



The Hintereisferner - eight years of experience in method development for glacier monitoring with airborne LiDAR

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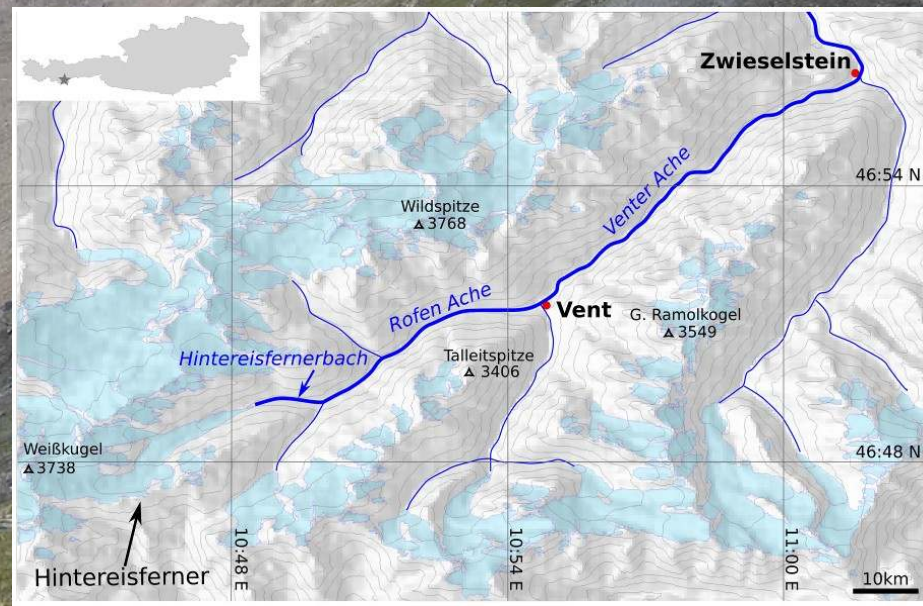
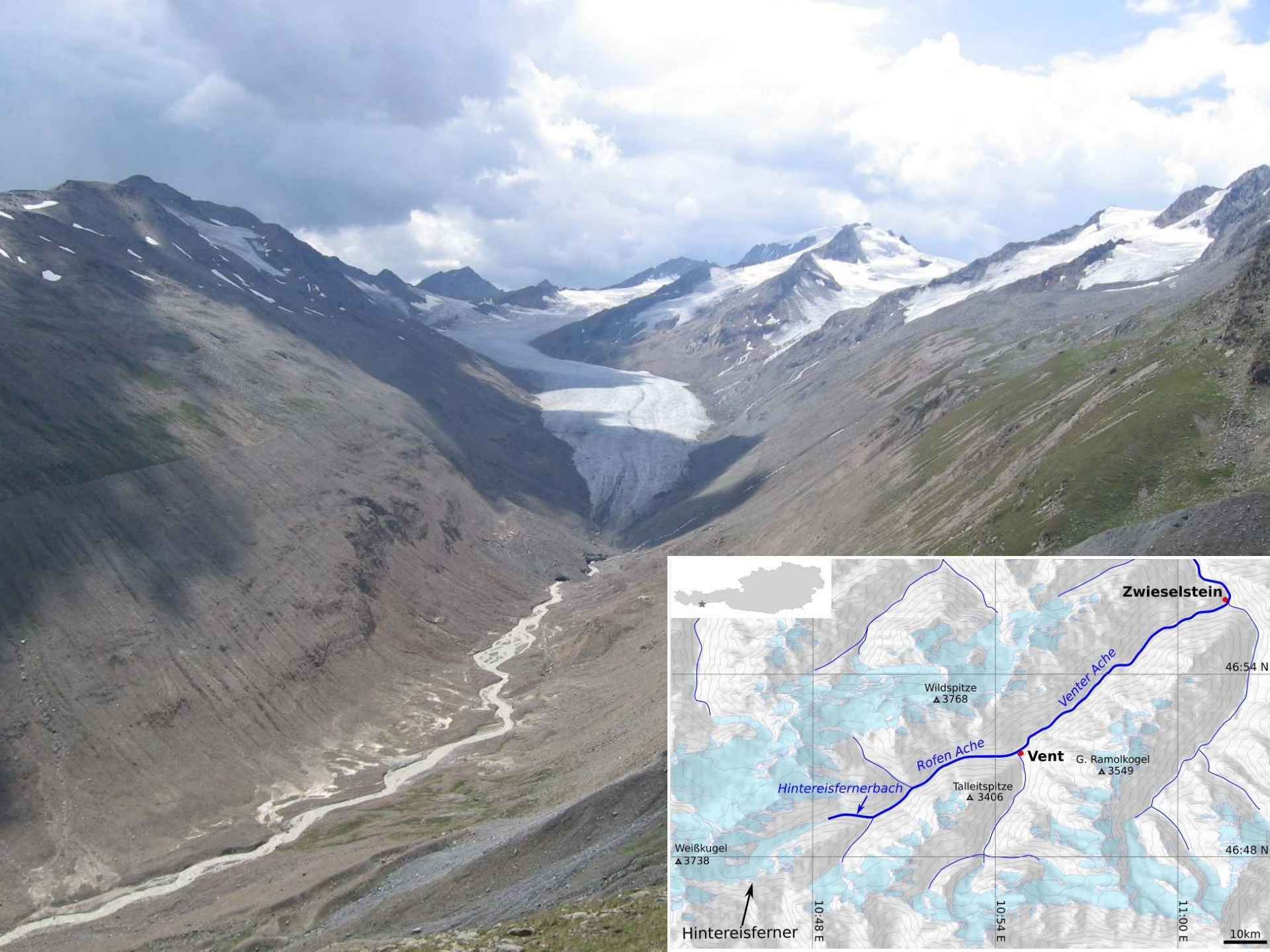
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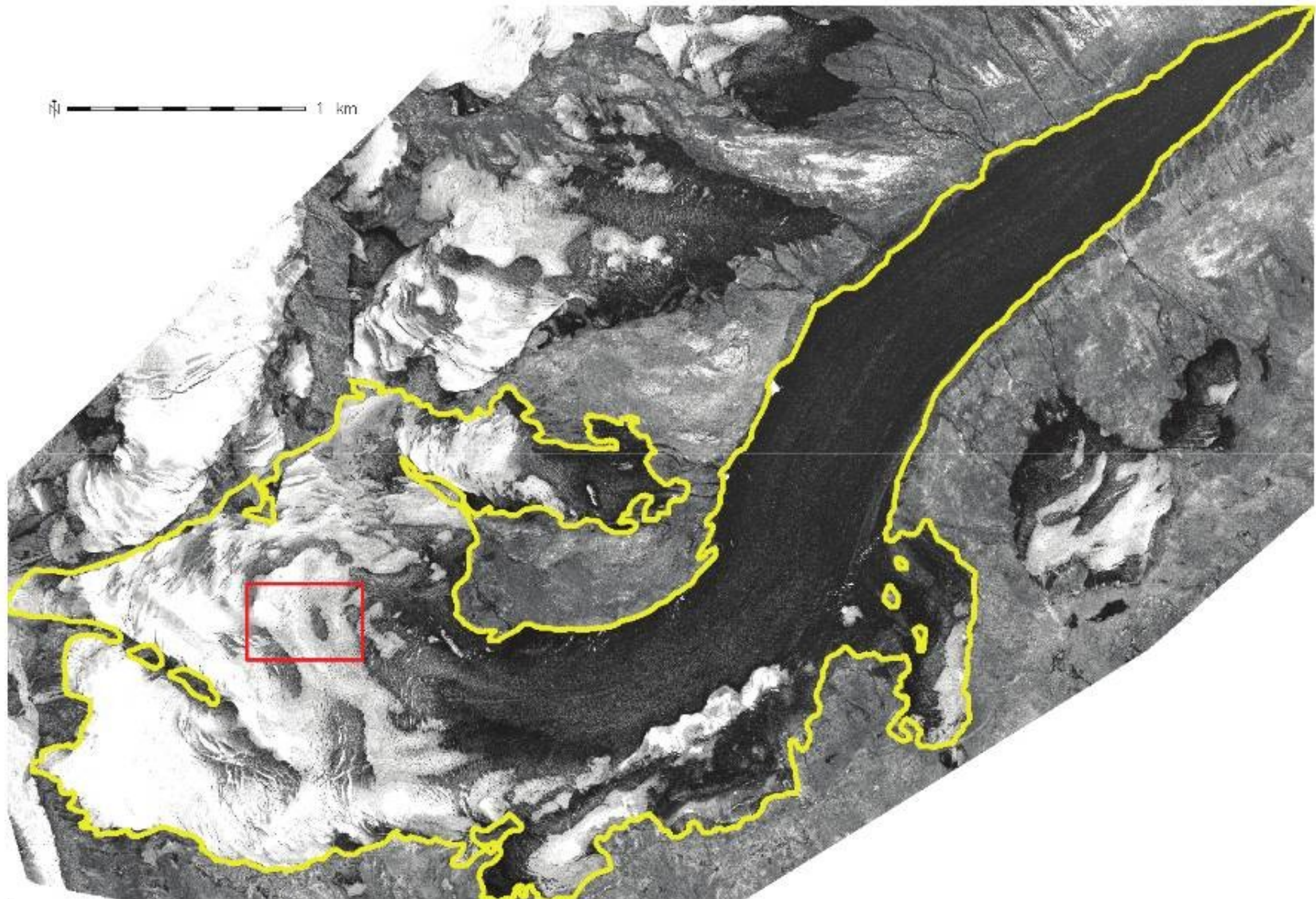
History

