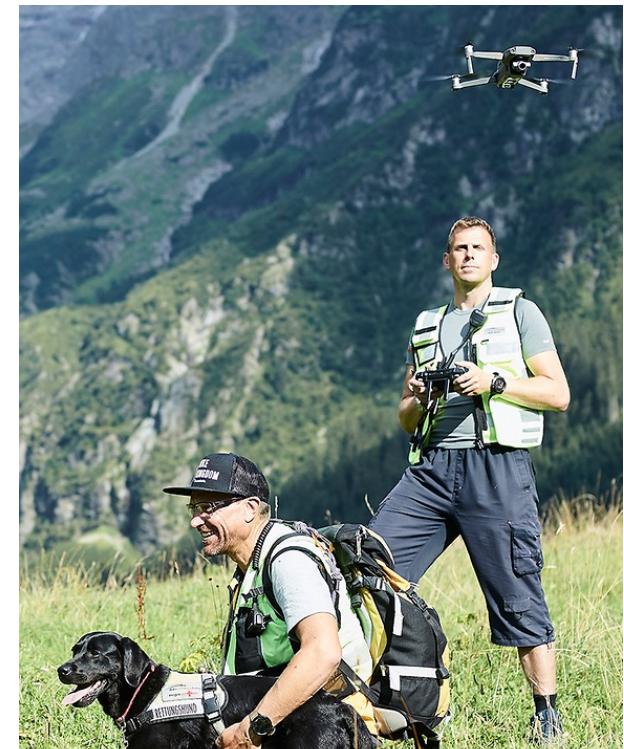
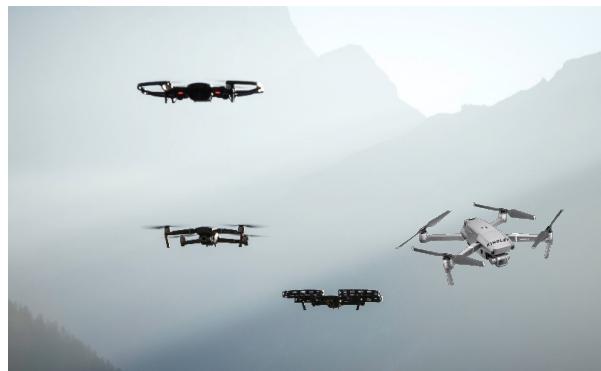
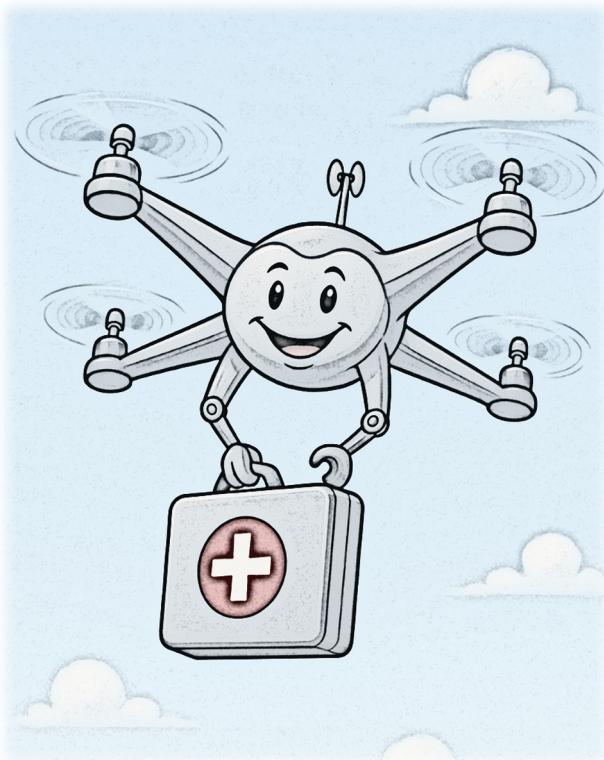


Alpine Rescue Switzerland - ARS



# A different approach to drone deployment



# AGENDA

- **About me**
- **Drone Implementation Process & Main Strategy**
- **Strategy of Performance Profiles**  
IR/EOS, Rega-Drone, ARS-Drone Support
- **Current Situation / Organisation in Operation**  
examples / graphics
- **Q & A**

# About me part-time Job ARS

**ARS Drone Specialist & Drone Coordinator since 2018**



**How can we deal with drones and their technology,  
and how can we best use them ourselves ?**

## Implementation Process

**How can we deal with drones and their technology,  
and how can we best use them ourselves ?**

## Implementation Process



**How can we deal with drones and their technology,  
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## Implementation Process

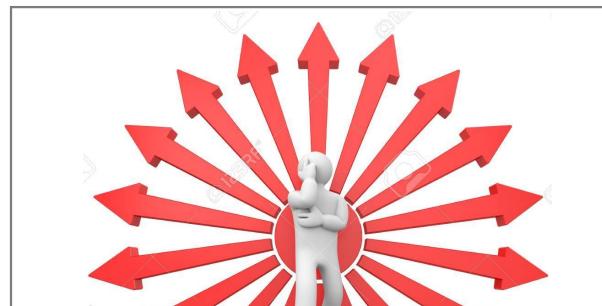


**How can we deal with drones and their technology,  
and how can we best use them ourselves ?**

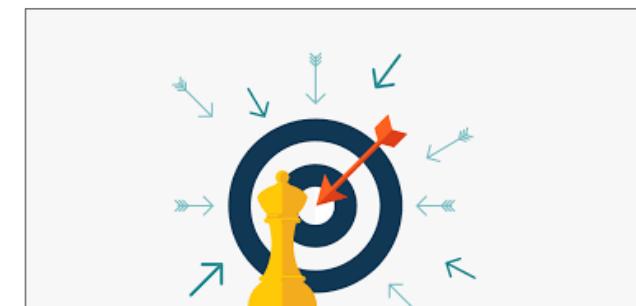
## Implementation Process



**Analysis**  
(Internal & External)



**Opportunities**



**Strategy**

# Analysis Facts – starts 2018/2019



Who



Area



**Need Drone-Experts / Consultant**



# Analysis Facts – starts 2018/2019



## Who



### Need a Drone-Experts / Consultant

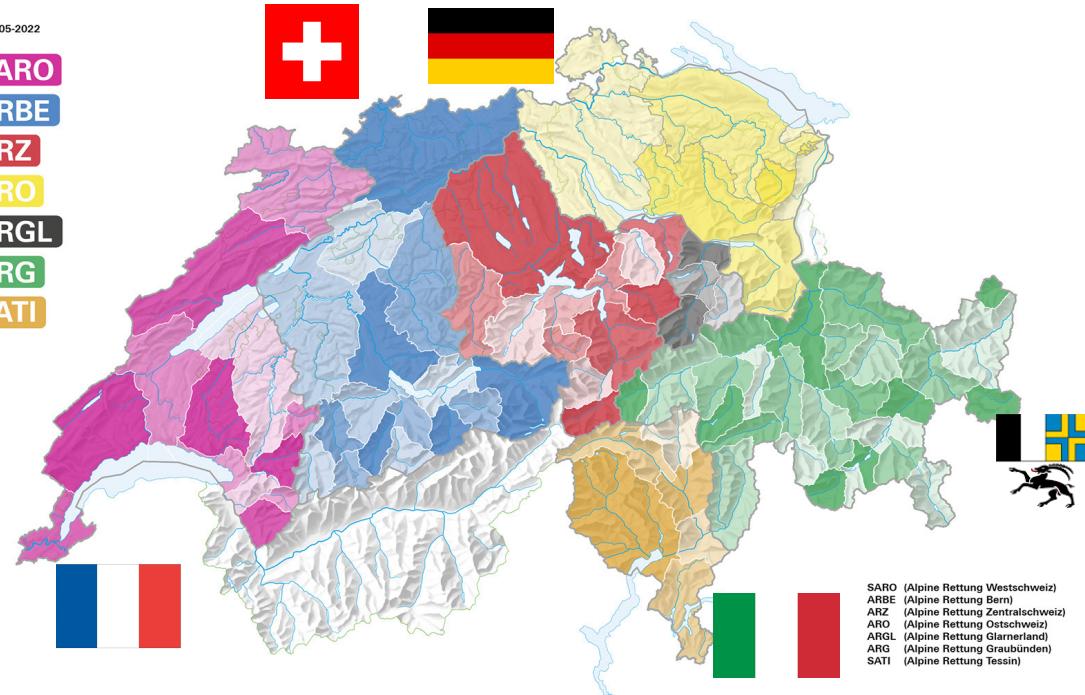
- 84 Rescue-Stations
- 3432 Volunteer Rescuers
- 7 Regional Associations
- 4 Languages

## Area



Stand 05-2022

SARO  
ARBE  
ARZ  
ARO  
ARGL  
ARG  
SATI



# Analysis Facts – starts 2018/2019



## Who



### Need a Drone-Expert / Consultant

- 84 Rescue-Stations
- 3432 Volunteer Rescuers
- 7 Regional Associations
- 4 Languages

