

Good morning ...!!!!

ÄRE 23.10. 2011

Avalanche of Vallon de Valsorey 26.03.2011

Dominique Michellod, Patrick Fauchère, Grégoire Zen-Ruffinen



ÄRE 18-23.10. 2011



ALARM 144 12H37

AIRBORNE 12H57

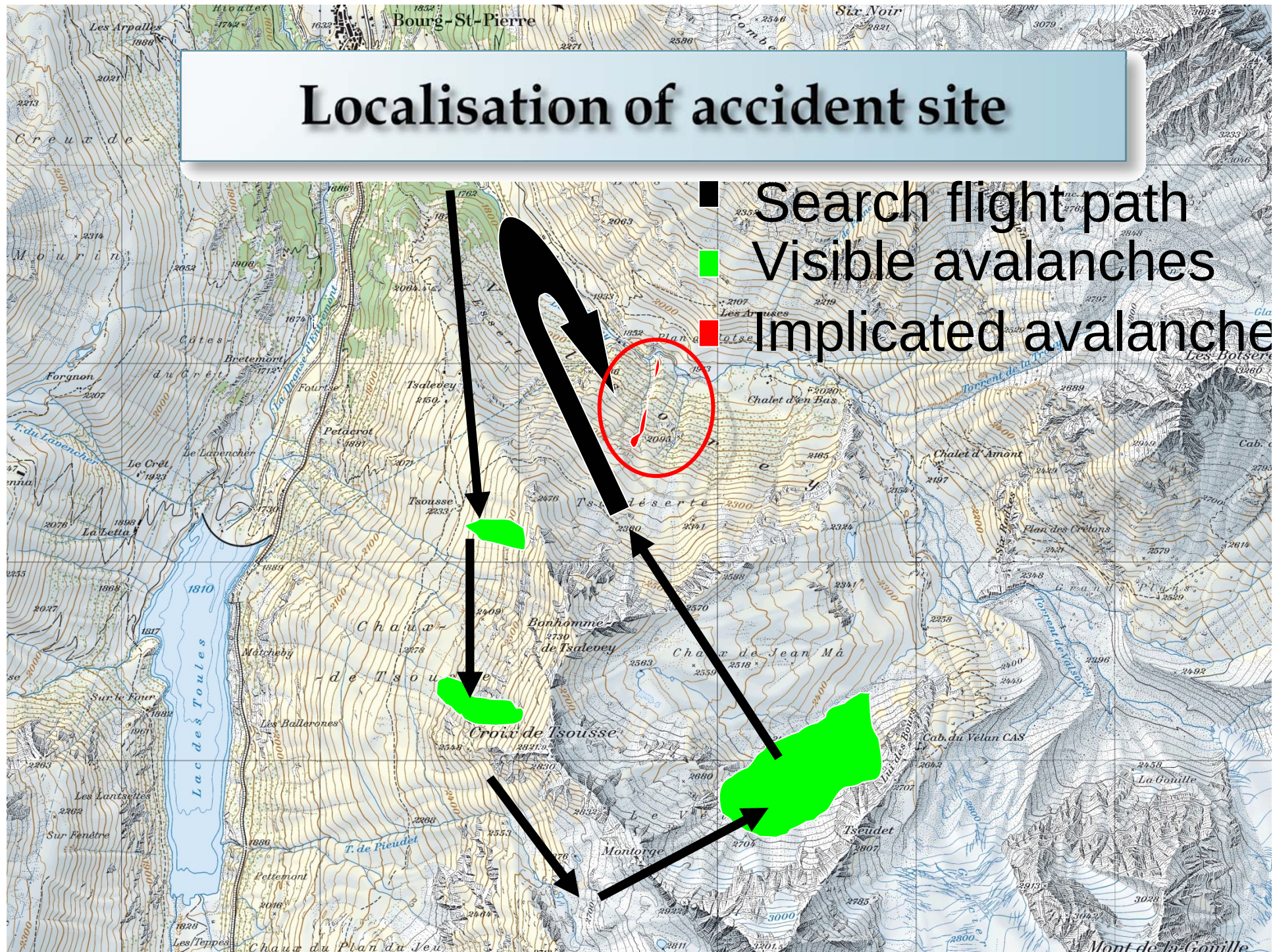
- **11** backpackers implicated
 - 10** of them burried
- uncertain localisation
- supposed region Croix de Tsousse -
Barrage des Toules

