



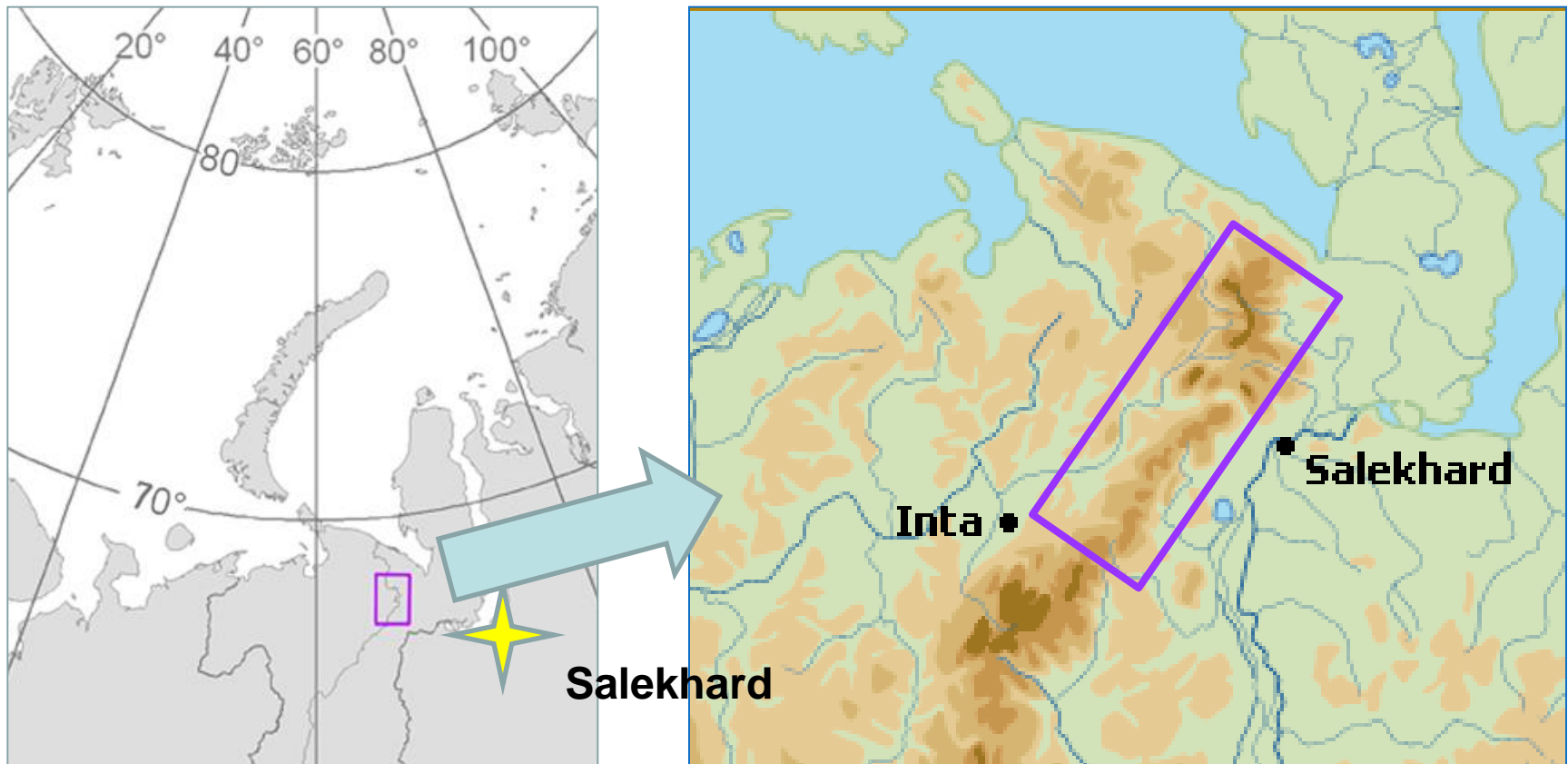
Mikhail Ivanov (MSU, Russia)

Anton Sinitskiy, Vladimir Pushkarev (Salehard)



