

Basic Avalanche Knowledge

Plan of the day

1. Lecture 2 hrs.;
Basic Avalanche Knowledge and Safe Route Planning

2. Practical training 2 hrs.;
Companion rescue & Organized rescue
 - Beacon search
 - Surface search
 - Probe search
 - Digging

Objectives

The main objective for this lesson is to make sure that students can recognize avalanche terrain and danger and by doing so, be able to avoid avalanche accidents.



~90% of
avalanche
accidents are
triggered by
the person
caught, or
someone else
in the group.





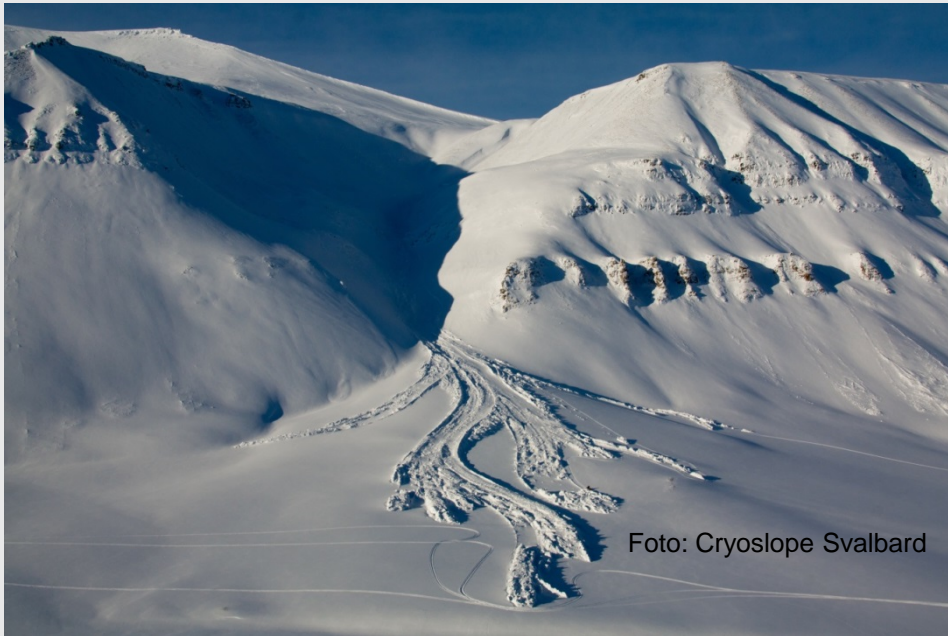
What Is An AVALANCHE?

