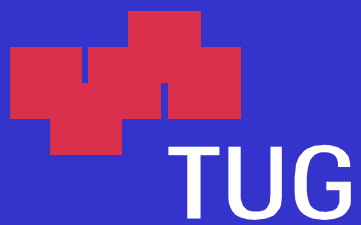
Geodetic measurements on glaciers and rock glaciers in the Hohe Tauern National Park (Austria)

G. Kienast[1] and V. Kaufmann[2]

[1]Institute of Navigation and Satellite Geodesy
[2]Institute of Remote Sensing and Photogrammetry
Graz University of Technology



Outline

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4. Hinteres Langtalkar Rock Glacier
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6. Goessnitzkees
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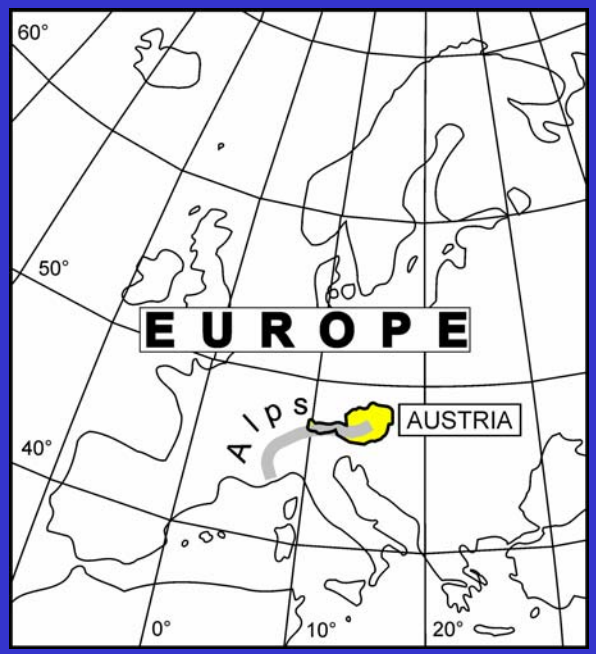
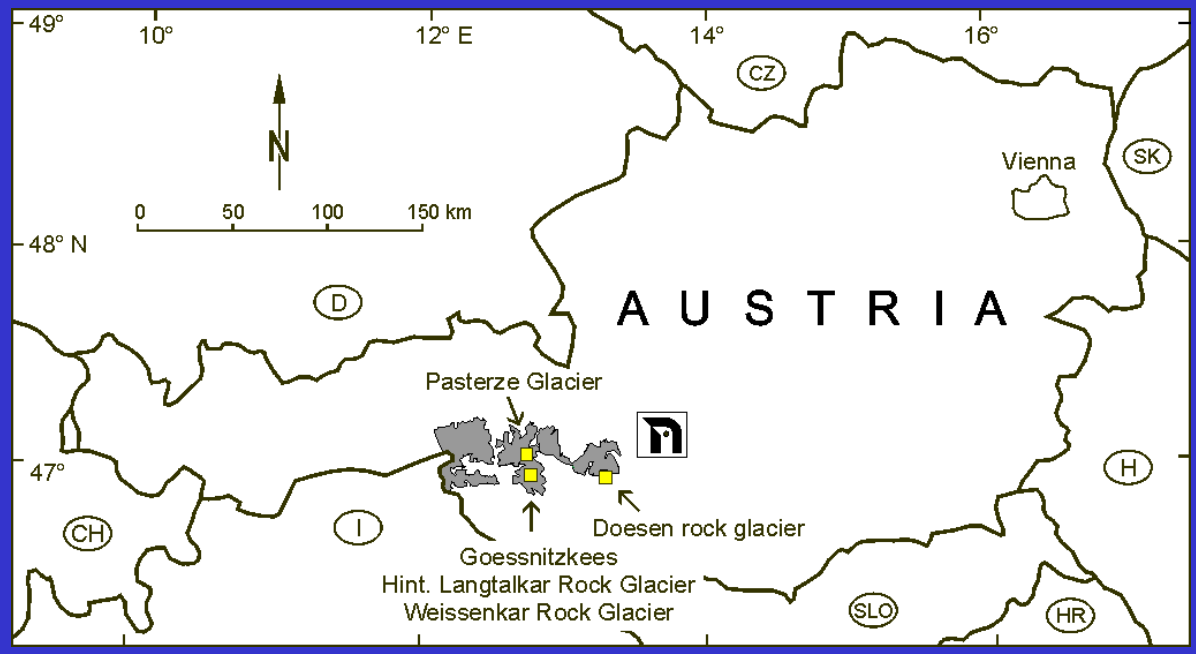
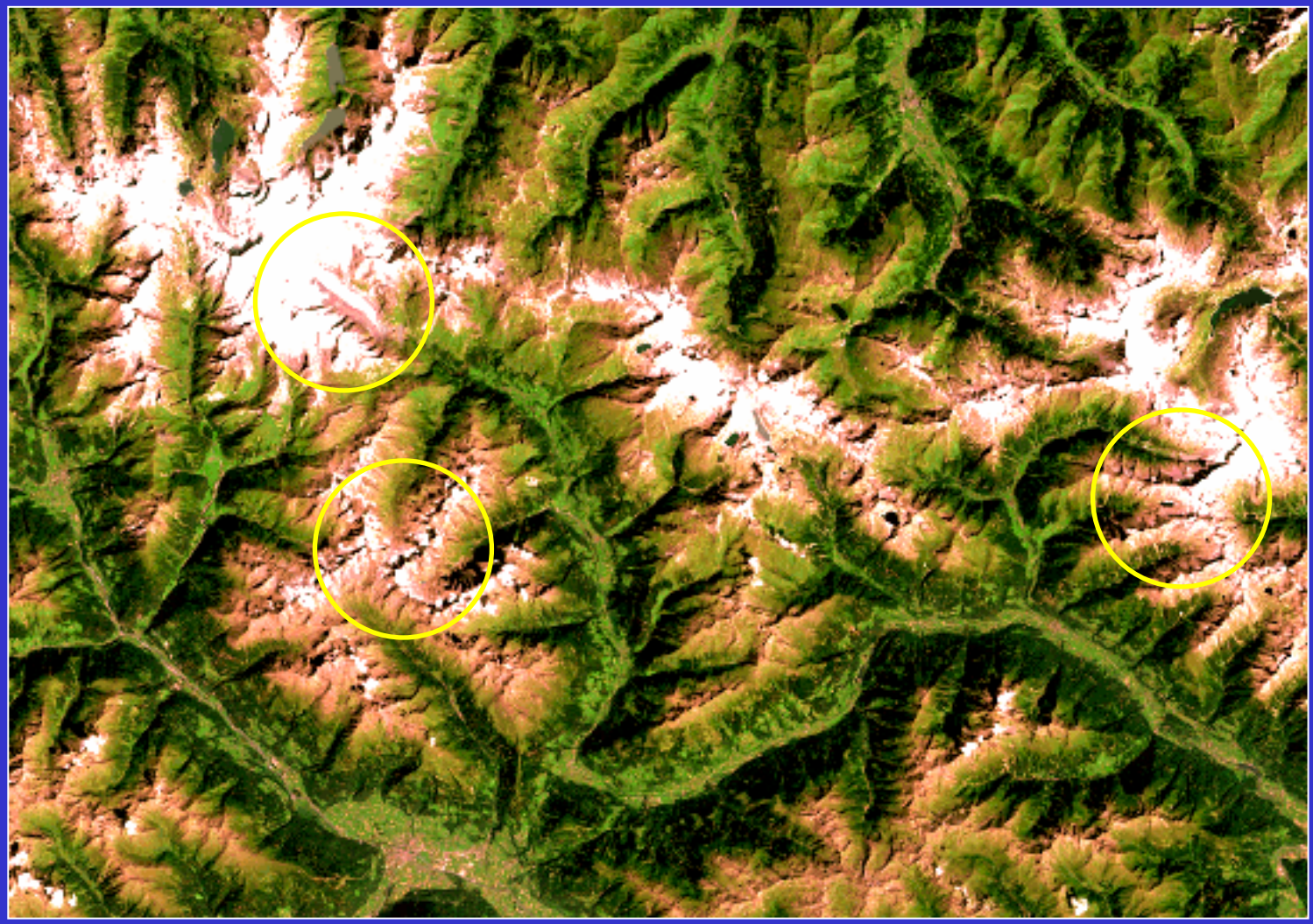
1. Introduction