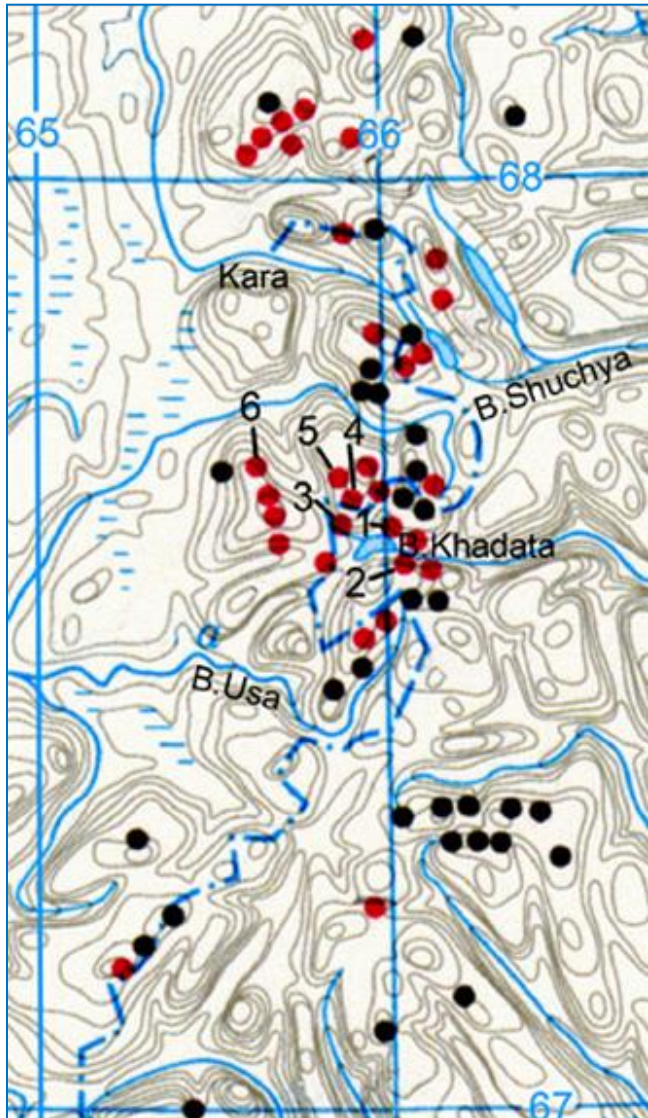
# Glaciers of the Polar Urals mts.

2016





# Glaciation

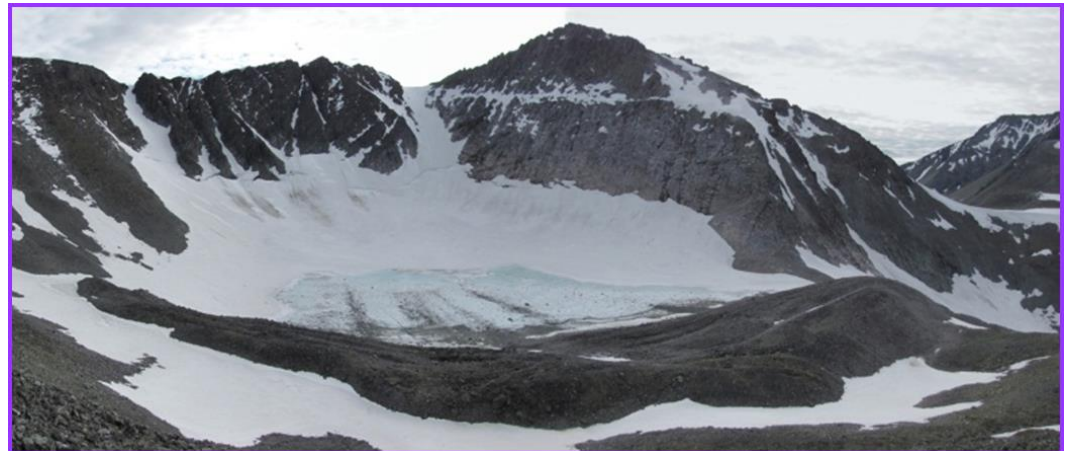


ASIRW, 1997

The special character of relief and climate creates conditions for existence of **75 cirque and slope glaciers** in the Polar Urals

The pattern in the distribution of glaciers in the Urals - the confinement of the western half of the ridge.

