



# RESCUE AND COMMUNICATION IN THE MONT BLANC MASSIF

**Océane VIBERT**

Executive director - La Chamoniarde de  
prévention et de secours en montagne

**Major Frédéric Auvet**

Unité de Coordination Technique Montagne  
de la gendarmerie

# PGHM DE CHAMONIX



State rescue, established in **1958**

- Staff: 39 mountain rescuers, 3 officers, 36 non-commissioned officers, 3 cynophilia teams
- Manages all mountain and rescue operations in the Mont-Blanc massif
- Runs up to 1000 mountain rescue operations per year in the Mont-Blanc massif



# LA CHAMONJARDE



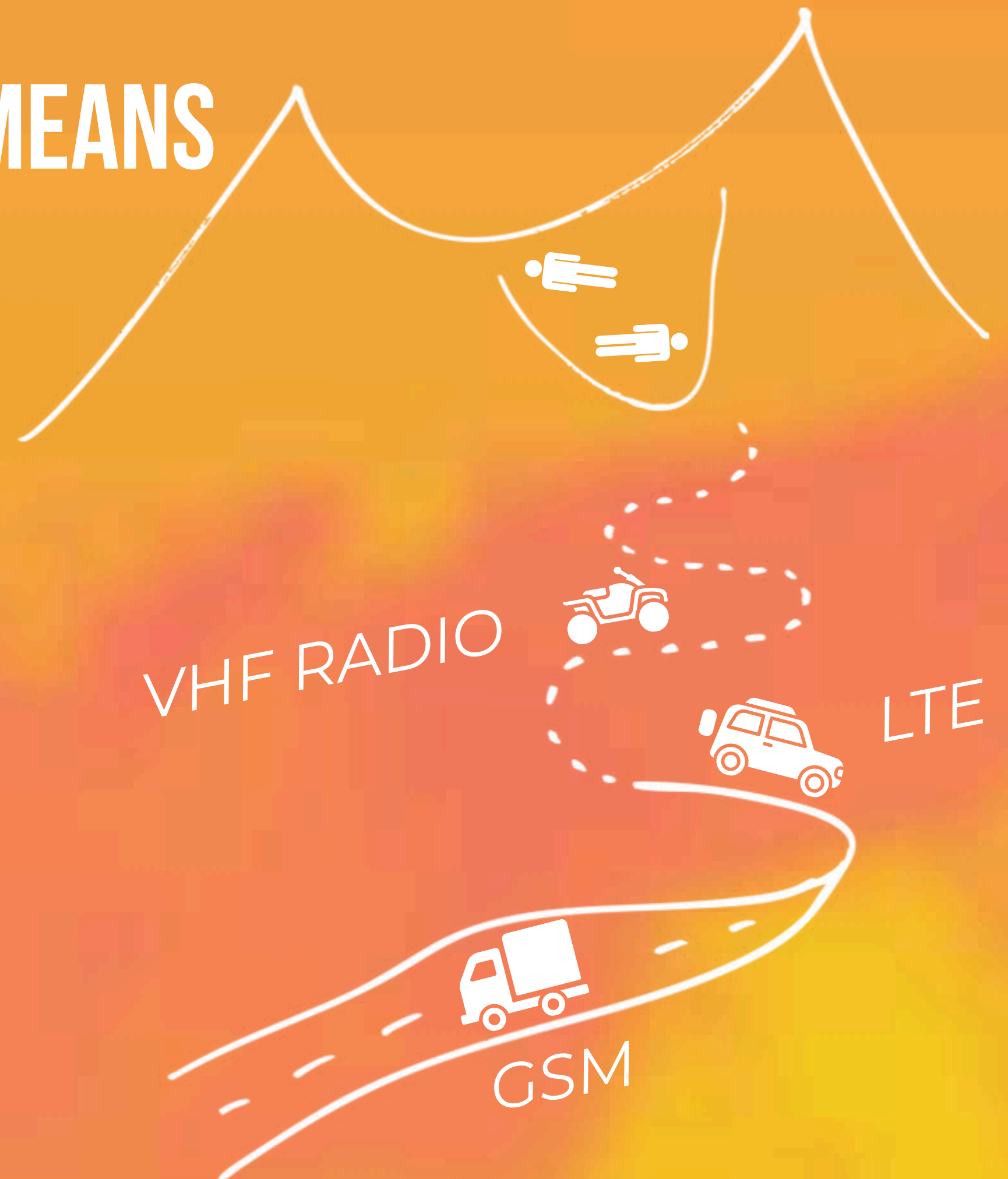
Non-profit organization for **mountain rescue & risk prevention**, since **1948** :

- Informs and runs mountain awareness actions to promote safety in the alpine.
- Provides free information about mountaineering, hiking, climbing and skiing to visitors year-round.
- Offers advice and mountain security training courses.
- Organizes simulated avalanche exercises with the PGHM and rescue organizations from neighboring countries,
- Collaborates with the PGHM to develop equipment and techniques.

# RADIO TELECOMMUNICATIONS MEANS

Complementarity of communications' means for the rescue operations' management in the Mont Blanc Massif

As to access to patients, from the truck to the quad, from the highway to the footpath, networks and communication tools combine to allow information to cross all terrains