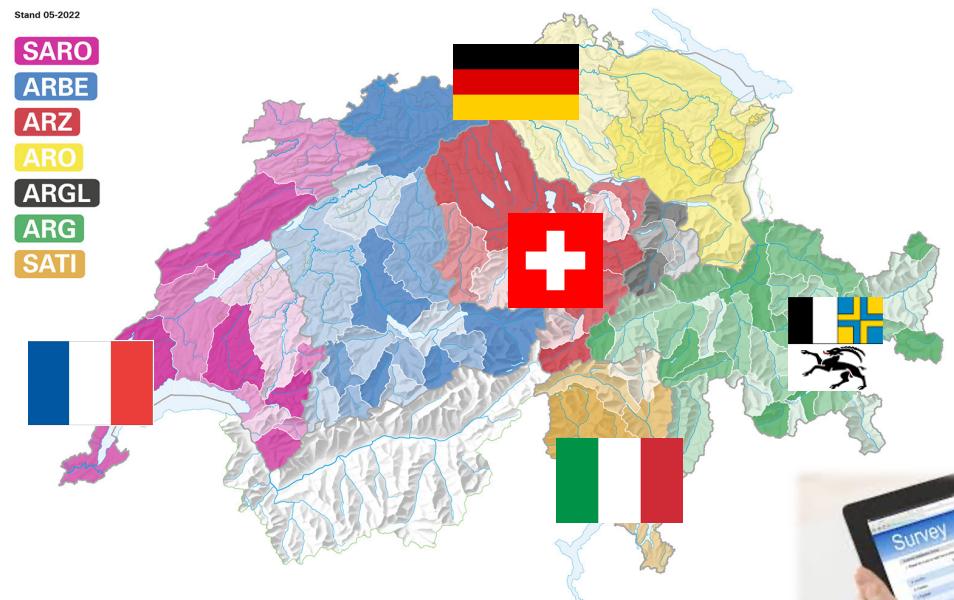
## What



### To understand...

- Online Survey (Chief of Stations)
- Meeting with existing Drone Specialists,
- Variable & Different Conditions/Requirements
- Partial drone cooperation already in place...
- Totally different understanding of the term "DRONE"

## Area



# Analysis Scenarios



## Requirements



- **Drone Scenarios** (difficult / easy / hard) ?
- **On time**, available at the right time ?
- Critical of the times ?
- allowed options / legal / legislation ?
- Compliance with **laws** - constantly changing !
- ...

## Which Scenarios



# Analysis Scenarios

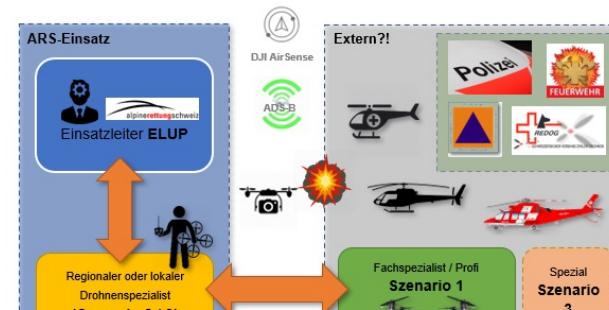


## Requirements

- **Drone Scenarios** (difficult / easy / hard) ?
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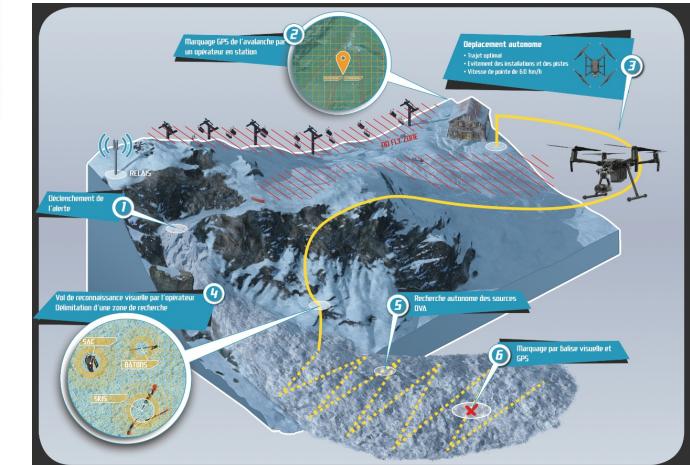
## Which Scenarios



## Possibilities

... a lot...

But are they useful, and are they really needed ?



# Analysis Market



## What ?



- **Hardware & Software ?**
- **Lifetime Cycle ?**
- **speed of technological progress ?**
- **How many ?**
- **Which Type of Drones ?**
- ...

## Which Drones ?



# Analysis Market



## What ?



- **Hardware & Software ?**
- **Lifetime Cycle ?**
- **speed of technological progress ?**
- **How many ?**
- **Which Type of Drones ?**
- ...

## Specifications ?



- We need a **Evaluation Process**
- We need to **talk with real experts**

## Which Drones ?



# Analysis Users & Pilots

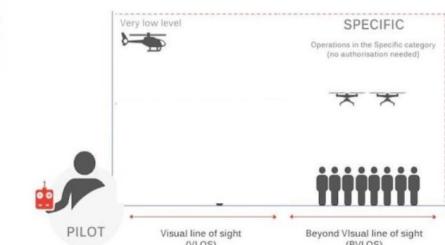


## Who ?



- Own existing Rescue Crew (Volunteers) ?
- New Rescue Crew (Volunteers) ?
- New Rescue Crew (Employees) ?
- External Operators (Freelancer) ?
- External Companies ?
- How many of all them... ?

## Which Users / Skills ?



# Analysis Users & Pilots



## Who ?



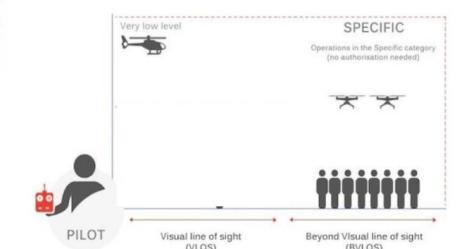
- Own **existing Rescue Crew** (Volunteers) ?
- **New Rescue Crew** (Volunteers) ?
- **New Rescue Crew** (Employees) ?
- **External Operators** (Freelancer) ?
- **External Companies** ?
- How many of all them... ?

## Skills / Education



- Lots of **Training**
- School, License, Examination
- **Support Hardware**
- Creating Specifications, Operating Manual, Flight Operation Manual

## Which Users / Skills ?



# Analysis Software & Support



Who ?



Workflows



- We will see...

# Analysis Software & Support



## Who ?



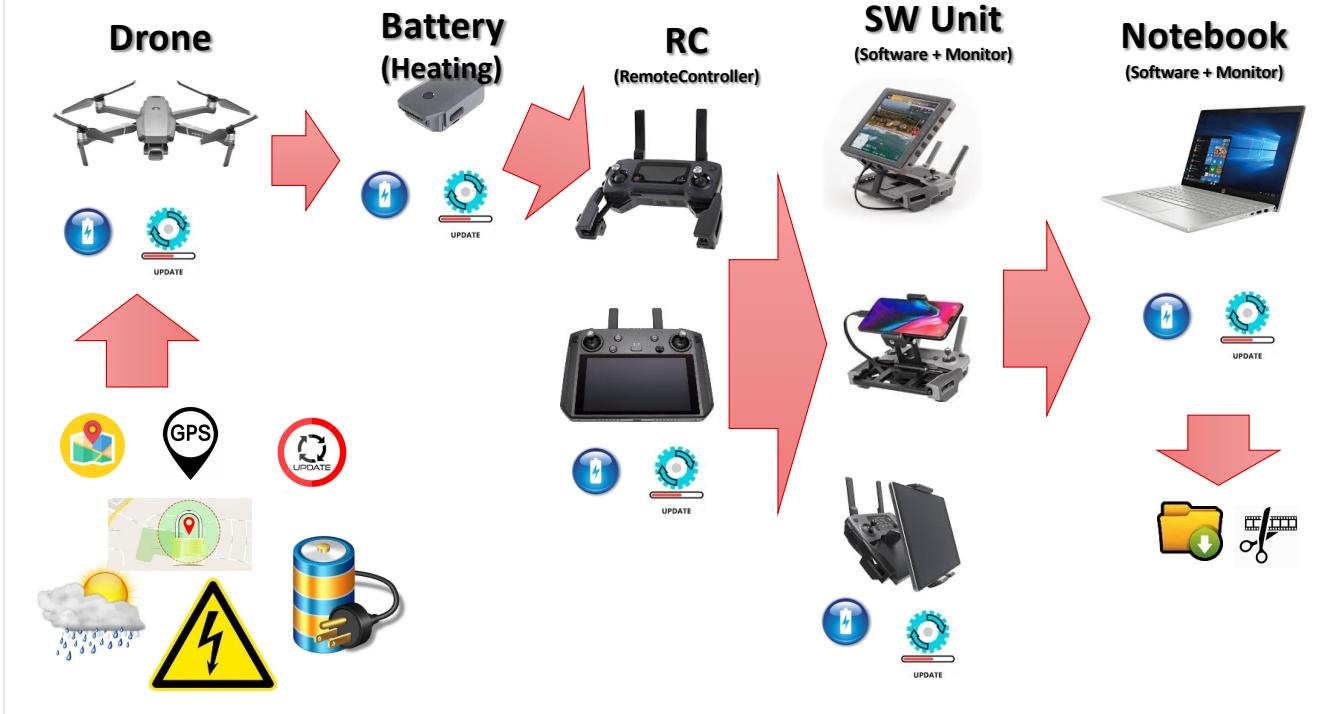
- We will see...