Problems encountered

- ▣ Localisation of the site of accident
- ▣ Missing Information about engaged forces by dispatch center 144
- ▣ Dangers on site: snow & air traffic
- ▣ Difficulties of communication
- ▣ Medical management
- ▣ Termination of rescue

Localisation of accident site

- Search flight path
- Visible avalanches
- Implicated avalanche



General view



PE Rescuer entry point

PC Command post

Héli Helicopter pad



Witness



Visible foot

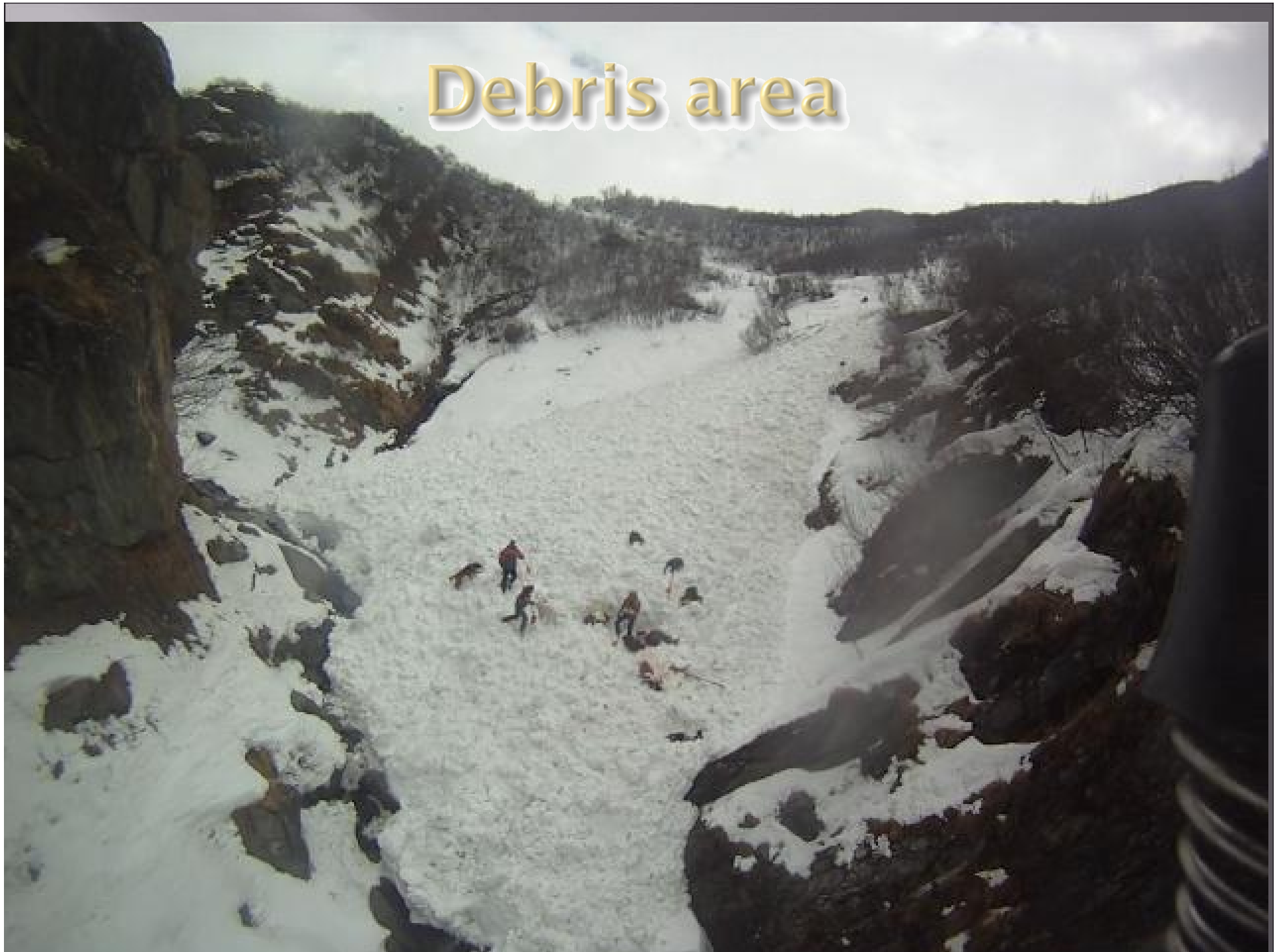
An aerial photograph of a steep, snow-covered mountain slope. The snow is white and appears to have some tracks or ridges. Scattered across the slope are numerous small, dark, leafless shrubs or bushes. The overall scene is a winter landscape.