# FOCUS ON THE VHF RADIO NETWORK

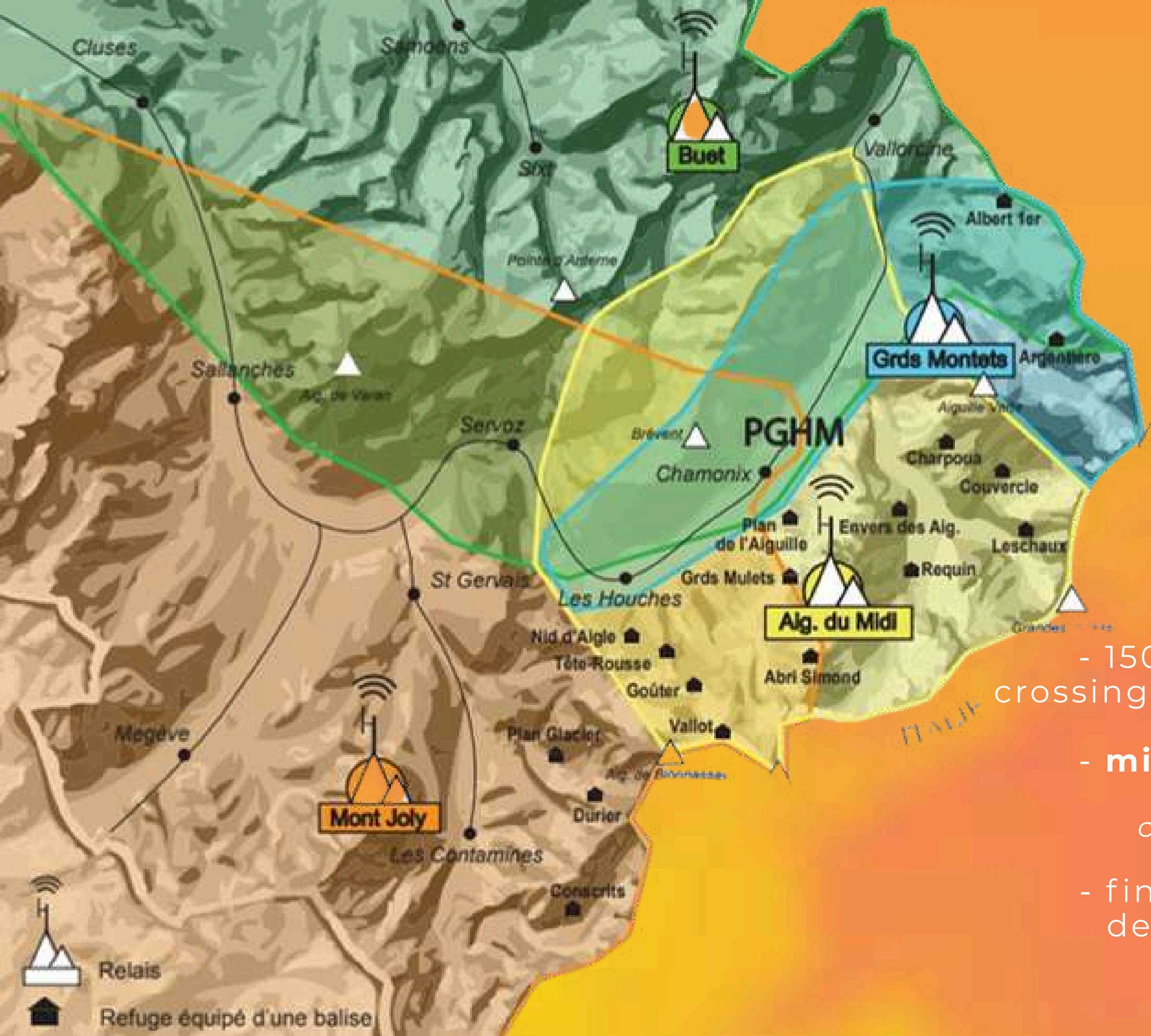
Sécurité **Alerte**  
Mont **Blanc**



- created in **1987**
- managed by **La Chamoniarde** (association)
- **interconnection** between rescue and mountain actors
- 4 repeaters, 2 listening bases, 17 beacons in high-mountain refuges
- **24/7** monitoring by PGHM



# VHF RADIO: FEATURES



- 150MHz = **good compromise**  
crossing relief / quality of communications

- **mixed** analog / digital network.

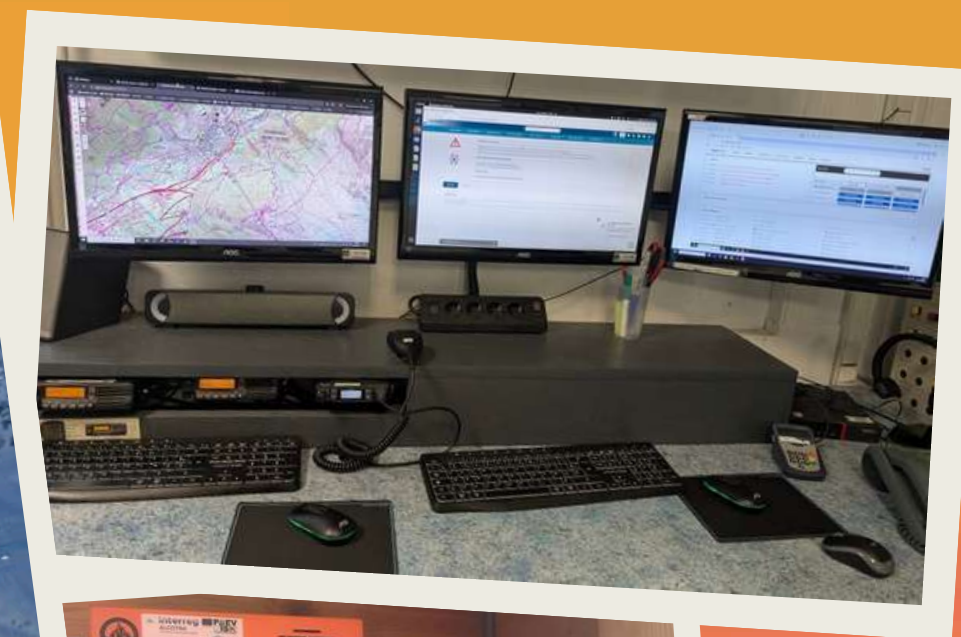
communication supervision

- financing and filtering of portable devices is done via **subscription**



# VHF RADIO USE :

of the  
**Sécurité Alerte**  
**Mont Blanc**  
network



An **alert** and **emergency management** network :

- occurrence of radio alerts is sufficiently low not to be detrimental to operations' management
- use of a single network = optimized monitoring
- responsiveness & optimization of helicopter resources



# VHF RADIO QUALITIES & LIMITS

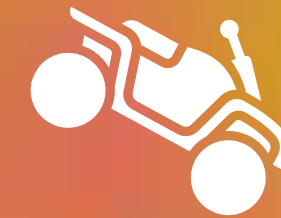


+ reasonable operating **cost**

++ **robustness**

++ **resilience** (accessibility, addition of a portable repeater, easy programming)

++ wide **coverage**



- **limited range** (mountain range)

- relayed mode (channel selection = more **complex** communication mode)