## What



- Training & Experience
- Support & Updates & Upgrades
- Repair & maintenance – to fix problems

## Workflows



# Opportunities Sustainability Realisation

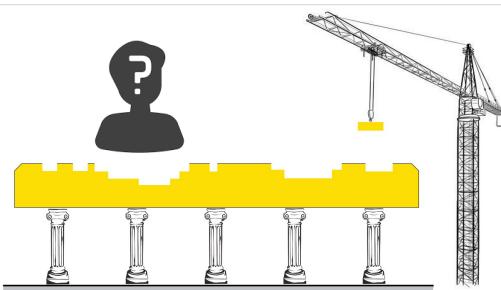


## Who ?



- We will see...

## What ?



## Conclusion



### To build own professional Drone-Structure

- Needs **amount of work** (investment)
- Needs **time** (perhaps patience)
- Regardless of which **PRO Dronesolution** with own drones, it will **incur costs**;  
**lot of financial investment & follow-up costs...**  
→ “*pay*” for learning process

# Strategy Implementation & Realisation



## Who



- External (local) Companies
- Own existing Rescue Crew (Volunteers)
- External Drone Pilots (Freelancer)

## Strategy Statement



Local **ARS Crew** works  
with **local existing Drone Specialists**

# Strategy Implementation & Realisation



## Who



- External (local) Companies
- Own existing Rescue Crew (Volunteers)
- External Drone Pilots (Freelancer)

## Strategy Statement



**Local ARS Crew works  
with local existing Drone Specialists**

1. Decision: **we want** to use drones
2. Utilise **existing local resources**, the required support is “purchased”
3. **No ARS Drone Equipment** for stations
4. **Implementation in ARS REGA performance Profiles**  
(IR/EOS, Rega-Drone, Partner-Drone)

# Strategy Implementation & Realisation



## Who



- External (local) Companies
- Own existing Rescue Crew (Volunteers)
- External Drone Pilots (Freelancer)

## What



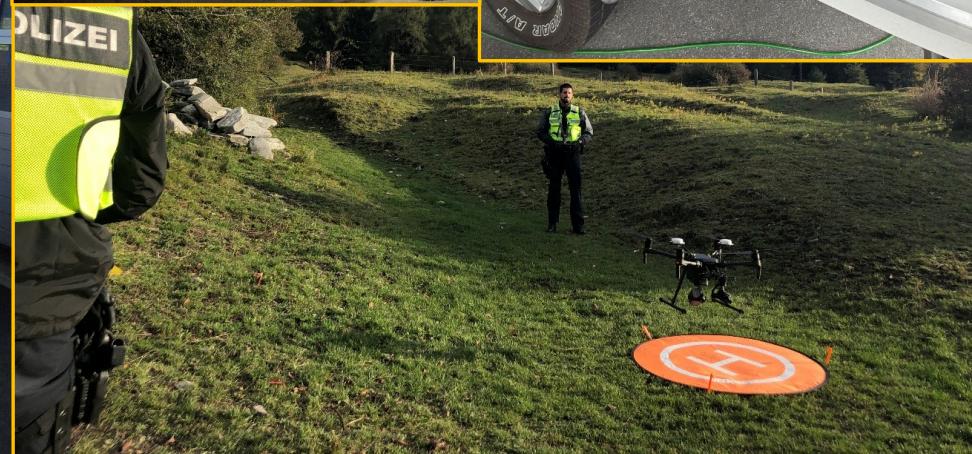
- POLICE
- FIRE DEPARTMENT
- CIVIL DEFENCE
- Private Drone Companies
- ARS Drone Coordinator Support
- Others ...

## Strategy Statement



**Local ARS Crew works  
with local existing Drone Specialists**

1. Decision: **we want** to use drones
2. Utilise **existing local resources**, the required support is “purchased”
3. **No ARS Drone Equipment** for stations
4. **Implementation in ARS REGA performance Profiles**  
(IR/EOS, Rega-Drone, Partner-Drone)





