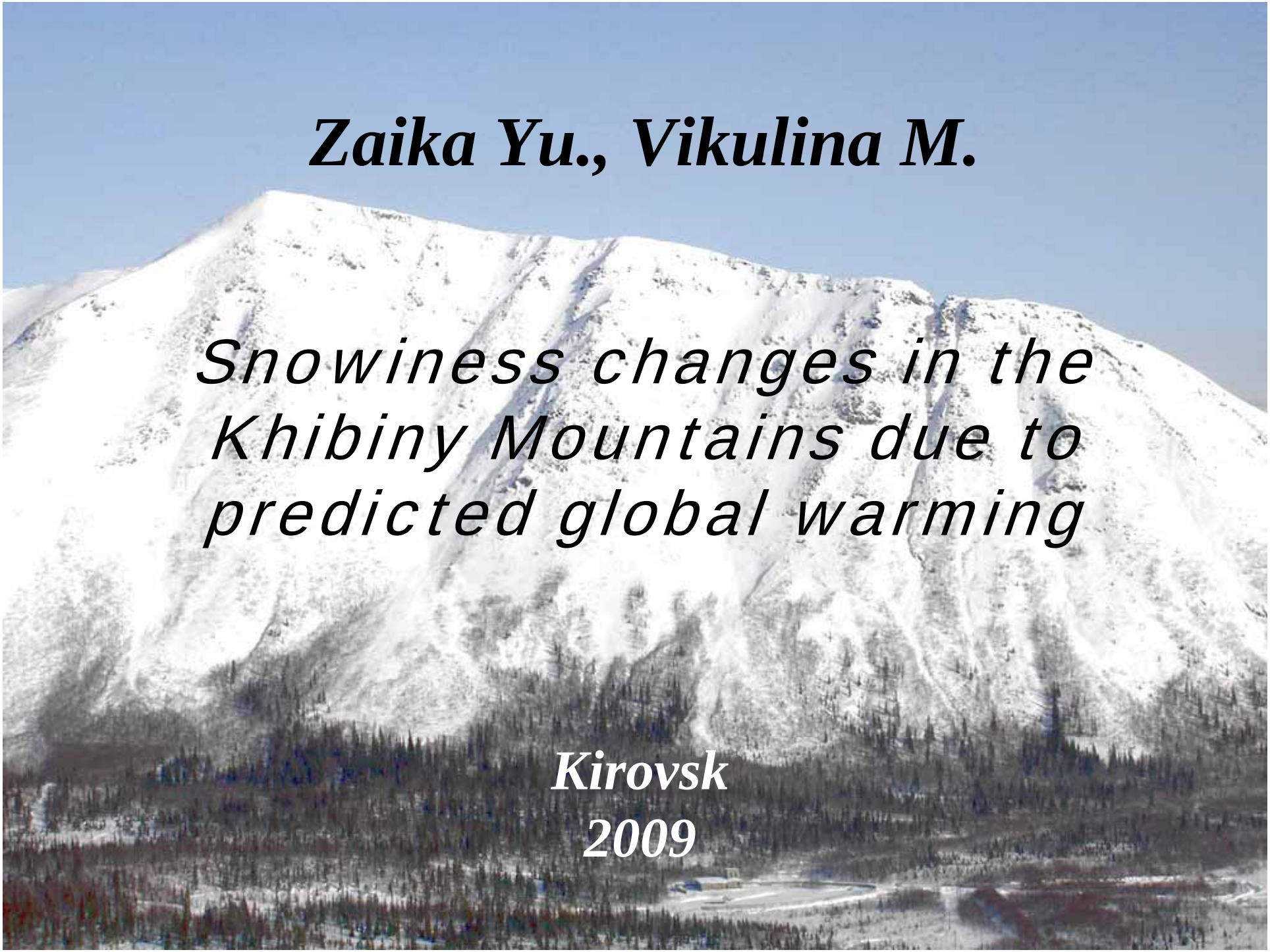


Zaika Yu., Vikulina M.

