

Cave rescue from Riesending-Höhle



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In June 2014 cave rescuers from five European countries managed the rescuing of a critically injured cave explorer from a depth of more than 1000 meters with a distance of about 6.5 kilometers in the Bavarian Alps / Germany.

The presentation wants to show the management of this mission, the process of rescue and the international cooperation.





Structure of Cave Rescue in Bavaria

- 8 cave rescue stations:
 - 4 along the Bavarian Alps, 3 in the central mountains in North of Bavaria
 - Material is stored in followers for a quick start
- Special feature and training:
 - Cave rescue is a task of mountain rescue only since 2009
 - Training by different modules
 - Training only for mountain rescue man with operational experience



Disadvantages and resulting problems

- “Bergwacht Bayern” had only **little experience** in "caving"
- Cave rescue is **only a small part of mountain rescue**, so not all rescuers are well known with special problems
- At the beginning of the rescue it was necessary to give a lot of **information to leading persons**
- It was difficult to imagine the course of this rescue: the **duration** and the **needed human resources**
- different **languages and mentalities**
- different **methods and equipment** for rescuing
- different **standards**: e.g. safety, personal protective equipment
- Integration and leadership of **all in all 728 persons** - including **202 cave rescuers** (around 60 permanently in the cave)

- **Experienced cave rescuers expected a long duration with a lot of helping persons**



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The sequence of rescue

Accident:

Sunday, June 8, 2014 at 1:30 a.m.

Emergency call:

Sunday, June 8, 2014 at 2:40 p.m. at Stöhrhaus 1.894m

“Accident into Riesending-Höhle at Untersberg, around minus 1000m, distance 6 km...”

Alarm for rescuers:

Sunday, June 8, 2014 at 2:42 p.m. from ILS Traunstein (Integrated Command Center)

"Alarm for mountain rescue Marktschellenberg, cave rescue Chiemgau, cave accident, time of the accident 1: 30 a.m. ..."

End of rescuing:

Thursday, June 19, 2014 at 12:19 p.m., patient is in helicopter

End of the whole operation:

Thursday, June 19, 2014 at 5:00 p.m.

“End of the operation - patient in hospital, all rescuers are save or back in the valley ...”



Total time

11 days - 10 hours - 14 minutes

for rescuing the patient, but ...

we are still working to clean the cave from the traces of rescue. Last time at the last weekend...



Involved organizations came from

Germany

- Bergwacht Bayern – *mountain and cave rescue*
- Bundespolizei-Fliegerstaffel – *German federal police - helicopters*
- Bayerische Polizei – *Bavarian police*
 - mit Polizeiinspektion, Alpine Einsatzgruppe – *alpine police*
 - mit Polizei Bayern – Fliegerstaffel - *helicopters*
- BRK Kreisverband Berchtesgadener Land – *Red Cross organization*
- Malteser Hilfsdienst – *church organization like Red Cross*
- Deutsches Rotes Kreuz – Generalsekretariat – *Red Cross headquarters*
- Feuerwehr Berchtesgaden – *local fire brigade - logistics*
- Bundeswehr - SAR Command Center - *helicopters*
- Bundeswehr - Gebirgsjägerbataillon - *logistics*
- Landkreis Berchtesgadener Land – *county administration*
- Verband der deutschen Höhlen- und Karstforscher e.V. – *cavers organization*



Involved organizations came also from

Austria

- Österreichische Höhlenrettung – *cave rescue*
- Österreichische Flugpolizei - Flugeinsatzstelle Salzburg – *helicopters*

Switzerland

- Speleo-Secours Schweiz – *cave rescue*

Italy

- Corpo Nazionale Soccorso Alpino e Speleologico – *cave rescue*
- Bergrettungsdienst im Alpenverein Südtirol – *mountain rescue - as interpreters*

