Photogrammetrical monitoring of the Triglav glacier in Slovenia

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The monitoring of the Triglav glacier

- The work of Geographical institute Anton Melink, ZRC SAZU
  - Regular monitoring of the glacier since 1946
  - Filming of the glacier with panoramic nonmetric camera Horizont from two fixed standpoints from 1976 on monthly basis


- The work on older aerophotographs from the Surveying and mapping authority of the Republic of Slovenia archives (1975)

- Conclusion

The Horizont photograph transformed into central projection from 8th May 1998.
The year 1999

- photogrammetric filming with hand-held Rolleiflex 6006 metric medium frame camera – from helicopter and from terrain
- Temporary control points measured in local coordinate system
- Data acquired by analytical photogrammetric instrument
The year 2001

- Photogrammetric filming with hand-held Rolleiflex 6006 metric medium frame camera – from helicopter
- Stabilisation of fixed control points and measured with GPS
- The results are not directly comparable with 1999 because of the new snow
- The transformation of the 1999 to the global coordinate system was performed
The year 2003

- Directly comparable with 1999 data
- Photogrammetric filming with hand-held Rolleiflex 6006 metric medium frame camera – from helicopter
The year 2005

- Aerophotogrammetric filming with Leica RC30 camera
- New GPS measurements, new transformation to the national coordinate system
- The area was still covered with some old snow
CAS – cyclical aerophotographing

- The oldest stereopair from SMA CAS 75
  - Orientation on the basis of the same details seen on 2005 and 1975 aerophotographs
  - Orientation on the points was made with the accuracy of 0.5 m
  - The filming was made in autumn, new snow was already present, the area of the glacier is under the shadow – uncertain acquisition results
Conclusion

• On the basis of photogrammetrical filming we see the disappearance of the glacier (because of a lot of snow it was bigger in 2005)
• Old CAS are useful for checking the state of the glacier in the history
• Different methods for the acquisition of data should be developed for the specific archive photographs