- sending data is not possible

- rapid **saturation**



# VHF RADIO QUALITIES & LIMITS

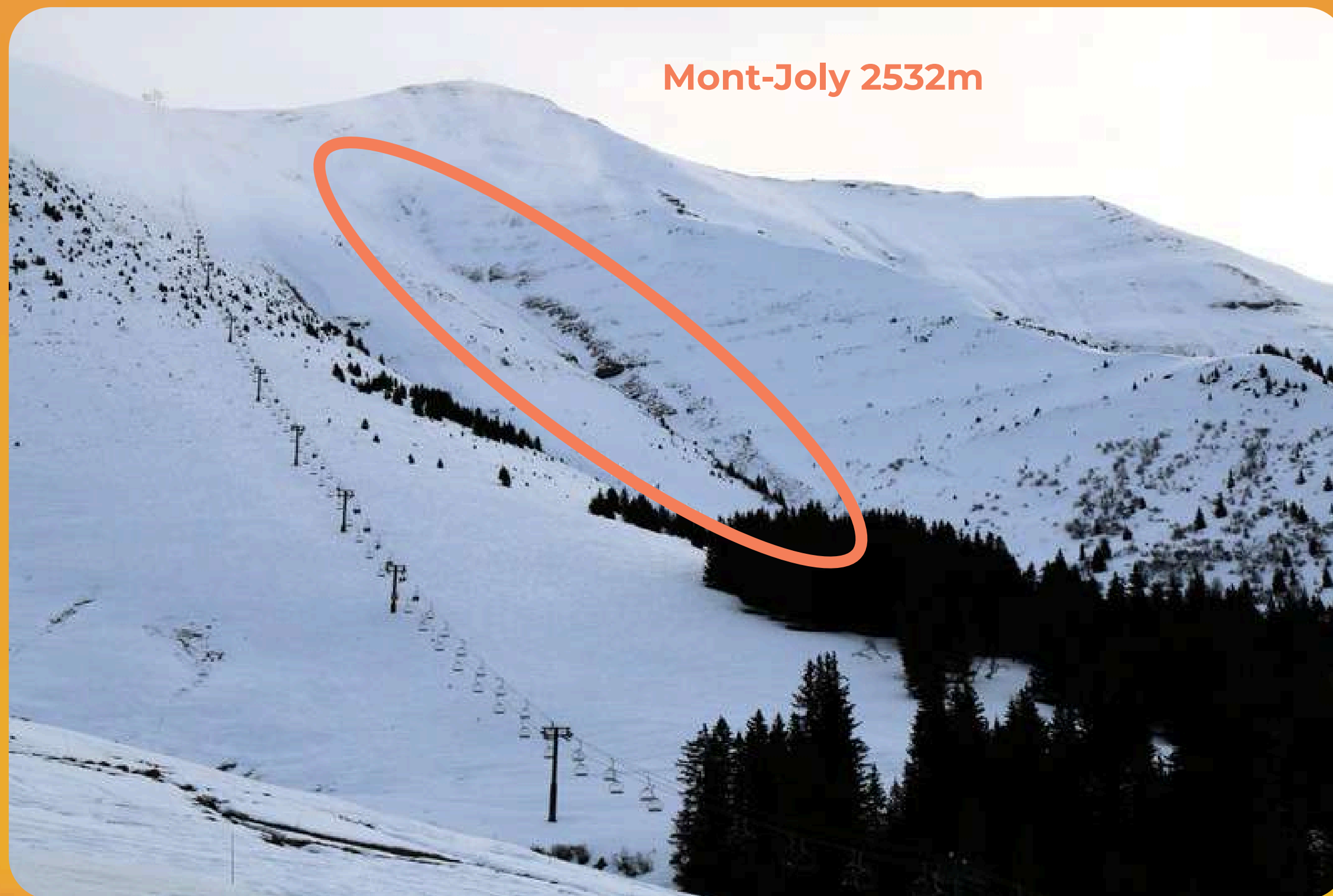


Due to these features, SAMB network is like a communication Quad wick allows PGHM to manage the majority of rescue operations

**Now let's examine how SAMB network is testing in a complex situation ?**

# 📍 AVALANCHE DU MONT JOLY

28/12/2023



Mont-Joly 2532m

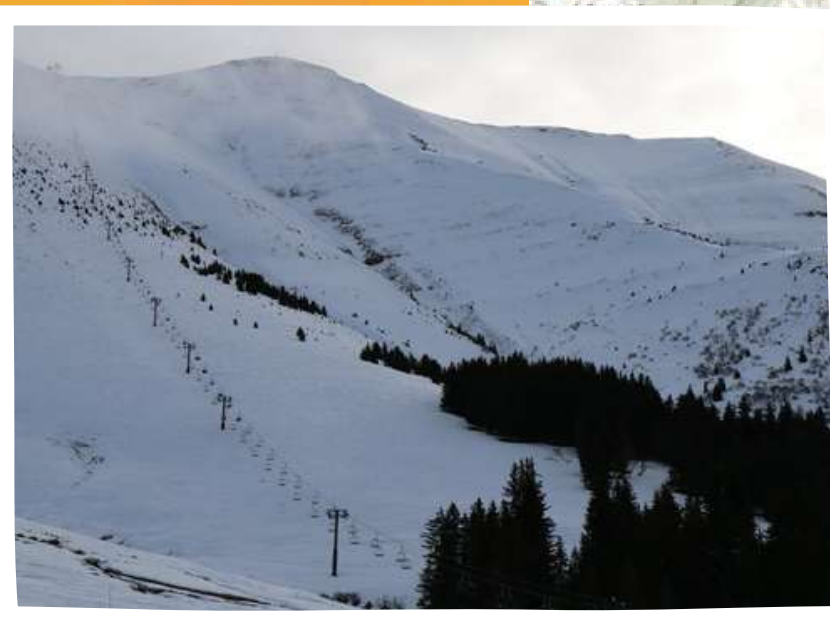
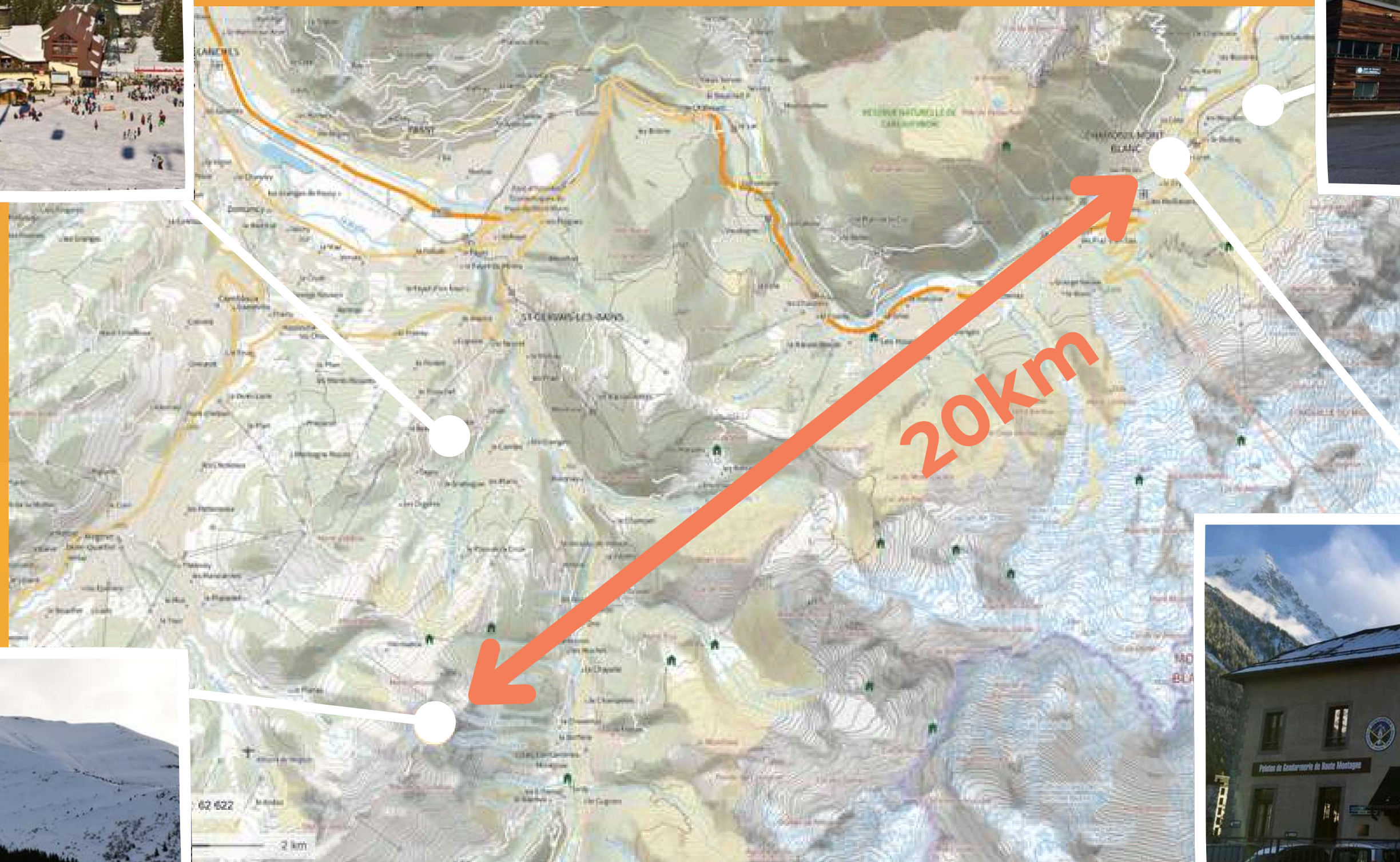