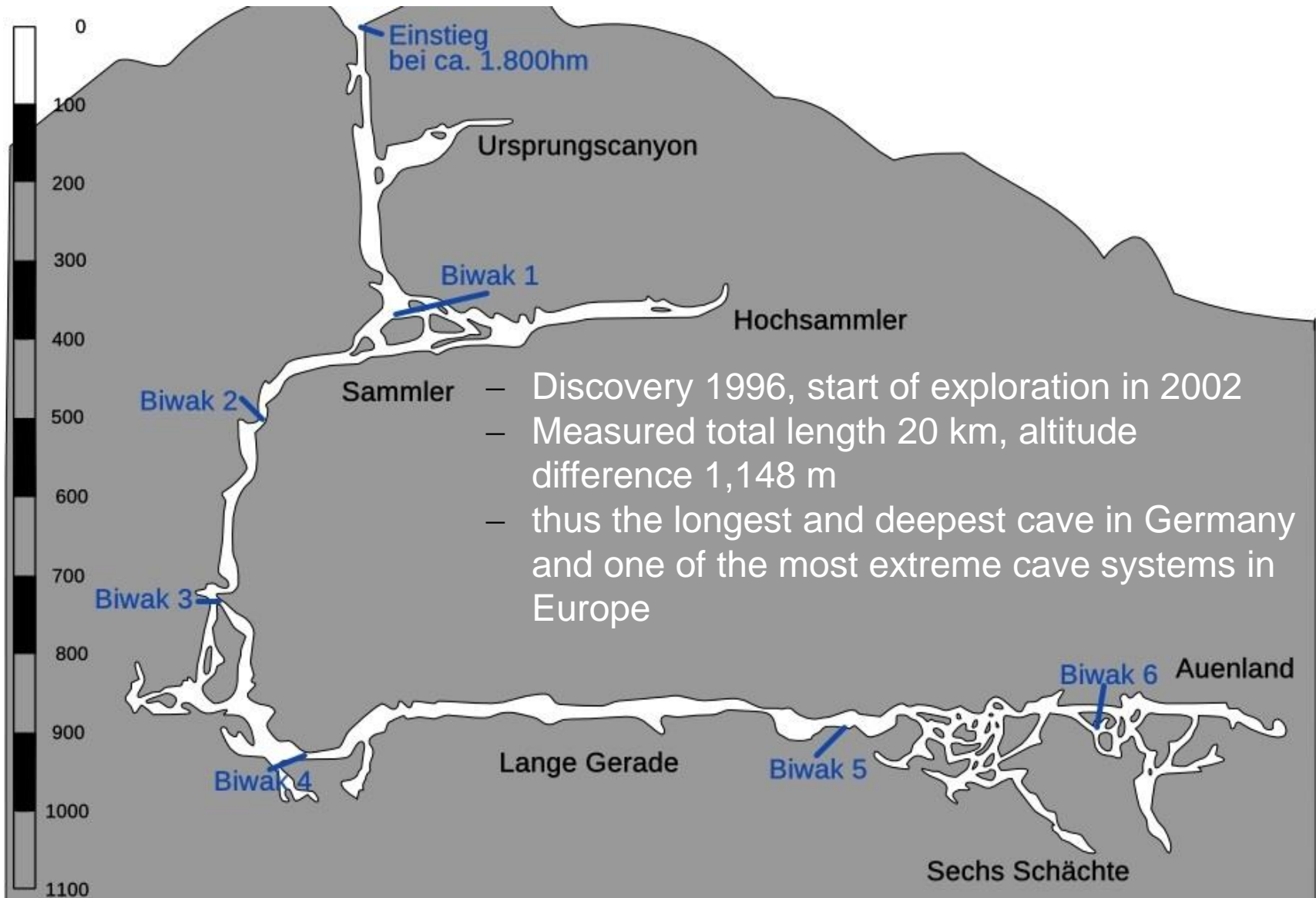
Croatia

- Hrvatska Gorska Sluzba Spasavanja – *cave rescue*

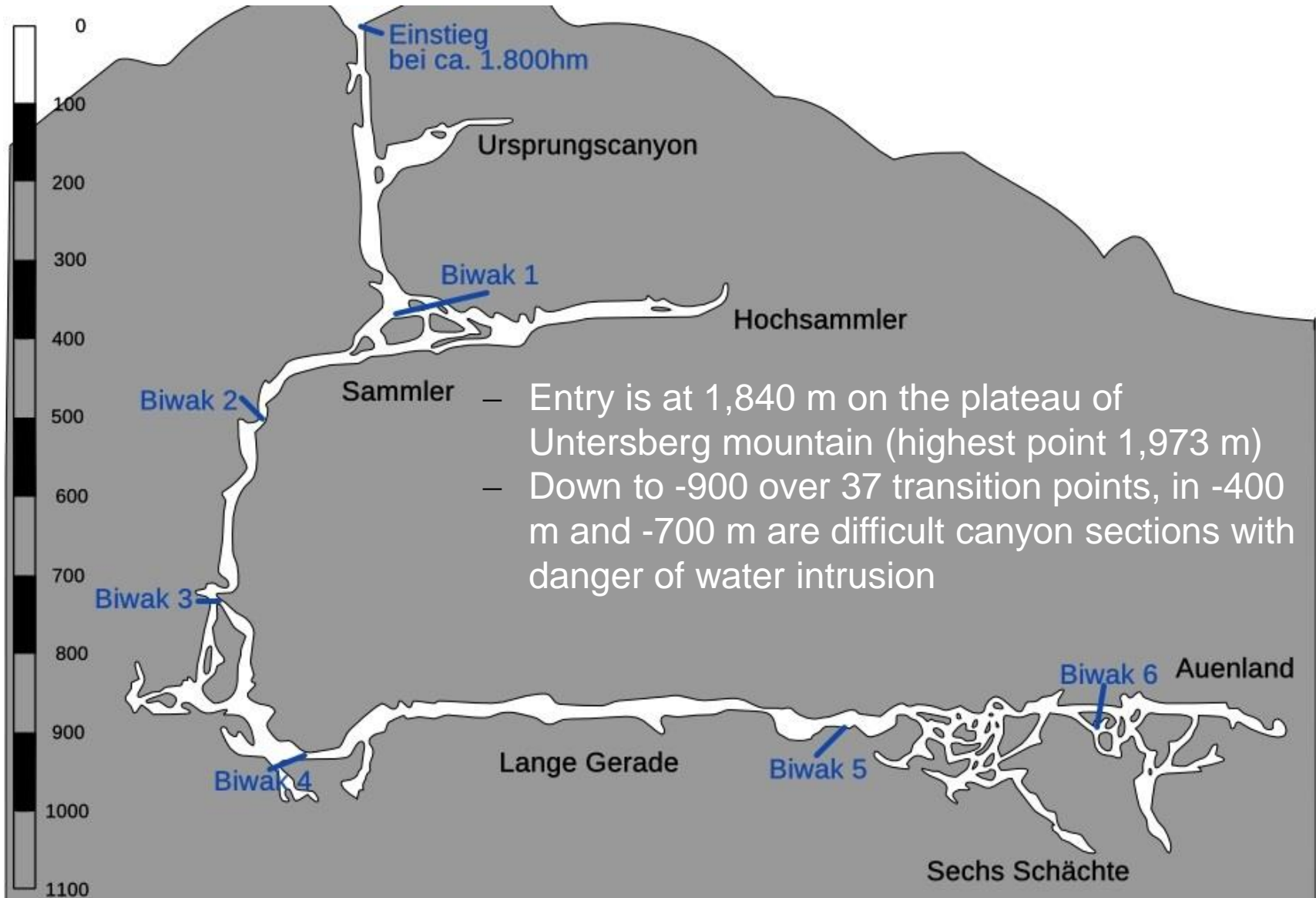