- Report on geodetic measurements on some glaciers and rock glaciers in the Austrian Alps
- Test sites are located in the Hohe Tauern National Park





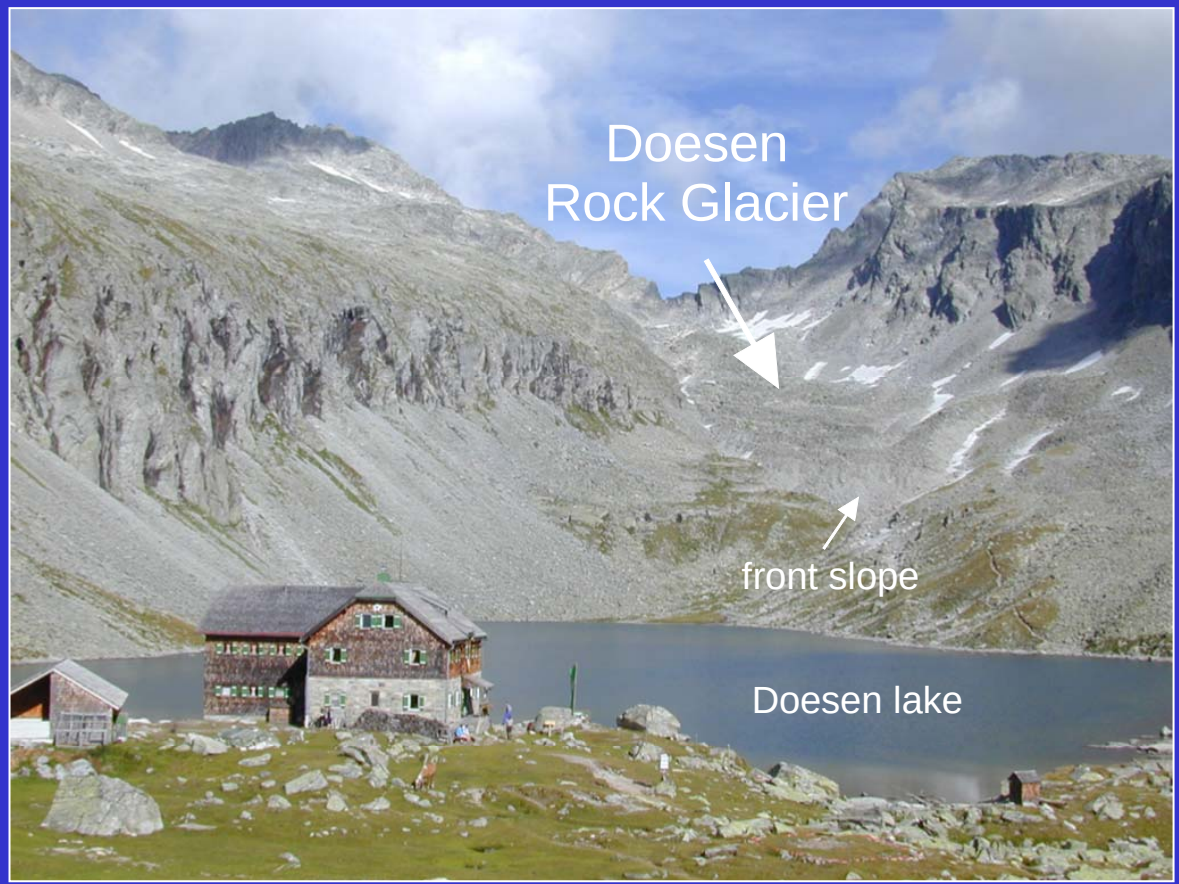


Satellite view (Landsat Thematic Mapper)