Snowiness changes in the Khibiny Mountains due to predicted global warming

Kirovsk
2009

Khibiny educational and scientific base
Faculty of Geography
Moscow State University

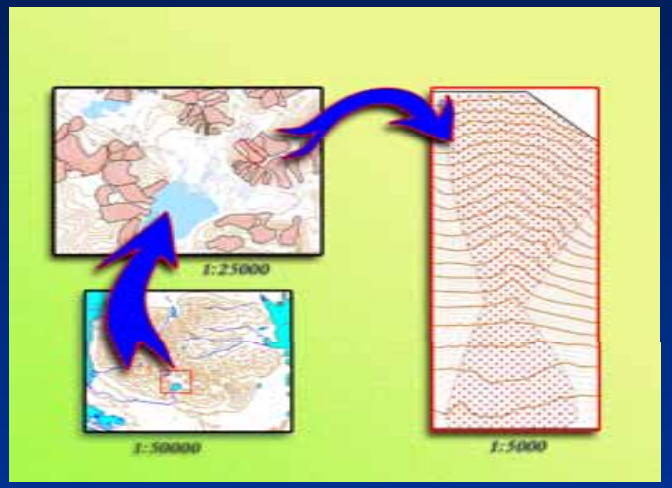
Khibiny

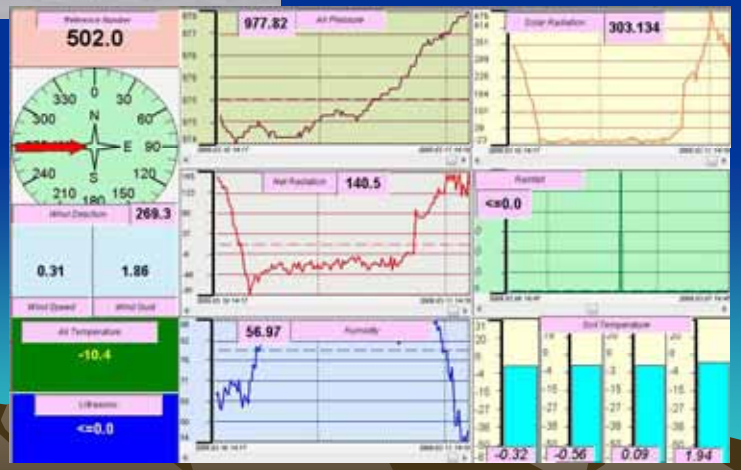
Visual snow cover observations

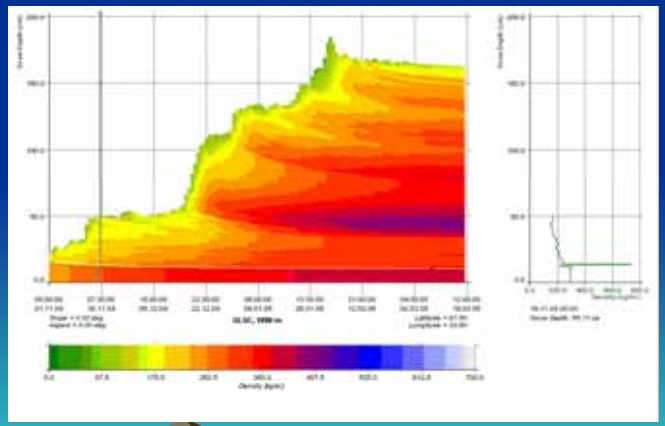
Test area

Field area