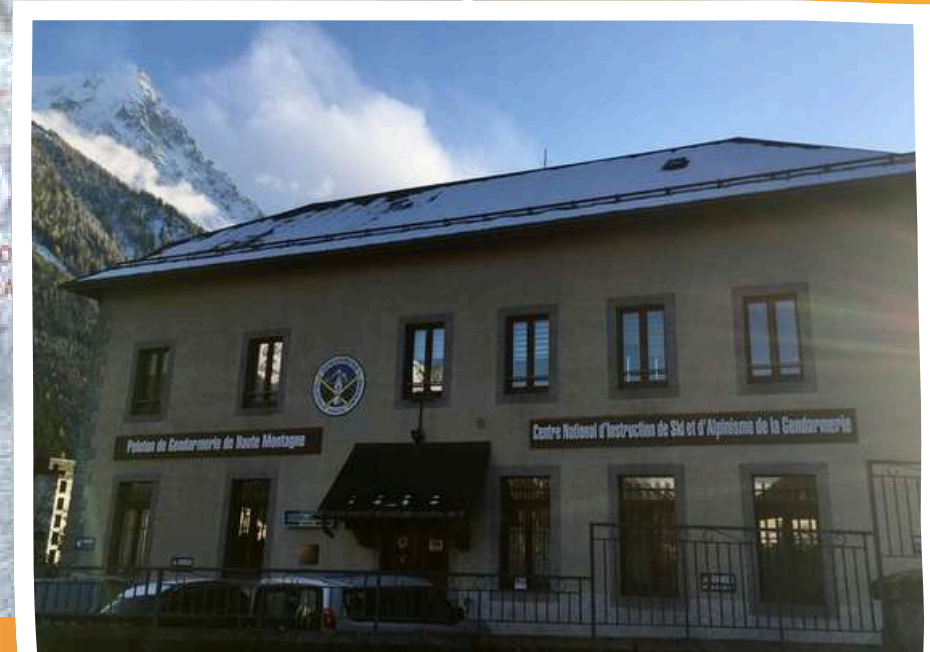
📍 Saint- Gervais ski resort 



📍 Drop Zone  
(Chamonix)

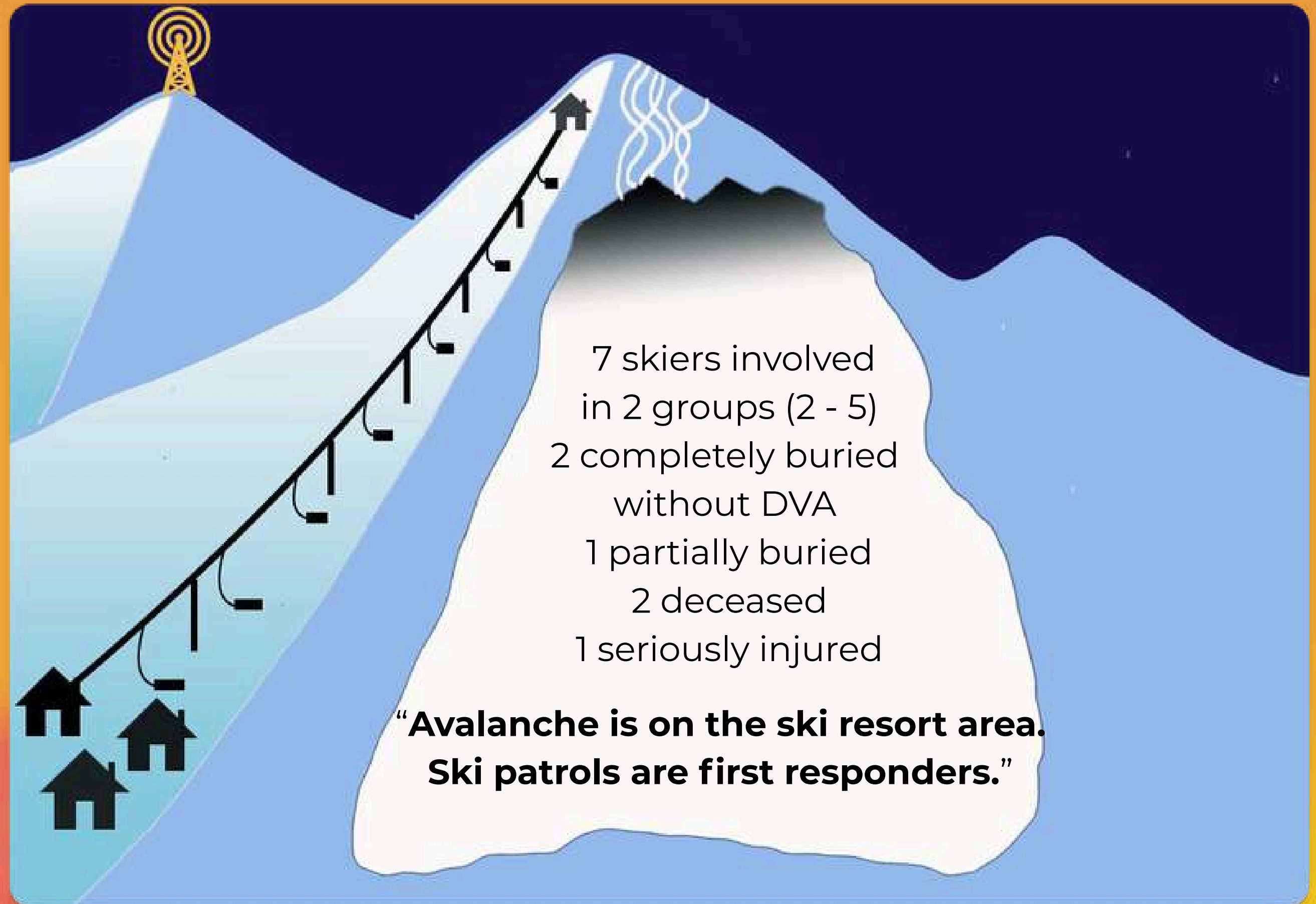


📍 Mont- Joly (avalanche)