2. Pasterze Glacier

Terrestrial view

3. Doesen Rock Glacier



Terrestrial view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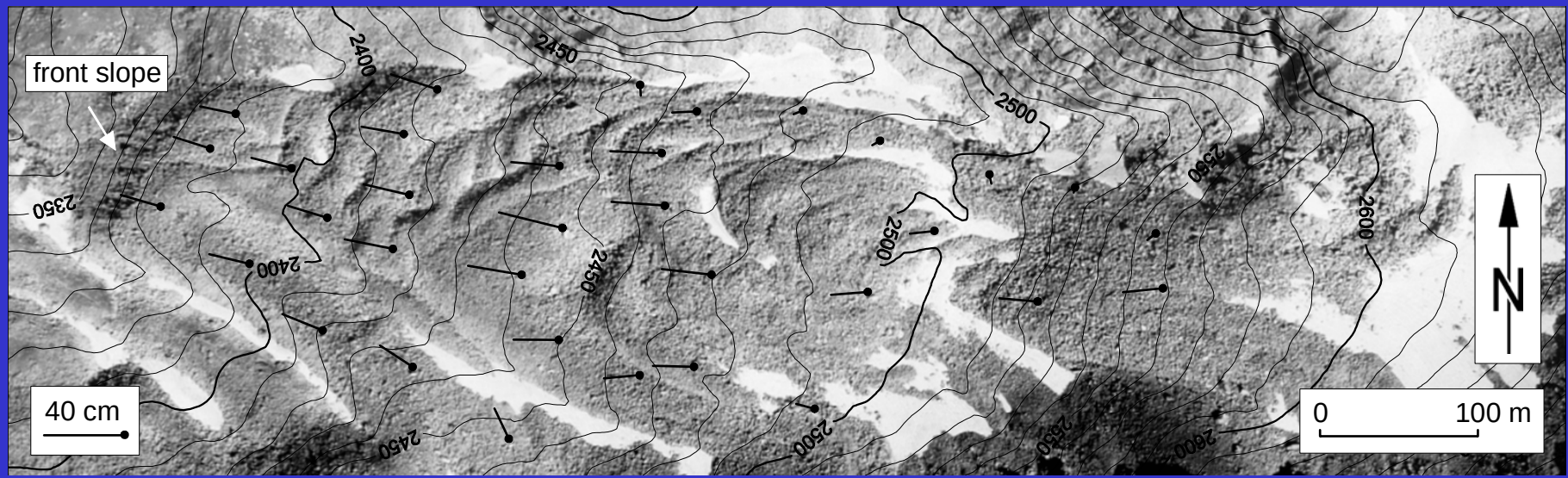
3. Doesen Rock Glacier