Trigger off area

Avalanche bulletin SLF:

*Avalanche Danger degree 3
slopes E-N-W 2400 m*

Debris area



On site objective dangers

snow

overhanging slopes not cleared

no emergency exit





On site objective dangers :
flight traffic 11 Helicopters
narrow valley



Difficulties of communication

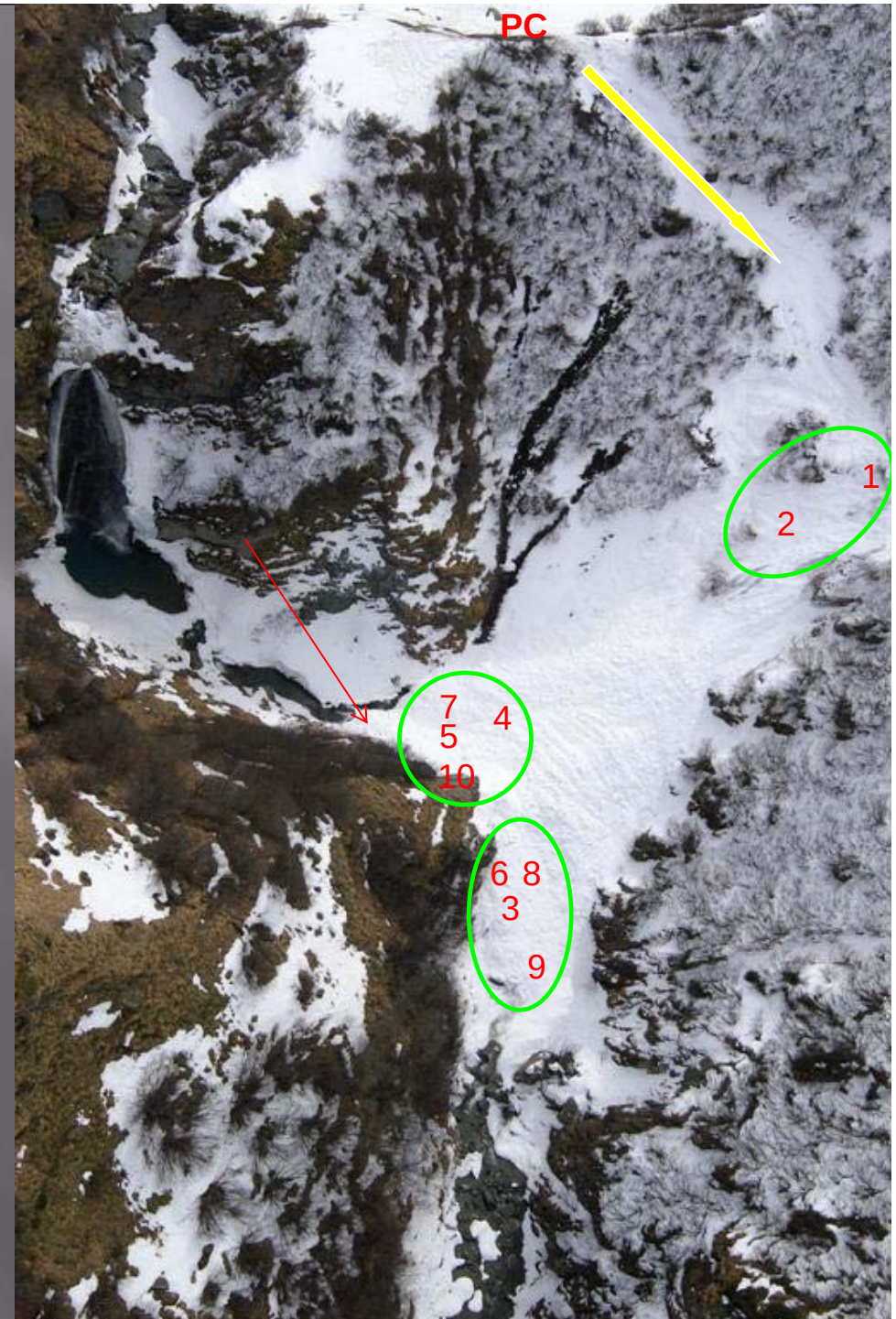
- ▣ Rescue channel overloaded
- ▣ No mobile phone coverage
- ▣ No visual overview of avalanche site
- ▣ Priorisation of air traffic communication
- ▣ German-french language
- ▣ Medical problems = absolute emergency