📍 PGHM (Chamonix)

📍 **AVALANCHE**  
**DU MONT JOLY**  
*28/12/2023*





1

Communications  
on the ski patrols' VHF channel



**2**

Arrival of reinforcements from PGHM on board of heli (Security Civile)

**3**

Ski patrols' leader transmits to the heli on the PGHM's VHF channel

**4**

Heli uses the repeater to communicate with PGHM





5

All the communications are done **only on two channels** (Ski patrols & PGHM).

6

Ski patrols and PGHM's team leaders are **burning out**.

7

Second heli (Gendarmerie) is dropping off two doctors + reinforcement + team leaders ...



8

Management's channels are designated.

9

PGHM's channel is now available for strategic communications (helis, HQ).

10

**Segmentation** of communications appears to enable effective management.

11

But a **problem** remains  
Rescue work doesn't stop on the field





12

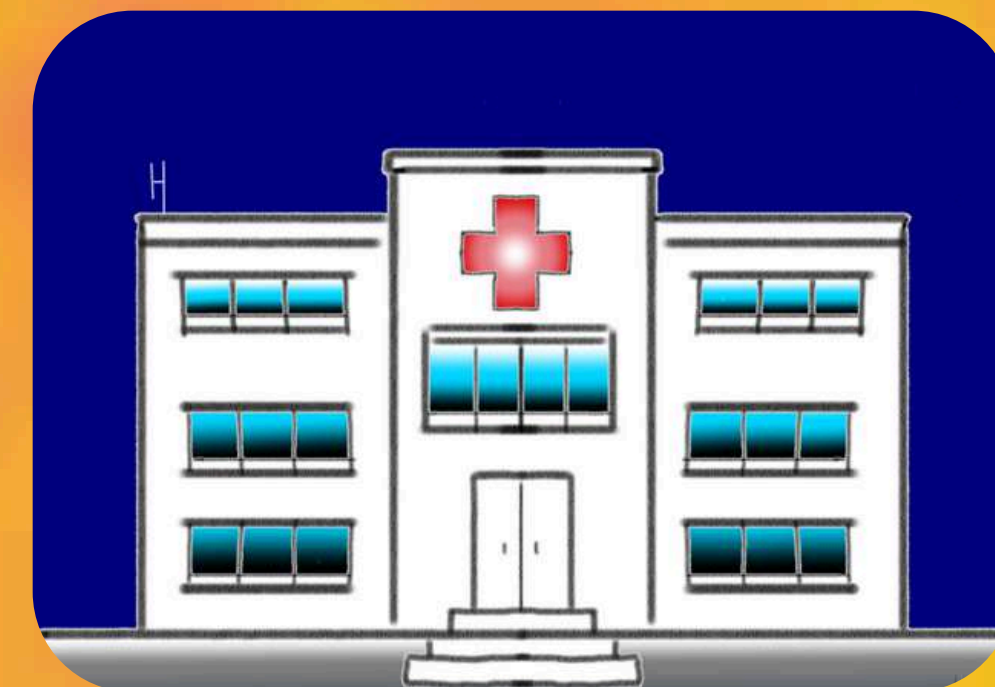
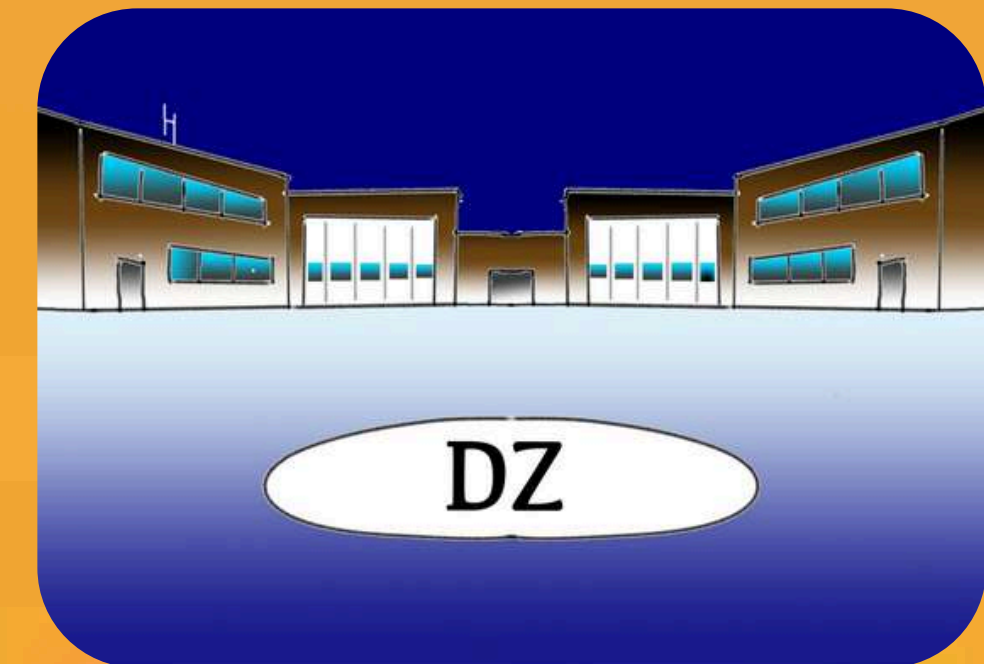
Exchanges with **rear bases** are necessary.