Location of the Riesending-Cave



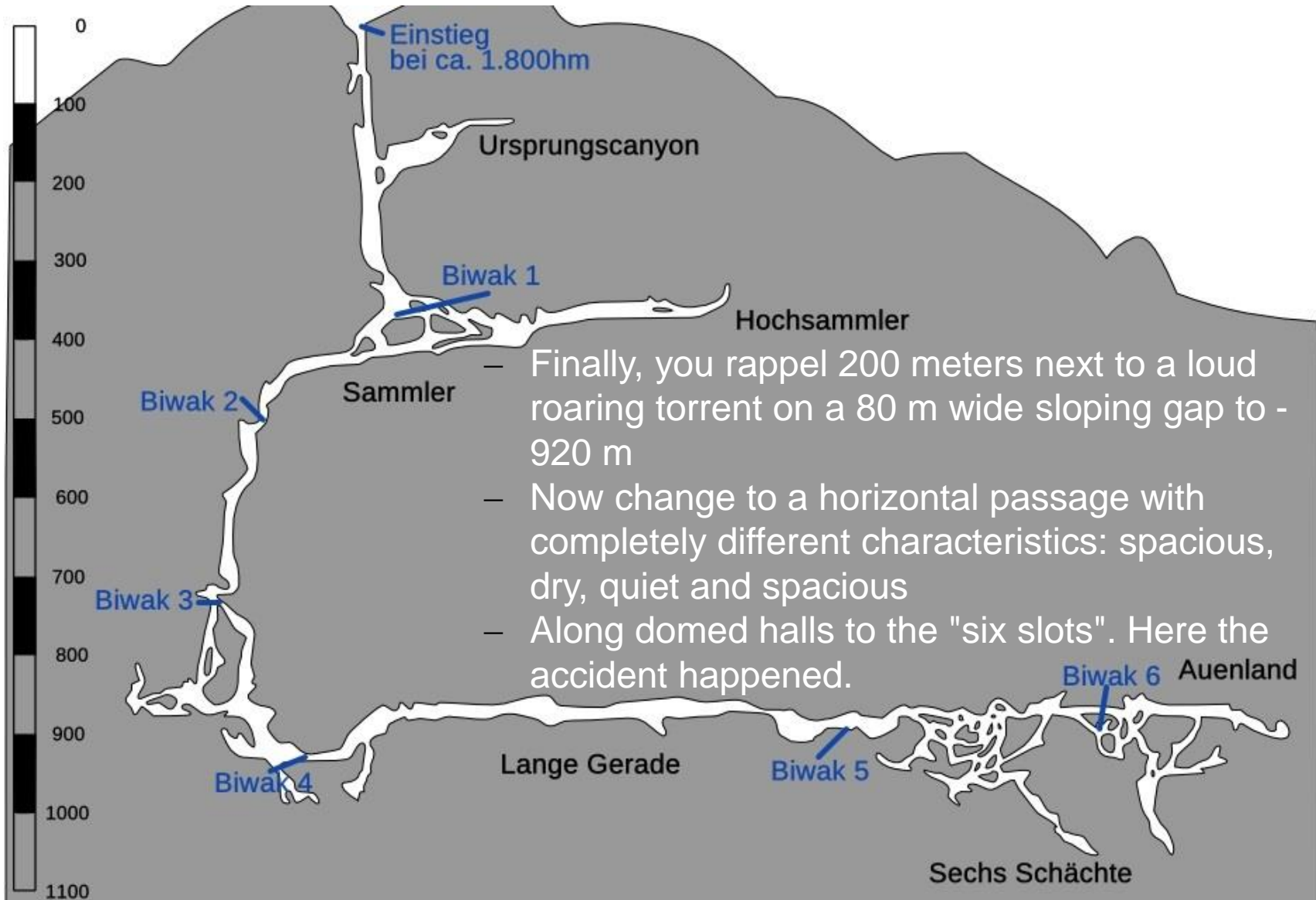
The Riesending Cave - facts and figures



