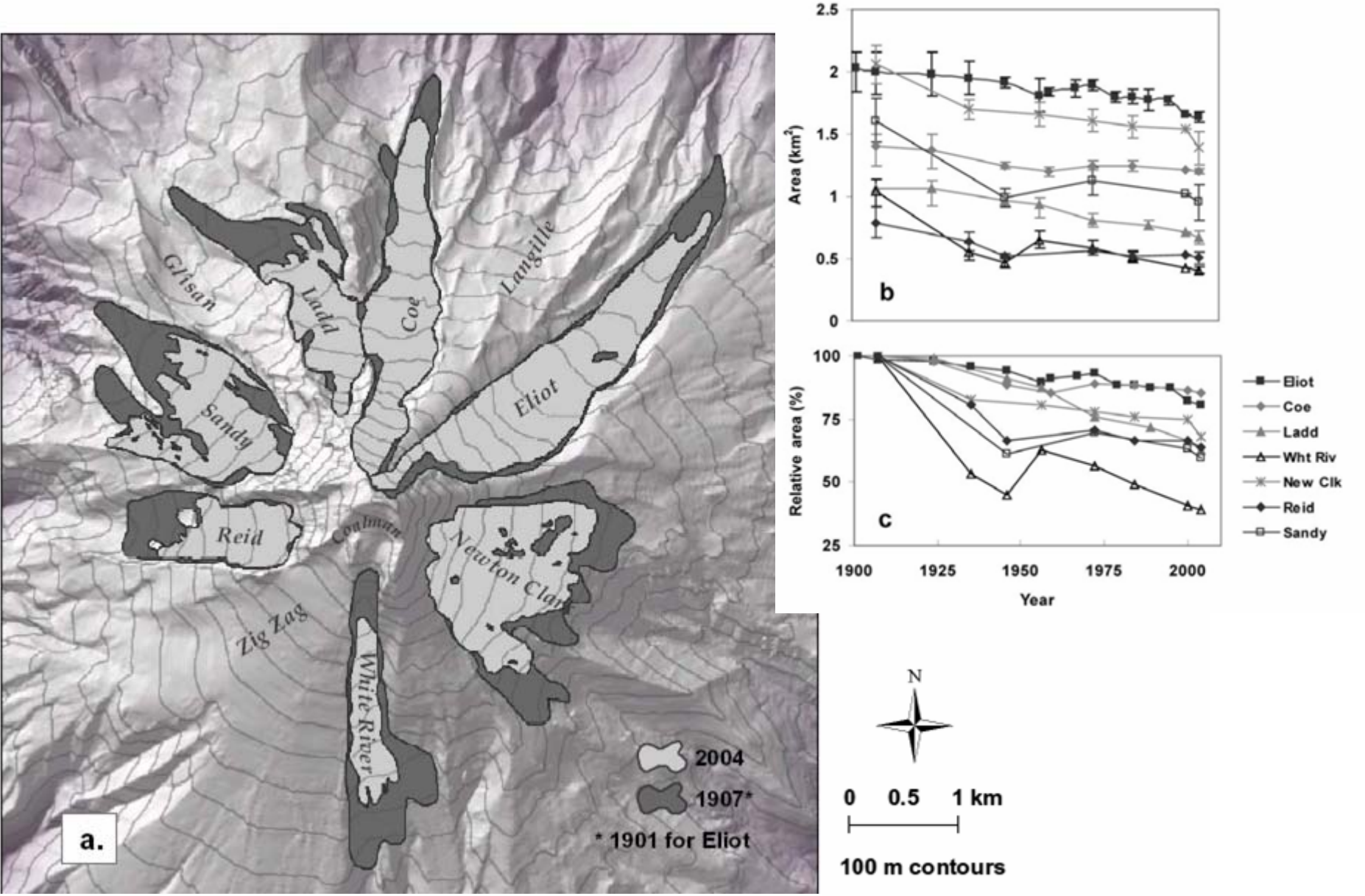
http://glaciers.us

Eliot Glacier
A=1.8 km^2
V=0.1 km^3

Mount Hood
A=22 km^2
V=0.34 km^3



Spatial and morphological change on Eliot Glacier, Mount Hood, Oregon USA, Keith Jackson and Andrew Fountain, 2007, *Annals of Glaciology*

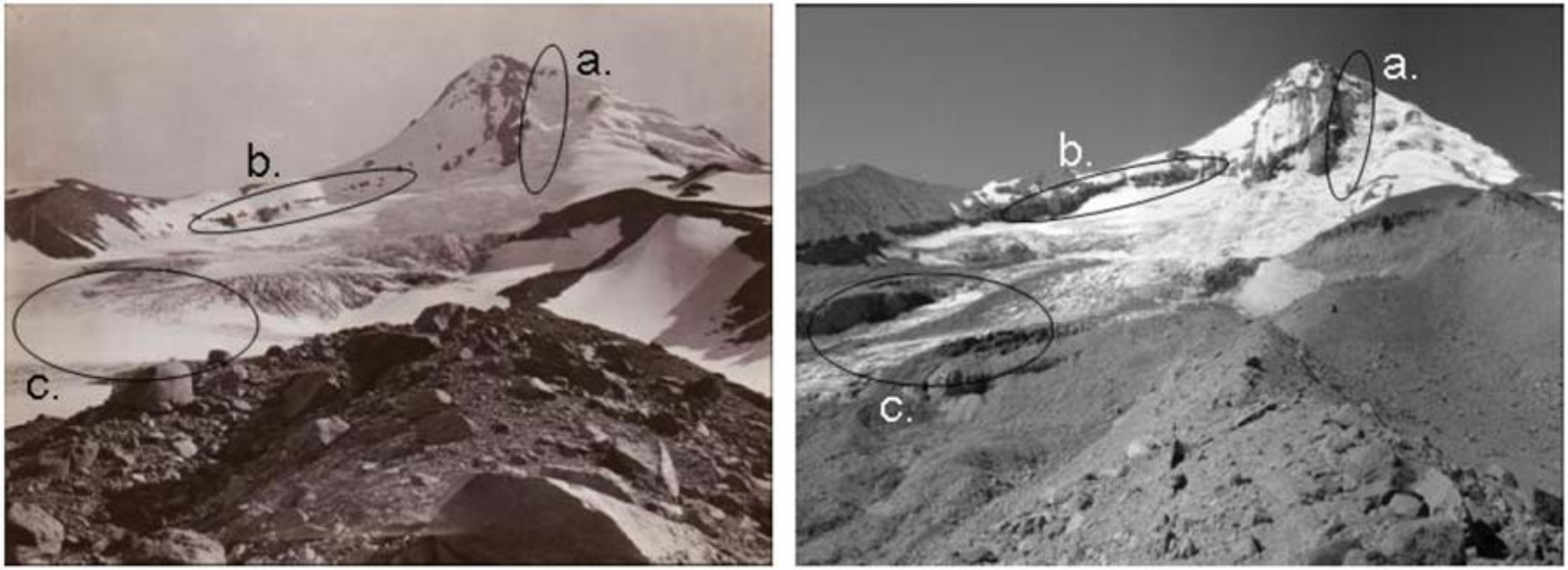


Figure 11. July 23, 1901 photograph (taken by Reid) on left (Mazamas reference # p17), July 22, 2005 photograph on right. The area to the west of the headwall (a), the large cliff-face of Cooper Spur (b), and two large bedrock humps have been exposed just down-glacier of the current ELA (c).