Horizontal movement 1997-1998

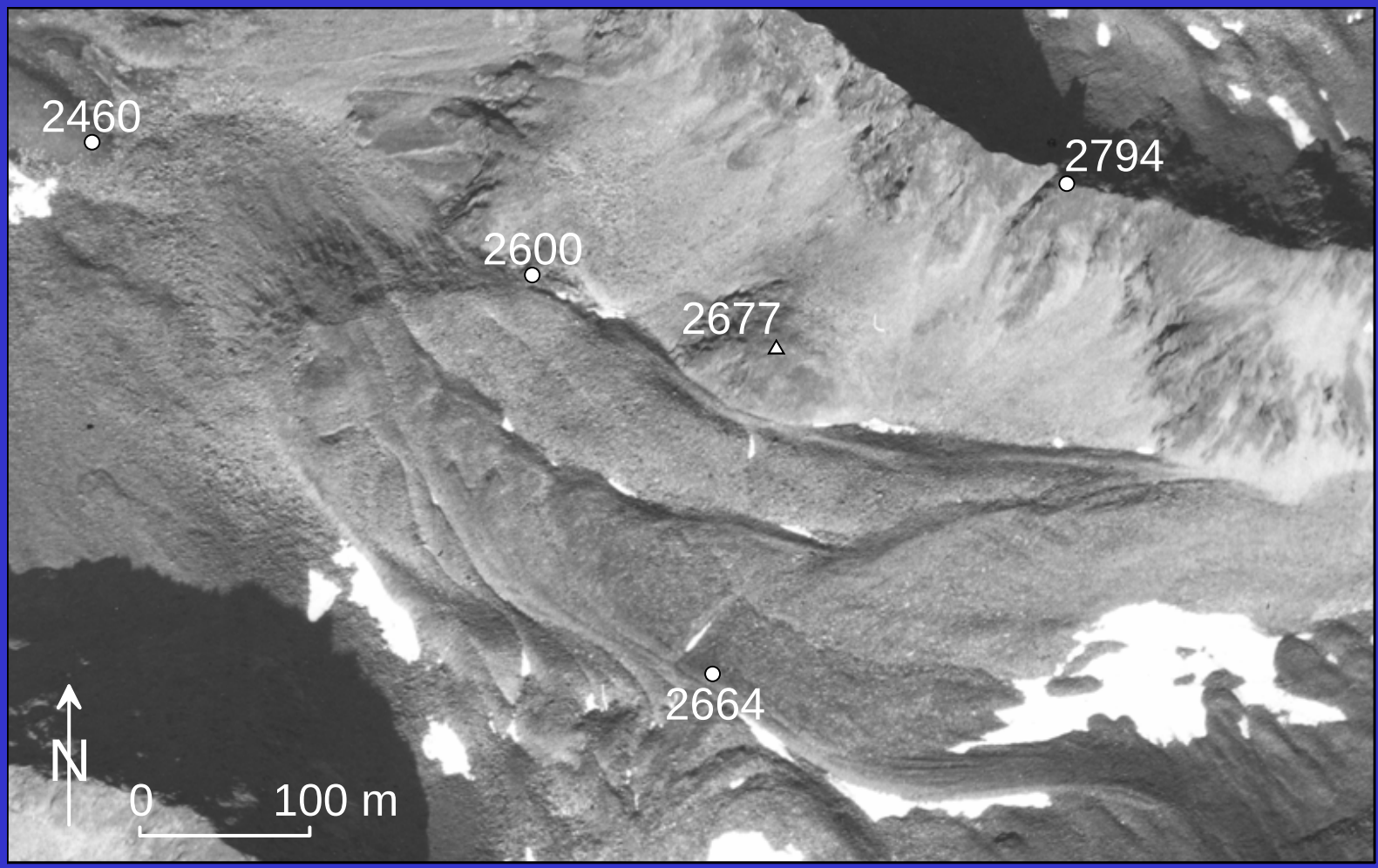
4. Hinteres Langtalkar Rock Glacier

Terrestrial view

4. Hinteres Langtalkar Rock Glacier

Measurements

4. Hinteres Langtalkar Rock Glacier



Situation 1991

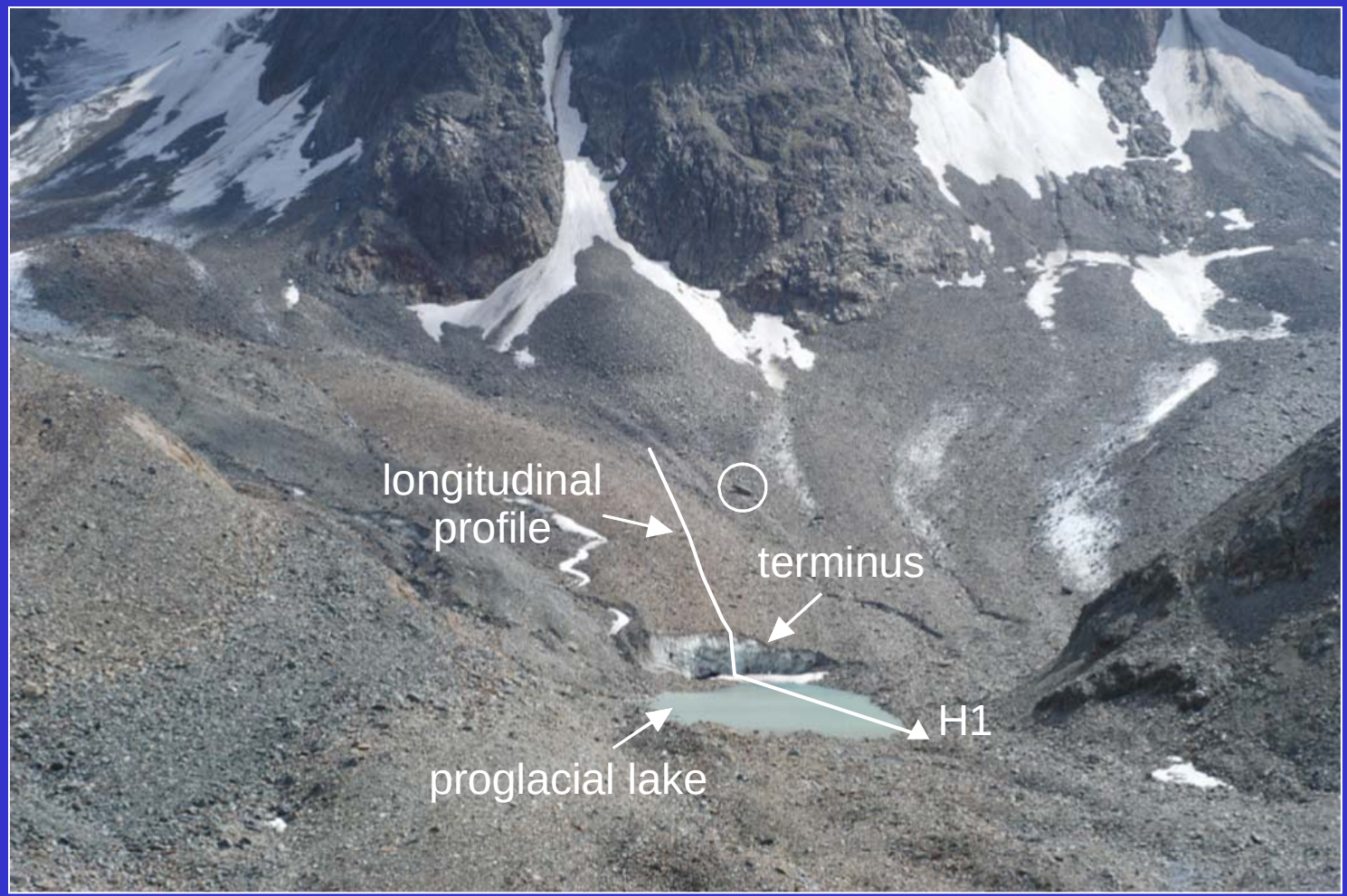
4. Hinteres Langtalkar Rock Glacier

Situation 1999 with movements 1999-2000

5. Weissenkar Rock Glacier

Terrestrial view

6. Goessnitzkees

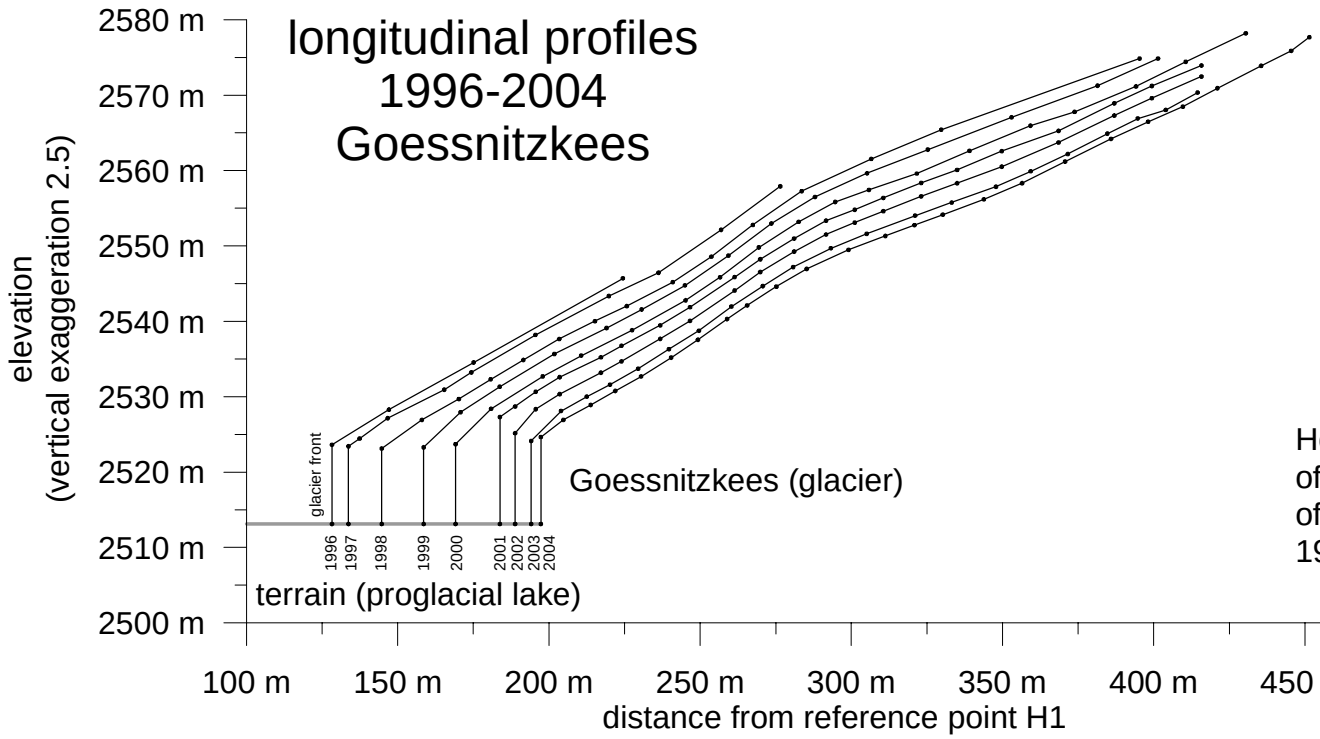


Terrestrial view

6. Goessnitzkees

Measurements

6. Goessnitzkees



Mean surface height change:

1996-1997: -1.20 m +/-0.05
1997-1998: -2.42 m +/-0.04
1998-1999: -1.59 m +/-0.03
1999-2000: -2.10 m +/-0.05