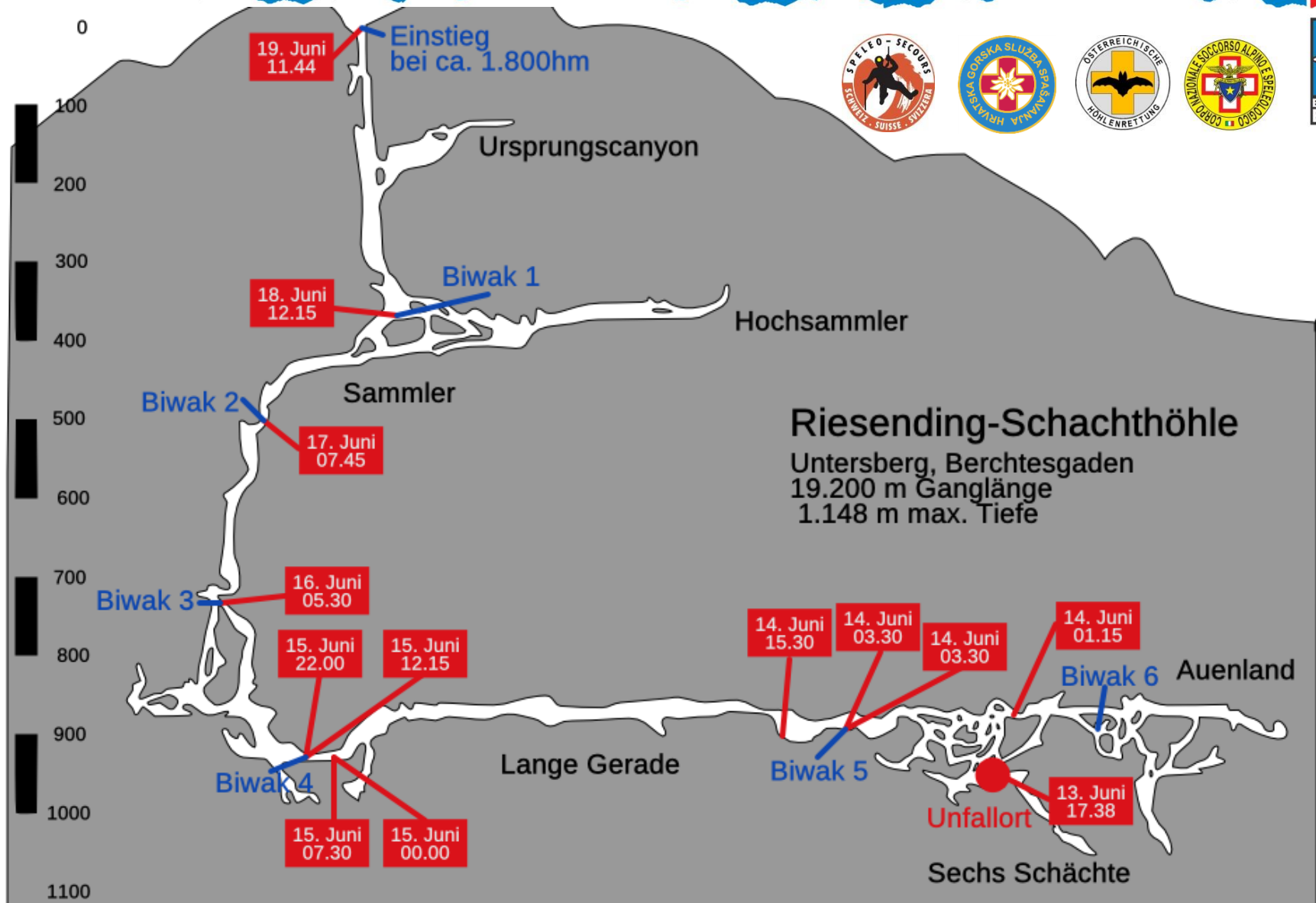
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The history and the track of rescue