Loose snow avalanche

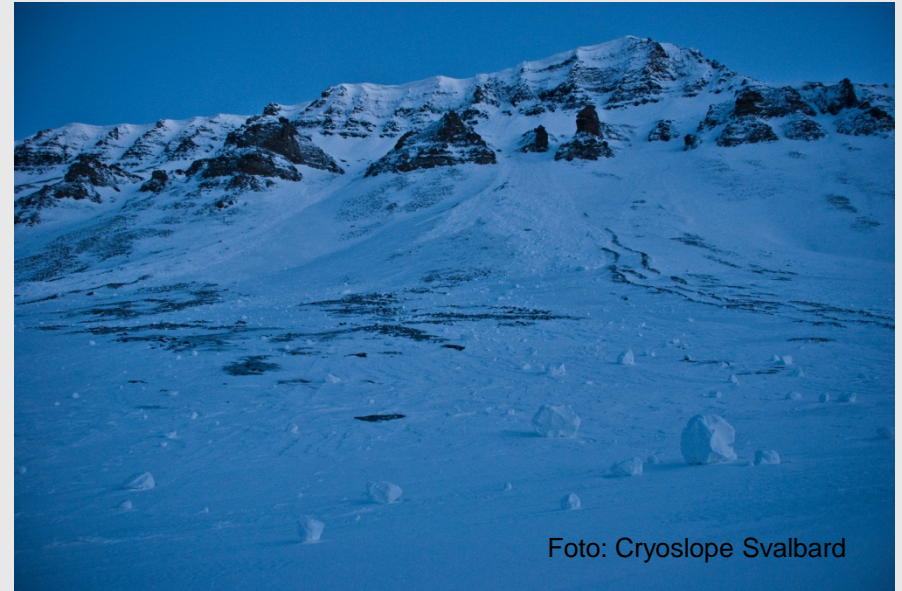


Foto: Cryoslope Svalbard

Slush avalanche



Cornice fall avalanche



Slab avalanche

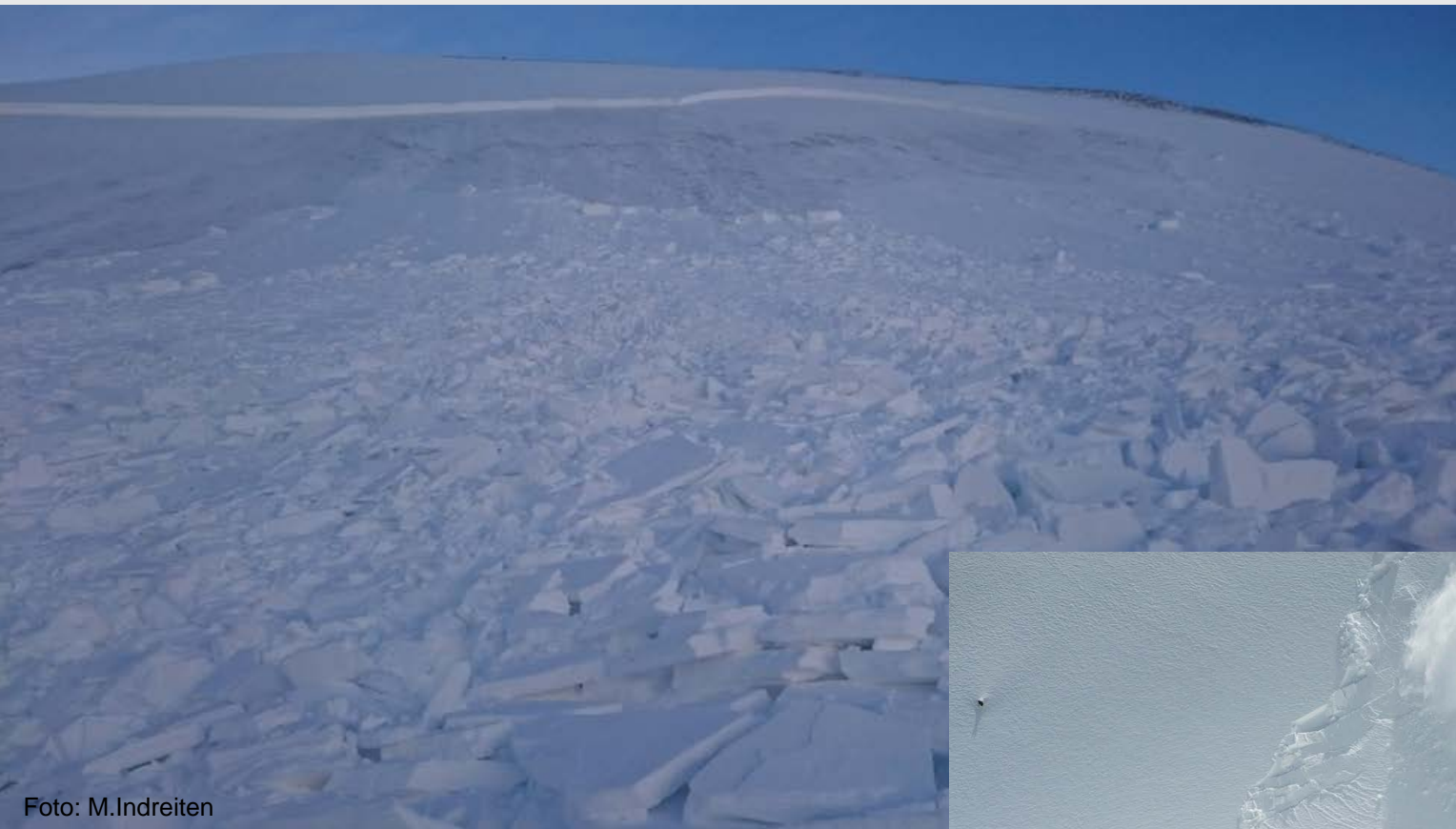
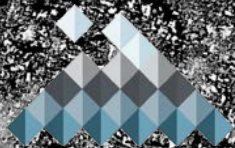


Foto: M.Indreiten

More than 90% of all avalanche deaths are caused by Slab avalanches.