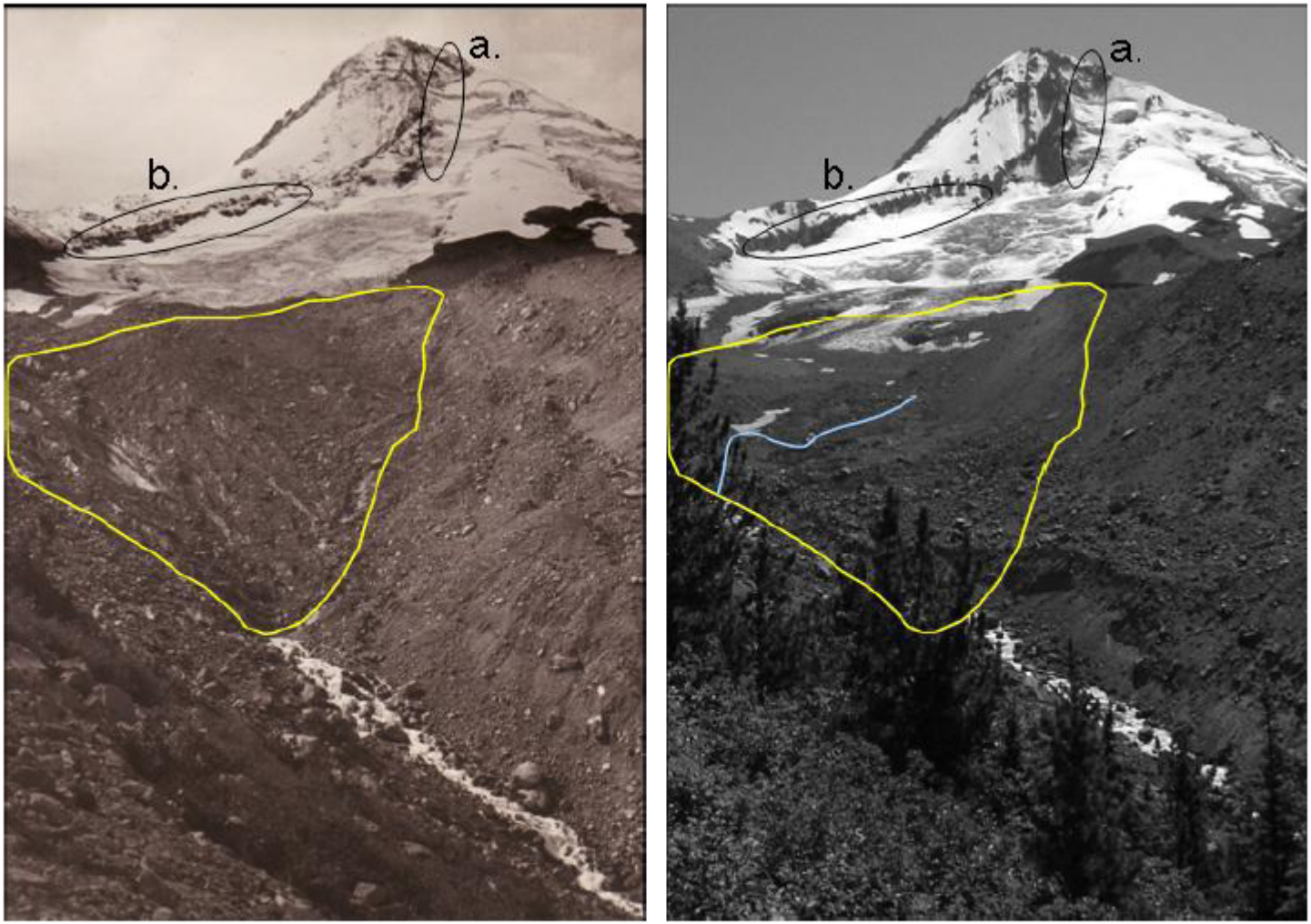
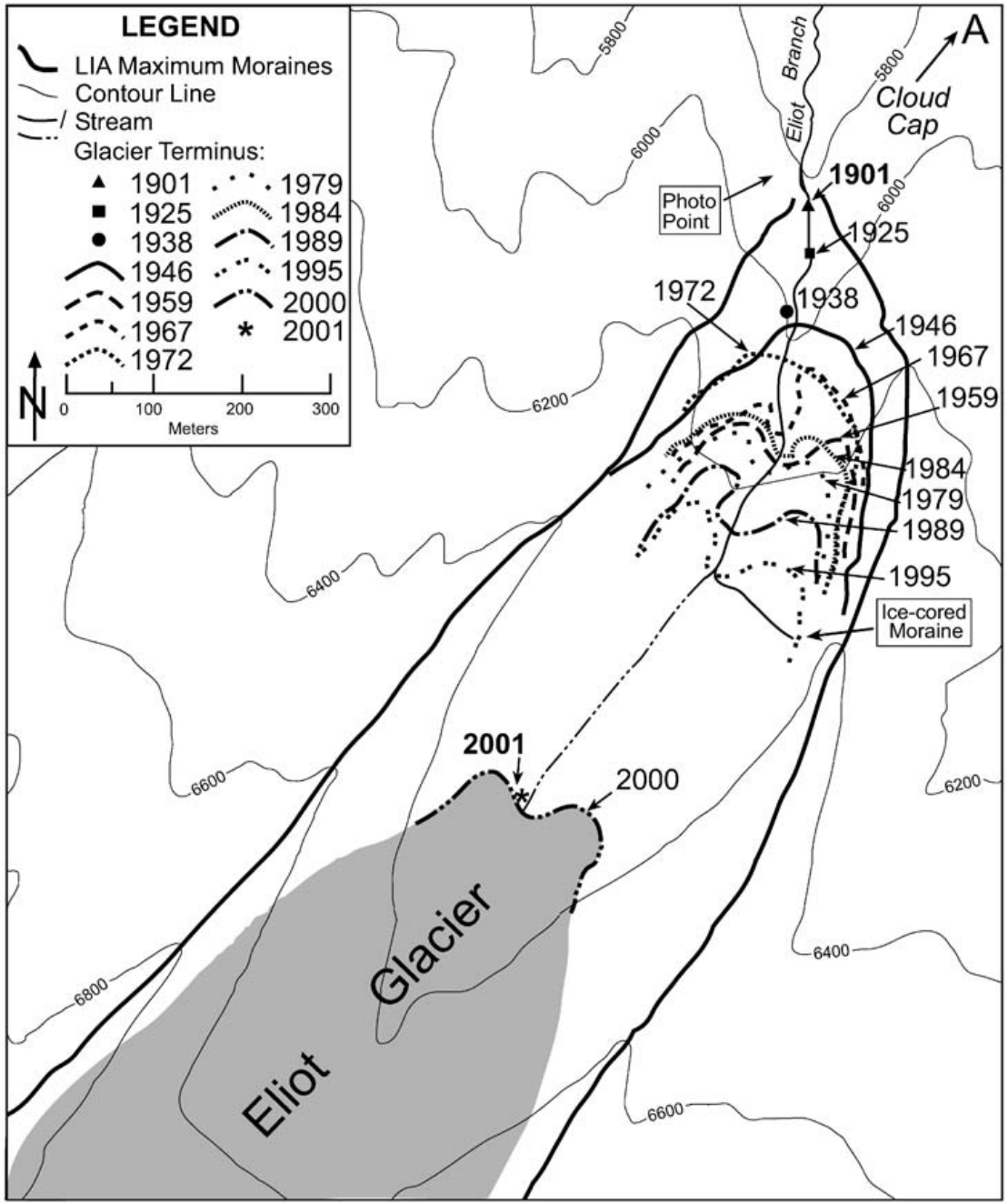
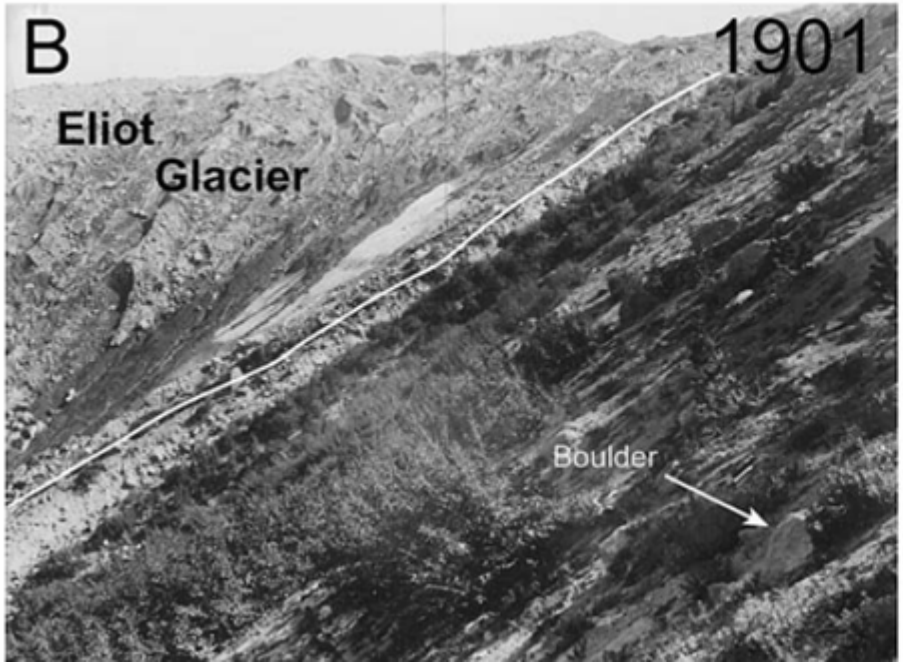
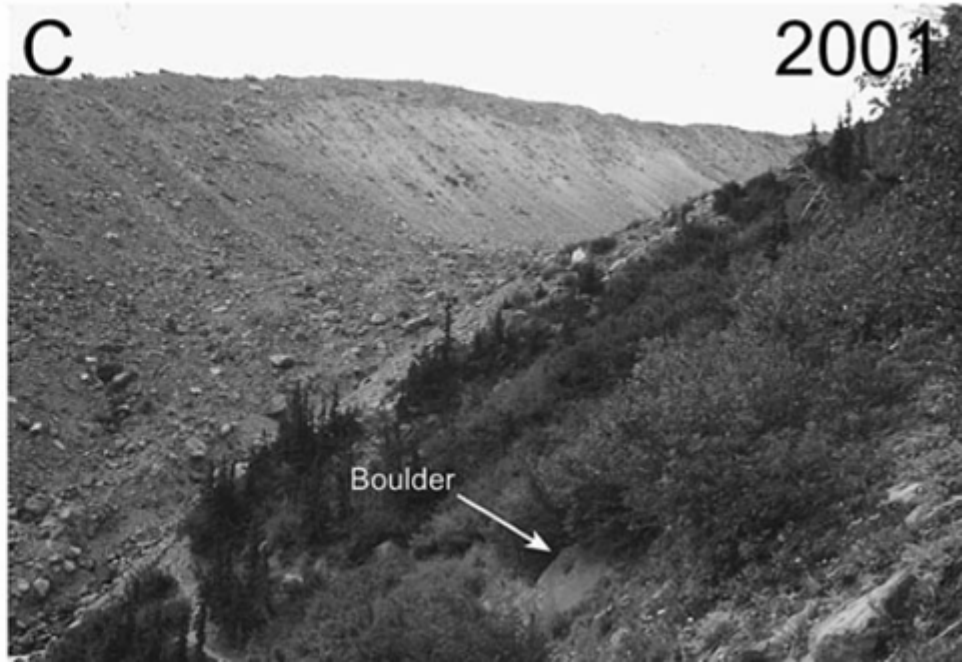


