

# WENDELSTEIN HOHLE (CAVE), BAVARIA, GERMANY

Garry K Smith



*Panoramic view of the visitor facilities and surrounding landscape.*

*Photo. Garry K Smith*

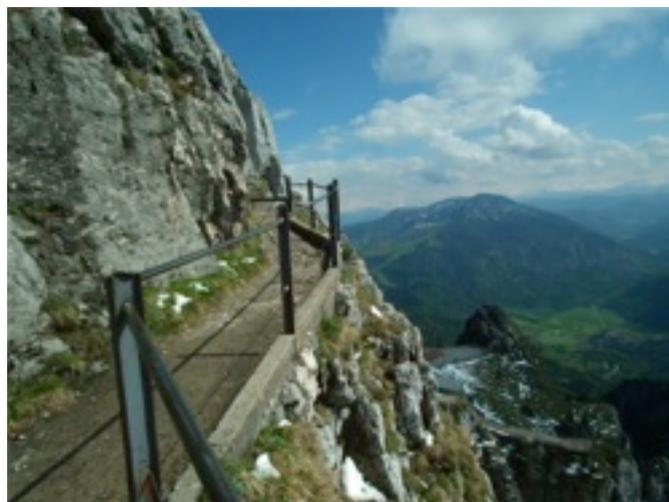
## The Cave and Location

The Wendelstein Höhle (pronounced – ven-dell-styne hooler), literal translation equals “spiral stone cave”, is a cave system located within an 1838m high limestone mountain peak of the same name. It is in the far south of Germany at the eastern end of the Bavarian Alps. The natural cave entrance is at an elevation of 1,711m ASL making it the highest altitude show cave in Germany<sup>[1]</sup>. The ‘Show Caves of Germany’ website classes this cave as an Alpine Cave due to its elevation and describes it “as probably the most extraordinary show cave of Germany, just because of its exposed location”<sup>[2]</sup>. This is a self-guided show cave and visitors are welcome to amble through at their own pace, taking in the surroundings and literature at the interpretative stations. There were 35,800 visitors to the cave in 2012.

Snow and ice decorations can be found almost year round in the “Cold Trap” just inside the natural entrance of the cave.

## Getting To The Cave

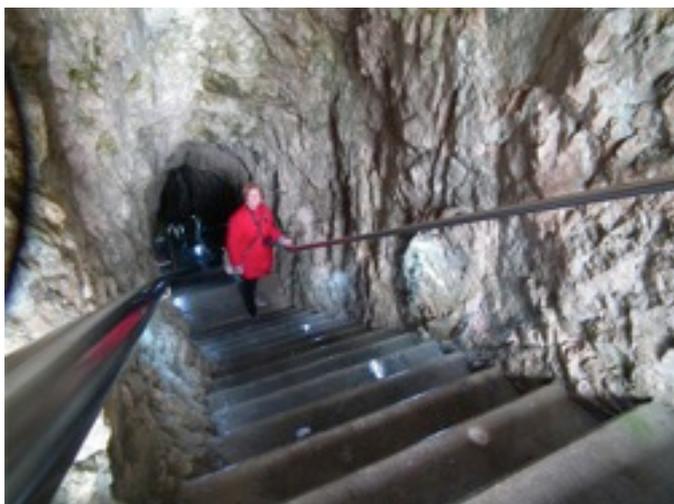
The cave can be reached by catching the privately owned BOB train from Munich to Bayrischzell and getting out at the Osterhofen station<sup>[3]</sup>. There is a 5 minute walk to the cable car (gondola) bottom station which takes visitors to the restaurant near the top of the mountain in 8 minutes. From the restaurant there is a 5 minute walk to the cog railway train - top station and follow the ‘Höhle’ signs to the turnstile and cave entrance.