13

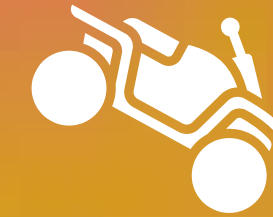
Rear bases are often **pretty far** from the field (20 - 60km in this case)

14

Type of the communications that bases need to manage the situation are **heavy**  
(Reports of the situations, medical reports, pictures, movies)



# VHF RADIO: LIMITS



- **limited range** (mountain range)
- relayed mode (channel selection, more **complex** communication mode)
- sending **data** is not possible
- rapid **saturation**



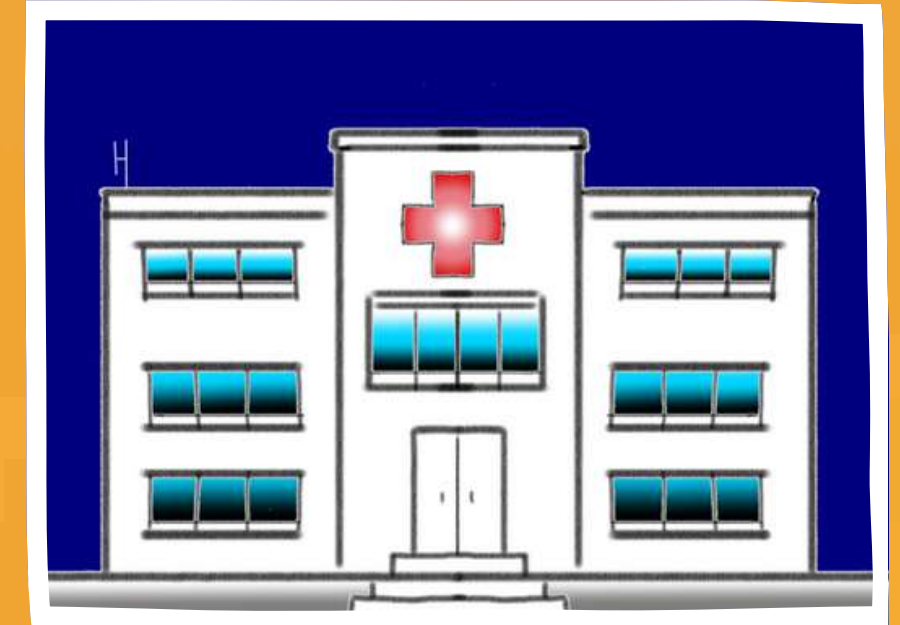
📍 PGHM (**Chamonix**)



📍 Drop Zone(**Chamonix**)



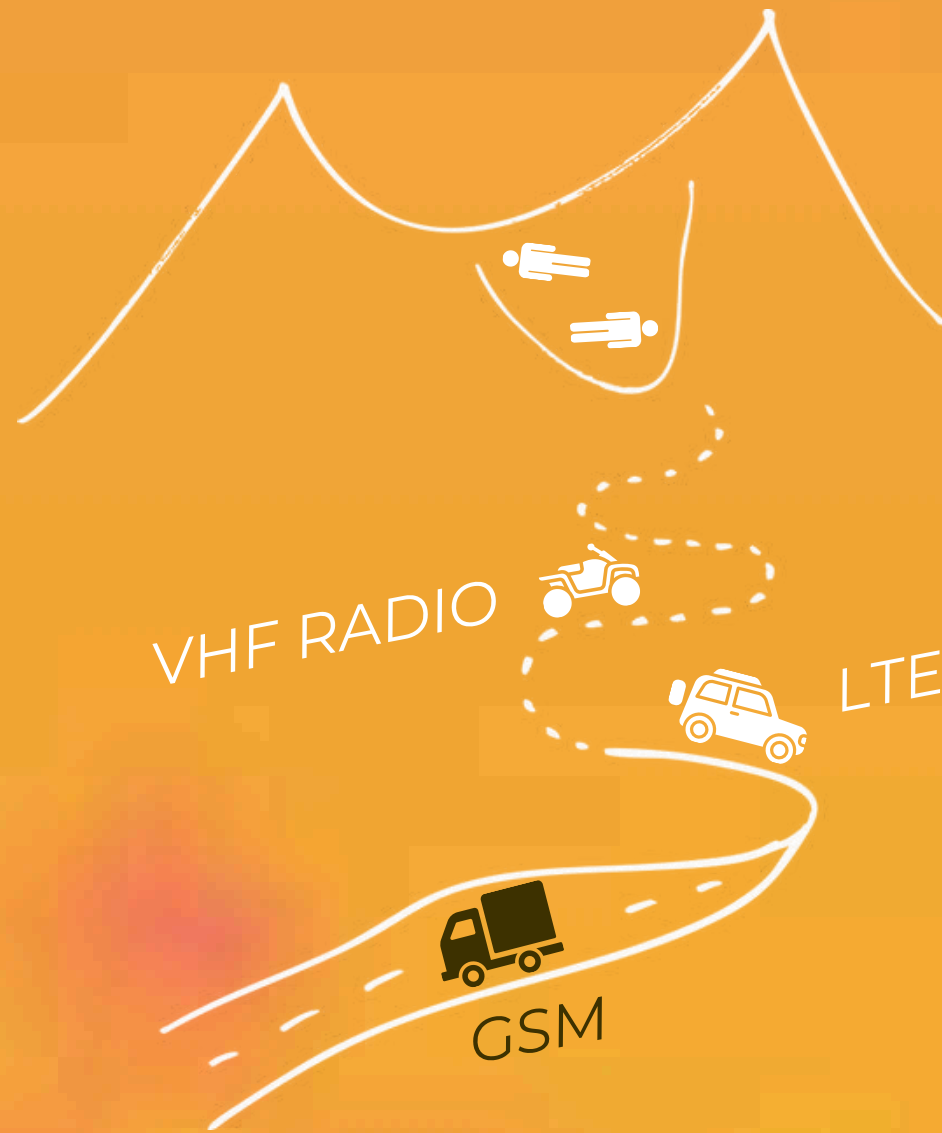
📍 Avalanche (**Mont- Joly**)



📍 Hospital(**Annecy**)

What solutions  
for long distance  
communications ?