# Strategy of ARS/REGA Performance Profiles Scenario

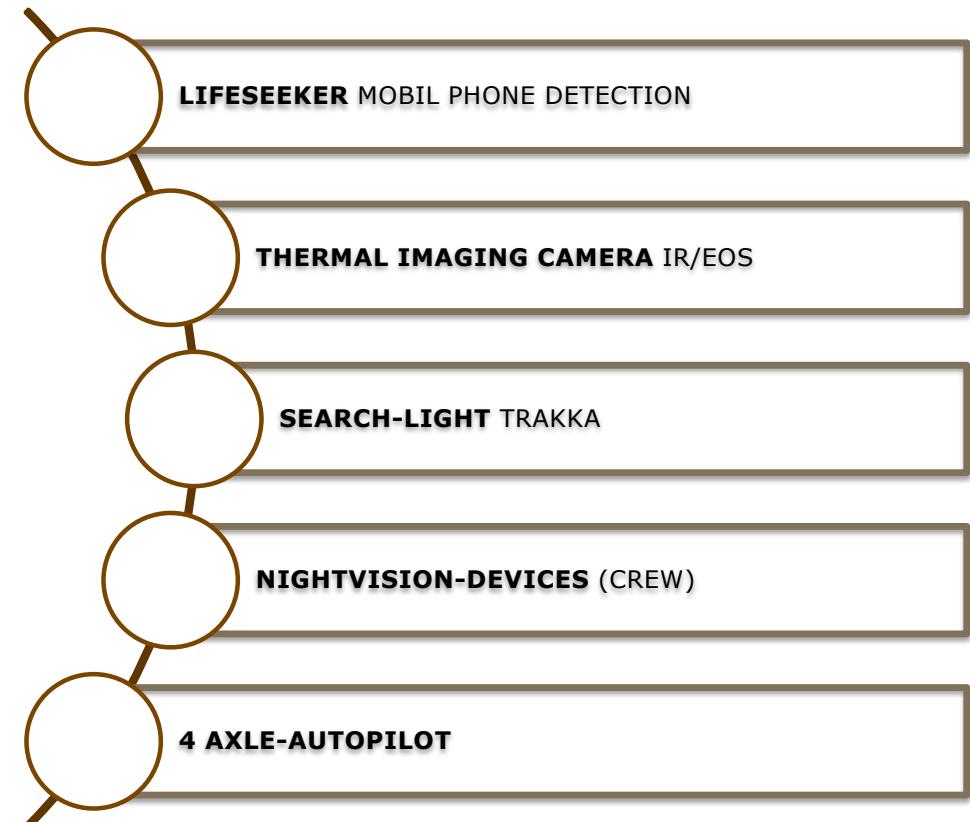


# Visual Search



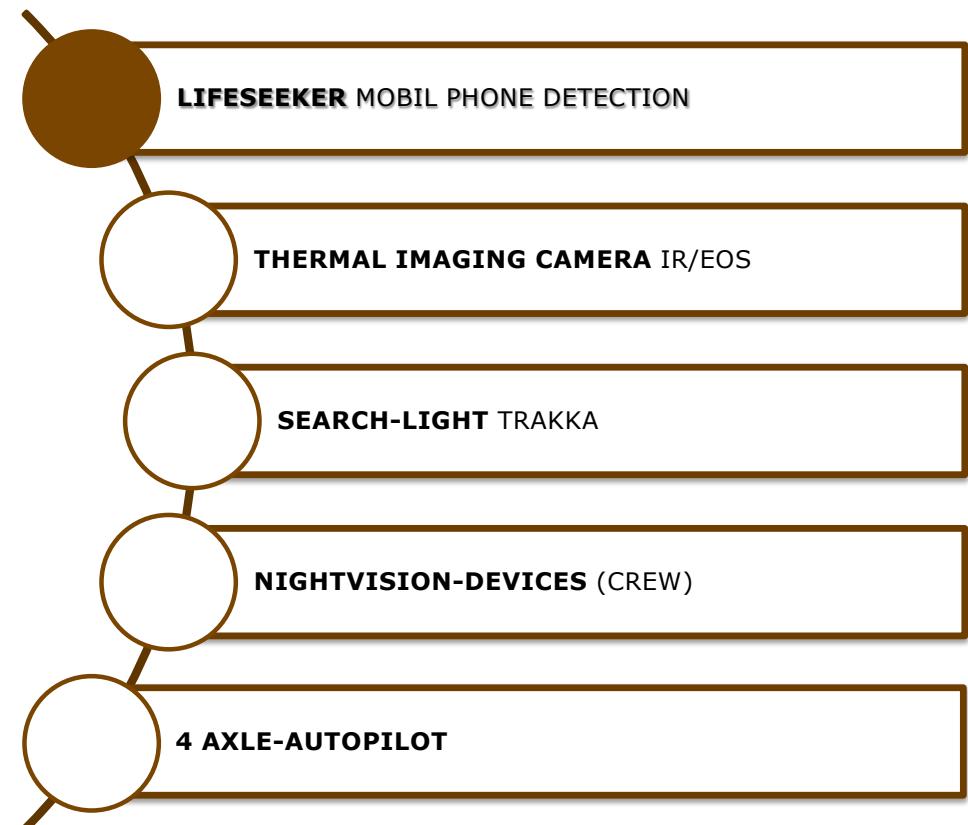
# REGA 11

Search Helicopter



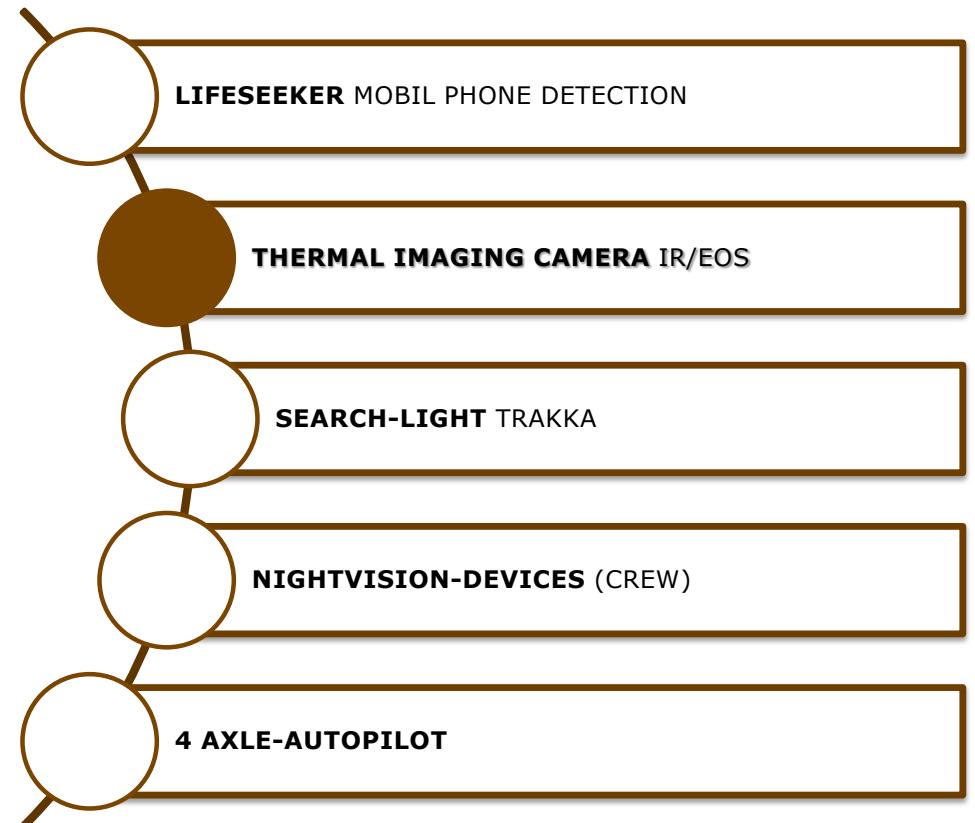
# REGA 11

Helicopter for searching Peoples



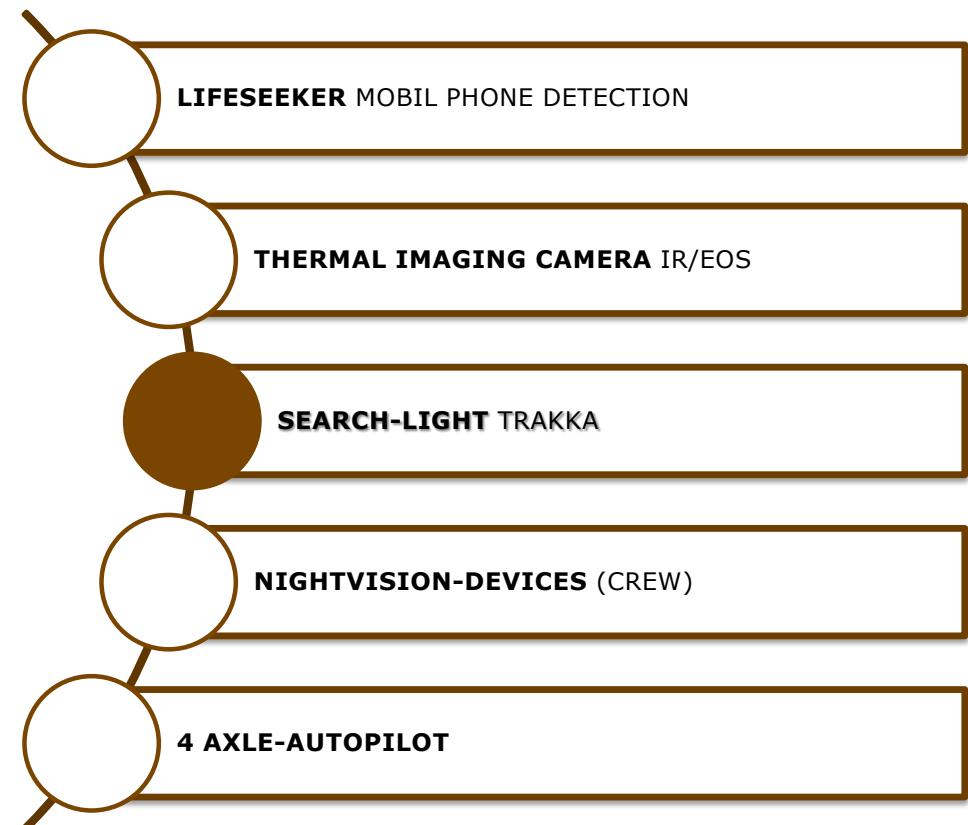
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Helicopter for searching Peoples



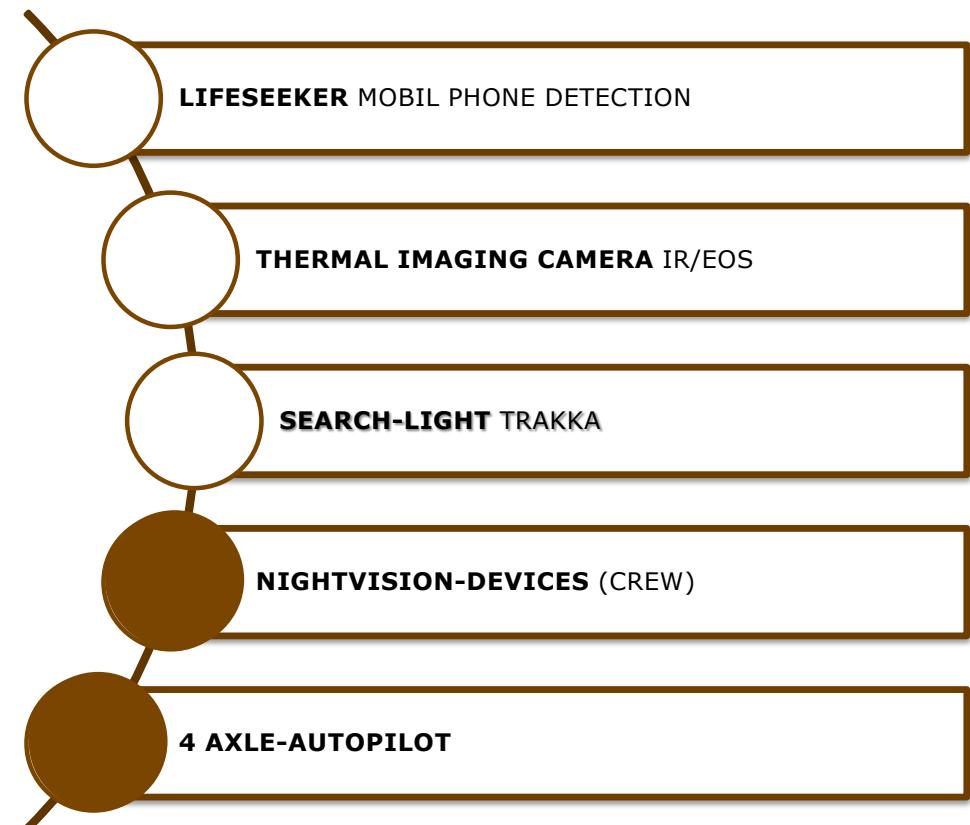
# REGA 11

Helicopter for searching Peoples



# REGA 11

Helicopter for searching Peoples





# REGA Drone Specification



<30kg



<3500m



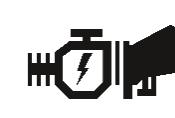
10x10m



60km/h  
120km/h (max)



16km<sup>2</sup>/2h



7.3 kW



1h

in progress...