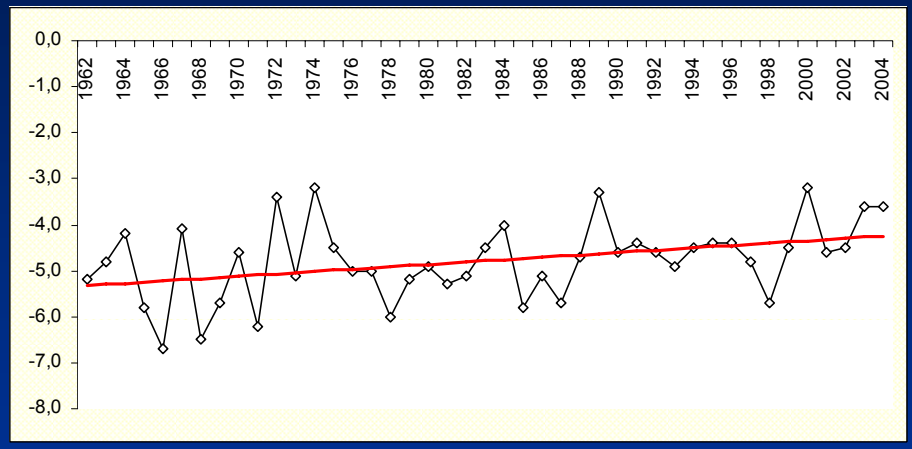
Investigations of snow cover and meteodata using software



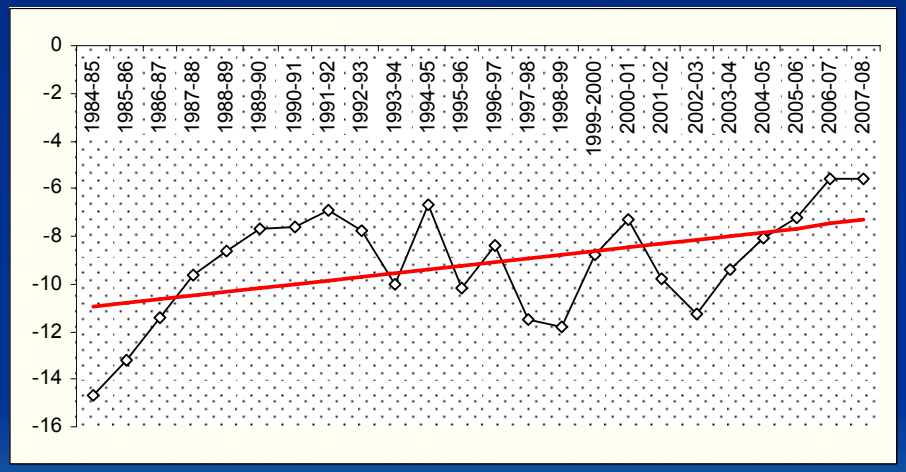




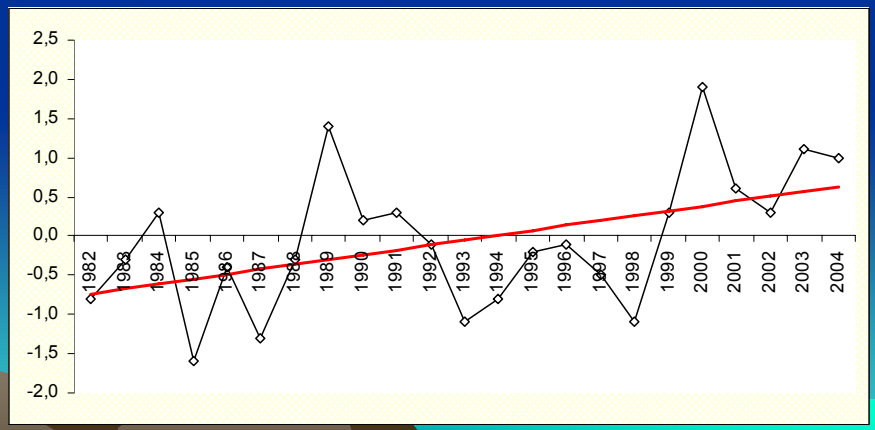
The meteorological observations show a tendency for increase of the overall winter period temperature and mean annual temperature



weather station of JSC Apatit (1050 m)

