske Ravne on the next morning, where the Skalar family kindly let us use their barn to unload and store equipment waiting to be carried up the hill (final 900m ascent to our bivouac spot). The bivy was then occupied non-stop until the end of exploration. Caving trips to rig the entrance series of Vrtnarija started the very next day.

With over 500m of vertical pitches needed to reach the underground camp, waves of riggers were sent to place or replace the ropes. They were followed by first time expeditioners for a taster session of alpine caving. Seven days after the minivan had left Imperial College, the first group of cavers reached the X-Ray location and set-up camp. This efficiency was aided by:

- ❖ The sending of a pre-expedition caver who set up the water collecting tarpaulins in the bivouac location.
- ❖ The careful packing of warm clothes, sleeping bags, stoves in ready-to-take tackle sacks for underground camp back in London
- ❖ Up-carries done in the last week of the previous expedition to maximise the amount of dried food available at the bivy from the start.

Expedition findings

Beyond Sic Semper Tyrannis

Jetstream

Jericho and its extensions comprise an approximately 1 metre wide, 3 - 5 metre tall rift heading due South and in sloping steeply upwards towards the South, requiring several large free climbs initially (now rigged). It was left at the top of a pitch, the first drop in the passage. Jet Stream continues from the bottom and immediately resumes an upward trend. The rock becomes darker, less sandy and more brittle and the passage is filled with more loose rocks than before making climbing treacherous. After 50m of continuation the passage reaches an apex. The way on is through a constriction directly ahead but there are numerous holes in the roof that could continue. One was followed to a crawl that dropped into a chamber through a constriction blocked by a boulder (easy dig).

The main way on through the constriction pops out onto some wedged rocks at the top of a 5 metre deep thin rift. Traversing across these it is possible to descend to the bottom, along the sloping muddy wall. At the bottom the passage floor is covered with loose scree and the passage continues downwards, seemingly just at the angle of repose of the scree. At this point the passage is no more than stooping height. Finally the passage reduces in size to a crawl which is quickly blocked by boulders. Through the boulders is the way on, past an awkward but not tight squeeze.

First Draft, Final Draft, Meridian Way (RT, TR)

Beyond the Jetstream squeeze, the fault controlled fossil passage continued for 20 metres. It retained the chossy nature of the floor, with occasionally a very well preserved fault plane (1m²). The loose scree then disappeared, replaced by a thick layer of white to cream carbonate sand, with extensive prismatic calcite cover on the ledges of walls.

The passage quickly forked, both leads draughting though less than in Jetstream due to the increased size of the cross-section. Turning right led to First Draft, a tighter alternative to Final Draft on the left. They rejoined 40m later as First Draft intercepted a pitch, and dropped into the other branch. The aven (2x2 m in cross section) captures at least some of the draught going upwards, but was not pushed.

Dropping Final Draft, a slanted (55°), 25 m fault controlled pitch led to the start of Meridian Way, heading south and Blast!, the same passage heading in the opposite direction. Meridian Way is extremely similar to Atlantis, a long, lozenge shaped near horizontal passage (5m wide, 2m high). Collapsed 2x2x1 m boulders litter the floor, all covered in sand, and after a marked dog-leg in the passage the sound of water can be heard. It is believed a sandy dig separates this dry fossil passage from an active streamway. A little further on, the discovery of extensive scratchmarks, excrements, fur and bone remains and the sighting of a live mammal testifies that some troglodyte animals visit, if not regularly, this southernmost part of the cave.

Blast! Choke a Bloke, Empty Quarter

In the continuation of the *Meridian Way* passage, a squeeze was passed, leading to a fork. Carrying on the same level quickly leads to another triangular shaped constriction taking the draught. Two nodules of rock jut out at its narrowest point, preventing the cavers to push further. Mechanical persuasion seems required to pass the squeeze and continue. This was called *Choke a Bloke*.

Taking the other option, the passage drops towards the west along a plane, until an aven, with a boulder choke at the bottom is found. This was called *Empty Quarter*. The remaining draught is captured by said aven and is a climbing lead.

Where the *Final Draft* pitch drops into *Meridian Way*, passage is seen to continue north, back towards the main system. The passage is a wide and spacious crawl following a bedding plane with a scree covered floor. The debris is comprised of both fragile mud and hard dark limestone flakes in alternation. This is very similar to changes in debris lithology observed on the higher passage of *Jetstream*. The crawl eventually connects with *Pleasure Palace* and thus completes a 1km loop in the *Sic Semper Tyrannis* extensions.