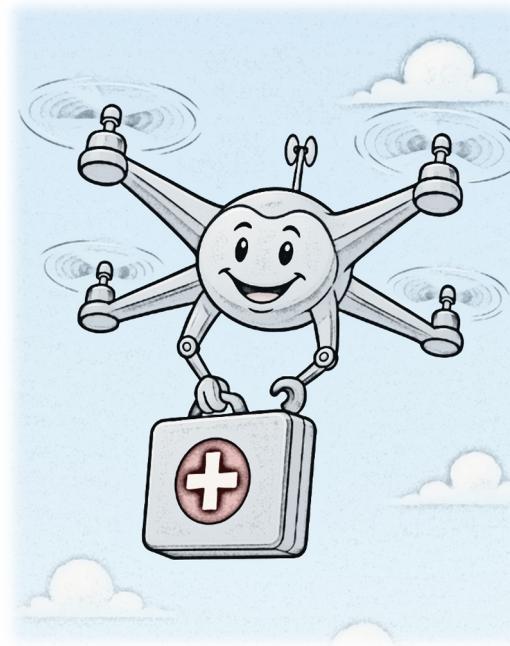


# REGA Drone Operator Crew & Vehicle



# Experiences Examples

- **Current Situation / Organisation in Operation**  
examples / graphics





KLÖNTAL GL

## 22-jähriger Berggänger wird vermisst

**Am Mittwoch ist ein 22-Jähriger bei einer Bergtour im Klöntal GL verunglückt. Trotz gross angelegter Suchaktion konnte der Mann noch nicht gefunden werden.**

Ein 22-jähriger Mann aus dem Kanton Zürich ist auf einer Bergtour im Klöntal verunglückt und wird seither vermisst, wie die Kantonspolizei Glarus in einer Medienmitteilung schreibt. Mit seinem 27-jährigen Begleiter war der Mann in Richtung Vrenelisgärtli unterwegs, als es zum Unglück kam.

Die beiden Bergsteiger überquerten vor dem Chalttäli eine rund 800 Meter lange, stark abschüssige Traverse, als sich mutmasslich ein Schneebrett löste und den vorausgehenden 22-Jährigen über eine längere Strecke hinweg talwärts mitriss.

### Suchaktion vorerst eingestellt

Die Kantonspolizei Glarus leitete in Zusammenarbeit mit der Rega und der Alpinen Rettung Schweiz unverzüglich eine Suchaktion ein, an welcher drei Hubschrauber, eine Drohne sowie ein Wärmebildgerät der Schweizer Armee eingesetzt wurden. Darüber hinaus wurde auch versucht, ein allfälliges Handysignal des Vermissten zu orten.

Die gross angelegte Suchaktion blieb bis anhin ohne Erfolg und musste in der Folge aufgrund der schwierigen Gelände-, Witterungs- und Sichtverhältnisse vorerst eingestellt werden.

20.11.2020 12:06

Luzerner Zeitung

### BERGUNFALL

## Absturz am Vrenelisgärtli: Von einem 22-jährigen Bergsteiger fehlt jede Spur

Ein 22-jähriger Bergsteiger aus dem Kanton Zürich stürzte im Aufstieg zum Vrenelisgärtli ab. Unfallursache war vermutlich ein Schneebrett. Die Suchaktion wurde wegen widriger Verhältnisse eingestellt.

20.11.2020, 13.07 Uhr

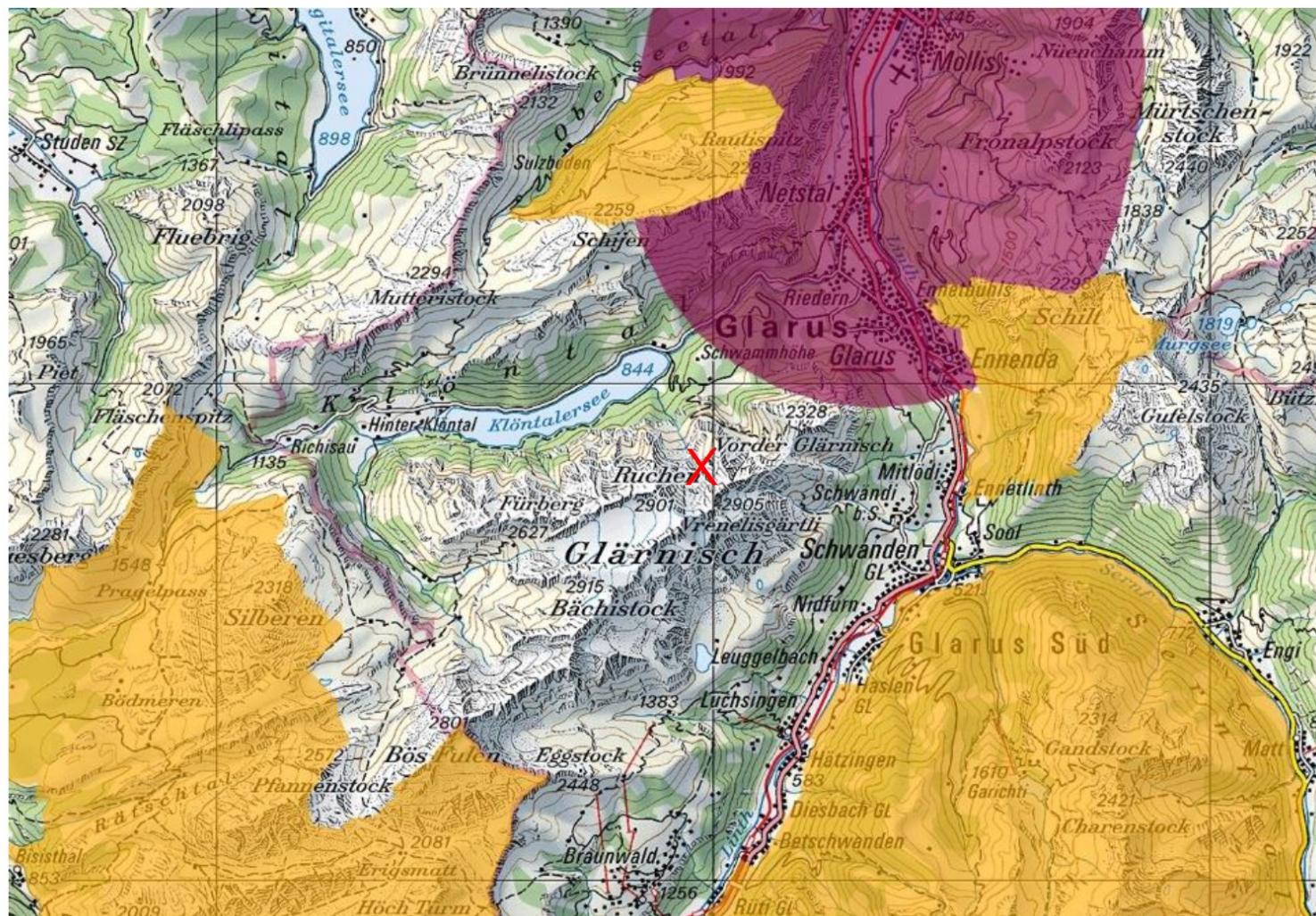


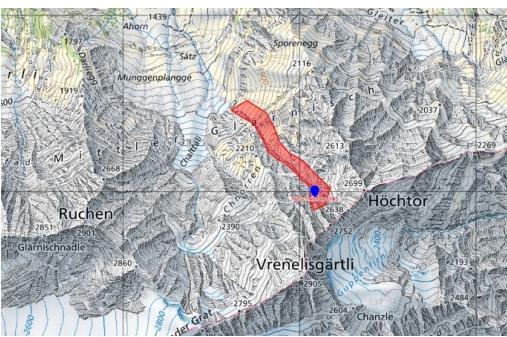
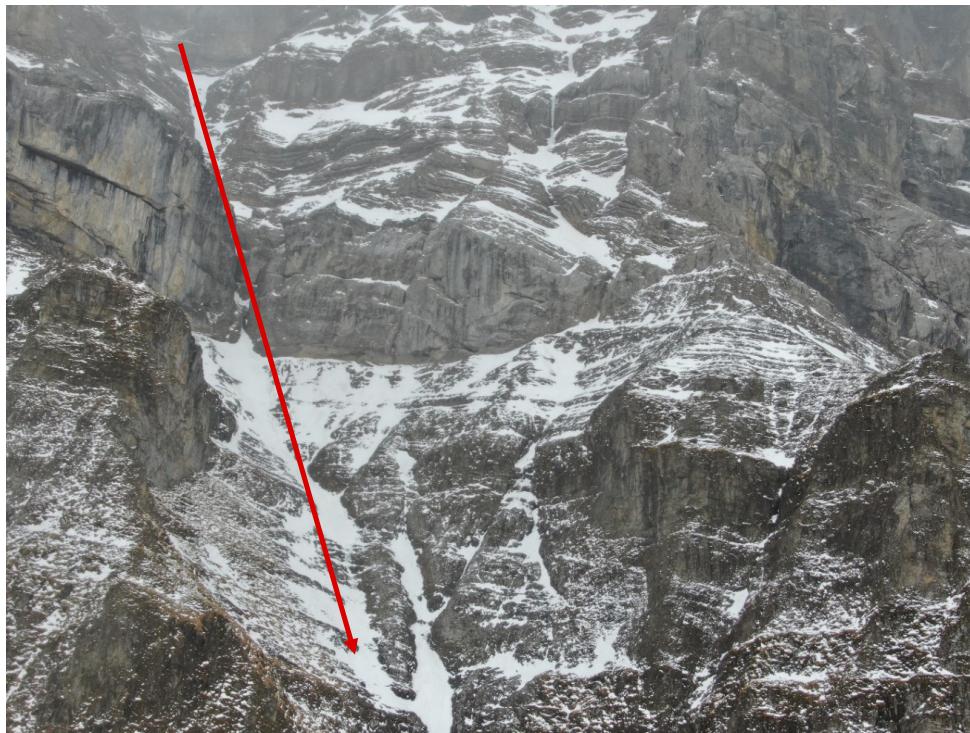
Schwierige Gelände- und Witterungsverhältnisse in der Nordflanke des Vrenelisgärtlis: Die Suchaktion wurde vorerst eingestellt. Kapo Glarus

(wap) Der Mann habe sich am Mittwoch zusammen mit seinem 27-jährigen Begleiter im Aufstieg zum Vrenelisgärtli befunden, meldete die Kantonspolizei Glarus am Freitag. Auf der stark abschüssigen, 800 Meter langen Traverse zum Chalttäli sei der Mann in die Tiefe gestürzt, vermutlich weil sich ein Schneebrett gelöst habe.

