

# Danger assessment for the avalanche problems (Analyser)

## New snow problem



relevant

- Quantity
- Property new snow
- Old snow surface



Weak layer :

no — yes

Can a failure be initiated?



- What is old snow surface like?  
(  hard, irregular/loose, uniform  )
- Rupture possibles dans la partie inférieure de la neige fraîche ? (  improbable/probable  )

Slab:

no — yes

Does it support crack propagation?



- Amount of new snow? (  10 cm/>40 cm  )
- Property of new snow? Wind-drifted? Temperature?  
(  below denser than above/above denser than below  )

Is the snowpack homogeneous across the entire slope?

no — yes



- Effect of old tracks? Wind?  
(  irregular/uniform  )

## Old snow or combined problem



relevant

- Weak layer
- Slab
- Variability



Weak layer:

no — yes

Can a failure be initiated?



- How weak? Type? Age?  
(  tough, warm, >2 month/very loose, cold, <2 weeks  )
- Depth of weak layer? (  >1 m/≤0,5 m  )
- Hardness of the snow above? (  hard/soft  )

Slab:

no — yes

Does it support crack propagation?



- Properties ? (  loose/well bonded, ductile  )
- Depth? (  <10 cm/>50 cm  )
- Layering? (  below denser than above/above denser than below  )

Is the snowpack homogeneous across the entire slope?

no — yes



- Wide-spread homogeneous snowpack layering  
(  yes/no  )

## Glide snow problem



- Can glide cracks or glide avalanches be observed?
- Are there signs of active snow gliding?  
(e.g. recent glide cracks)?
- Is there currently a typical period of glide snow?
- Can the gliding snow support itself at the base of the slope?

## Wind slab problem



relevant

- Wind speed
- Loose snow at surface
- Property of snow below wind slab



Weak layer:

no — yes

Can a failure be initiated?



- Snow below wind slab? (  hard/soft  )
- Is failure within wind slab possible?  
(  >2days, warm/<24h, cold  )
- How easily can the wind slab be triggered?  
(  tough, no signs/easy to trigger  )

Slab:

no — yes

Does it support crack propagation?



- Depth of wind slab (  5–10 cm/>40 cm  )

Is the snowpack homogeneous across the entire slope?

no — yes



- Are wind slabs widespread?  
(  yes/no  )

## Wet snow problem



relevant

- Amount of water
- First distinct wetting period
- Stratification du manteau neigeux



Weak layer:

no — yes

Can a failure be initiated?



- How weak? Type? Age?  
(  tough, warm, >2 month/very loose, cold, <2 weeks  )
- Depth of weak layer? (  >1 m/≤0,5 m  )
- Hardness of the snow above? (  hard/soft  )

Slab:

no — yes

Does it support crack propagation?



- Properties ? (  loose/well bonded, ductile  )
- Depth? (  <10 cm/>50 cm  )
- Layering? (  below denser than above/above denser than below  )

Is the snowpack homogeneous across the entire slope?

no — yes



- Wide-spread homogeneous snowpack layering  
(  yes/no  )

Weak layer and slab:

no — yes

- Does water penetrate significantly into the snowpack for the first time?  
(  yes/no  )
- How deep does water penetrate the snowpack?  
(  superficial/to layer boundaries  )
- Are there distinct layer boundaries or old weak layers?  
(  no/yes  )

Loose snow avalanches:

no — yes

- Penetration depth without skis?  
(  low/large  )

## Favorable situations



- Is a suitable weak layer missing?
- Is there a very old weak layer, overlaid with thick layers?
- Is a good slab missing?
- Does loose snow cover a stable snowpack?