2000-2001: -1.58 m +/-0.05
2001-2002: -1.86 m +/-0.05
2002-2003: -2.15 m +/-0.03
2003-2004: -1.19 m +/-0.02

1996-2004: -1.76 m/year

Horizontal retreat of the terminus of the glacier in direction of the profile for the time period 1996-2004: -69.05 m

7. Conclusions and Outlook

Most systematic studies of glacier length change in Austria are carried out in a quite simple manner. Our geodetic measurements of selected points on the glacier surface provide detailed and accurate 3-dimensional information on flow velocity and mass change. Furthermore, our monitoring program was extended to include the surface kinematics of rock glaciers. This allows more detailed conclusions to be drawn on the behavior of the glaciers and rock glaciers studied, especially if long-term data series exist.

Measurement data over a time span of nearly 10 years are now available for our study areas in the Hohe Tauern National Park. It is planned to continue these measurements on an annual basis, since they are of great importance to climate researchers analyzing the impact of climatic change on our environment.

For further information please contact

Gerhard Kienast

Institute of Navigation and Satellite Geodesy
Graz University of Technology
Steyrergasse 30, A-8010 Graz

Tel.: +43 316 873-6835
Fax: +43 316 873-8888
E-mail: gerhard.kienast@tugraz.at
http://www.inas/tugraz.at/