Eine Suchaktion unter Beteiligung der Rega und der Alpinen Rettung Schweiz sei bislang erfolglos verlaufen, so die Kantonspolizei. Dies obwohl neben drei Hubschraubern auch eine Drohne und ein Wärmebildgerät der Schweizer Armee eingesetzt worden seien. Auch habe man vergeblich versucht, das Handysignal des Vermissten zu orten.

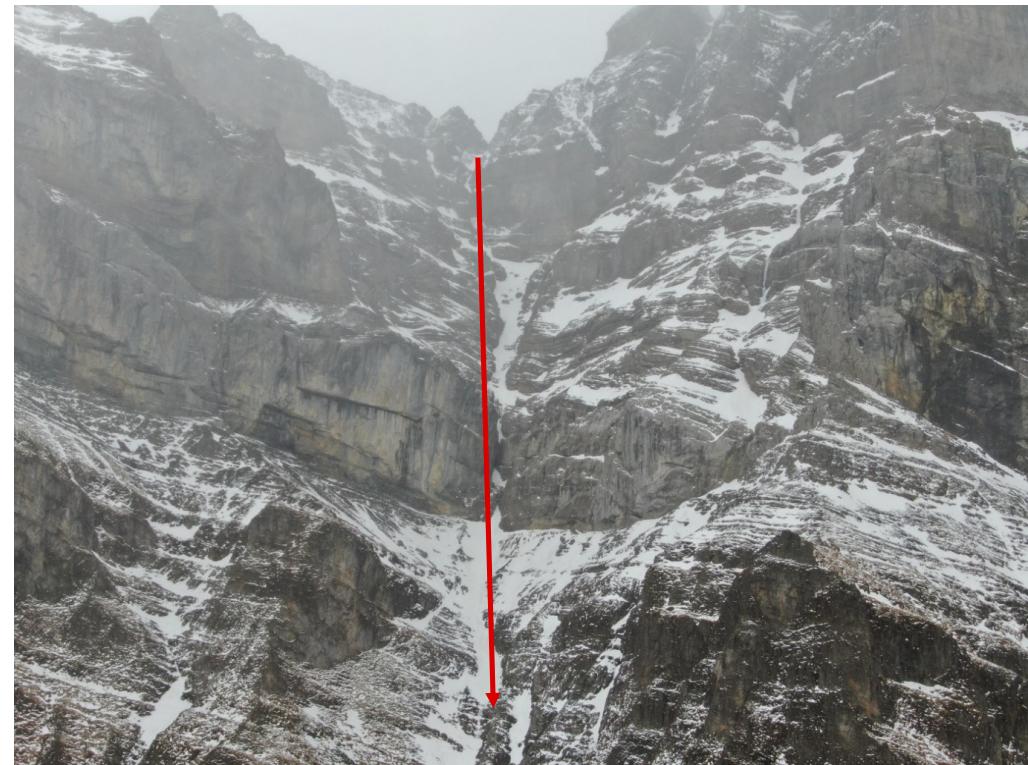


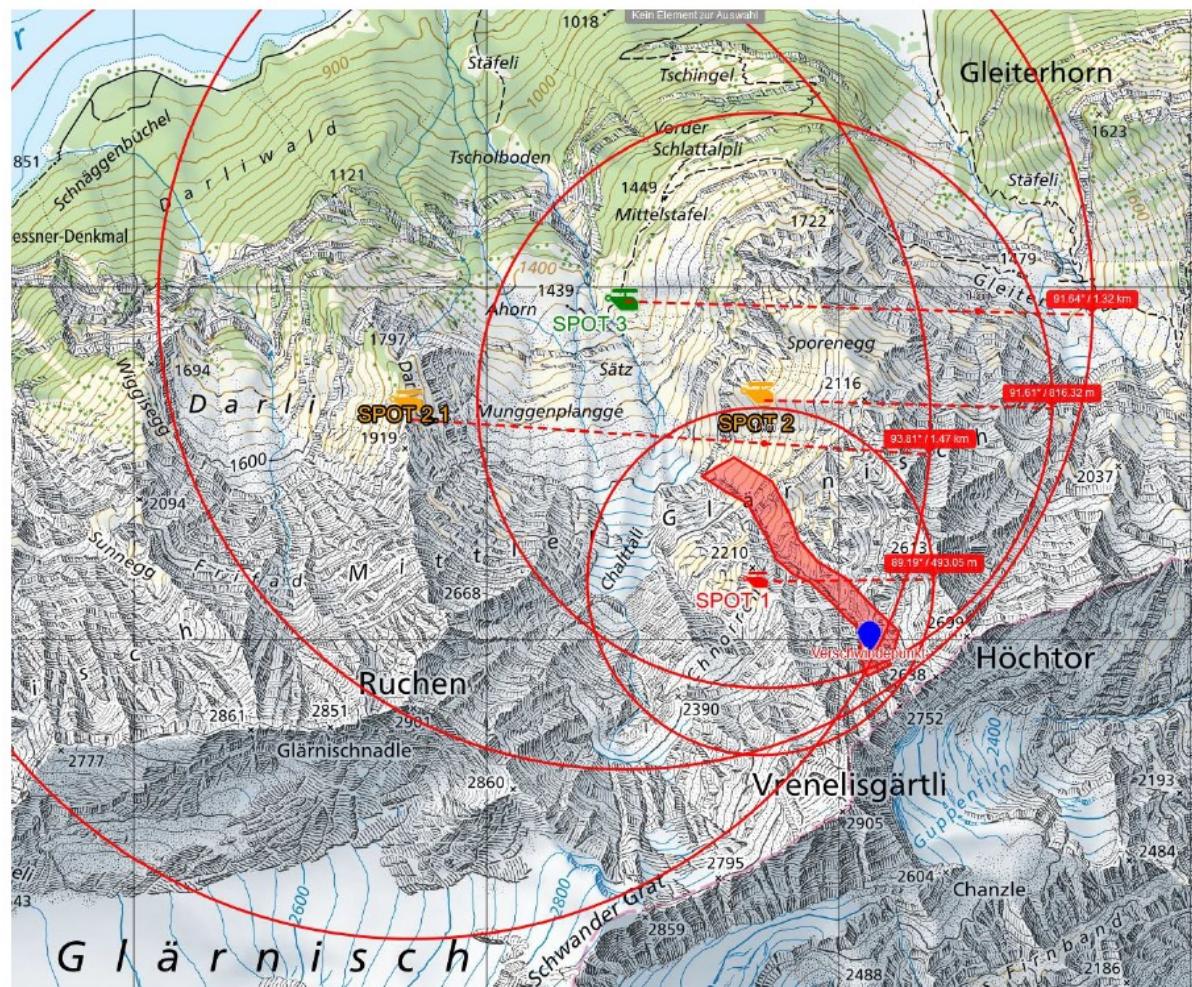


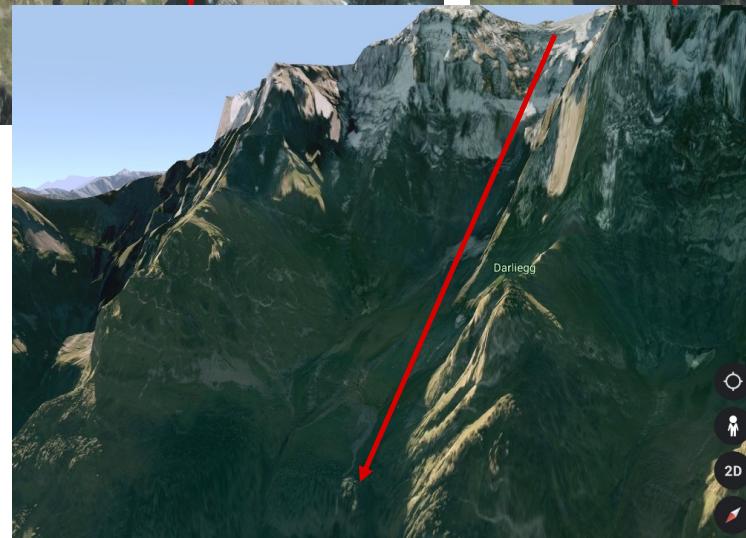
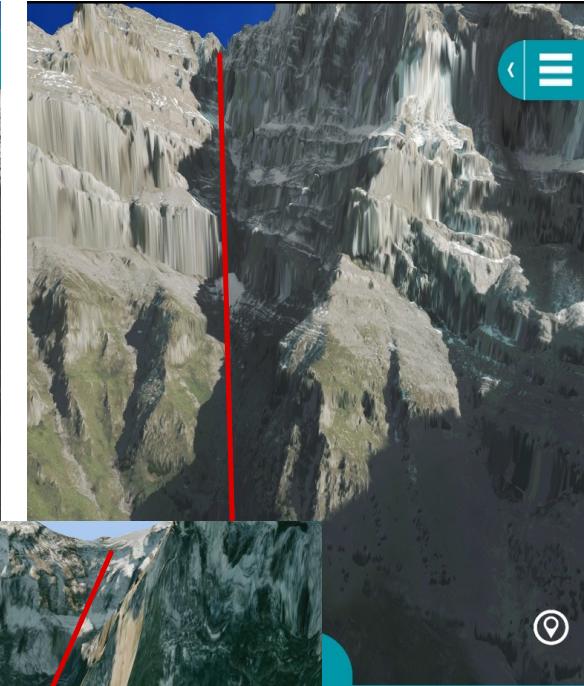
