

# Permafrost Knowledge Path

## 10 Permafrost and natural hazards

### *Are mountain trails and routes still safe?*

*Slow thaw settlement or creeping of permafrost (mostly in the order of magnitude of a few decimeters per year) represents hardly any problem for mountain trails and the persons using them. The ... possibly increasing danger of rock fall (or other abrupt types of transport of loose rocks or scree) yet is an aspect, which could be of increasing importance when climate change continues warming up the atmosphere. For not only the permafrost areas themselves are affected – the rock material falling, sliding or flowing down also endangers the territory at lower elevations and the people being there. This e. g. was the case in summer 2005 at the popular trail leading to Kürsinger mountain hut in the Venediger mountains. Fortunately nobody was hurt there, but the high probability of the presence of members of the “leisure society” is a relevant aspect in dealing with natural hazards of permafrost.*

*From these considerations one can conclude that thawing permafrost can be a source of danger in the high mountain environment. Yet it would be wrong to believe that high mountains have become more dangerous compared to „former times“ (whatever this means) just because of changes in permafrost. The increase of hazards ... is a more complex phenomenon. Among the relevant factors are other processes induced by climate change (e. g. glacier retreat) and also the changing attitudes and activities of the visitors (e. g. preparedness to run high risks). In any case the processes are worth being investigated in detail ..., in order to adapt to changing conditions in high mountains by sensitive behaviour and efficient local measures (from: Lieb 2006).*

## **Tasks:**

1. The text deals with hazards of high mountain permafrost. Which processes are estimated as dangerous, which not?
2. How can changes in permafrost affect also areas, in which permafrost does not exist at all?
3. Which process that is also caused by climate change is listed as another potential hazard?
4. Which role play humans themselves concerning potential hazards in high mountains?