Figure 12. September 15, 1935 photograph (Gilardi) on left (Mazamas reference # p16), July 22, 2005 photograph on right. Terminus position traced on 1935 photo and superimposed on 2005 image to illustrate magnitude of thinning and retreat since 1935. Current terminus labeled in light blue on right image.



Historical glacier and climate fluctuations at Mount Hood, Oregon, Karl Lillquist and Karen Walker, 2006, *AAAR*





Historical glacier and climate fluctuations at Mount Hood, Oregon, Karl Lillquist and Karen Walker, 2006, *AAAR*

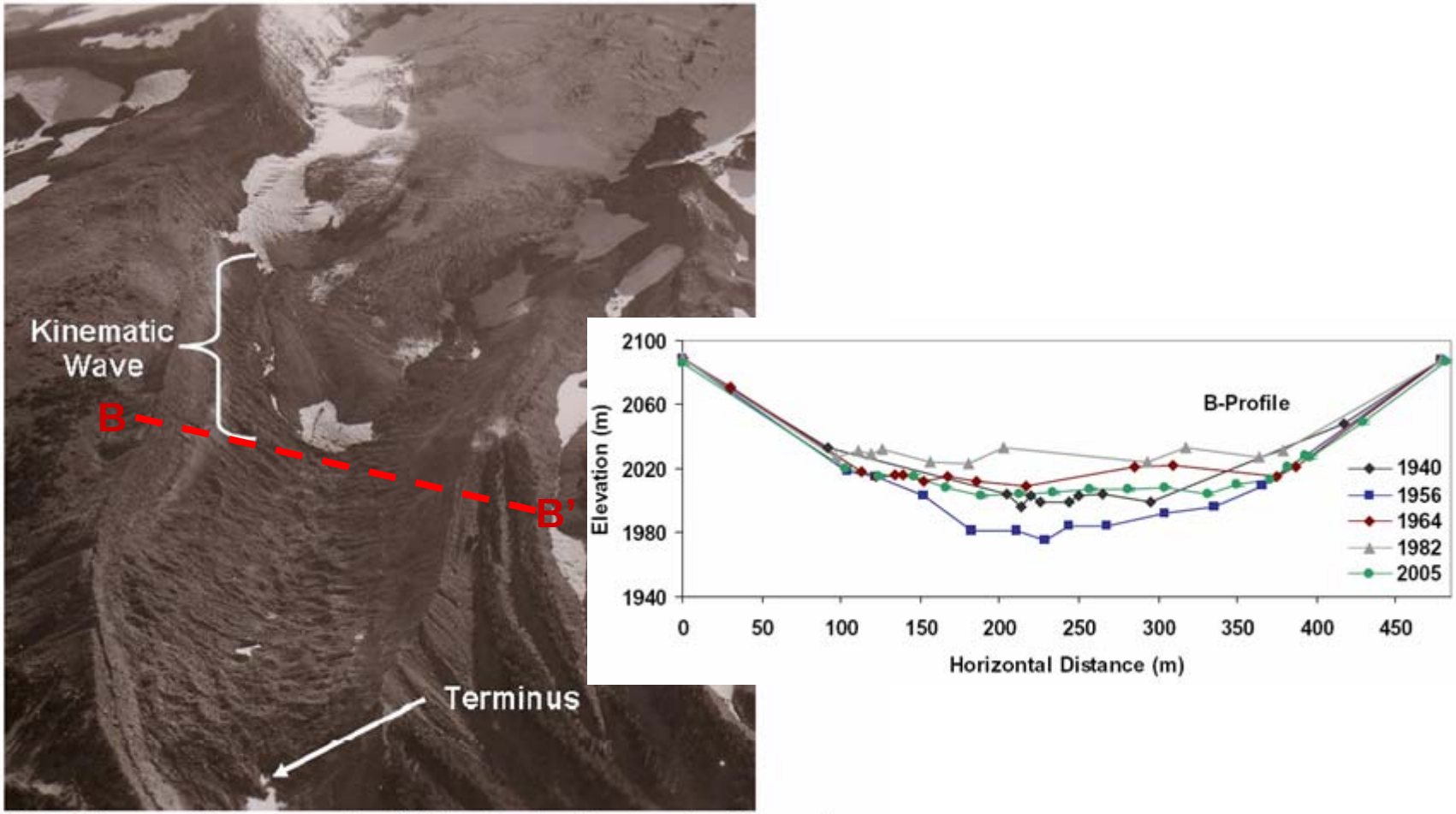


Figure 26. 1956 oblique aerial photograph of Eliot Glacier showing the kinematic wave that resulted from the decrease in temperatures and increase in accumulation season precipitation in the early 1940s (H. Ackroyd photo, courtesy Mazamas).

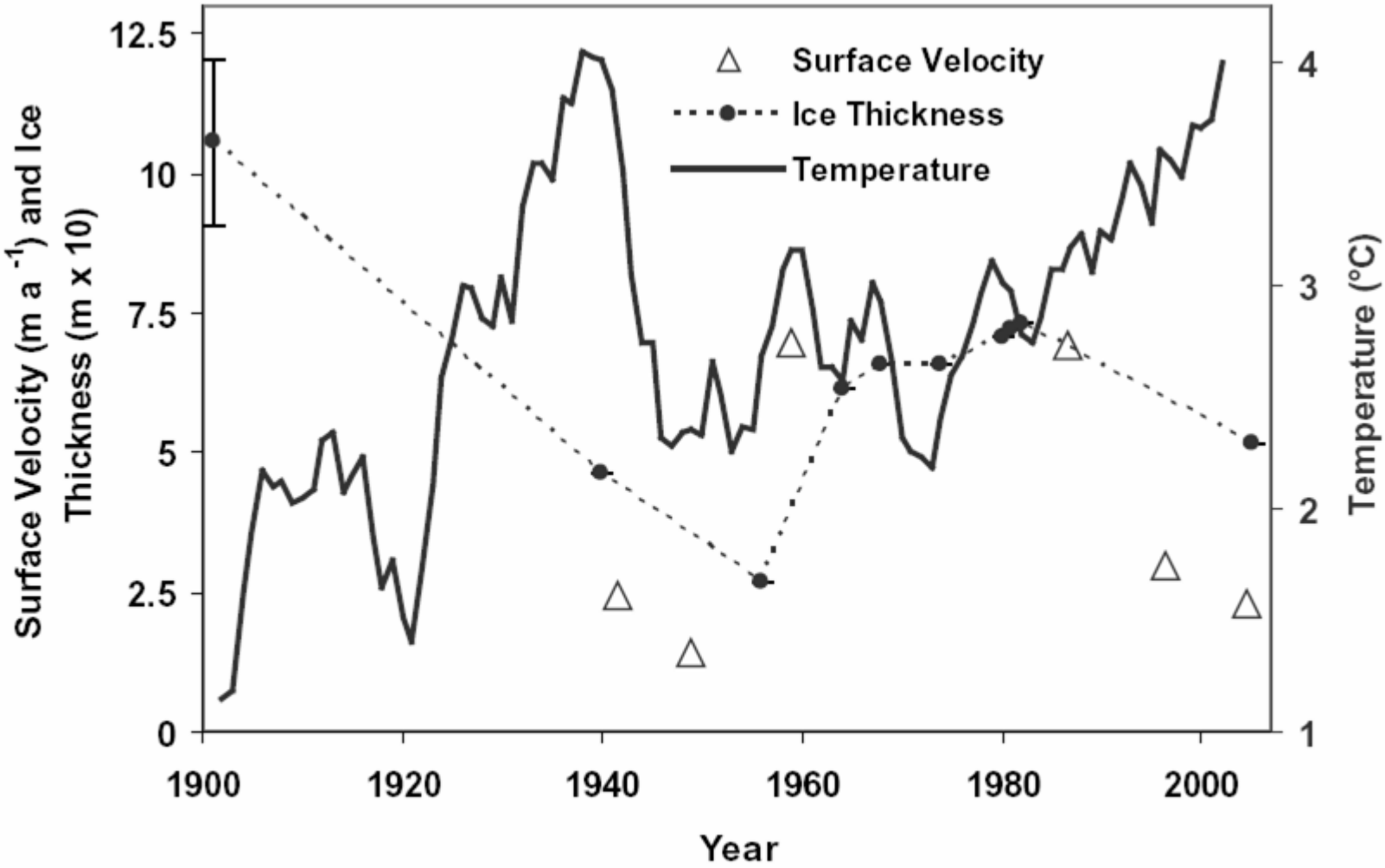
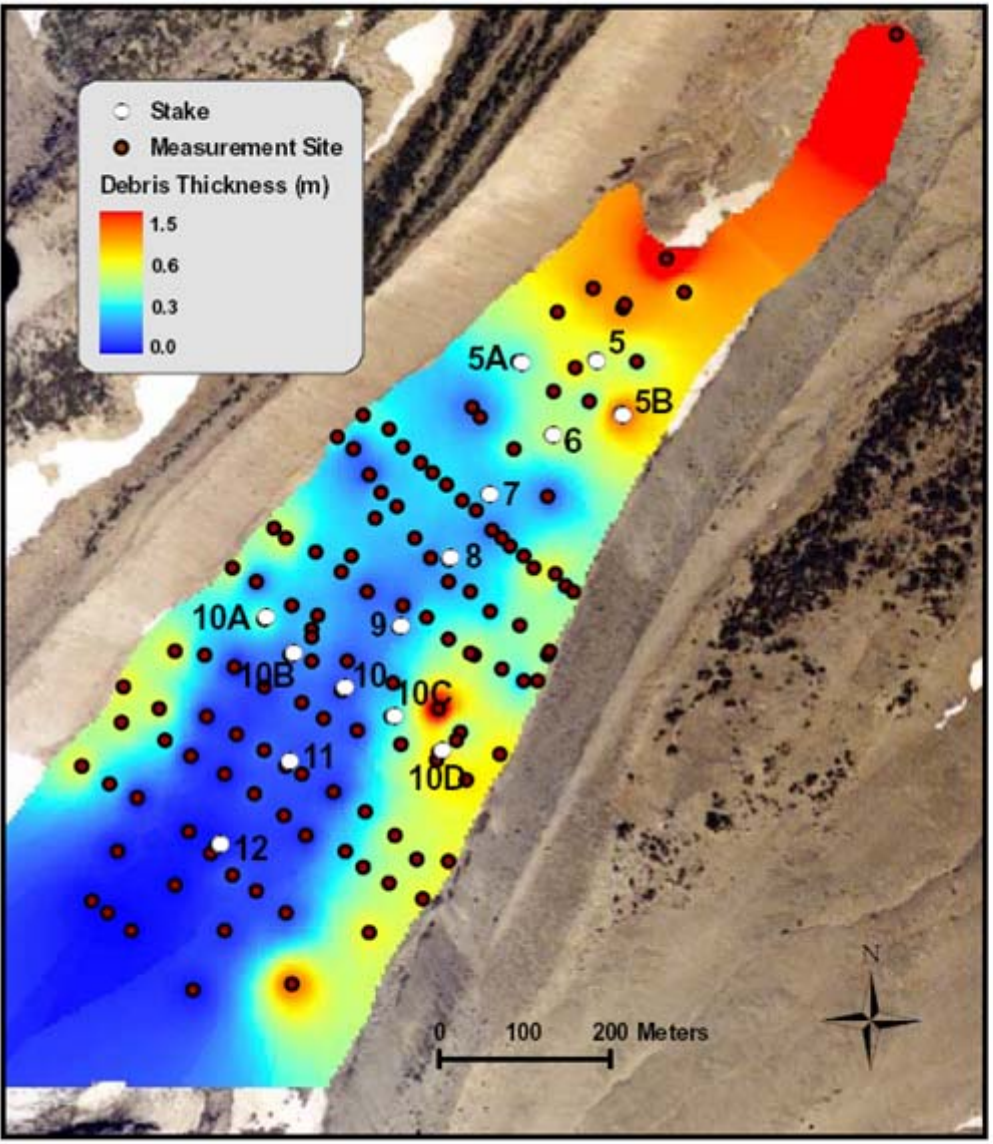