- Long tradition since ~1890
 - Mass balance measurements
 - Glacier outline mapping
- Since 2001 LiDAR data collection (OMEGA)
 - 16 LiDAR flights (17th in May)
 - min. 1 point/m², IMU & GPS data, timestamps,
 - x,y,z,i data, flight path, speed, aircraft altitude, ...

	January	February	March	April	May	June	July	August	September	October	November
2001										ALTM 1225	
2002	ALTM 1225				ALTM 1225	ALTM 1225	ALTM 1225	ALTM 1225	ALTM 3033		
2003					ALTM 2050			ALTM 2050	ALTM 1225		
2004										ALTM 2050	
2005										ALTM 3100	
2007										ALTM 3100	
2008								ALTM 3100	ALTM 3100		
2009					ALTM 3100						



Glacier delineation

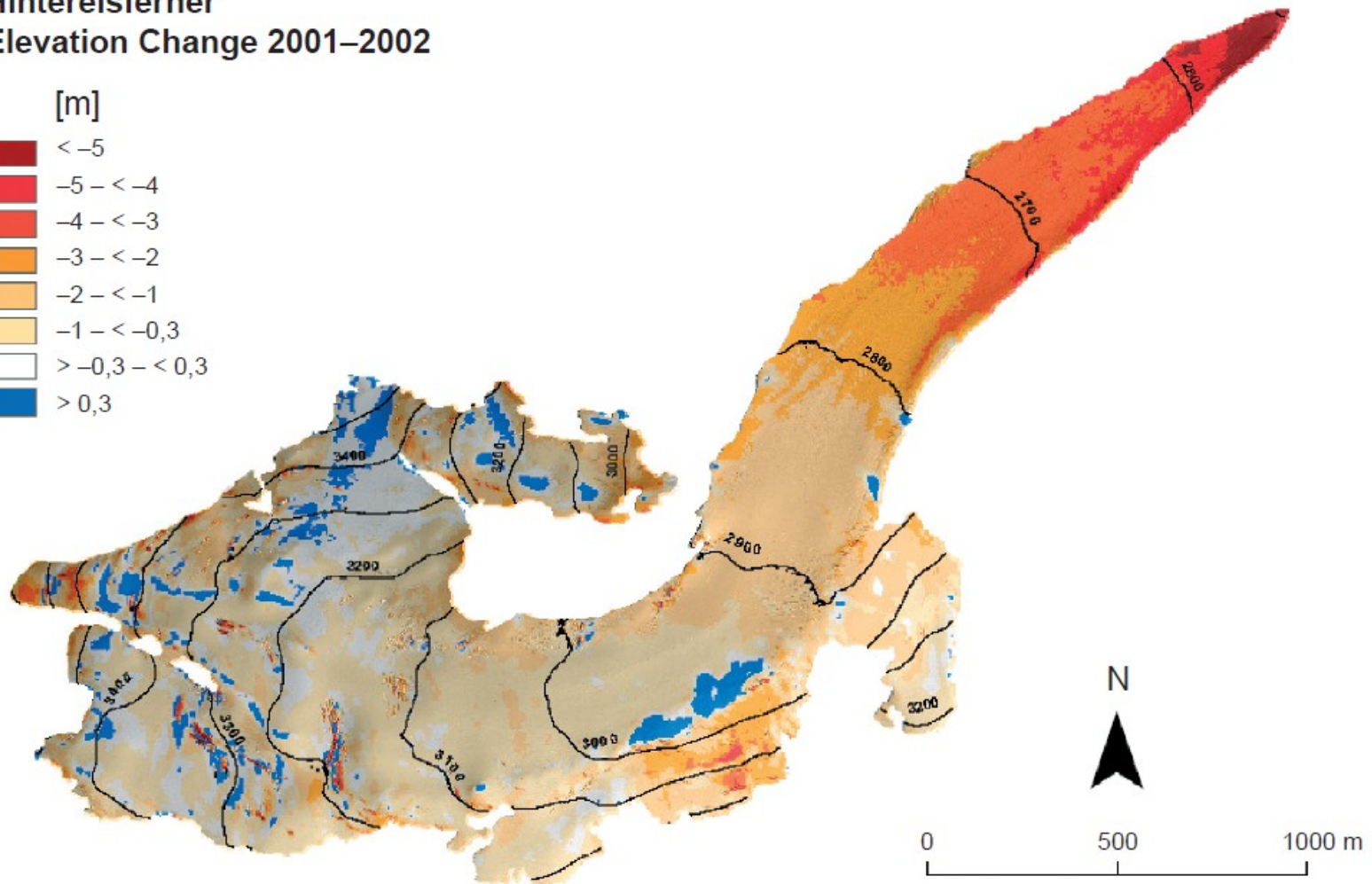
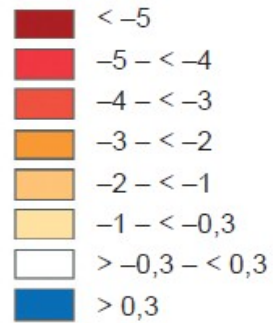




Elevation change

Hintereisferner
Elevation Change 2001–2002

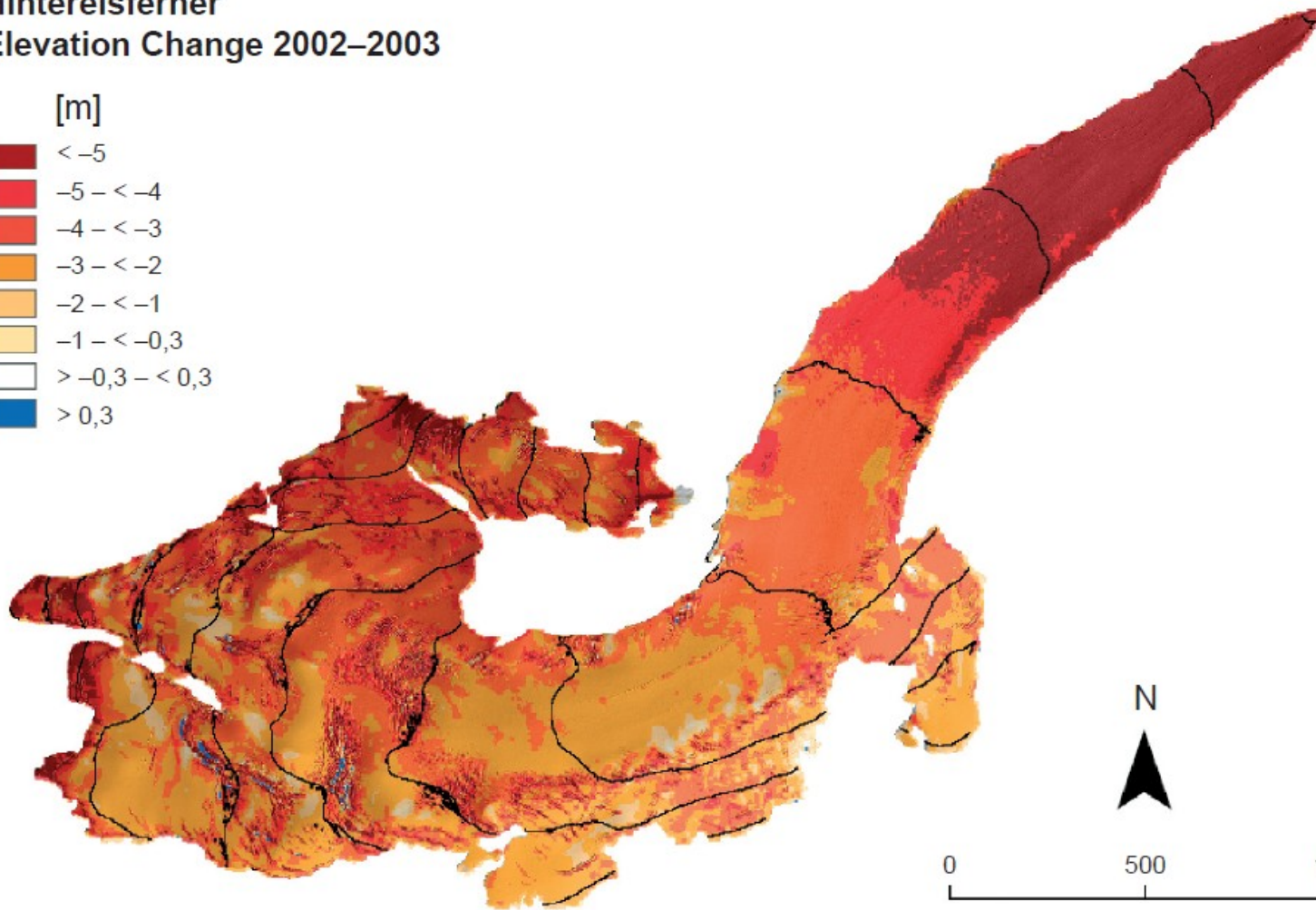
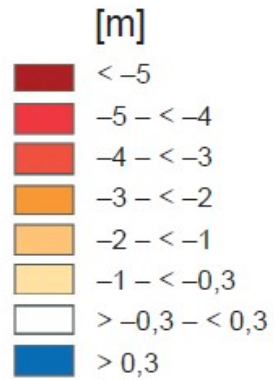
[m]