Figure 2: Helm's Deep Chamber

Touching the Void's bottom, Davy Jones' Locker, At World's end:

The streamways of Sic Semper Tyrannis and Brezhno Slapov (Waterfall pitch) make up the only source of water found so far south (barring the likely but unseen streamway in Meridian Way). Two waterfalls enter the pitch in Touching the Void, and join into a stream at Touching the Void's Bottom which runs directly below Helm's Deep chamber and enters a wet horizontal crack. The water reappears 10 metres lower in the terminal waterfall of Sic Semper Tyrannis. It can then followed downstream (Davy Jones' Locker) to a sump, bypassed by a crawl before it disappears down a wet undescended pitch. Traversing high a little way leads to a 15m dry, circular pitch, belling out into a boulder filled chamber. (At World's End). Negotiating a small 10m long bowel leads to a large pitch, where the sound of water can be heard, feeding a cascade then a stream. The pitch was not dropped but it is hypothesised that the water feeds the wet aven in Lethe and may provide an alternative route to this lead.

2013 exploration report: This [pushing of Brezhno Slapov] eventually ended in a sump after about 100 m with no dry way on. However, a secondary inlet was found just before the sump to the left. This led to a small chamber with a possible bolt climb, and a larger chamber further on with a wet aven. In the larger chamber it looked like there was possibly a drier bypass/continuation but this was left unpushed due to the wet conditions on the day.

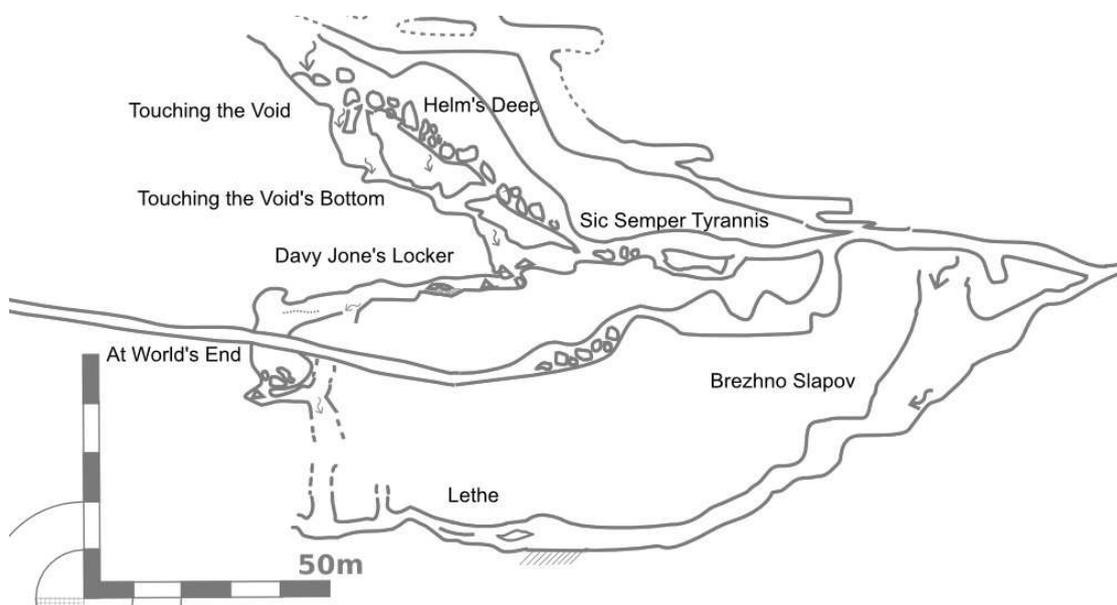


Figure 2: Detailed elevation of Sic Semper Tyrannis extensions



Figure 4: Water below Helm's Deep Chamber

Beyond Cuckoo's nest

Push Your Luck (RT, TR)

Push your Luck is a streamway found upstream of Cuckoo's nest. Bridging up the unpushed pitch led to a 1m wide streamway. Two further pitches were passed in the same fashion, enabling the discovery of 250 m of Yorkshire-like streamway at the bottom of a rift anywhere between 5-15m high.

Often, white and black calcite pebbles in a silty matrix were found on shelves, 1m off the floor. Those deposits are clearly cut by the new active streamway, which in the opinion of Tanguy Racine denote a period of high sediment load in the stream (the streamway might have looked like the lazy stream at the bottom of Lost Johns' cave). Changing from a vertical series to the very low gradient streamway will have reduced the flow's competence and therefore led to the deposition of the larger particles. Later the flow became more competent – eroding rather than depositing – and started carving the streamway again. Causes for the change in competence are most likely climatic in origin: heavier rainfall during more frequent storms can result in dramatic changes in flowrate, as were witnessed this year during a flood pulse.

The origin of the water in Push Your Luck is as yet undetermined: the direction of the flow is to the north and seemingly comes from the Migovec peak, where no significant cave has been found yet.

Agartha (DKP, JE)

Agartha is the obvious continuation of the rift, but was pushed from a higher, fossil level connected to Push Your Luck in several places. The rift can be followed upstream for 100m until hitting another waterfall pitch deemed unsafe to freeclimb. Further back in the high level passage directly above Push your Luck, a chamber was seen to lead off, but was not checked.