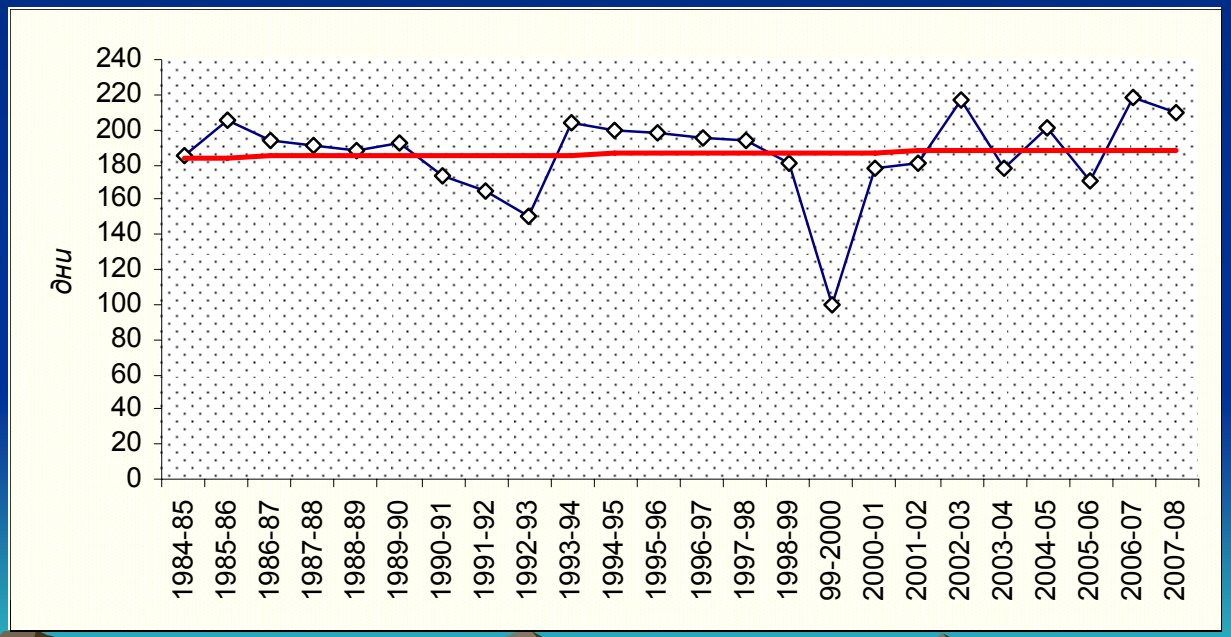


test area of Khibiny base (320 m)



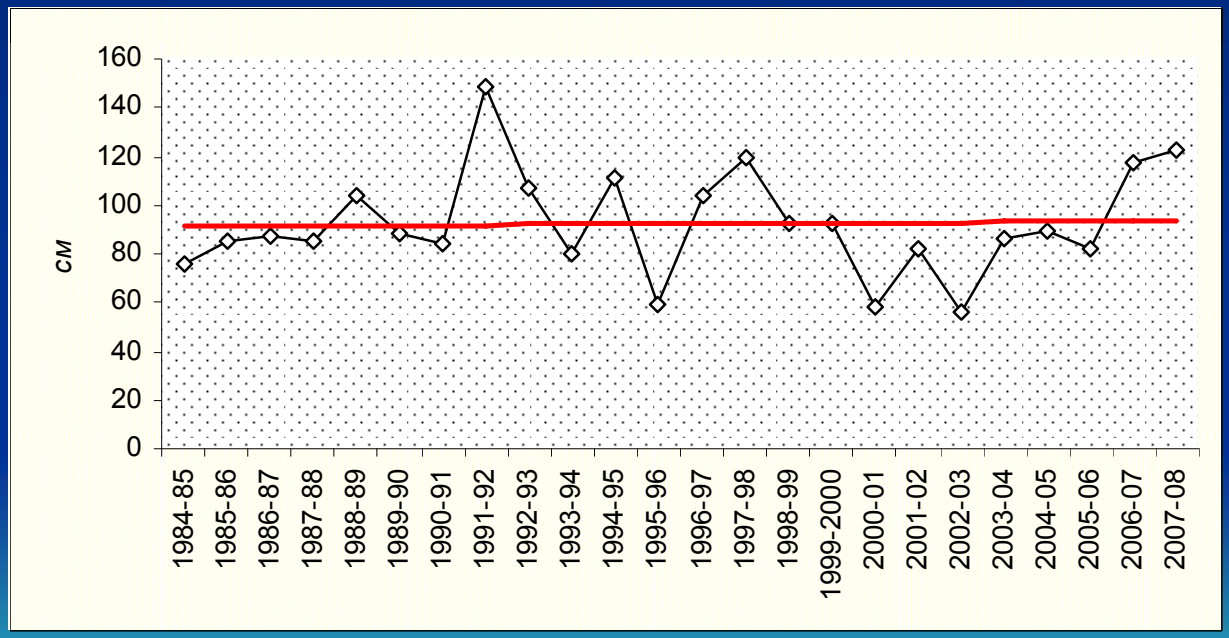
weather station of JSC Apatit (360 m)