Elevation change

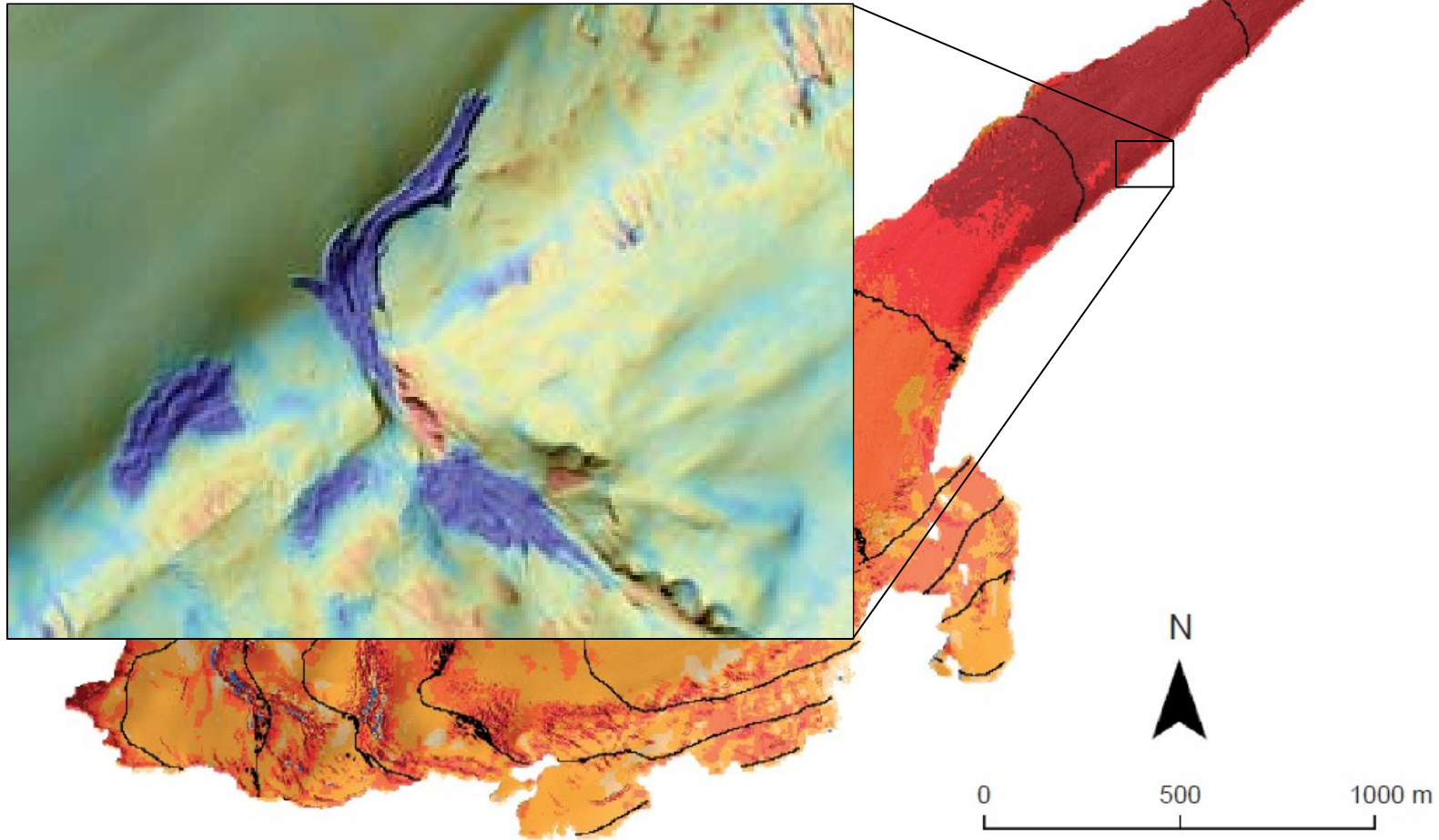
Hintereisferner
Elevation Change 2002–2003