How Do Avalanches Form?



KBYG



KBYG
KNOW BEFORE YOU GO



KBYG
KNOW BEFORE YOU GO



KBYG

KNOW BEFORE YOU GO

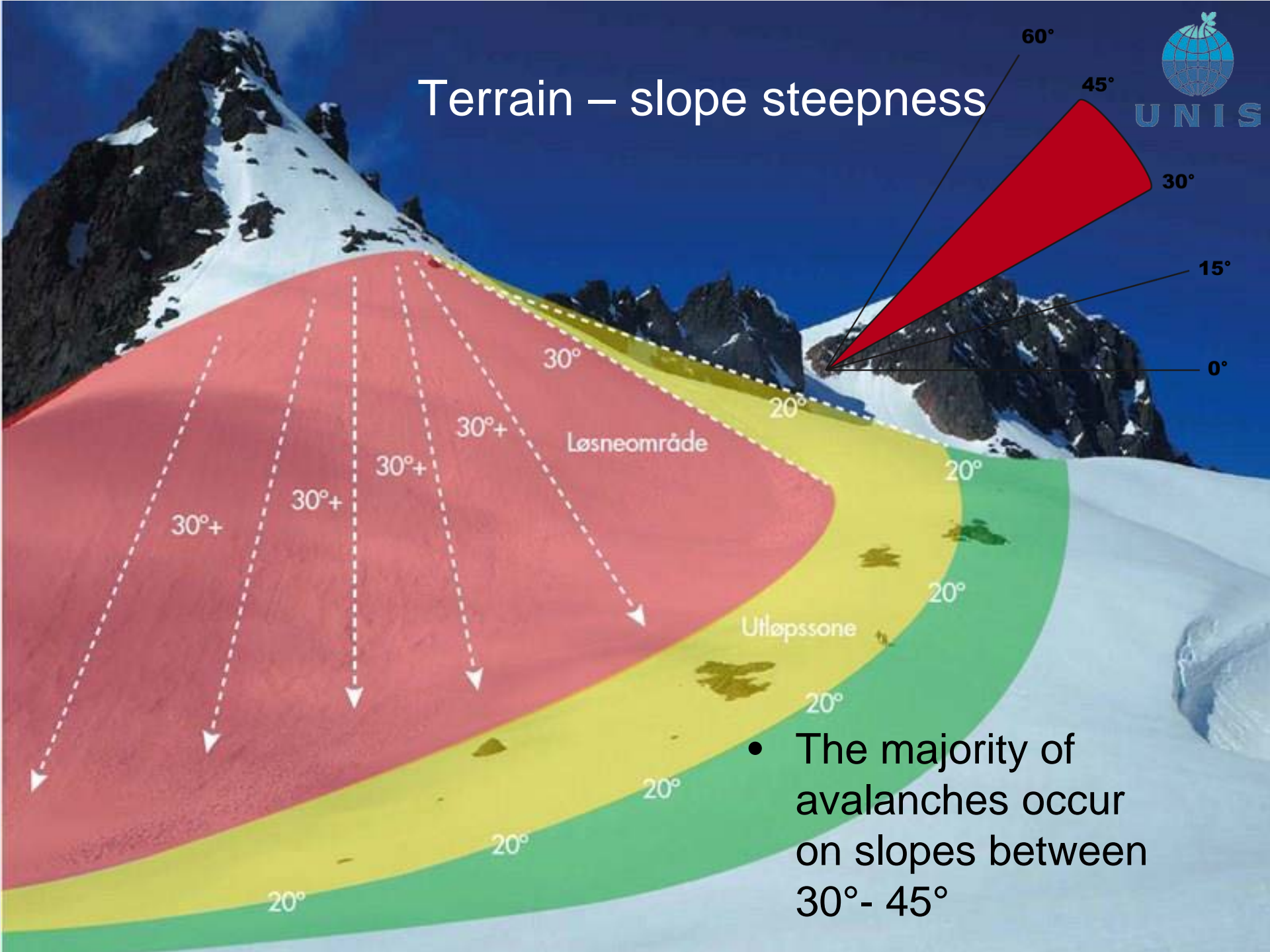
Slab avalanche





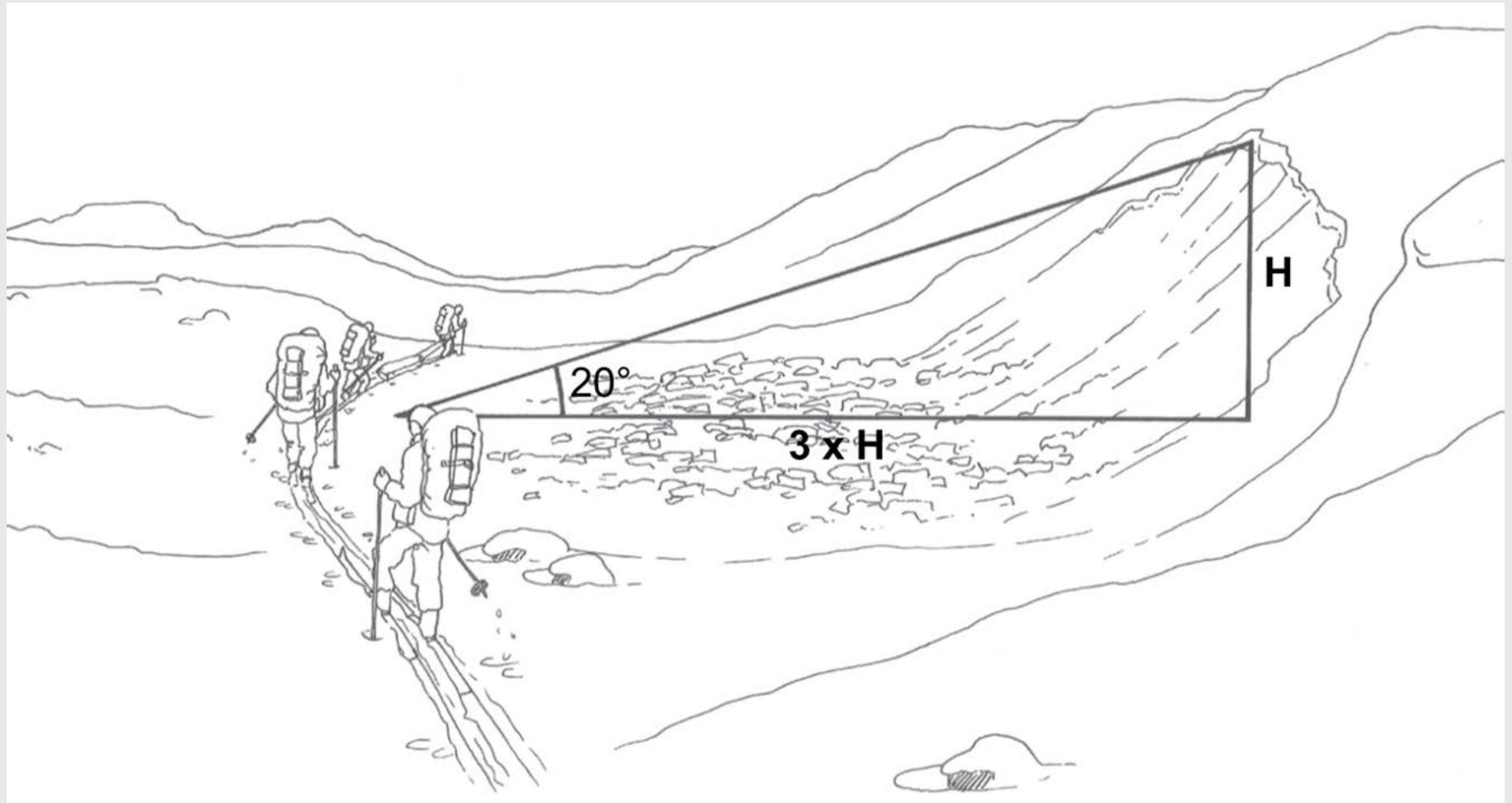