*Track to Observatory.*

*Photo: Garry K Smith*

Alternatively take the DB (German National Railways) Munich – Rosenheim – Kufstein train. Get out at Brannenburg then it is about a 30 minute’s walk to the rack (cogwheel) railway valley station (signposted). The 30 minute train ride up the mountain takes visitors right to the cave entrance. This is Germany’s oldest operating high mountain railway. Construction started in 1910 and it commenced operation in 1912. The original train and wagons were replaced with modern ones in the late 1980s. The scenic rack railway route is



*Entrance tunnel into Wendelstein Höhle.  
Photo: Garry K Smith*



*The Natural Entrance as viewed from the Cold Trap Chamber.  
Photo: Garry K Smith*

9.95 km long and has seven tunnels, eight galleries, twelve bridges and many retaining or supporting walls<sup>[3]</sup>.

#### **Cave Visit – A Personal Account**

In spring (late May 2013) my wife and I caught the train from Munich to Osterhofen station. This is a very pleasant journey through ever changing countryside. From Osterhofen station there was no obvious sign indicating how to get to the cable car station, however the overhead cables pointed to the building we needed to get to. There are two ways; under the rail line then along a narrow track through paddocks, alternatively follow the road over the rail line and weave your way through a number of narrow streets. We used both routes during the course of our day trip.

The ride on the cable car was excellent and afforded spectacular views during the ride up to the Wendelsteinhaus restaurant – have your camera ready.

The walking path from the top station/restaurant was well signposted 'Höhle' to the cave entrance, a very pretty sight with thick patches of snow everywhere. Despite the sunshine, the light breeze and ambient temperature, probably around 5°C, made it a little nippy – thankfully we were prepared with jackets.

The staircase down the artificial tunnel into the cave was well lit and easy to negotiate, however I would have to say without gloves, I think my hands would have stuck to the freezing metal pipe handrail. So be prepared with gloves. As we descended a couple of tourists heading out, commented "hope you have a raincoat". They were right, as it was rather wet with melt water pouring from above along most of the cave pathway. Thankfully we had an umbrella, which was put to good use. First time I have needed an umbrella for the full length of an underground cave tour. The 'Cold Trap' chamber contained a substantial quantity of snow and ice on the slope leading from the natural entrance and there was a considerable

number of ice sculptures, which looked pretty good. However, not all the seepage water freezes in this chamber as we stood on the observation platform under our umbrellas to avoid being soaked.

The entrance tunnel and majority of the cave passage was narrow, making it rather difficult to pass visitors going in the opposite direction. An umbrella certainly added to this dilemma.

There were four multi-media stations with themes covering biology, geology, psychology and philosophy<sup>[4]</sup>. These touch screen interactive stations could be viewed in a variety of languages (including English). I found the information to be generally non specific and extremely basic, although each presentation did end with thought provoking questions. The information provided is probably reasonable given that a reference papers states that the stations were designed for visitors with an attention span of 4-5 minutes per station<sup>[4]</sup>. During our visit the multi-media station at the 'Cold Trap' was not operating, however given the freezing conditions and constant streams of water pouring everywhere from the ceiling, it is no wonder there are occasional failures of electronic equipment. Thankfully all the excellent LED track lighting was working.

Overall the cave was worth seeing despite the rather wet conditions and I did manage to get some reasonable photos without slave flashes. The alpine cave has some very interesting features and the scenery above ground is truly spectacular (thankfully we had a clear day – bad weather would have been another story).

#### **Comments on Management**

With regard to cave management and tourism, I would have thought it prudent to advise visitors to be prepared by bringing warm clothes, gloves, substantial if not waterproof footwear and include a raincoat with a hood, however I could not find this information in any of the

available literature. We went prepared for the cold conditions, despite this my wife became cold after 20 minutes, as her gloves absorbed water from the entrance tunnel handrail and our shoes became saturated from the splashing water.

In a number of places where large quantities of water was really gushing from the ceiling onto the tourist path, it would make sense to have installed shields to redirect the stream. I will say the path way was well drained through the inlaid gravel floor and there were very few places where water pooled.

Overall the lighting was excellent but I personally found the interpretative stations lacking somewhat in content specifically relating to the cave in question.

### General Information About The Cave

At 1711 metres ASL this is the highest altitude show cave in Germany. The natural entrance to the cave is located at the foot of a southeast wall just 127 metres beneath the summit and approximately 1400 metres above the present Leitzack River valley at the town of Osterhofen (310 metres ASL).