Missing Informations for the first team about the engaged forces by emergency dispatch center 144

- ▣ 11 helicopters
- ▣ 6 emergency physicians
- ▣ 8 avalanche dogs
- ▣ 20 guides RS Zermatt
- ▣ 20 guides RS Entremont
- ▣ 2 ambulances
- ▣ 1 PMA

Victims dispatch

- | | | |
|--|--------|---|
| 1. 13h50 sitting – stunned
Petzl evac. | GSC 15 | |
| 2. 13h58 part.burried (hidden)
Petzl evac. | GSC 15 | |
| 3. 14h01 completely buried (visible foot)
Petzl evac. | GSC 12 | |
| 4. 14h07 completely buried
Combi-carrier evac | GSC 12 | |
| 5. 14h10 completely buried
Combi-carrier evac | GSC 15 | |
| 6. 14h20 completely buried
Combi-carrier evac | GSC 15 | |
| 7. 14h30 completely buried
Combi-carrier evac → CHUV | GSC 5 | + |
| 8. 14h44 completely buried | Naca 7 | + |
| 9. 14h46 completely buried | Naca 7 | + |
| 10. 14h49 completely buried | Naca 7 | + |
| 11. Not found 18.05.2011 → | | + |



Medical problems I

multiple victims

simultaneous

dead-alive mix

same injury patterns

«missing» patients

remaining objective dangers

minimum medical care

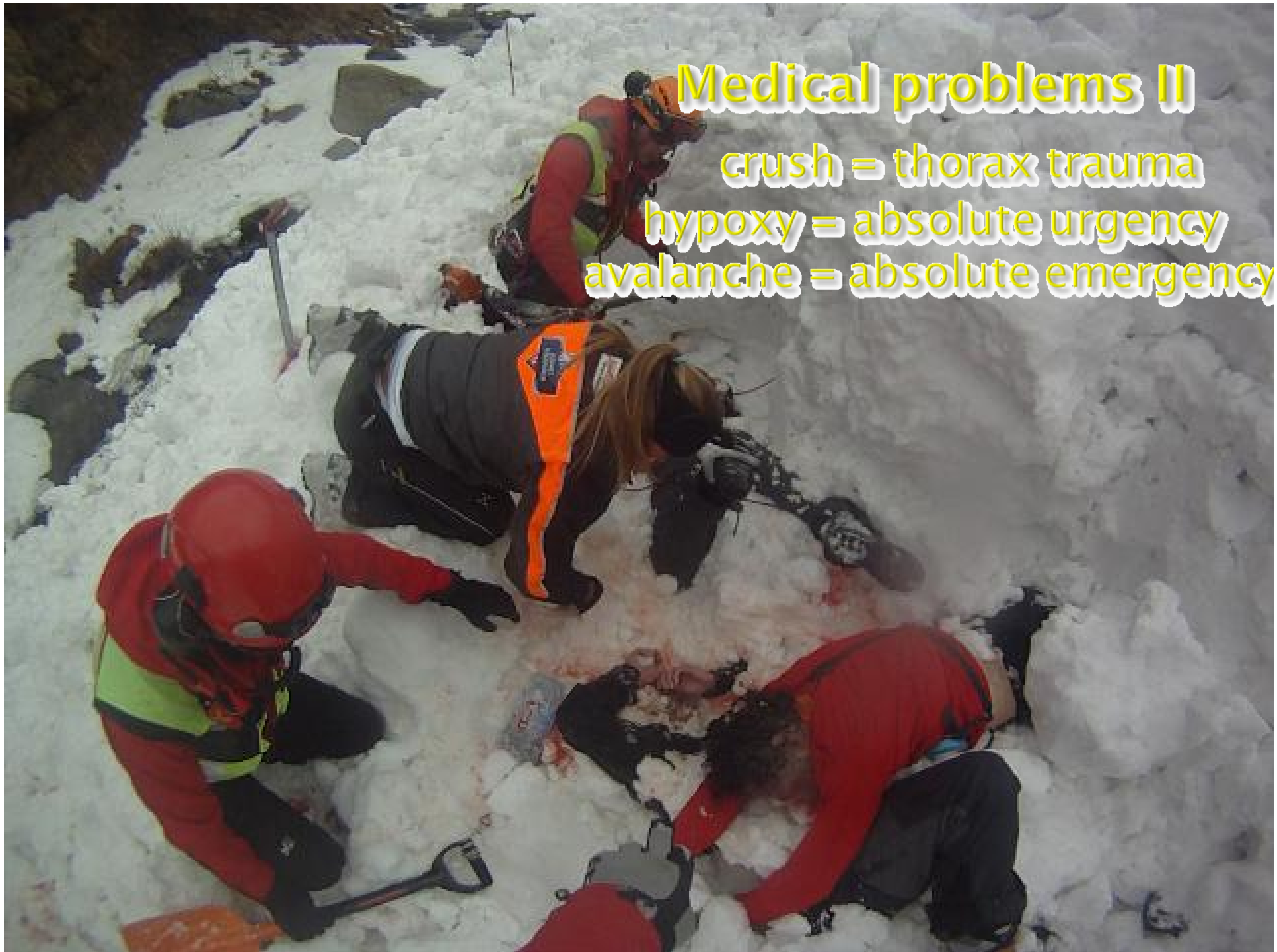


Medical problems II

crush = thorax trauma

hypoxia = absolute urgency

avalanche = absolute emergency

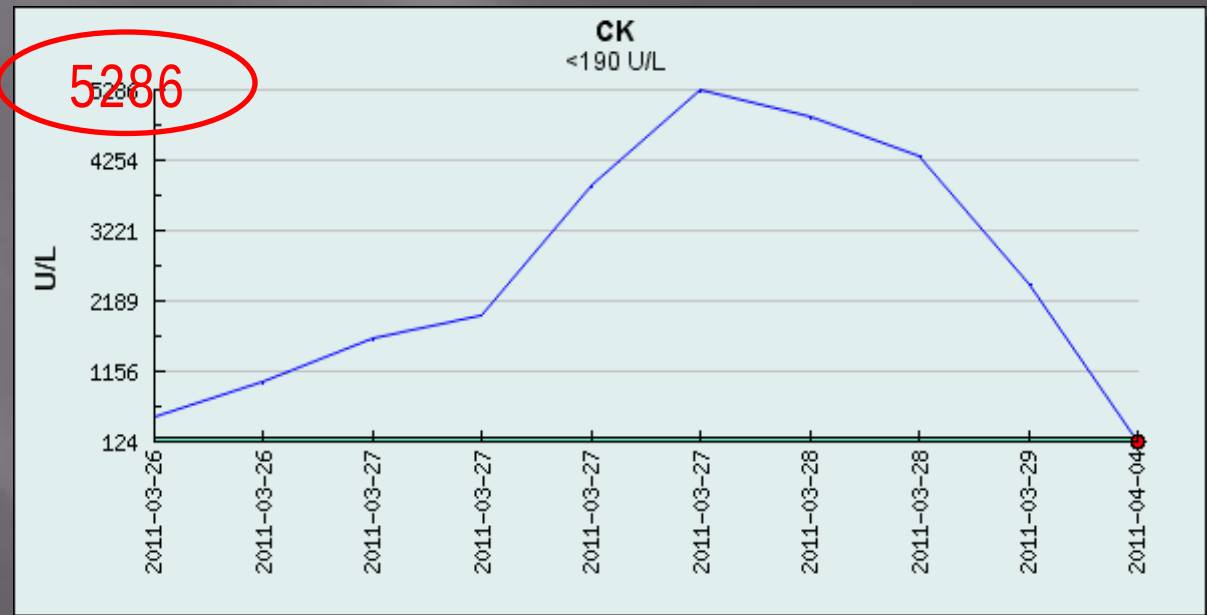


M 55, ICU 26-27th.03.2011, surgery ward 27th.03.–05th.04.2011,
transferred to hosp France