UNIS

Terrain – slope steepness



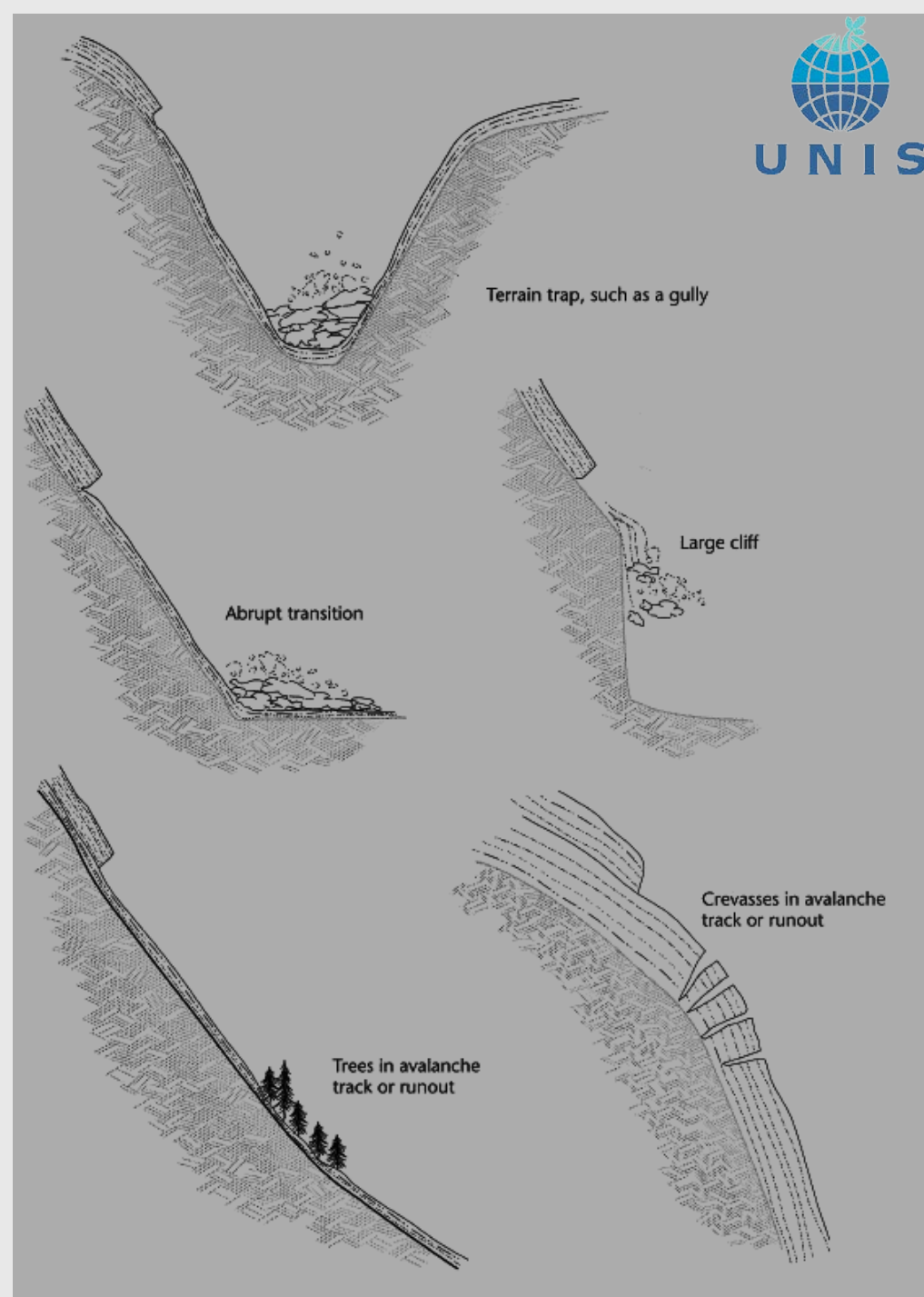
- The majority of avalanches occur on slopes between 30°- 45°

Terrain - Run out zones



Terrain traps

Terrain in which the consequences of an Avalanche are especially hazardous.



Terrain traps



Get out of harms way

- Don't hang out anywhere you could get hit by an avalanche.
- When traveling through avalanche terrain go one at the time.