- **4 radio channels** by relay:
 - Logistics radio, “Bavarian”, “Italians” and “Croats” radio
- Satellite Phone
- **Cave-Link**
 - with 4 stations inside of cave
- Cave phone to minus 300 m
- SMS
- **limited function** for cell phone



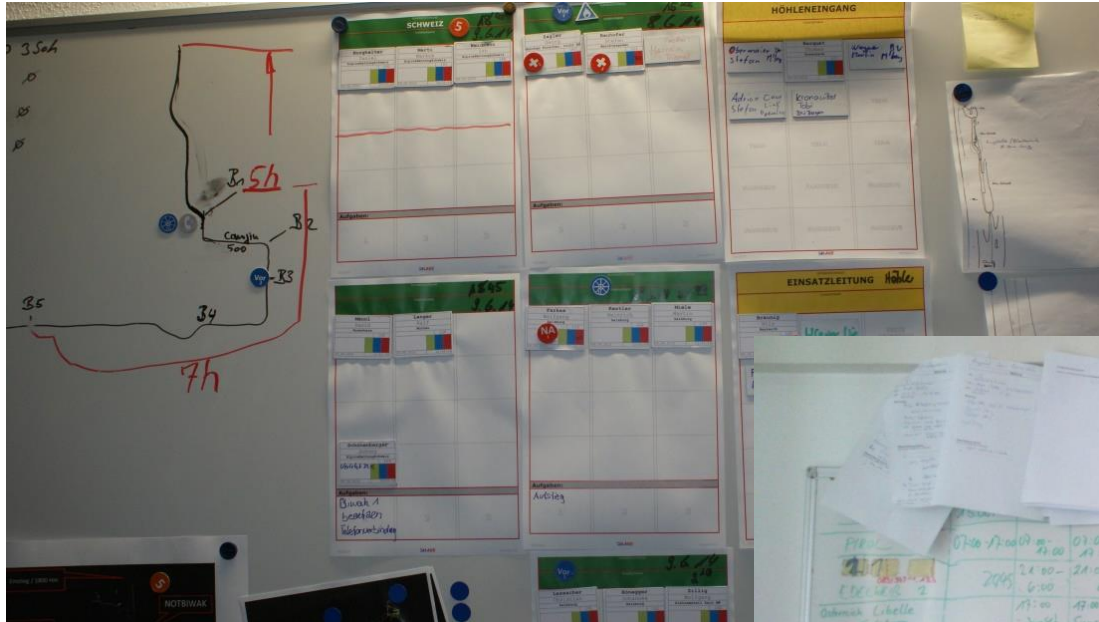
Cave-Link

- Longwave radio
- VLF = (Very Low Frequency) for data transmission like SMS

Cave phone

- Two-core cable