Polytrauma by avalanche accident with:

- ❑ hypothermia stade II : T 31,9° C
- ❑ severe metabolic acidosis (pH 6.9 - lactate 18) due to
reperfusion ischemia
- ❑ acute renal failure / crush syndrome
- ❑ costal fx 6-10 right and 6 - 8 left
- ❑ shoulder dislocation right
- ❑ liver choc
- ❑ wound right forearm

T 31.9° C

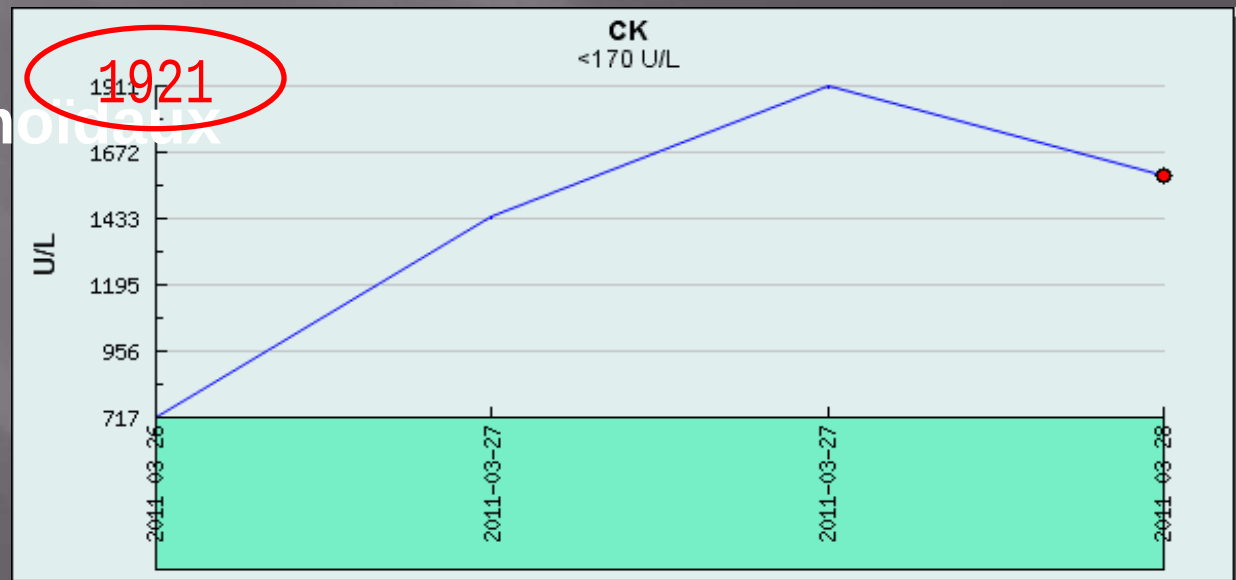


F 62, neurosurgical ward 26th.03.2011–01th.04.2011,
transferred to hosp France

Polytrauma by avalanche accident with:

- mild crush syndrome
- fx inferior articular processus C6
- fx superior articular processus C7
- antelithesis C6-C7
- fx humeral left
- fx rib 2-3-4 + 7-8 left, 6-7 right
- fx compression D6
- fx D7
- sinus frontal + ethmoidal fx