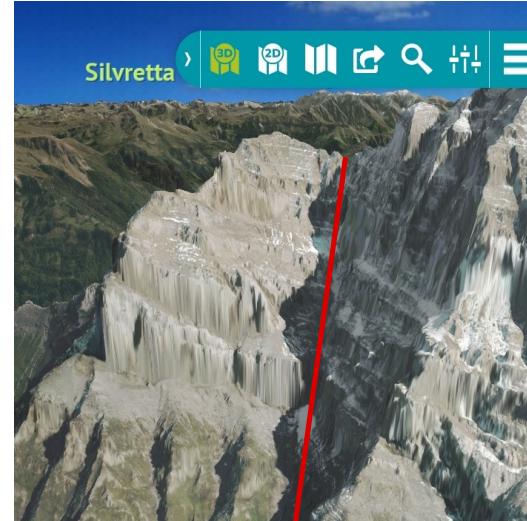
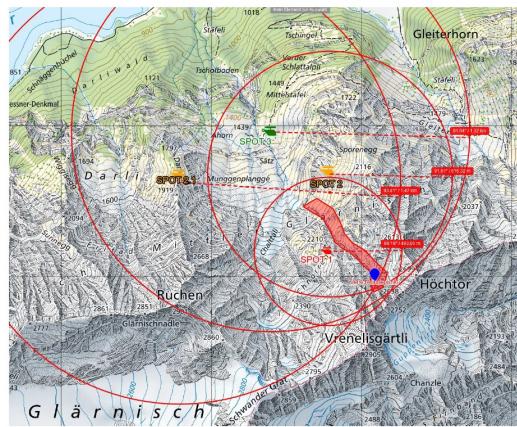


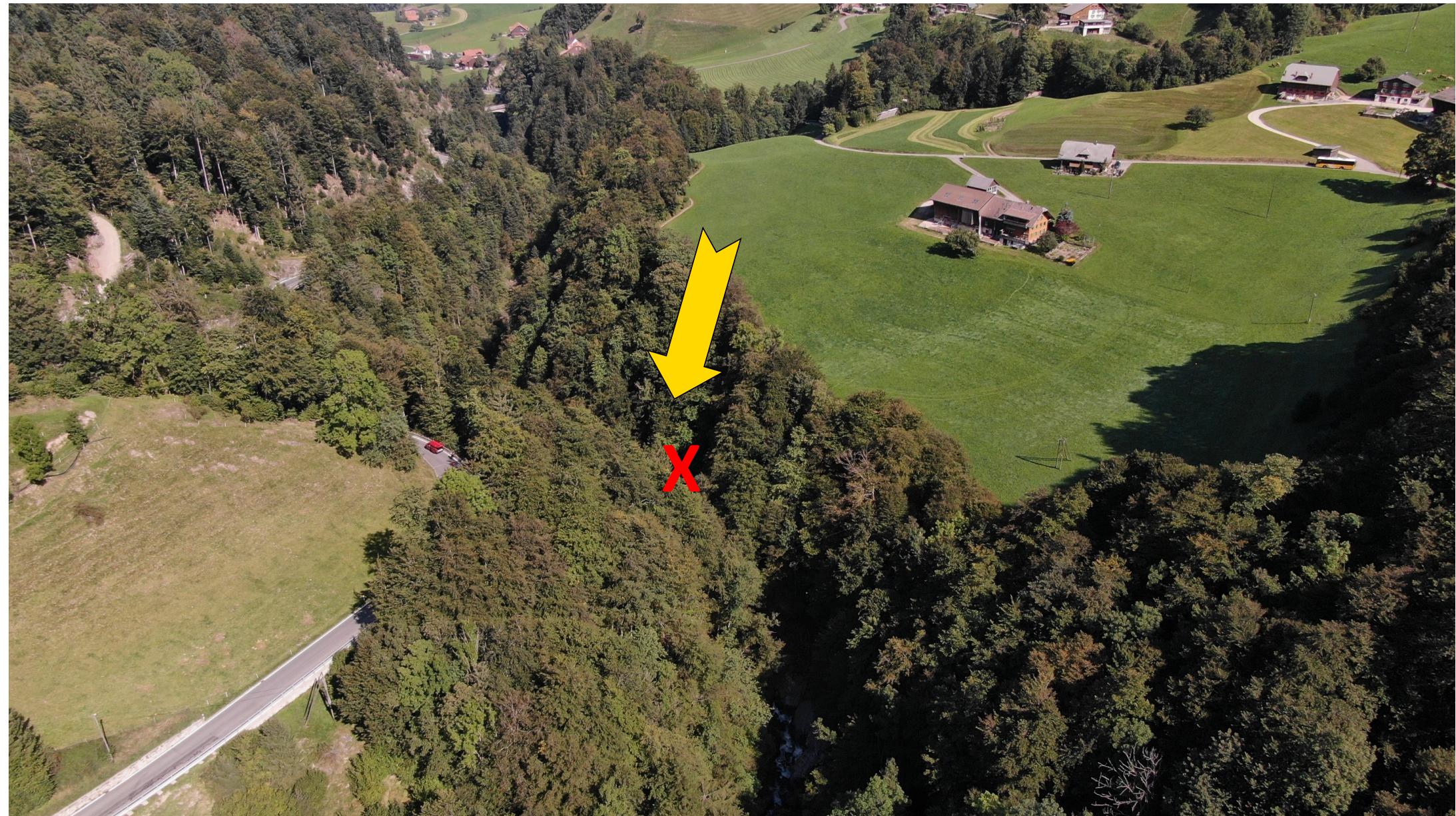
38

28.10.25













rettung bwe



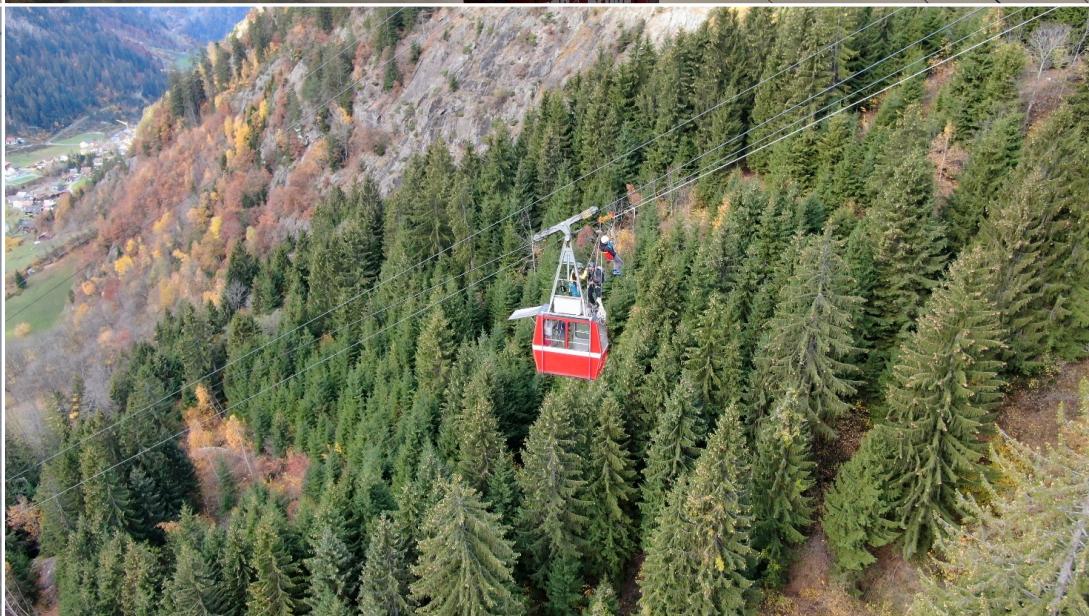


rettung











rettung



alpinerettungschweiz











*Neue Zürcher Zeitung*

**Lawine auf dem Klausenpass reisst zwei Autos mit – Die drei Verletzten haben Spital wieder verlassen können**

Die Klausenpassstrasse wird ab Montagmittag wieder für den Verkehr freigegeben.

