

## Exploration of the Schwartzmooskogel system in 2013 and 2014

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In 2014 new finds in the Schwartzmooskogel system on the Loser Augsteck Plateau in the Totes Gebirge took it over 100km long. The system has mostly been explored by CUCC (Cambridge University Caving Club from the UK) since 1976 and ARGE Grabenstetten (Arbeitsgemeinschaft Höhle und Karst Grabenstetten from Germany) since 1992.

As reported in the previous VHO journal, the last major breakthrough was in 2012 when CUCC connected the 28km of Steinbrückenhöhle (1623/204) to the main system at Kaninchenhöhle (1623/161). One year earlier, CUCC connected Tunnockschacht (1623/258), the most northerly actively explored cave in the area, to Steinbrückenhöhle. And back in 2002, ARGE Grabenstetten connected Stellerweg (1623/41) via new discoveries in Steinschlagschacht (1623/136) to Kaninchenhöhle. At the end of 2012 the Schwartzmooskogel system was the third longest cave system in Austria, at 97.4km.

In some ways, revisiting Steinschlagschacht (a 1983 discovery) in 1997 provided the most important link in the chain, connecting the older discoveries (now explored more thoroughly by ARGE Grabenstetten) and the later, more northern Kaninchenhöhle system. The original explorers of Steinschlagschacht in the early 1980s hated this cave for its loose rock and wet pitches, but they weren't looking for horizontal development in those days - they headed for the tight, cold depths and missed a window into a series of big chambers.

Following this success, a small team of two cavers repeated this logic and decided to re-explore other caves recorded in the CUCC logbooks from the same era. While the rest of the CUCC expedition was checking in to the Stone Bridge Hotel with its hot and cold running water, free electricity, sleeping platforms, sun lounge on the slabs and open-air lavatory complete with toilet seat, Olly Betts and Jenny Black ran a parallel expedition from their tents in the middle of the plateau a long way from anything else. All by themselves for summer after summer they pushed Eislufthöhle (1623/106) to a length of 2.4km, various short caves to a cumulative length of 1km and, importantly, Gemsehöhle (1623/107) to 1km by 2012.

The first clue that their caves could ever connect to the main system came in 2011 when CUCC finally got around to pushing a discovery made by Andrew Atkinson and Wookey at the end of 2009, of a strongly drafting roof passage in Kaninchenhöhle. This led to major extensions north (to within 30m of Steinbrückenhöhle) and west to two blowing passages pointing directly towards Gemsehöhle which was now less than 1km away.

The summer of 2013 was the year of the International Speleological Congress in Brno, which brought many Americans over to Europe, including Mike and Andrea Futrell from Virginia. Becka knew them from her trips to China and invited them along. Mike is a famous cave mapper (it even says so on his car license plate) whose talents could be put to use in Austria, as opposed to China where foreigners are forbidden from creating maps for reasons of national security.

The CUCC expedition that year was small and limited mostly to Tunnockschacht where a hard-won 2km of cave was found, taking the length of the Schwartzmooskogel system to 99km. Here, the leads were thinning out, with the few remaining at the higher level leads either crapping-out or descended into deep, flood-prone or gnarly pitch series. All the best leads were going below String Theory near an undescended and unstable black void known as The Beast. This has never been drawn on the surveys properly because it's too big. Trips were typically hard work and weren't suitable for novice expedition cavers.

Meanwhile, Olly, Jenny and a new recruit, Stuart Walker, spent the summer chasing a strong and bitterly cold draft in Gemsehöhle to a giant 30m wide rift passage, China, which was a mere 50m from the closest point in Kaninchenhöhle. Now we had our target for 2014.

In 2014 Olly and Jenny stayed home in New Zealand to build a house, leaving their Gemsehöhle project wide open for the rest of the expedition. While one team began the re-rig to replace Gemsehöhle's authentic 1970s-style rigging, work began in Tunnockschacht in The Beast region where several hundred metres of mostly horizontal passage officially tipped the Schwartzmooskogel system over the 100km mark. To celebrate, Julia Day baked a bucket of trifle topped with "100" spelt out in alcoholic cherries and paraded it around the Base Camp. [photo with Hilde]

Meanwhile, the Gemsehöhle team set about killing all of the most promising leads for a connection, causing Anthony Day to opt for the desperate measure of re-rigging Kaninchenhöhle all the way in to the other side of the presumed connection area to see if there was anything that had been missed there.

However, this meant that we now had three major vertical routes rigged. The expedition was running out of rope and metalware, and the decision was taken to derig Gemsehöhle. A very loose climb up the end wall of China found only an alcove, but below was a windy slot in just the right place. A final pushing team composed of expedition novices returned late with a confused story of possibly having made the connection, but they weren't sure. They were even less sure when they were dragged out of bed early the next morning for further interrogation. It sounded like they had simply dropped a pitch back into the same chamber.

Later that day, though, the derigging team retraced the steps of the previous trip, through the very drafty slot and then down a small, tight pitch into the far end of the passage known as Blown Out in the furthest reaches of Kaninchenhöhle. By chance, the only three people to have ever been there back in 2012, Becka Lawson, Andrew Atkinson and Rob Adams, were all on this trip, together with Rob Watson who'd been on what turned out to be the actual connection trip the previous day. Realizing that they had the once in a lifetime opportunity of a through trip, the team carried on out of Kaninchenhöhle to the entrance overlooking Applhaus, derigging along the way and abandoning their clothes on the plateau at the Gemsehöhle entrance, over a kilometer away as the crow flies, and about 3km underground.

The excitement of 2014 wasn't yet finished. There were more notable discoveries in Tunnockschacht, including a separate easier route to the deeper levels connecting to the remote far north, producing another kilometre of easy horizontal passages.

But the most significant and surprising discovery came on the first day of prospecting using Mike Futrell's maps. After his first trip in 2013, Mike had realised that our scattergun approach to prospecting could be honed. For 2014 he had made a series of high quality surface maps and had picked out some promising areas to focus on. Lying less than 400m northeast of Tunnockschacht, the Balkonhöhle (1623/264) entrance had originally been found by CUCC in 2002, then re-found in 2005, before being forgotten about again. This year, when it was located a third time, its 70m entrance pitch series was at last descended to reveal a lovely, pale-walled, spacious maze cave that must one day connect to the Schwartzmooskogel system. This pleasant, easy cave proved attractive to all, and by the end of the expedition Balkonhöhle was already 3.2km long with many open leads.

The Schwartzmooskogel system is now 105.5km long, beating Hirlatzhöhle by 4km, to make it the second longest cave system in Austria. It is only surpassed by the 140km long Schönberghöhlensystem which is less than 3km to the west across a pure limestone plateau. We don't need to spell out what we would like to happen next, but we'll have plenty of work to do over the next few years to get there.