Figure 42. Ice thickness and surface velocity over time compared to 5-year running average temperature.


Stake
Measurement Site
Debris Thickness (m)
1.5
0.6
0.3
0.0
5A
5
5B
6
7
8
9
10A
10B
10
10C
11
10D
12
0
100
200 Meters
N

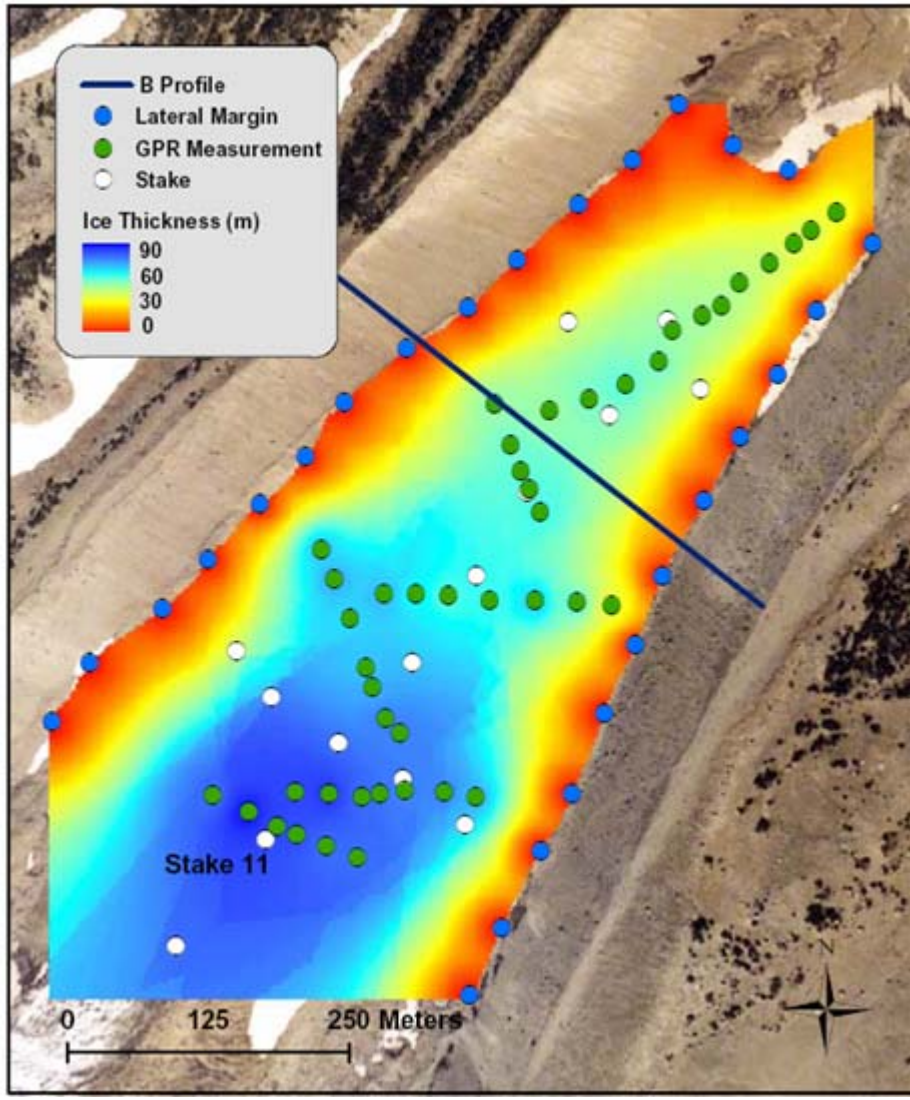

B Profile
Lateral Margin
GPR Measurement
Stake
Ice Thickness (m)
90
60
30
0
Stake 11
0
125
250 Meters
N