Beyond Red Cow

True Adventures (CR, JMF)

In 2014, JMF and RT had revisited 'Colorado Sump', the 2004 exploration end of the cave at 800 m below the entrance and nearly 1.5 km to the North. They found that the 'sump' passage was not flooded to the roof.

CR and JMF returned this year with a far more logistically easy camp Deep Core II at Red Cow. They rerigged the rather dubious 2004 era aids, and re-secured the SMASH boulder choke. The Hoover dam, near the 2004 end, was found to be an easy rift climb which CR climbed to about +10 m. The majority of water which flows into Colorado comes from this source (water cascading down the rift).

Colorado sump was found to be an easy ~10 m long duck, passing through a rock arch with a triangular air gap approximately 30 cm wide and 20 cm high, before expanding immediately. The duck contains a large volume of extremely fine white silt / rock flour. This has made large solid dams on either side of the duck that come up fully to the perched level of the water. The water is approximately 1 m deep through the sump, you are soaked up until your neck / chin.

After passing the duck, another body of water was found to sump very quickly, while a tube leads off to the left. Several small streams are come across, until a junction is found, with a potential climb attempted by CR. The tube drops into a thin wet rift, soon closing down. In all 270m of passage found beyond the duck named *True Adventures*.

Lazarus (TR, RT)

An unlikely alcove was spotted halfway along Miles Underground. The passage degenerates to a flat out crawl for 10 m, then opens into a 3-4 m high chamber. The floor is littered with dark, well rounded pebbles reminiscent of a crawl in Potato. Cream coloured sand often chokes the passage in between large chambers. For approximately 100m a succession of squeezes - one of which was dug - allows access to a slightly drippy aven which remains unclimbed. Further on, a gently sloping chamber remains as a storming lead for 2016.

Formative (TR, RT)

A streamway enters the passage of Miles Underground just after a free-climbable drop into a boulder slope. The water comes from an impassable crack and forms a 5m high waterfall into a clean washed chamber. It then drops 15m down a narrow rift, disappearing in a passage too narrow to be followed. 5m higher, a drier muddy traverse is seen going off in the same direction. Reaching it requires a pendulum across the spray or a bolted traverse on the far side of the rift.

Dinner Service (CR, JMF)

To make use of their first evening at underground camp, CR and JMF went to Strap on to have a look at the half-climbed aven from the year previous. The climb ended at a ledge slightly off the main aven (to the left looking at the rock face). An exposed climb-traverse around the edge of the aven looked sketchy from here, but there was also an easy corner chimney leading up 8 m split over a few edges. This was attempted and easily overcome by CR and then less easily by JMF. Now at the head of the aven, an obvious broad triangular tunnel lead off. Part way along this was intersecting phreatic tubing which was not looked at.

Stooping through a slightly smaller section, we popped out on a ledge (possibly boulder choke) halfway up a pitch. The chamber was clearly fault controlled, with narrow cracks in opposite ends (+ 20 m across), whereas the mid section was approximately 4 m wide. There was a 10 m+ pitch down in the middle, and the ceiling was ~ 20 m high, but as the walls were sheer it would require actual bolt climbing. Large flat plates of mudstone were present all over the ledge, along with little drip eroded holes in the boulders often with limestone pebbles (pearls) and hamertite. Water splashed down along the

right (from the tunnel) extend of the chamber. This area was named Dinner Service. The climb was bolted with stainless rawls upon descent, and the main avon climb tied off to a bolt.

The day after the first trip through the sump, another evening visit was made. The obvious pitch in Dinner Service was dropped with a y-hang. The narrow bottom led off into the fault-controlled crack making up the far end of the chamber with a trickle of water. The rope down within Dinner Service was derigged, and a survey was made of the newly explored cave (DinnerService) and the 2014 bolt climb of the avon (Void).

Andrea Bocelli (Maffi, Tjasa)

The passage named Andrea Bocelli was found at the top of the remaining unpushed climb in Strap on the Nitro. 230m of crawling/stooping passage were found heading towards the south from the top of the aven. The surveyed section stops here. The continuation was found on an extremely wet day, which prevented successful surveying. A traverse was bolted across a pitch (unpushed because of weather conditions) from which 20m of passage followed, ending in a wet rift. Bridging this rift leads to a small unpushed pitch 50m further. Following the water means descending at the start of the rift, then squeeze through a hole at the bottom to the start of a wet, 30m+ pitch. It remains undescended due to a lack of rope.

Interestingly this section of cave is heading straight towards the 'old system', in particular the passage named 'Wonderstuff', which is ~60m away at its closest point.

Streamways

The very end of the Esoterica streamway (Your Mum) leads into a wet slot, quickly choking at the bottom. Upstream is too tight as well. The remaining lead in this passage is a crack at the bottom of Serrure pitch which will require enlargement before it is passable.