Safe place to eat your lunch?



Terrain - Summary

Learn to identify:

- Angel of the slope
- Release zones
- Run out zones
- Terrain traps
- Safe zones



Safe routing

Two options for traveling in avalanche terrain:






1. Avoid avalanche terrain – always in the dark or bad weather
2. Make planned, safe movements in avalanche terrain
 - Demanding
 - Requires training, knowledge and experience
 - Avoid the release- and, when required, the run-out zones
- Wrong navigation or a wrong judgment may lead to fatal consequences



European Avalanche Danger Scale (2018/19)



UNIS

	Danger level	Icon	Snowpack stability	Likelihood of triggering
5	very high		The snowpack is poorly bonded and largely unstable in general.	Numerous very large and often extremely large natural avalanches can be expected, even in moderately steep terrain*.
4	high		The snowpack is poorly bonded on most steep slopes*.	Triggering is likely, even from low additional loads**, on many steep slopes*. In some cases, numerous large and often very large natural avalanches can be expected.
3	considerable		The snowpack is moderately to poorly bonded on many steep slopes*.	Triggering is possible, even from low additional loads**, particularly on the indicated steep slopes*. In certain situations some large, and in isolated cases very large natural avalanches are possible.
2	moderate		The snowpack is only moderately well bonded on some steep slopes*; otherwise well bonded in general.	Triggering is possible, primarily from high additional loads**, particularly on the indicated steep slopes*. Very large natural avalanches are unlikely.
1	low		The snowpack is well bonded and stable in general.	Triggering is generally possible only from high additional loads** in isolated areas of very steep, extreme terrain*. Only small and medium natural avalanches are possible.

5 Obvious Clues of avalanche danger

Recent avalanches



5 Obvious Clues of avalanche danger

Collapsing or cracking



5 Obvious Clues of avalanche danger

Wind drifted snow



5 Obvious Clues of avalanche danger

Recent deposits - New snow



5 Obvious Clues of avalanche danger

Rapid warming



The human factor



Attitude:

People sometimes ignore danger signs due to pride, ego and ambition.

Time:

Weekend warrior syndrome.

Familiarity:

We take more chances

Expert halo:

Personality vs. skills
/qualifications

Blue Sky:

Sunny weather sometimes draws people out too soon after a storm.

Herding Instinct:

People tend to think less in large groups.

«Tracker dog»:

People tend to think that tracks in a slope is a safe slope

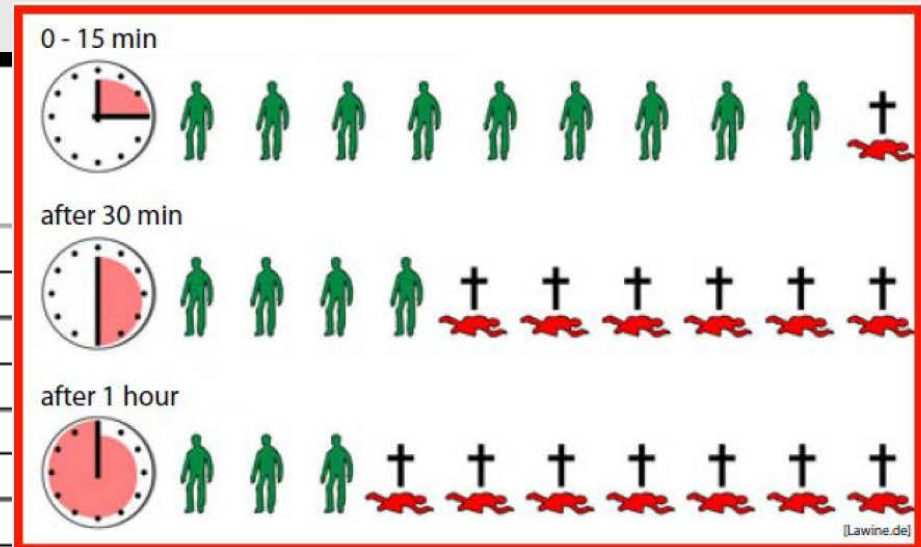
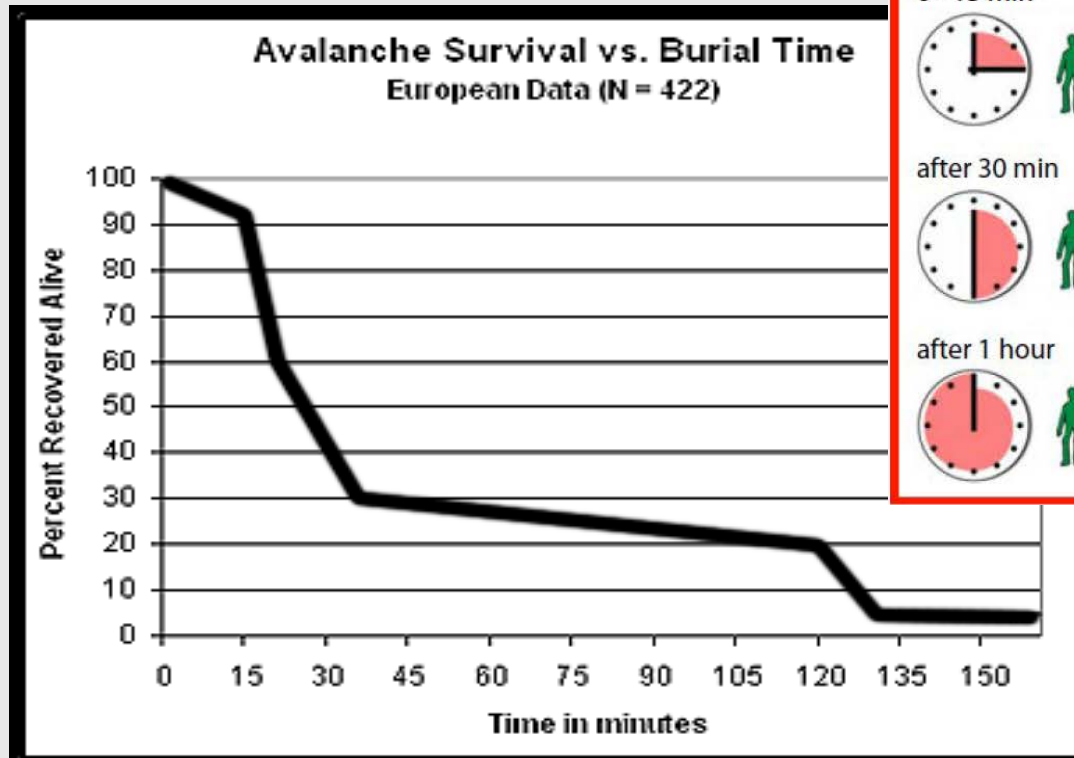
The human factor



Foto: Svalbardposten

Avalanche rescue

Time is critical!



- 20-25% dies of trauma before the avalanche stops
- Of those still alive; most survive for 15 minutes.
- After 15 minutes the survival rate drops rapidly

Avalanche rescue

Basic safety gear



Avalanche rescue

Safety gear

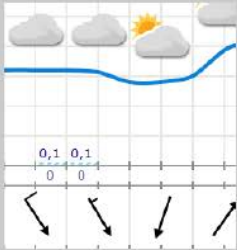










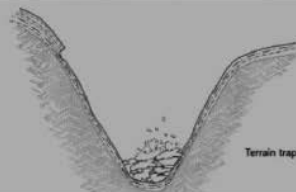
- Optional safety equipment



- Organized rescue



Planning

	Weather	Snowpack	Human	Terrain
Regional Before to go		 		
Local As expected?				Steeper <div>27-30° 30-35°</div>
Zonal Turn around?				Terrain trap 



Don't go if you don't know

Sources

Websites:

- Avalanche forecast and knowledge: www.varsom.no
- Steepness maps (KAST): <https://temakart.nve.no/link/?link=kast>
- Avalanche knowledge: www.kbyg.org

Movies:

- [To hell in a heartbeat](#)
- [Avalanche danger scale](#)
- [Avalanche accident](#)
- [Know before you go](#)

Some literature:

- Staying alive in avalanche terrain, Bruce Tremper
- Skikompis, Christer Lundberg Nes
- [Snowfall – The avalanche at tunnel creek](#), New York Times