Figure 13. Measuring a stake for ablation (timer photo by author)

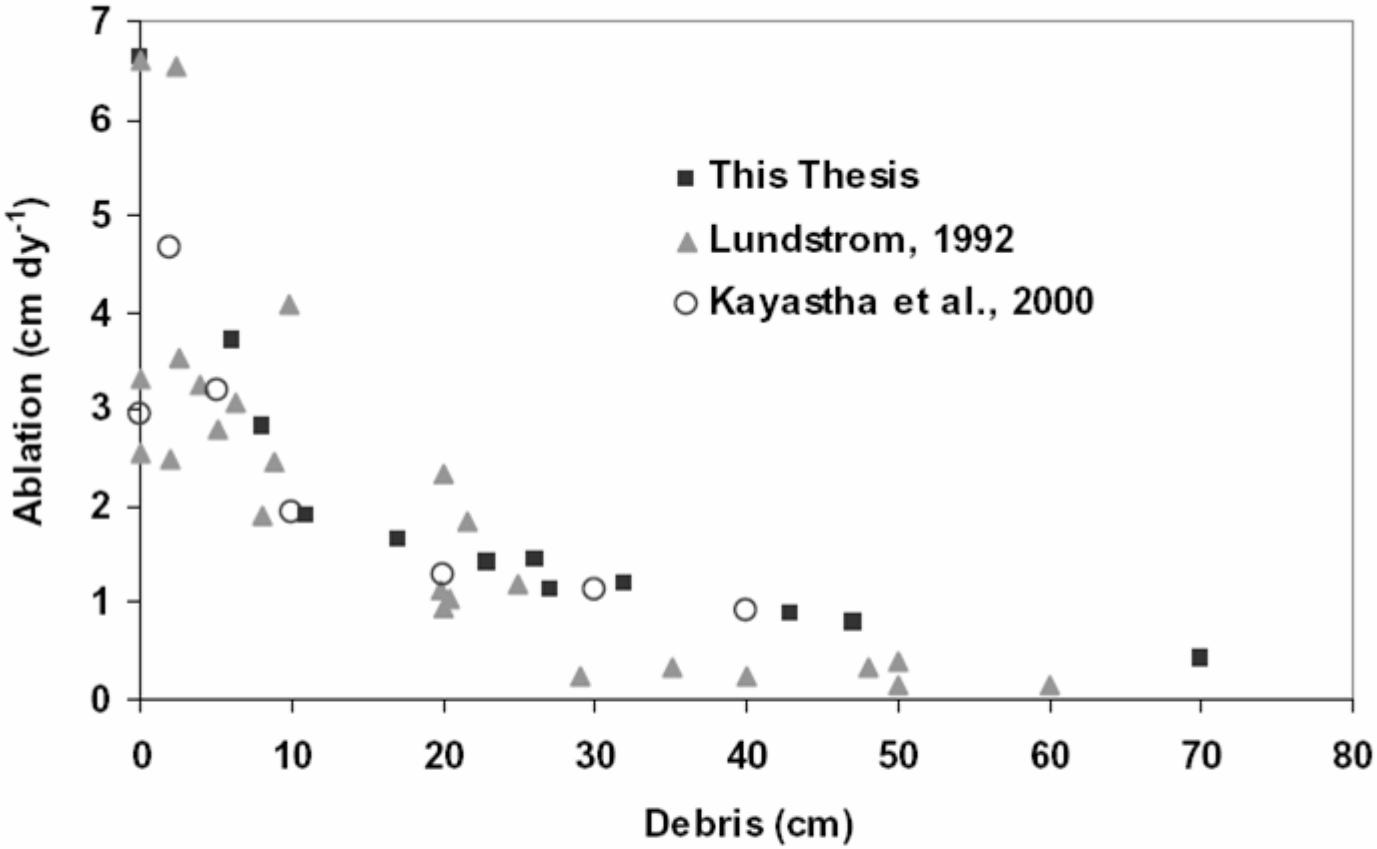
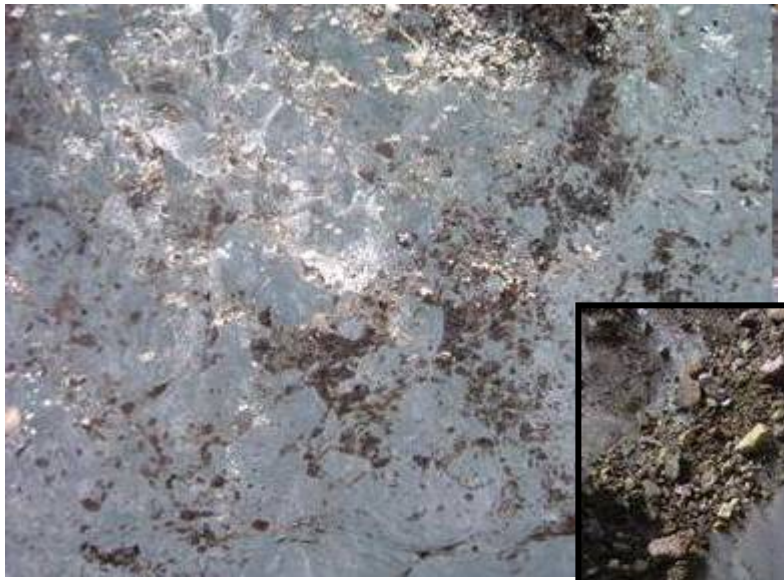
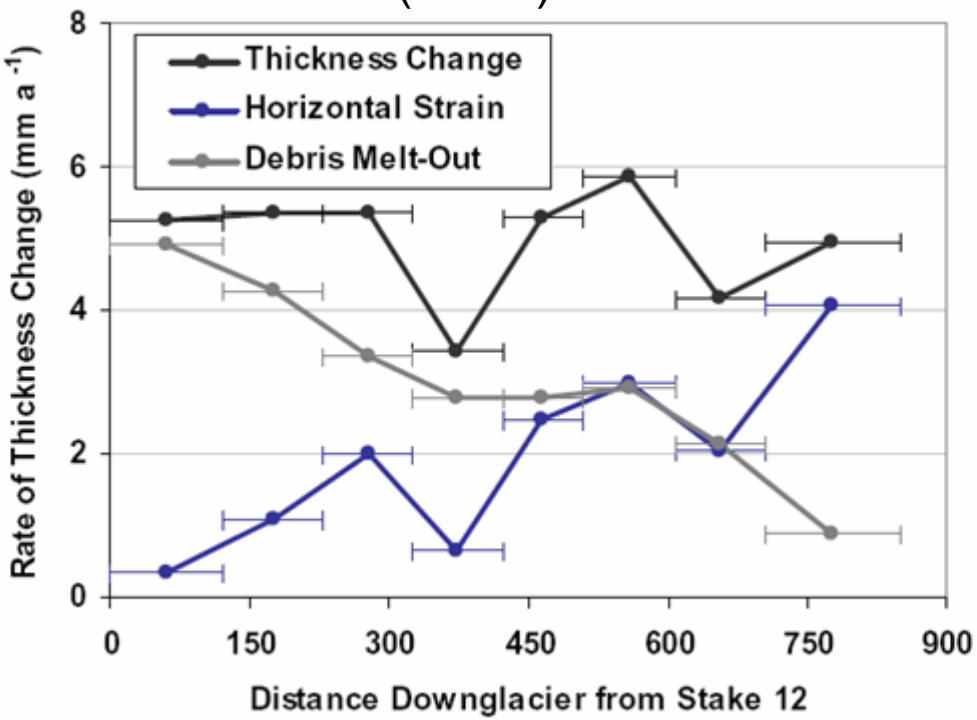