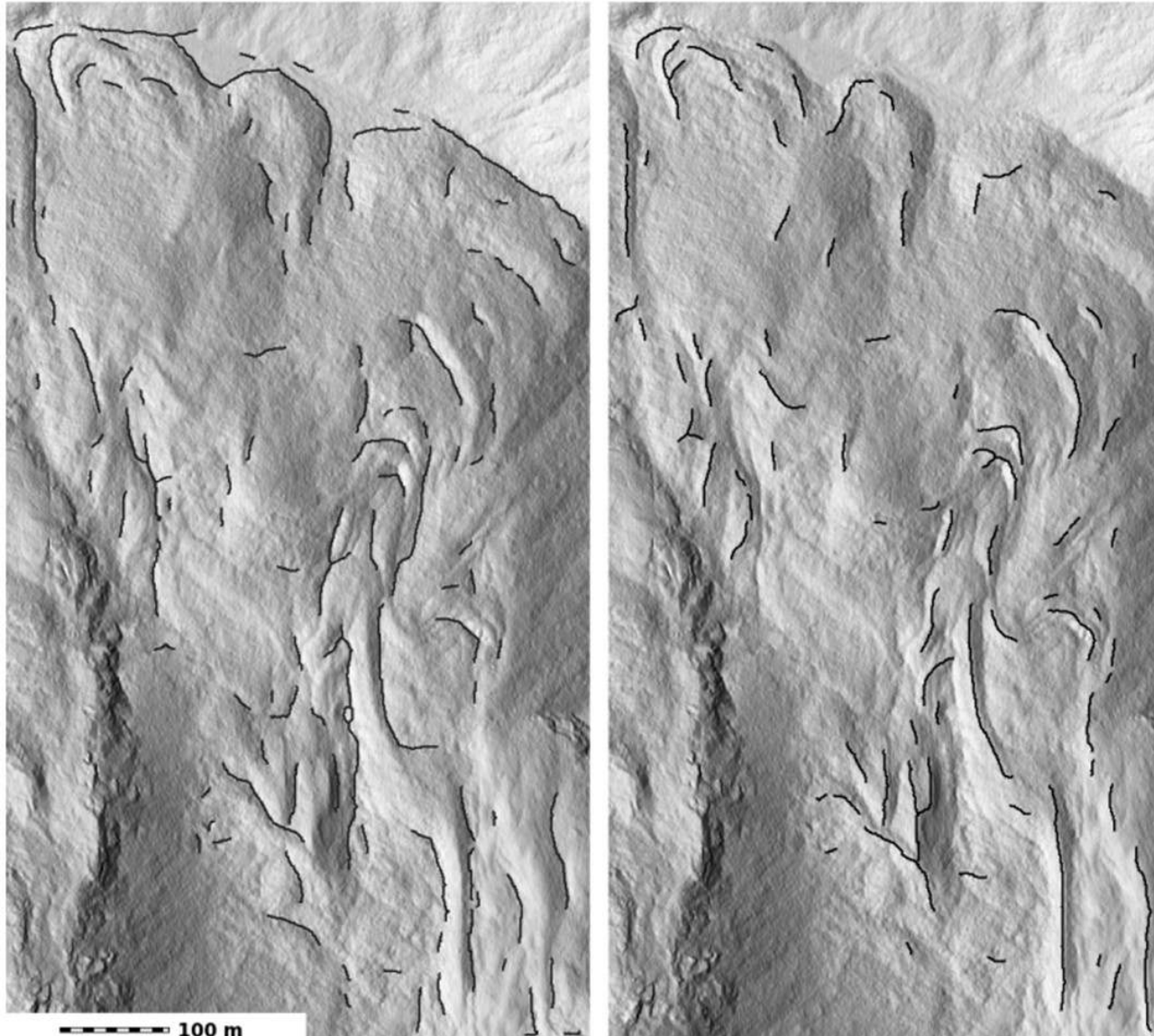
Elevation change

Hintereisferner
Elevation Change 2002–2003



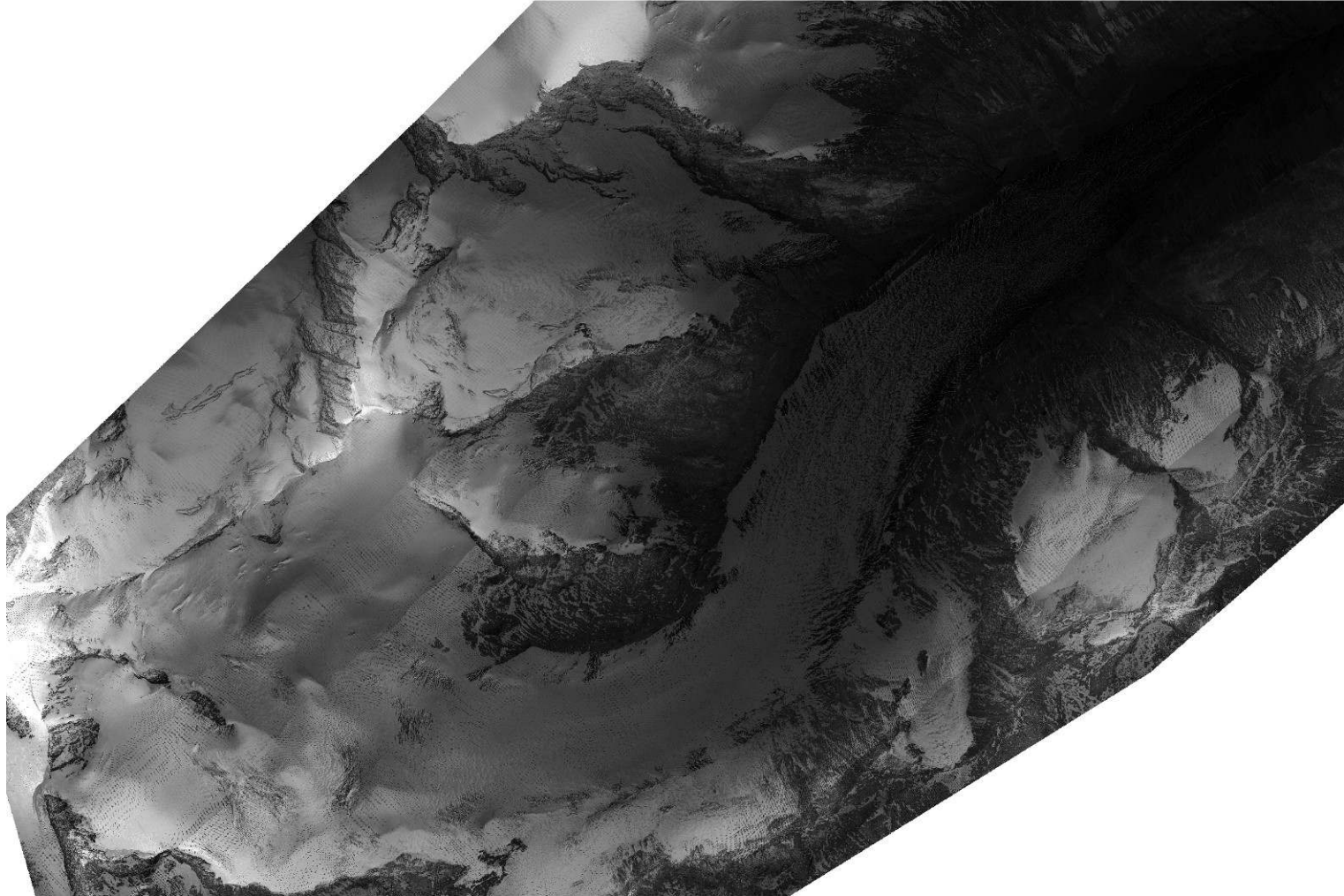


Ridge detection