A characteristic feature of the Ural glaciers - mainly eastern orientation.



Karskiy, 2010





# History of investigation

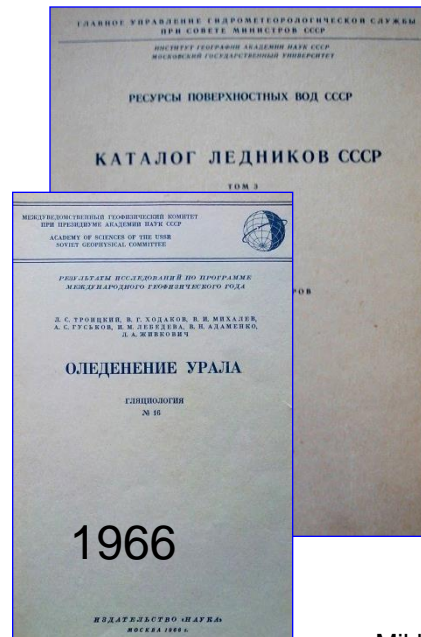


1929 – A.N. Aleshkov found glaciers.

1932-1933 – Second Int. Polar year, first studies

1957-1959 – Int. Geophysical year

XXI – A new stage of research





# Areas of research

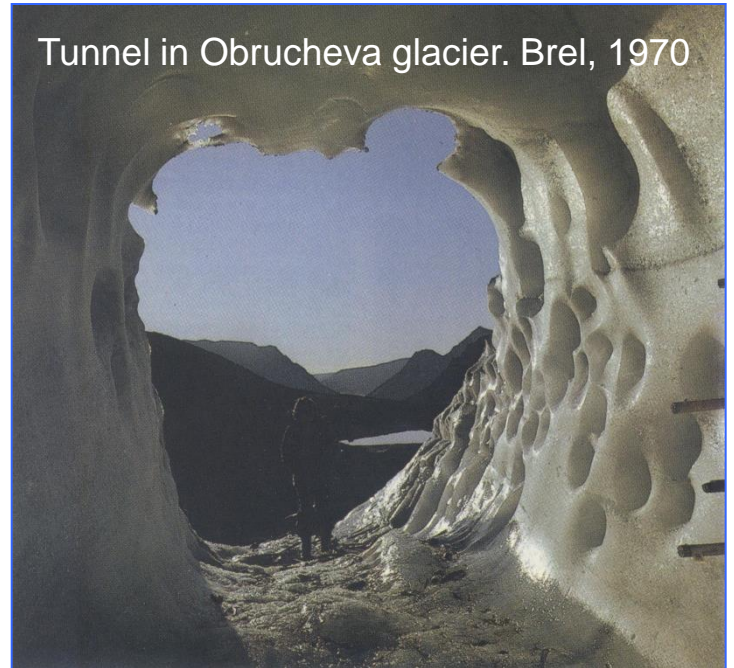


- processes of accumulation, ablation,
- diagenesis of snow cover,
- mass balance 5 glaciers,
- water and heat balances,
- temperature condition of ice,
- glacial tectonic, movement of ice,
- thickness, structure of the glaciers,
- runoff of melted glacier water,
- traces of ancient glaciations,
- phototheodolite survey a 10 glaciers,  
topographical plans drawn up,
- snow surveys across the Ural Mountains  
on the valleys and on the plateaus.

Work on the IGAN glacier, 1970s.