Figure 20. Ablation rates from this study, Lundstrom (1992) at Eliot Glacier, and Kayastha et al. (2000) at the Khumbu Glacier, Nepal, in relation to debris thickness.

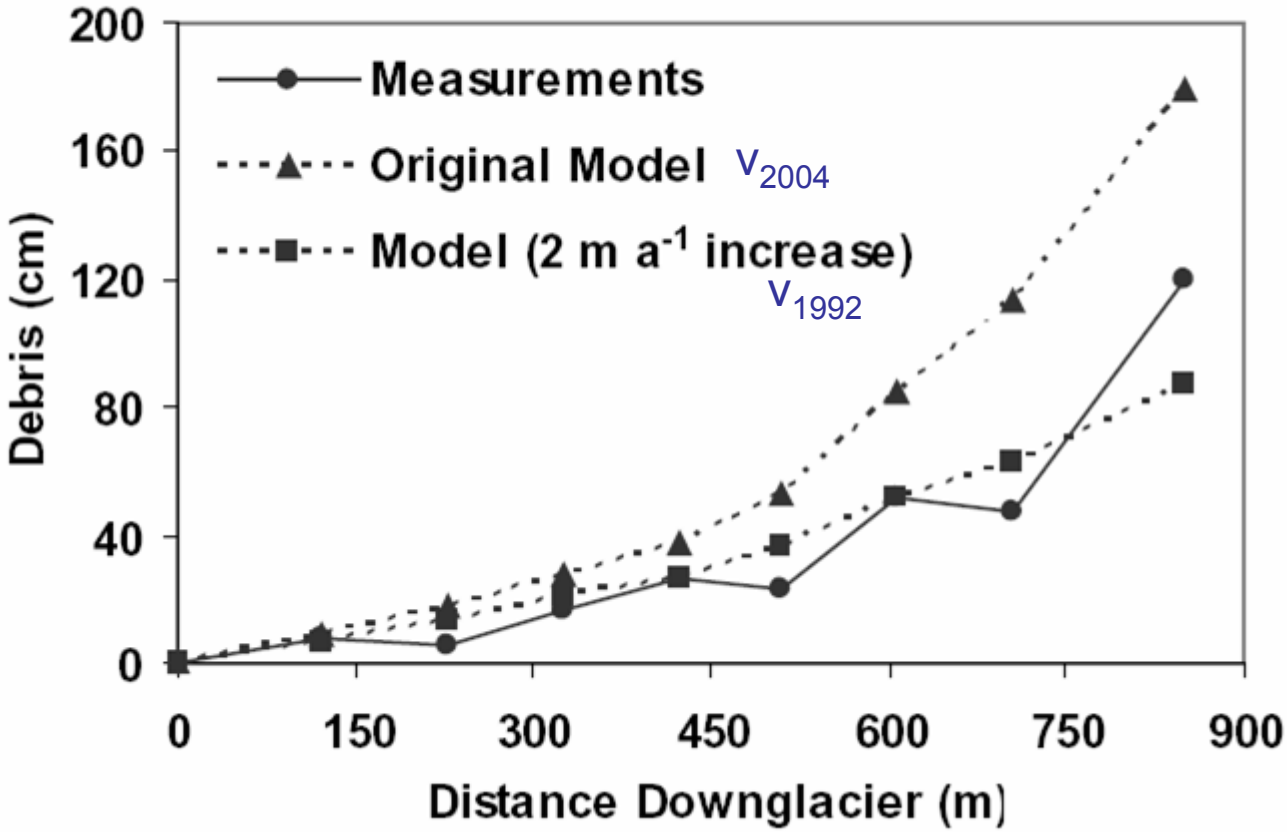


$$\frac{\partial S}{\partial t} = -S\nabla v - \frac{\dot{b}C}{(1-\Phi)} + D,$$

	Upper	*Lower*
S = debris thickness (m)	0.1 m	0.7 m
v = velocity (m a-1)	7 m/a	1 m/a
strain rate	0.3 mm/a	4 mm/a
b = net ice mass balance (m a-1)	-3.0 m/a	-0.3 m/a
C = englacial volumetric conc. of debris (unitless)	0.1%	
Φ = porosity of supraglacial debris (unitless)	40%	
D = subaerial deposition rate of debris (m a-1)	0	