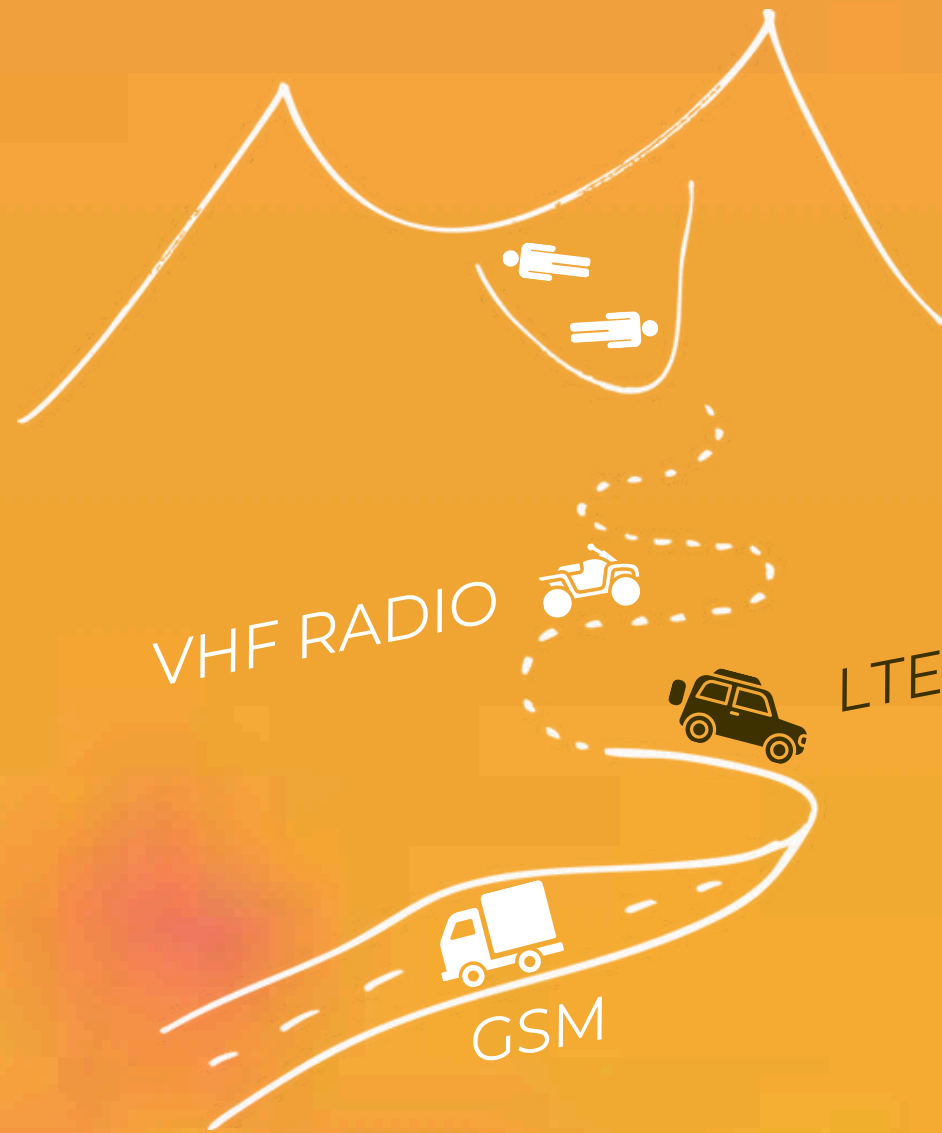


++ **large carrying capacity**  
(data, photo/video, WhatsApp  
streaming, etc.)

- “the road does not go to the top”
- smartphones are not suitable for **extreme conditions**
- pretty **low resilience**



# LTE / VHF



- + illimited distances
- + high quality audio

+ easy to use

+ devices suitable for hard conditions

+ security and confidentiality of communications



- LTE needs 3G/4G

- monthly sbscription for each device

- VHF mode is less efficient than with full VHF device







# LTE

## LTE Devices in use



radio LTE  
use on ground / heli



radio hybrid VHF / LTE  
use on ground /heli



mobile  
use in PGHM's base





# LTE

## Specific use of LTE in heli

VHF RADIO



LTE



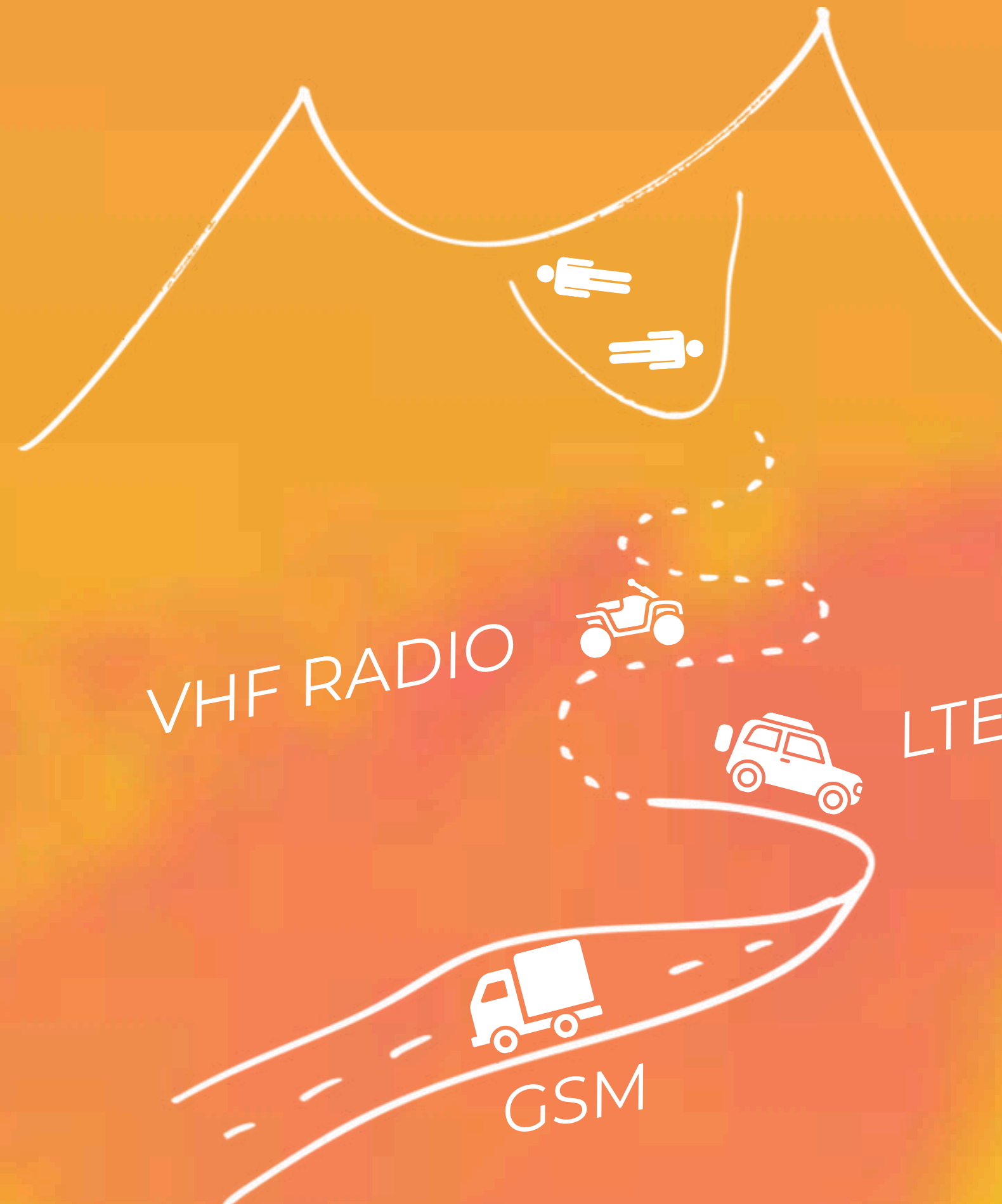
GSM

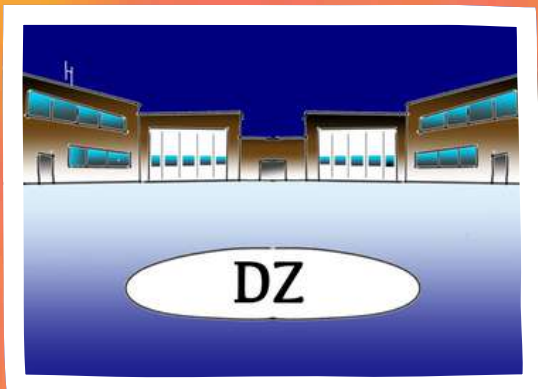


- + Easy and reversible integration
- + Very efficient for long distances communications
- + Very easy to use
- + white zones very reduced