A 7m pitch at the end of A Pun too Far streamway was descended, leading into an immature rift where the water disappeared. Small fossil passage was found near the ceiling, but it becomes too tight for progress. It was not pushed upstream. The streamway responds very quickly to heavy precipitations on the surface and is one of the most active of the system, together with the ones at Republica and Sic Semper Tyrannis.



Figure 3: View of Migovec Plateau from Krn

Surface exploration

Digging Coincidence Cave

The southern continuation of the Atlantis passage gave rise to a search for a potential lower entrance on the southern aspect of Migovec. Using the paths linking the shepherd's huts at Kal and the Razor Alp, Dave Wilson, Dewi Loyd and Peter Hambley systematically checked the N-S canyon features of the mountain face, looking for a way in. On top of the mountain, Jack Hare and Rhys Tyers worked out where the Jetstream passage led, and might intercept the surface. They also set off in search for the way in. As they reached the potential canyon, both teams met by a triangular opening with a strong outward draught. Under this good omen digging commenced and was carried out from Kal by DW, DL and PH during their remaining week. 3 metres of passage were thus dug out during the expedition, with hopes of breaking into significant passage. While major breakthrough is still to come, the ease of access from Kal means a revisit to this lead in future years is very likely.

M10 Exploration

Due to the lack of rain the expedition had to haul snow from a nearby surface shaft named M10. One caver descends and shovels snow from the snow plug at the bottom (which is permanently in shadow) and the rest, via an intricate pulley system, haul the bags to the surface for storage and melting in barrels. While in M10 it was noted that the snow levels were significantly lower this year than for the last few and a few cavers descend to look around the edges of the snow pile for cave passage. Firstly a climb down a person sized chute was followed to a small chamber, the snow forming one side, with the rock forming the other, that contained an interesting ice stal. Squeezing deeper past the snow on the other side of the pile led to a large alcove (10m x 10m x 10m) in the shaft wall. The snow blocked of the entire open side of the alcove (apart from the small hole we had come through) so it seemed enclosed. The snow formed a slope into the alcove and at the bottom the snow became solid ice. Following the ice slope led to a small drop where the passage clearly continues but it is entirely blocked by solid ice. There will be good cave here eventually.

Conclusion

De-rigging and pack up

On the 9th of August a group of three cavers went down to X-Ray to sleep over. The following morning, while four cavers were sent down to carry tacklesacks out, X-Ray was packed up and fully inventoried. The entrance series was then de-rigged, with the metalwork removed entirely, and the ropes put away at the top of pitches to prevent damage over the next eleven months.

On the 11th, all caving kit was brought down the mountain together with camp X-Ray's sleeping bags, cooking implements and electronics. Those not directly involved in the de-rig also volunteered to share the load. By the end of that day, the Bivi was ready to be packed up and put to sleep.

This was done on the 12th, aided by beautiful sunshine. By 12.00pm, the last people left the mountain. Three hours later, the remaining expedition members enjoyed the hospitality of the Koblucar family at Tolminske Ravne and shared an afternoon drink. By 5.00pm, the minibus was back in Tolmin.

The minibus departed on the 15th bound for Calais, then Prince Consort Road, where it was unloaded. The crates were put away in expedition store where they will wait... till next year.

Expedition finances

Expenditure	
Food	£1,042.21
Minibus travel	£2,967.61
Rigging Kit (rope, metalwork, drills)	£1,000.59
Other UG hardware (camping etc.)	£288.86
Surface equipment (communal areas, repair kit etc.)	£492.49
First Aid	£45.40
Total	£5,837.16
Income	
GPF Funding	£800.00
IC Union Travel Grant	£368.27
Expedition Members Contributions	£4,668.89
Total	£5,837.16
Balance	£0.00
Additional personal expenditure (flights – personal camping gear)	£2,400

Sponsorships and thanks

We would like to thank

- the Ghar Parau Foundation for the equipment funding received.
- the Union Trust for the travel funds allocated

Appendix A—Cave Passage Length

Cave finds & metres of new passage surveyed in alphabetical order:

agartha.svx	131.85
andreabocelli.svx	234.00
atworldsend.svx	33.03
blast.svx	289.26
choke-a-bloke.svx	65.69
davyjoneslocker.svx	55.04
dinnerservice.svx	60.28
emptyquarter.svx	166.04
finaldraft.svx	92.27
firstdraft.svx	77.18
formative.svx	30.98
isdead.svx	10.26
jetstream.svx	158.22
lazarus.svx	96.13
meridianway.svx	186.06
pushyourluck.svx	231.53
shithole.svx	20.37
touchingthevoidsbottom.svx	23.36
trueadventures.svx	270.03
void.svx	35.73
Total:	2267.31 m