$$S = \int_0^L \frac{S'(x)}{v(x)} dx$$



November 2006 moraine failure / debris flows

January 2007

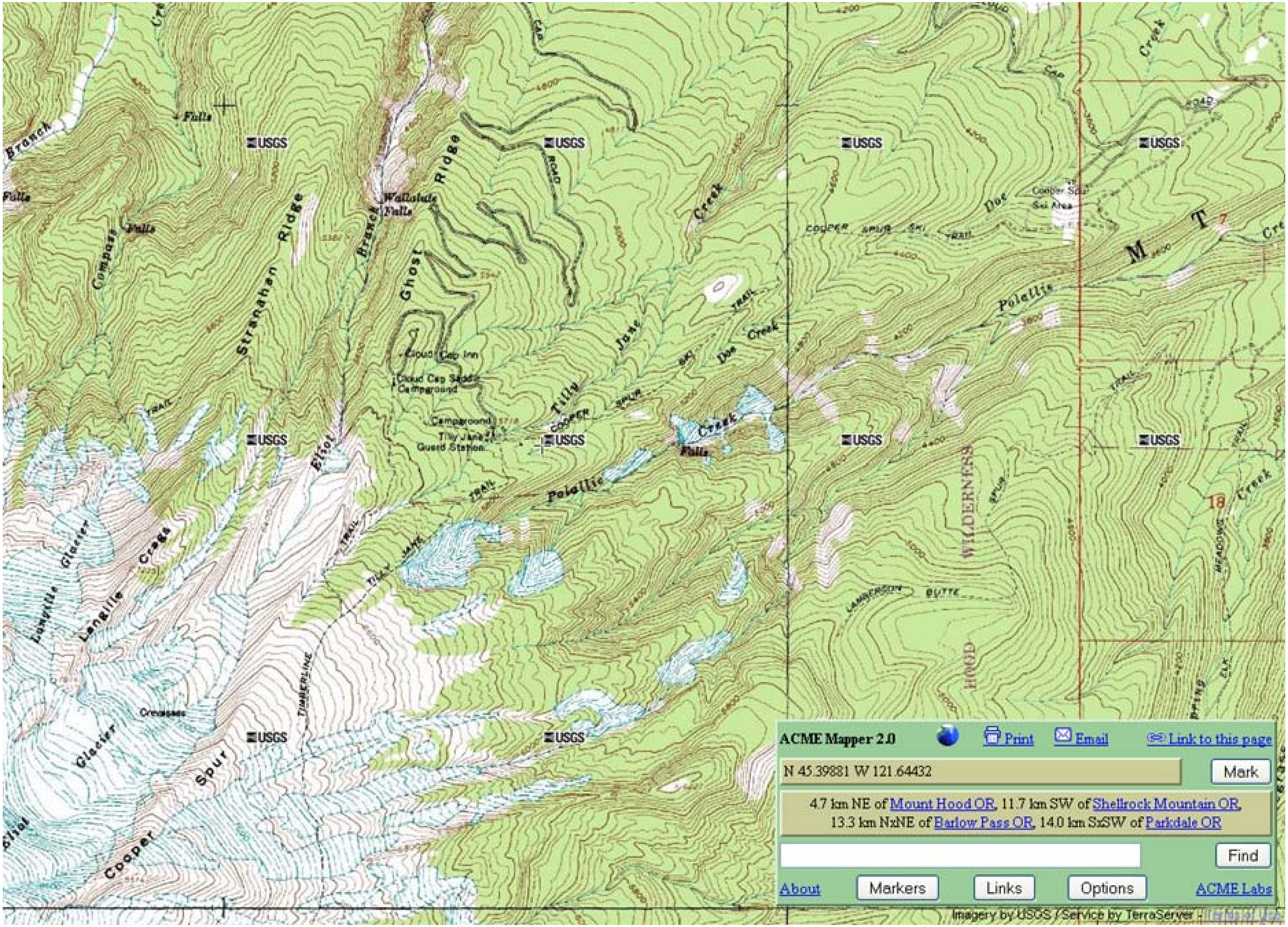
September 2007

Gnarl Ridge Photos

Area where winds generated by extreme fire behavior on 9/17 blew over trees

Aerial view looking northeast from above Cloud Cap (9/23/08)

How close the fire actually came


USGS
Stranahan Ridge
Compass
Ghost Ridge
Wallalute Falls
Cloud Cap Inn
Cloud Cap Saddle Campground
Campground
Tilly Jane Guard Station
Tilly Jane
Cooper Spur Ski Trail
Doe Creek
Polallie Creek
Polallie
Eliot
Langille Crags
Langille Glacier
Glacier
Crevasses
Timberline
Cooper Spur
Cooper Spur Ski Area
Lamberson Butte
Hood
Wilderness
Falls
Trail
Road
ACME Mapper 2.0
Print
Email
Link to this page
N 45.39881 W 121.64432
Mark
4.7 km NE of Mount Hood OR, 11.7 km SW of Shellrock Mountain OR,
13.3 km NxNE of Barlow Pass OR, 14.0 km SxSW of Parkdale OR
Find
About
Markers
Links
Options
ACME Labs
Imagery by USGS / Service by TerraServer

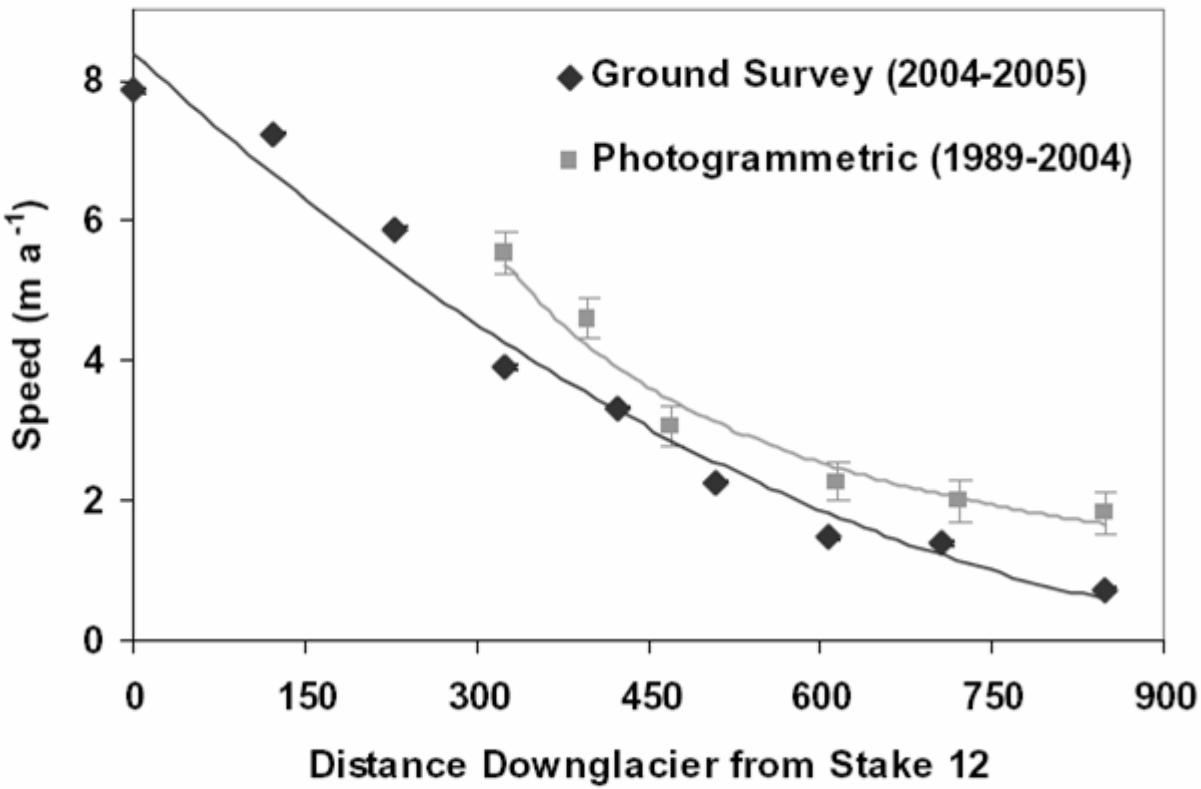


Figure 35. Annual speeds for ground and photogrammetric surveys. No photogrammetric measurements were made in the upper 300 m of the glacier. Error bars on the annual ground survey are encompassed by the size of the dots.