Drei Personen verletzt, Strasse gesperrt

## **Lawine am Klausenpass reisst zwei Autos mit**

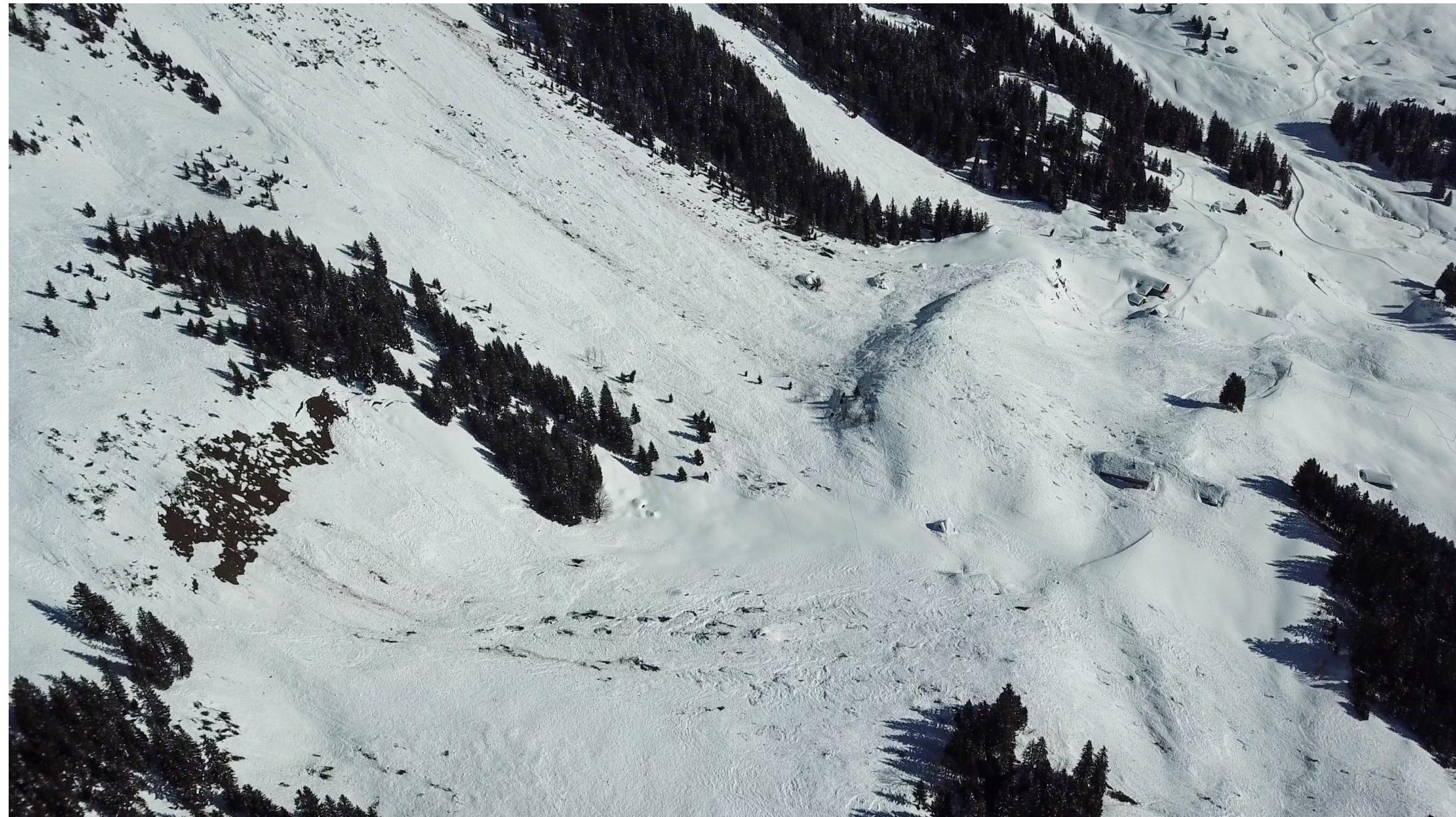
Am Nachmittag hat eine Lawine am Klausenpass die Strasse verschüttet und zwei Fahrzeuge mitgerissen. Dabei wurden drei Personen verletzt. Ein BLICK-Augenzeuge entkam nur knapp den Schneemassen.







rettung



# Looking to the future...

Interreg  
Italia–Österreich  Co-funded by  
the European Union  
START LIVING LAB



Bergwacht  
BAYERN  
Bergrettung

BERGRETUNG  
SÜDTIROL

ALPINE  
RETTUNG  
SCHWEIZ

ALPINE  
RETTUNG  
SCHWEIZ

**UAVDACH**  
ASSOCIATION FOR UNMANNED AVIATION



Source: Google Image Generation

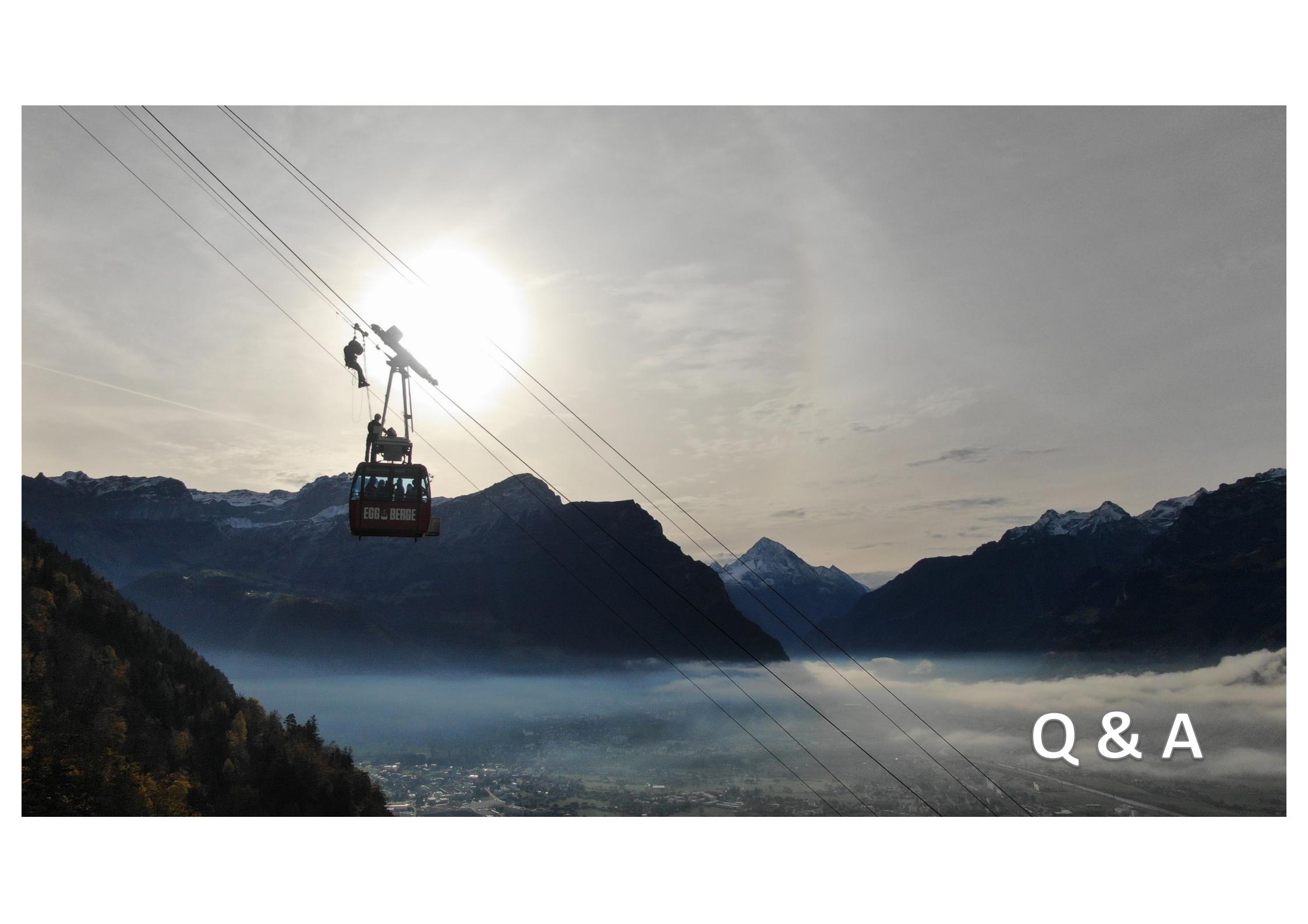


Source: Google Image Generation



“The electric light bulb did not come from the continuous improvement of candles.”

(Oren Harari)



Q & A