Visitors walk just 30 metres from the coin operated turnstile to the excavated tunnel entrance. This is a steep (12m) tunnel, containing 82 stairs which lead into the main passage of the natural cave. This excavated tunnel was constructed to improve safety due to possible snow and rockfall at the natural entrance and allow visitation during inclement weather. The cave is 573 metres long, of which 170 metres is open to the public. Vertical range of the cave is 106 metres and mean average air temperature inside is 3°C except for the 'Cold Trap' which is at or below 0°C<sup>[1,6]</sup>.

After descending the entrance tunnel to the cave passage, the natural entrance chamber can be reached by turning right and proceeding just 30 metres. This rather impressive chamber, called the 'Cold Trap', has a 17m high ceiling. A shaft of daylight from the entrance partly illuminates the steep snow covered slope and the reflected light provides a soft light to the rest of the chamber.

There is a tourist observation platform in the lower part of the 'Cold Trap' where the cold air is trapped (as the name suggests), thus freezing some of the incoming seepage melt water to form icicles and other fascinating ice sculptures. These ice forms stay intact for most of the summer<sup>[2]</sup>.

To the left of the entrance tunnel the main passage is wide and about 3 metres high. This part of the cave has plenty of air circulation and is almost as cold as the 'Cold Trap', however the passage soon becomes narrow and up to 15 metres high. After 170m the path ends in the 'Dome' also known as the 'Cave Cathedral'. Despite its name, this is not a chamber, but a junction of three passages. The air temperature at this point is approximately 3°C<sup>[1,2]</sup>. The 'Dome' is the end of the tourist route and contains the last interpretive station. There is a crucifix fitted to the wall at this point and high above are some good examples of stream meander niches

carved into the ceiling. On the way out I could see other meanders in the ceiling at approximately the same height.

The cave is lit by an energy efficient 2 x 3 watt LED light system which has a backup power supply in the event of a mains electricity failure<sup>[5]</sup>.

### Geology

Wendelstein mountain is mainly Wettersteinkalk (Wetterstein limestone) from the upper Triassic, consisting mainly of Dasycladacean algae (*Chlorophyceae*). These are marine algae, which inhabited shallow lagoons in a tropical climate. The color of the stone varies from light gray to gray-white and spotted<sup>[1]</sup>.

Over millions of years the limestone was uplifted to form rolling hills and the Wendelstein Cave was created by a stream which had its catchment area to the West and South. After the river had cut into the limestone to create the cave about 60 million years ago, the northern rim of the Alps continued to be uplifted and folded to the point where the river no longer ran through the cave. Uplifting, folding and valley erosion continued over millions of years till the limestone containing the cave became the high peak it is today<sup>[1,2,4]</sup>.

In general, the Alps mountain range was a result of the African and Eurasian tectonic plates colliding and causing the marine sedimentary rocks to be thrust upward and folded over hundreds of millions of years<sup>[1]</sup>.

The German Show Caves Website describes the cave as a "fissure cave, a narrow gorge formed along a vertical fissure in the rock, with impressive erosional forms, but no big chambers and no speleothems" <sup>[2]</sup>. (After viewing the 3D cave model and visiting the cave, I personally have some reservation relating to this cave being accurately described as a 'fissure cave' – I will leave it to others to debate this aspect.)

The cave is formed in fossil-rich Triassic Wettersteinkalk, and fossils can be seen at various locations along the cave walls<sup>[2]</sup>.

### Opening Times and Entry Fee

Wendelstein Höhle depends on snow and weather conditions, it is normally open between May and October to coincide with operating hours of the cable car and cogwheel railway<sup>[2]</sup>. Cave entry is €2 per person (must have €2 coin) payable at the automatic turnstiles next to the cogwheel railway top station.

**Cable Car (Seilbahn)** - Operating times: during summer season daily 9 am to 5 pm every full hour and in winter 10 am to 4 pm every half hour, subject to weather conditions<sup>[3]</sup>. Single adult return ticket is €20.00, Children (6-15yo) €14.00, Families (2A+2C) EUR €44.00

Rack or Cogwheel Railway (Zahnradbahn). Operates the same hours as the cable car, subject to weather conditions<sup>[3]</sup>. Adults €29.50, Children (6-15yo) €14.50, Families (2A+2C) €64.00