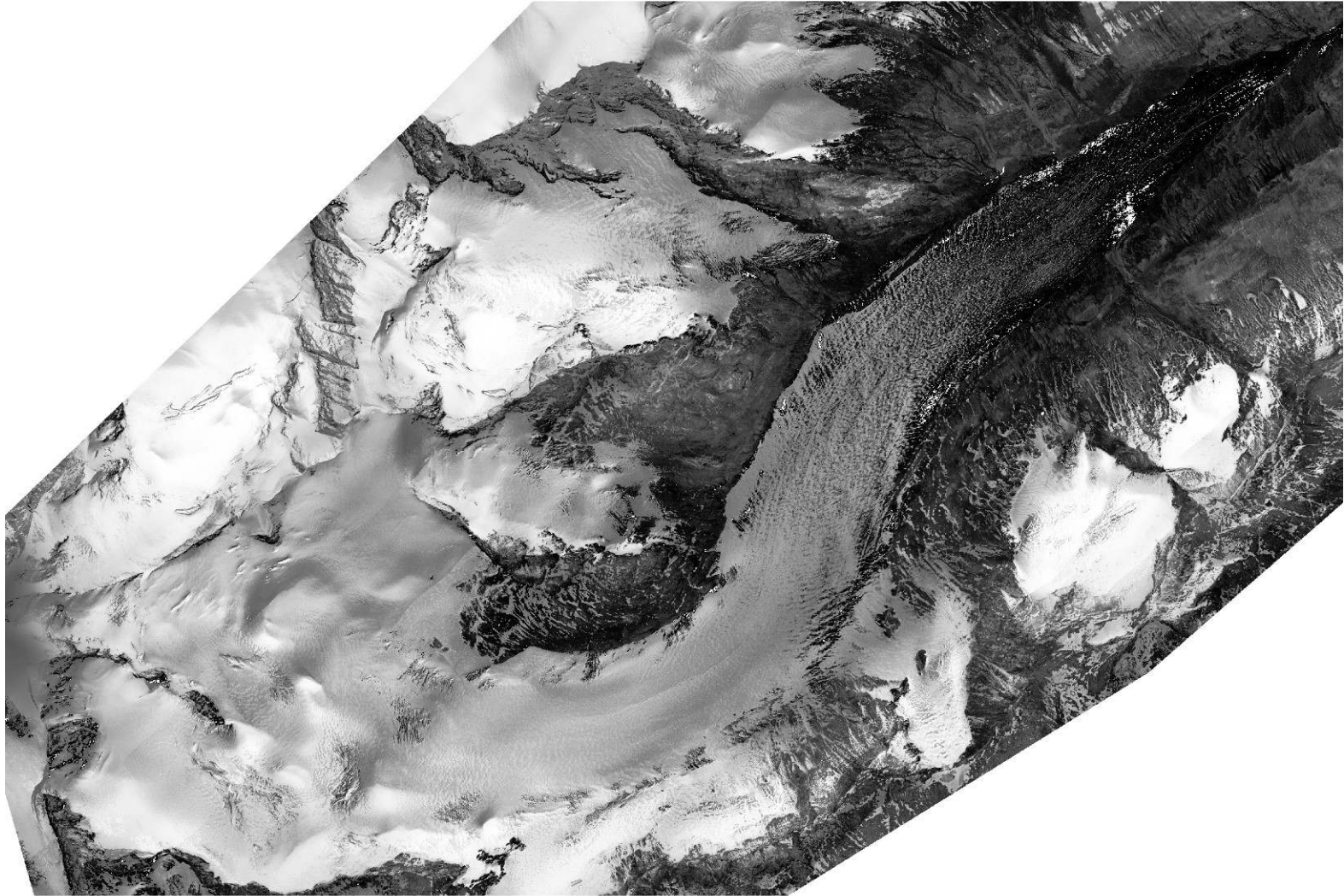


Intensity data



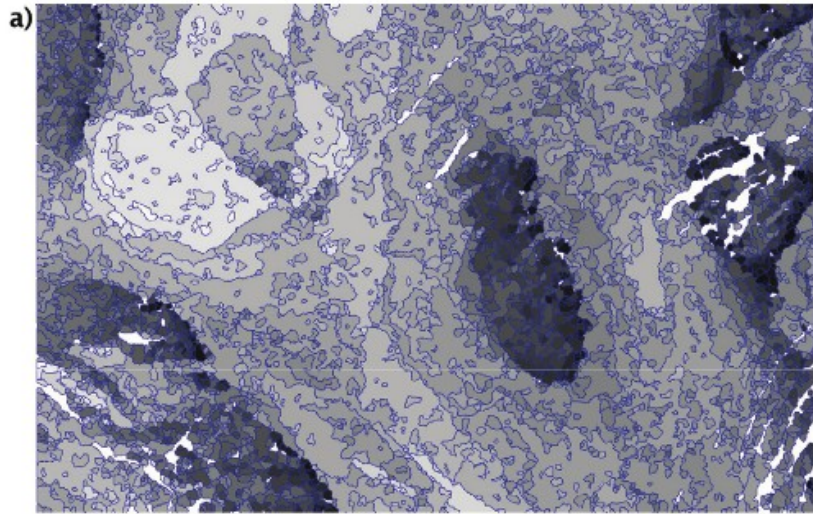


Intensity correction

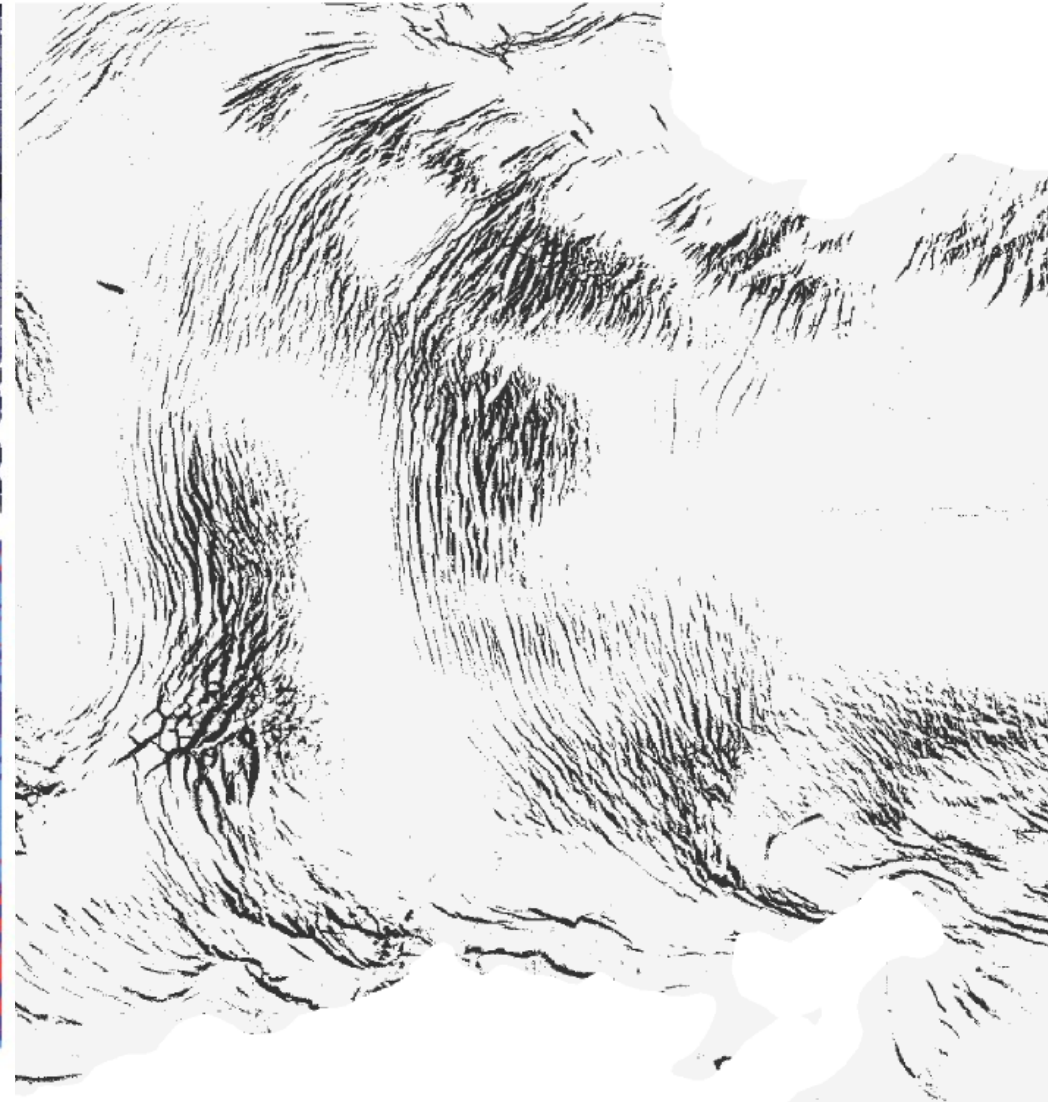




Snow, ice, firn, crevasses