- induction current
- Only station outside needs power supply





No one may be lost

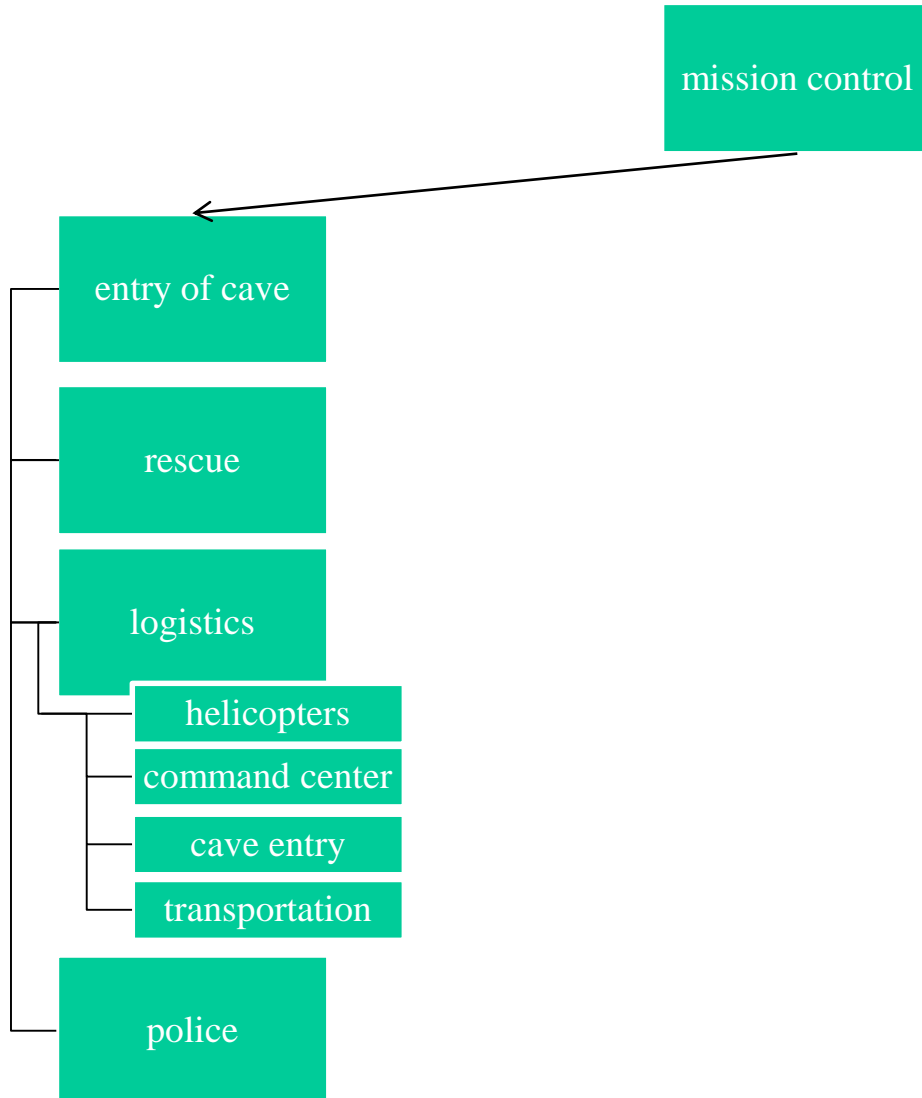
- command and control had 3 parts:
- in the valley **two parts**:
 - mission control
 - mission control **“mountain rescue”**
 - mission control **“cave rescue”**



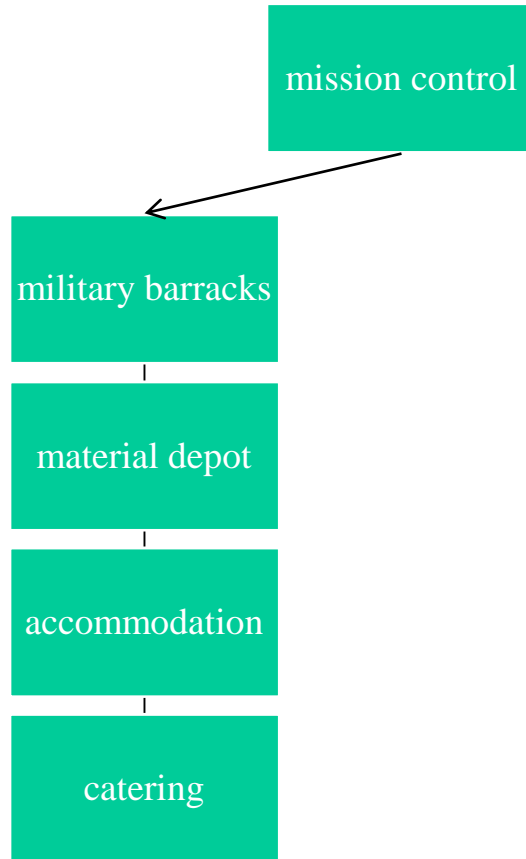
and at cave entrance
mission control **part 3:**

