Revision of rock, scree and glacier in a data-based cartographic system

Topographic map series of Switzerland:

Rock, scree and glacier representations need to be updated
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1. Is revision of terrain necessary at 1:25 000 scale?

Aletschgletscher (Switzerland)

Around 1900

2005
2. Today‘s terrain revision, 1:25 000

Method of terrain representation
Bases of terrain revision

- Latest map edition and photogrammetric plot
Bases of terrain revision

- Latest map edition and photogrammetric plot
- Stereoscopic aerial photographs
Problem

Photogrammetric plot
Problem

Aerial photograph
Problem

Incorrect rock and scree revision
Problem

Terrestrial photograph
Problem

Correct rock and scree revision
3. Terrain revision in the future, 1:25 000

Alternative rock representations
Option A
Option B
Our conclusion: **Rock, scree and glaciers are well presented!**
Chosen method of terrain representation

- Rock representation will be retained

Now
Future
Reduction in human labour

none
Chosen method of terrain representation

- Rock representation will be retained
- Glacier representation will be retained

Now

Future

Reduction in human labour

Now

Future

none

100%

0%
Chosen method of terrain representation

- Rock representation will be retained
- Glacier representation will be retained
- Scree representation will be automatically produced

Now

Future

Reduction in human labour

remarkable
Chosen method of terrain representation

- Rock representation will be retained
- Glacier representation will be retained
- Scree representation will be automatically produced
- Contour lines will be derived from a digital terrain model
### Future bases for rock and glacier revision

| Latest map edition | Outlines of rock + glaciers | Contour lines | Aerial photographs |

![Map of Bohinj area with rock and glacier outlines and contour lines](image-url)

**Bohinj 2006**

30.01.2006 | Folie 18

**swisstopo**
Future bases of scree representation

Outlines of scree  Contour lines  Hill shading
Problem

- Risk of incorrect terrain revision will remain
Preliminary work before transition

- Rock and glacier representations have to be separated from the map content

Black and blue items  Separated rock drawing  Separated glacier drawing
Preliminary work before transition

- Rock and glacier representations have to be separated from the map content
- Rock and glacier representations must be completed

Completed rock drawing
Completed glacier drawing
Conclusions

- Today’s rock and glacier representations is retained and will be revised

Today’s rock and glacier drawing

Future rock and glacier drawing
Conclusions

- Today’s rock and glacier representations is retained and will be revised
- New scree representation will reduce costs

Now

Future

Reduction in human labour
Conclusions

- Today’s rock and glacier representations is retained and will be revised
- New scree representation will reduce costs
- Skills of a sufficient number of specialized cartographers must be guaranteed

4 of 6 swisstopo’s rock drawing specialists
4. Summary

- Rock and glacier representations will be stored and revised in raster mode
4. Summary

- Rock and glacier representations will be stored and revised in raster mode
- Outlines of rock, glacier and scree will be stored and revised in vector mode
4. Summary

- Rock and glacier representations will be stored and revised in raster mode
- Outlines of rock, glacier and scree will be stored and revised in vector mode
- Contour lines will be stored and revised in vector mode
4. Summary

- Rock and glacier representations will be stored and revised in raster mode
- Outlines of rock, glacier and scree will be stored and revised in vector mode
- Contour lines will be stored and revised in vector mode
- Scree representation will be automatically produced
Maps in comparison

Now

Future