T 35.9° C

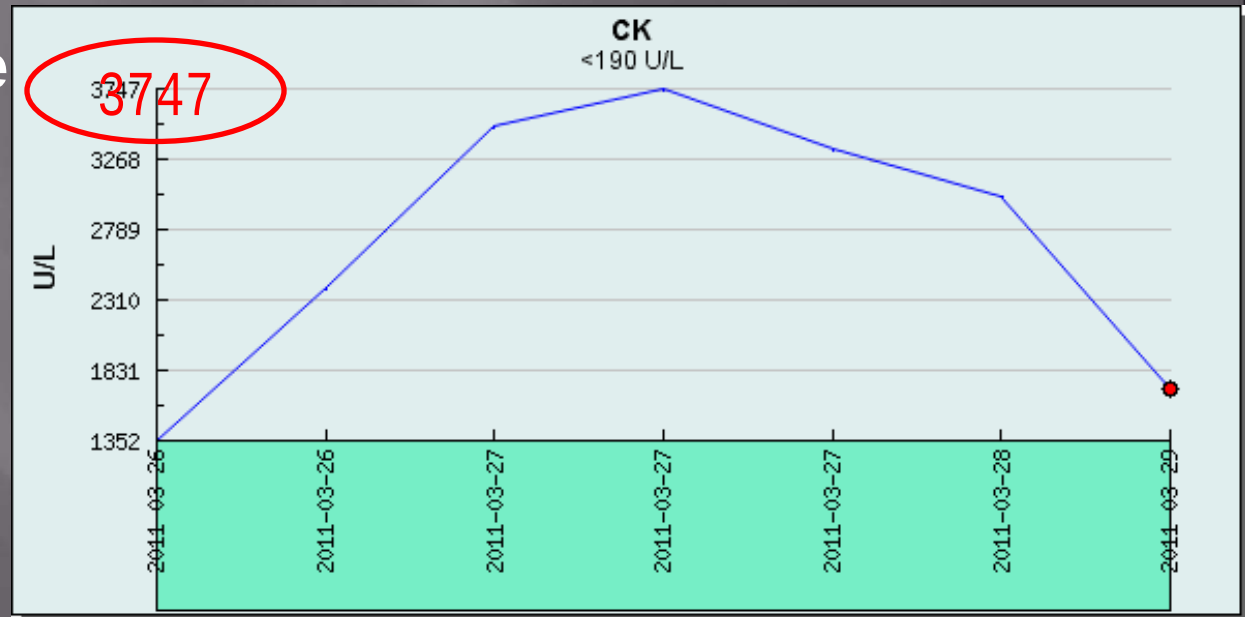


M 54, hosp 26.03. - 01.04.2011, transfered to hosp France

Polytrauma by avalanche accident with:

- moderate crush syndrom
- cranio-vertebral brain injury
- fx orbital right
- fx C5 and D2, proc epinosus C6 and C7, costal proc D10, transverse proc L1, fx S4 and S5
- fx rib D12 right
- fx omoplate gauche

T 35.7° C



M 45, hosp 26.03 – 01.04.2011, transfered to hosp. in France

Polytrauma by avalanche accident with:

- ❑ **hypothermia stade II : T 30° C**
- ❑ pneumothorax (env. 3 cm) + lung contusion
- ❑ fx processus spinosus C5-C6 and D2
- ❑ fx C6 and superieur articulare processus C6
- ❑ slight acute renal failure
- ❑ **slight rhabdomyolysis**
- ❑ left hand contusion
- ❑ frontale wound and ear insertion wound