# BACK TO THE AVALANCHE

of the Mont Joly











# CONCLUSION



A complex situation cannot be managed effectively with a single communication means

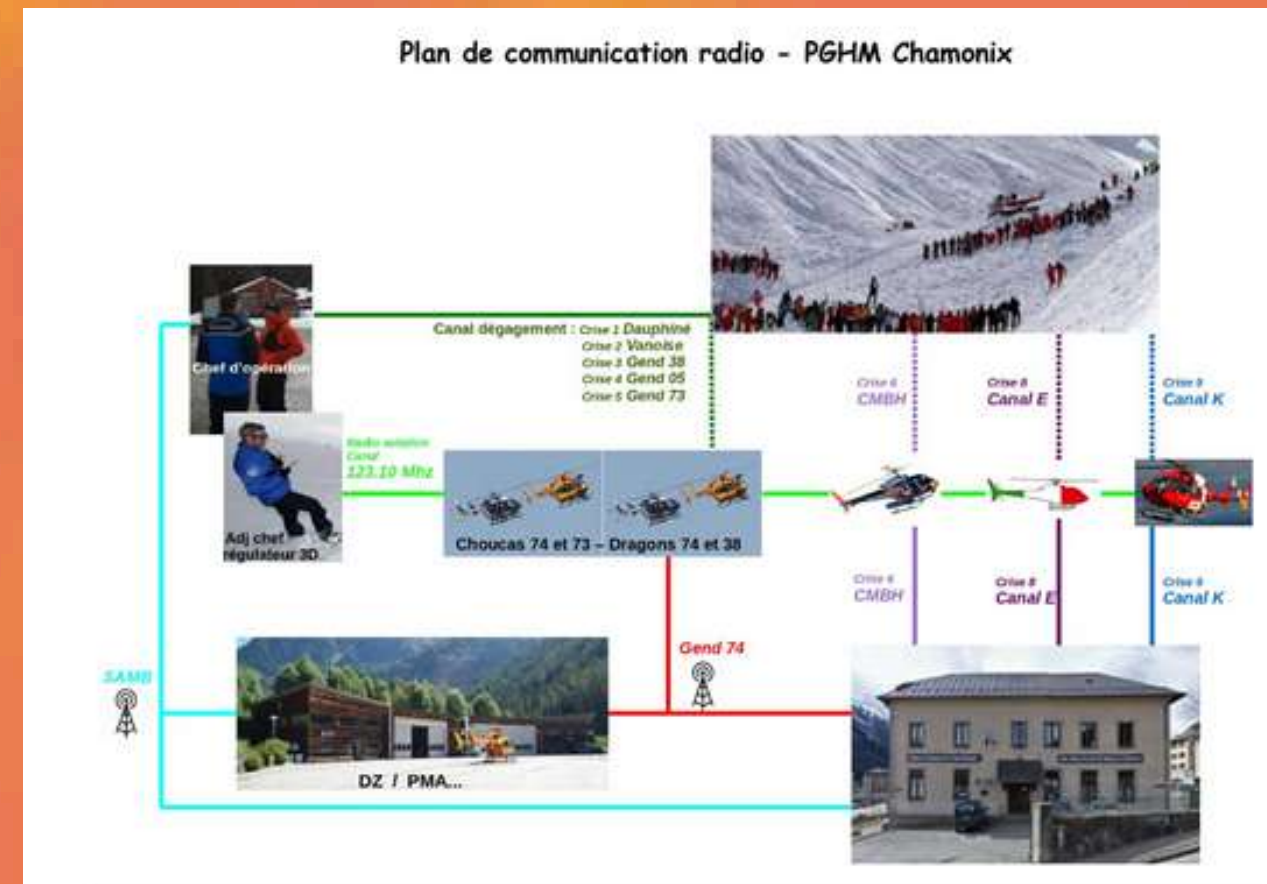
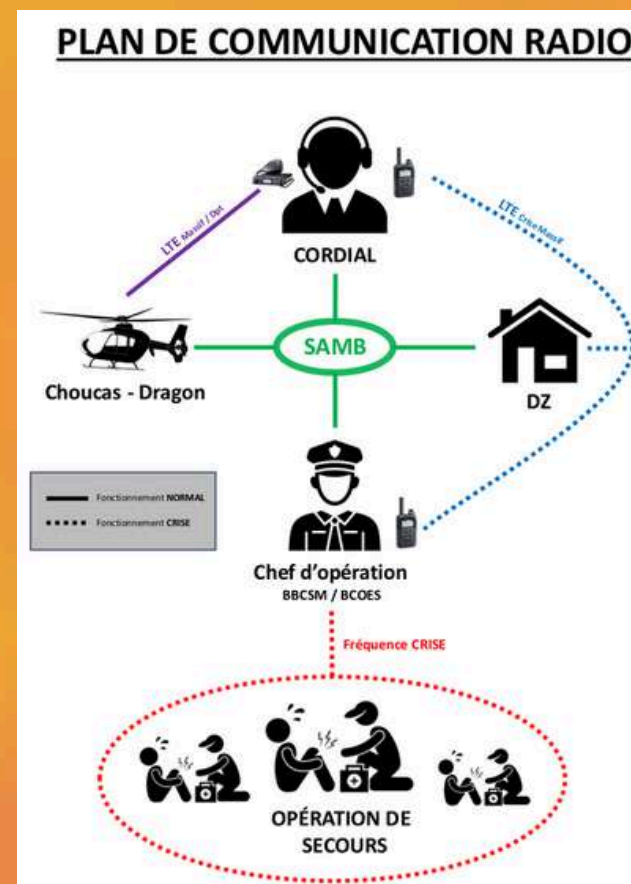
It is essential

- to adapt the means of communication to the **field and the situation**
- to adapt the means of communication to the **use**

# CONCLUSION

All of this has to be prepared in advance via

## A COMMUNICATION PLAN



It's absolutely necessary :

- to experience this plan
- to develop and train communications' management skills





# THANK YOU !