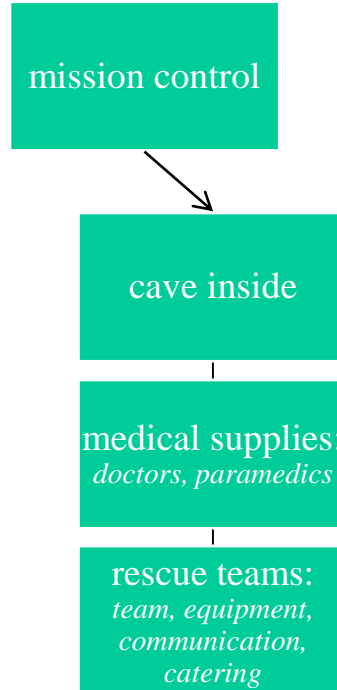
- overview of the deployed forces
- “boarding control”
- determine material requirements

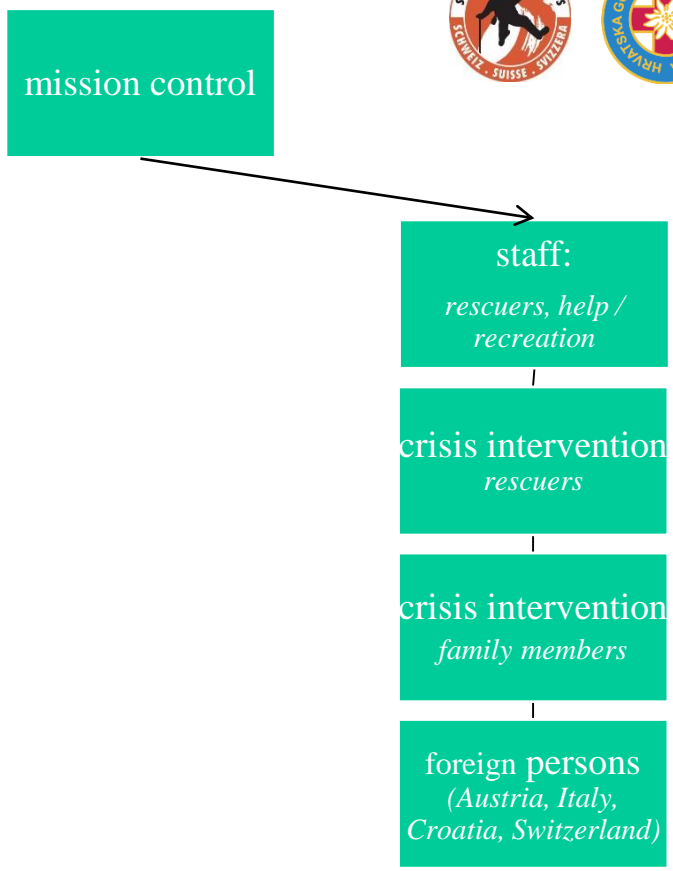
Organizational Chart



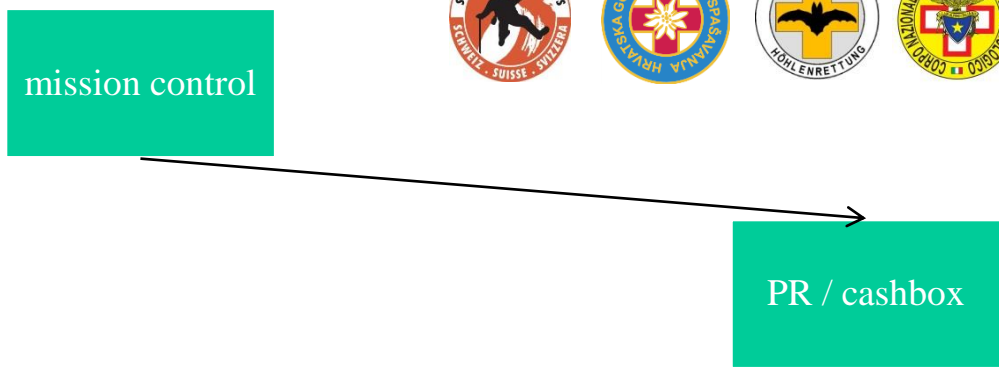
Organizational Chart





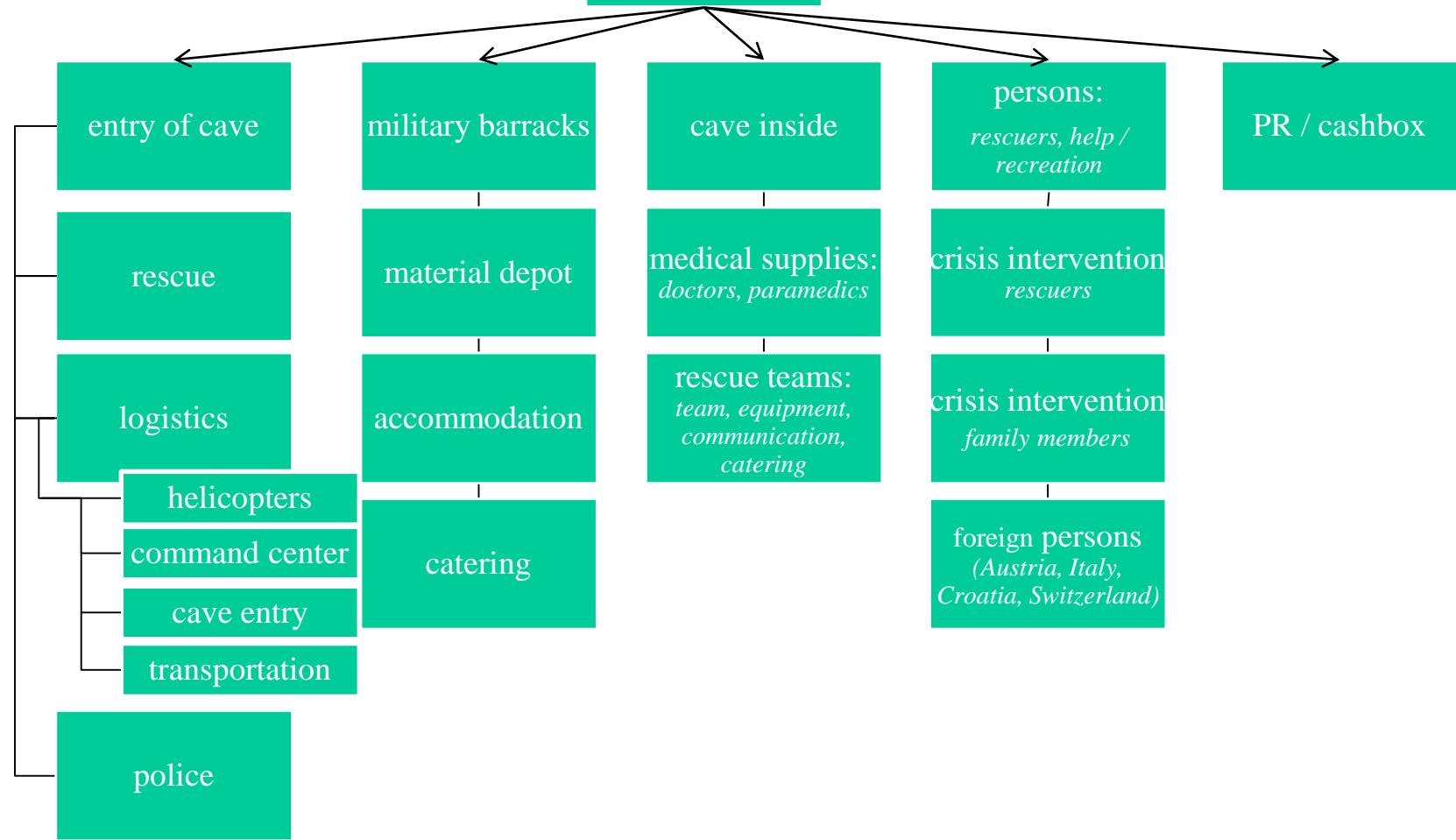


Organizational Chart





mission control



Together we did it





After a rescue operation is before the next rescue mission.



Jack-Daniels-Höhle

- Cave in Austria, Tennengebirge
- August 2014
- minus 270 m – one person injured – rescued in 3 days

Nameless Cave – exploration project

- Cave in Austria, Untersberg
- July 2015
- minus 70 m – one person dead - brought out in 1 day



Thank you for your attention