T 30° C



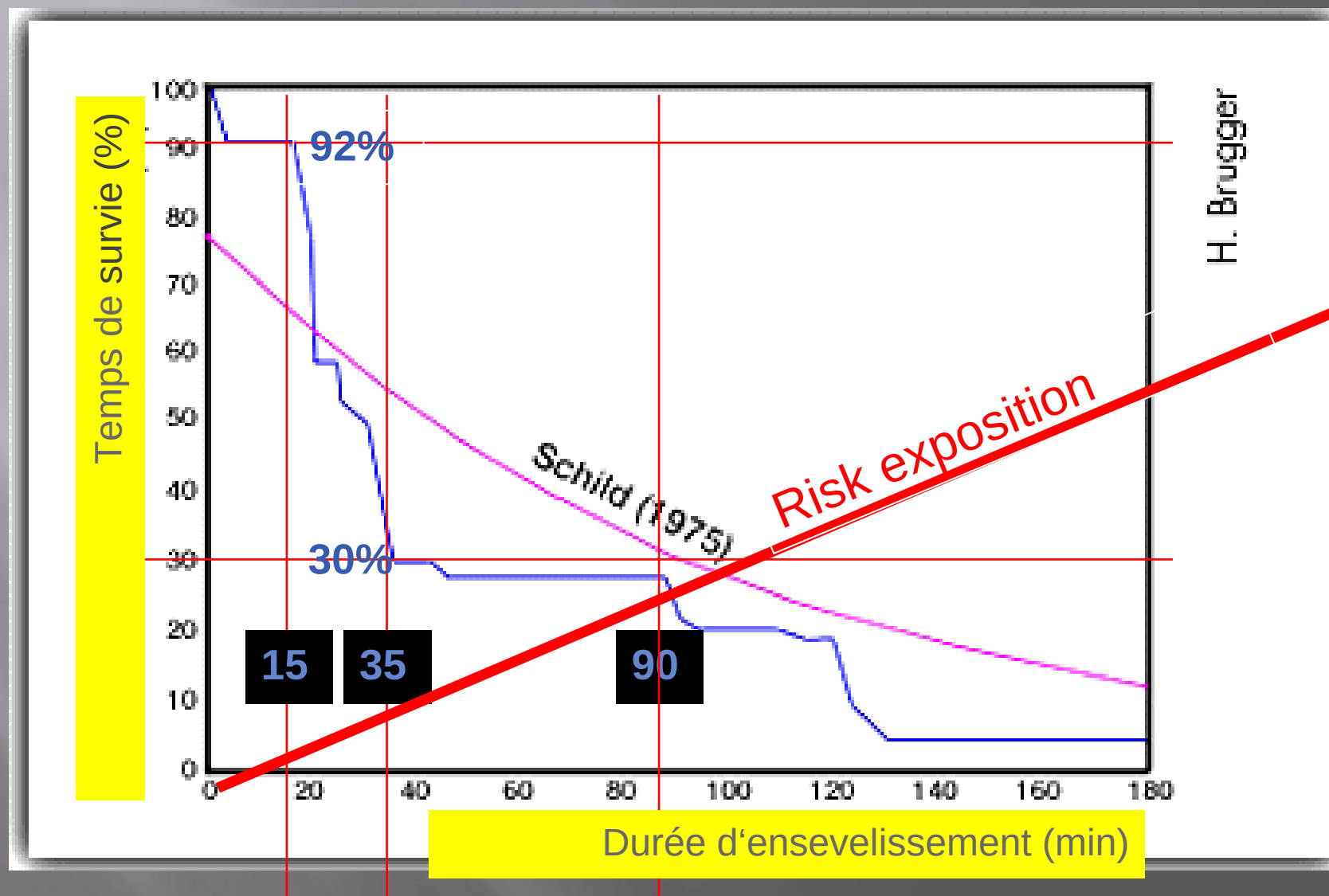
17 h pm: Termination of rescue

- Beacon search neg.
- Recco search neg.
- Dog search neg.
- Probe search neg.
- Survival chances ?
snow consistence
crushed-victims
- Objective dangers +++

Risk Analysis Chart Air-glaciers
ICAR Presentation :
Risky Business 2005
The GO Decision 2009



Reflexion Robert Bolognesi



Preventive mining



● Mining 27.03.2011

● Avalanche 26.03.2011



The next day !

- Victim's beacon found inactivated in her backpack
- A height of 15 m snow on search zone (mining).
- Probably crushed-victim.
- Survival chances inexistant (medical advise).
- Regular visual survey of avalanche zone.

18 May 2011

Last victim localised



Learnings

- ▣ Numerous victims = confined area
- ▣ Increase the means if necessary only in coordination with the PC Front.
- ▣ Work on different radio channels :
 - terrestrial forces $\neq$ air crews
- ▣ Flight coordinator on the ground
- ▣ Medical sorting post
- ▣ Risk of over accident for the rescuers

Participants

- ▣ Centrale 144 (Rescue coordination center Valais).
- ▣ Air-Glaciers & Air-Zermatt.
- ▣ Rescue stations Entremonts & Zermatt.
- ▣ Avalanche dogs from Bas & Haut-Valais.
- ▣ Doctors GRIMM.
- ▣ Police cantonale.
- ▣ Ambulances Martigny.
- ▣ Hospitals (Vaud-Valais; 2 departments)