■ ice ■ firn ■ snow ■ surface irregularities (crevasses)





Radiometric adjustment

Oct. 05. 2004 (corr.)

a)

Oct. 08. 2006 (corr.)

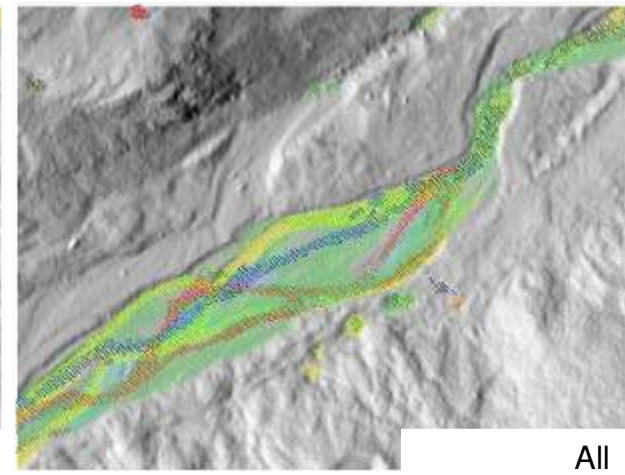
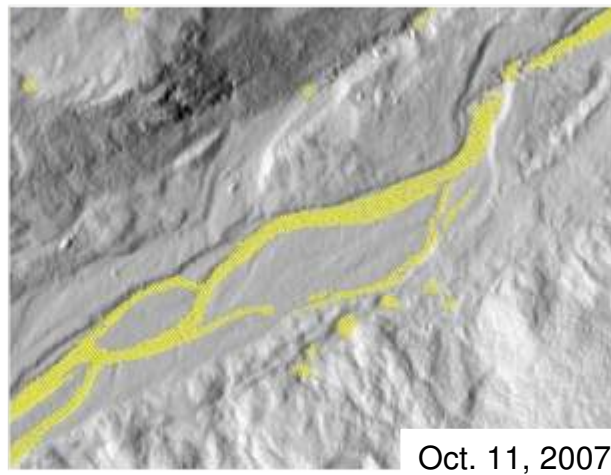
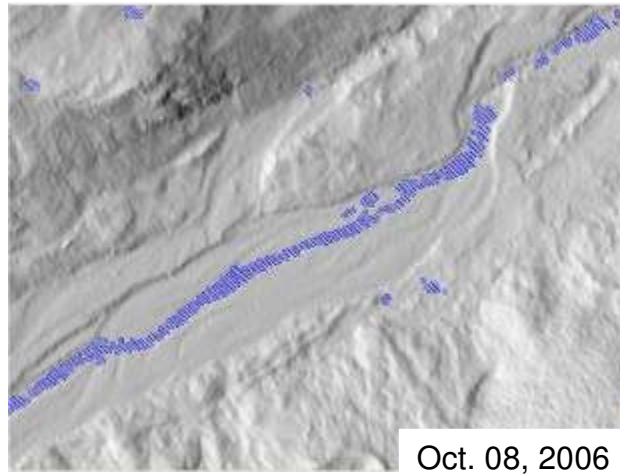
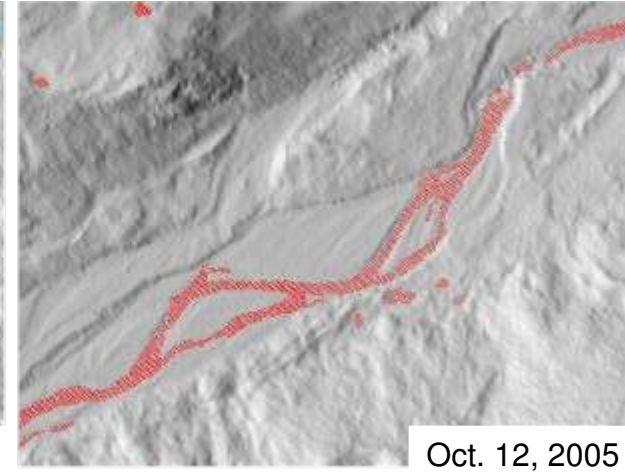
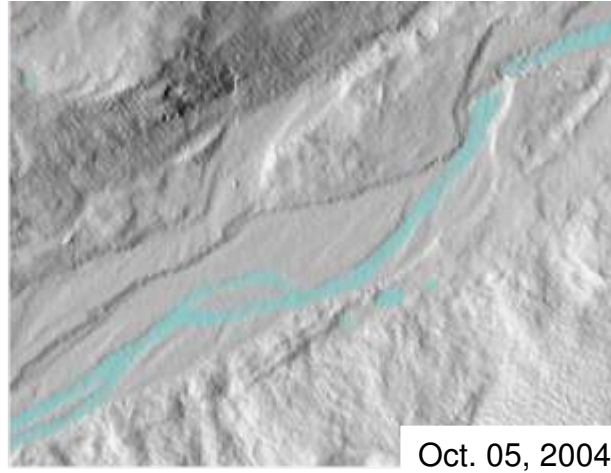
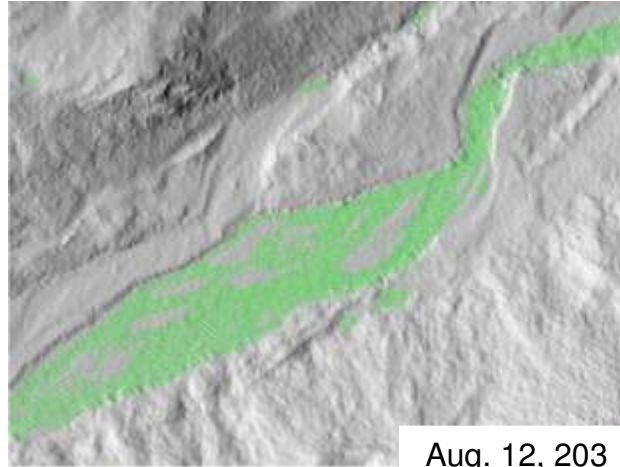
b)