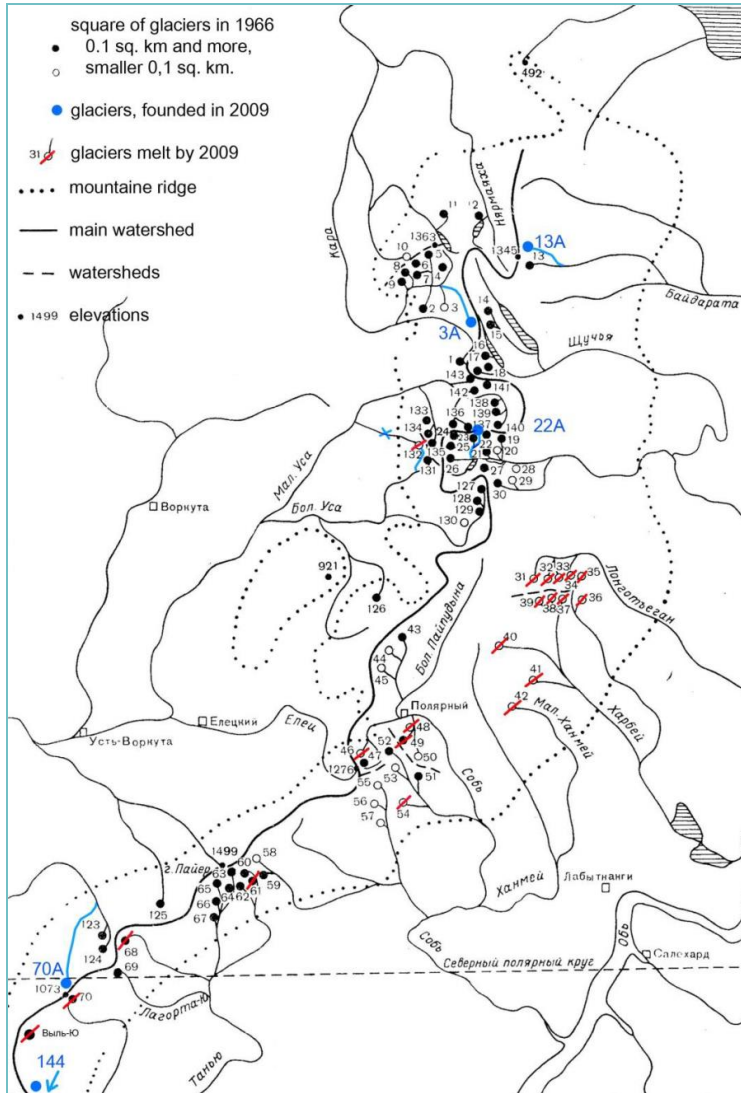
Tunnel in Obrucheva glacier. Brel, 1970







# Glaciation and climate change



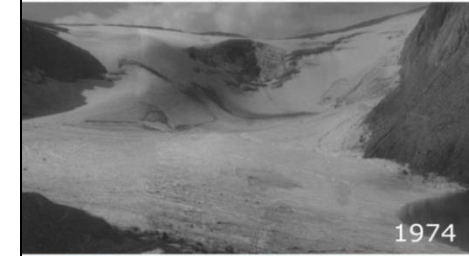
In recent years, glaciers shrinking, more than 20 glaciers disappeared in the conditions of climate change.

To determine the number of glaciers and future research, necessary to organize a new expeditions.

It is necessary to continue direct field observations of glacier fluctuations using modern remote sensing methods and technologies.