Oct. 08. 2006 (corr. & adjust.)

c)

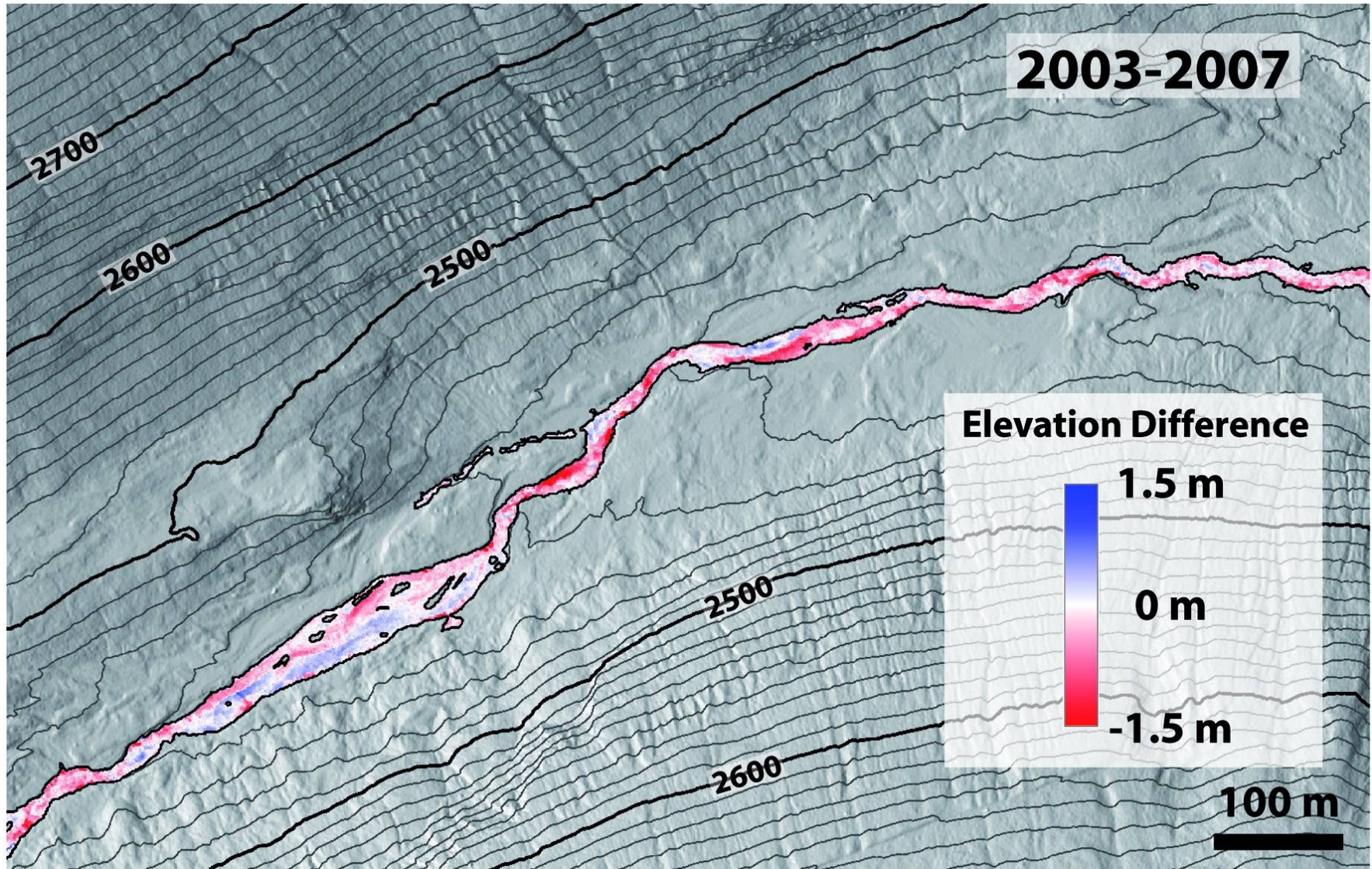


Water surface





Elevation change (braided river)



Thanks for your attention!





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