1958



1974



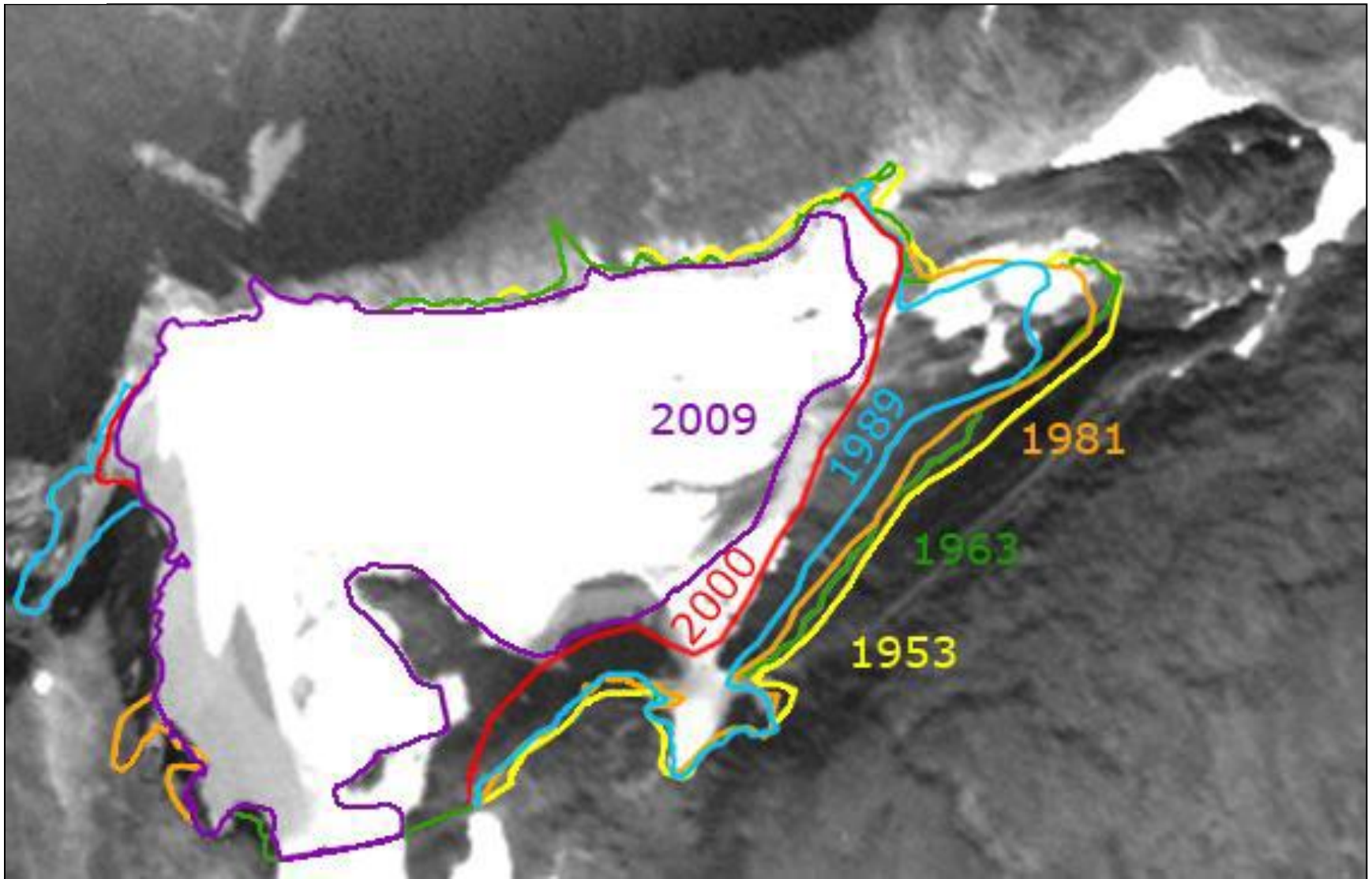
1991



2010



# IGAN glacier

















# Перевал Каровый

14.07.2014

12.07.2008





# Ледник Романтиков





# Ледник Топографов







**26.07.2011**



**20.06.2015**

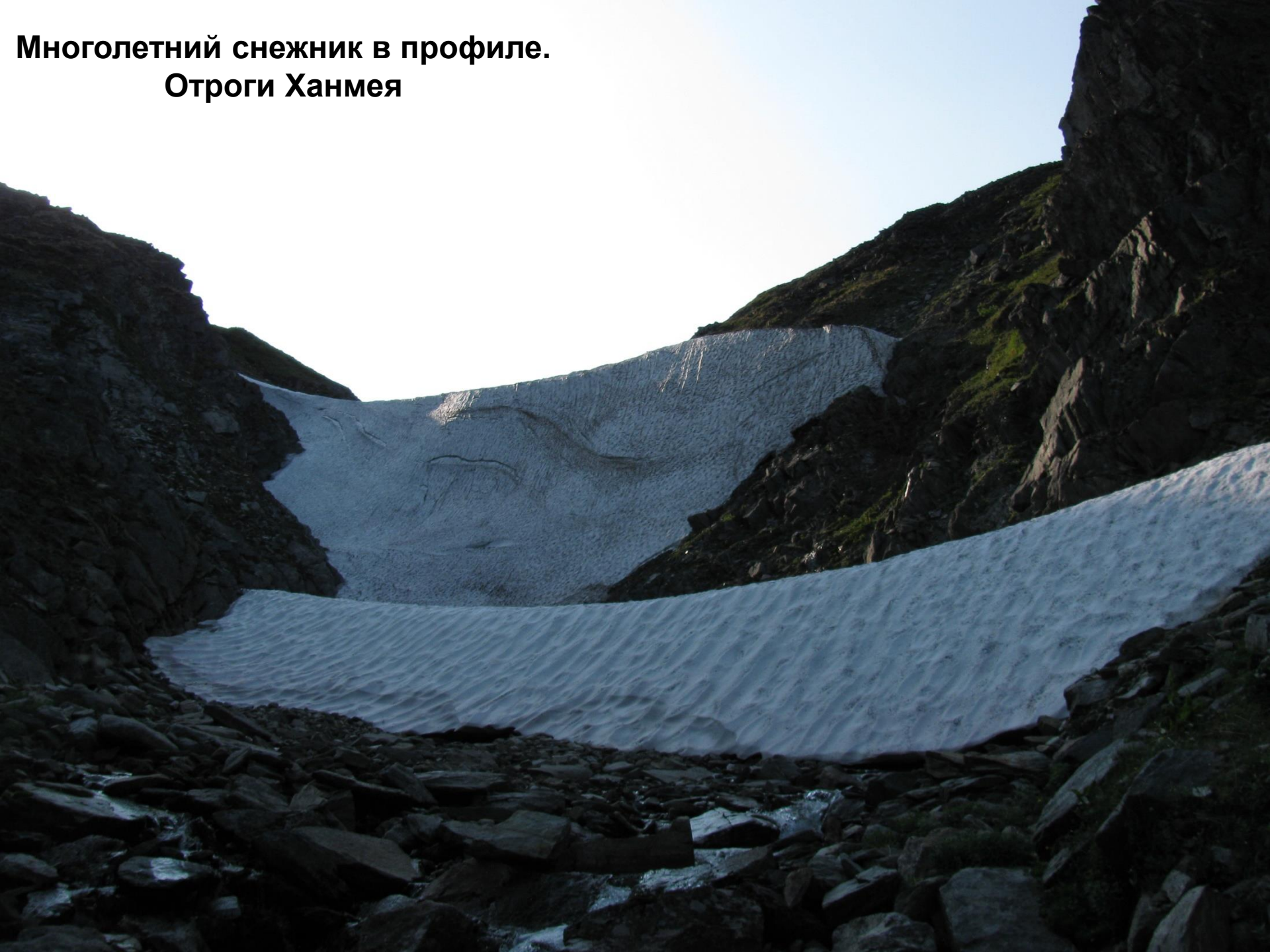




**Исток реки Сось, 25.06.2011**



**Многолетний снежник в профиле.  
Отроги Ханмея**













# Горный массив Оченырды











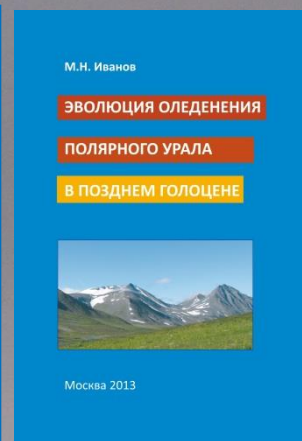
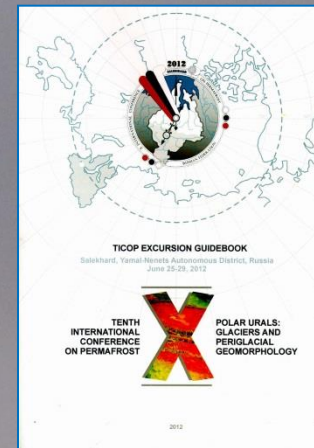






2012 *Ivanov M.N. Polar Urals Glaciers and Periglacial Geomorphology // TICOP Excursion Guidebook Tenth International Conference on Permafrost – Tyumen, Russia: Pechatnik, 2012. 50 p. ISBN 978-5-9961-0514-4*

2013 *Ivanov M.N. Late Holocene evolution glaciations of the Polar Urals – M.: MSU. 200 p. (in Russian) ISBN 978-5-9905050-1-8*



# Thanks for attention !

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