General properties of snow cover such as the length of snow cover period, dates of stable snow cover formation, average snow mass growth are stable



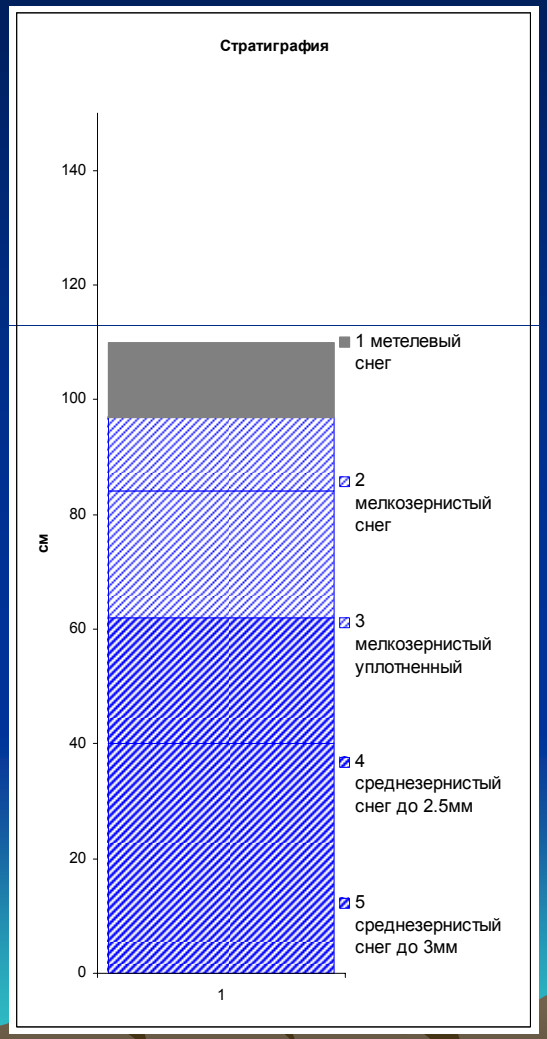
The length of the snow cover period

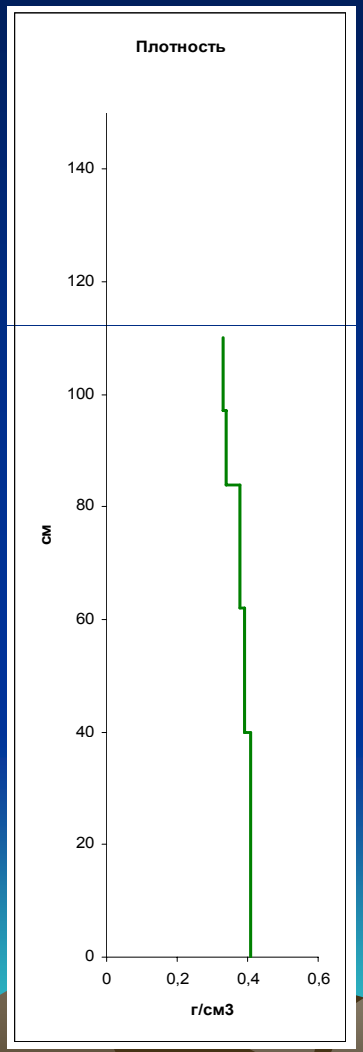
Values of maximum snow accumulation have interannual fluctuations but no significant trend



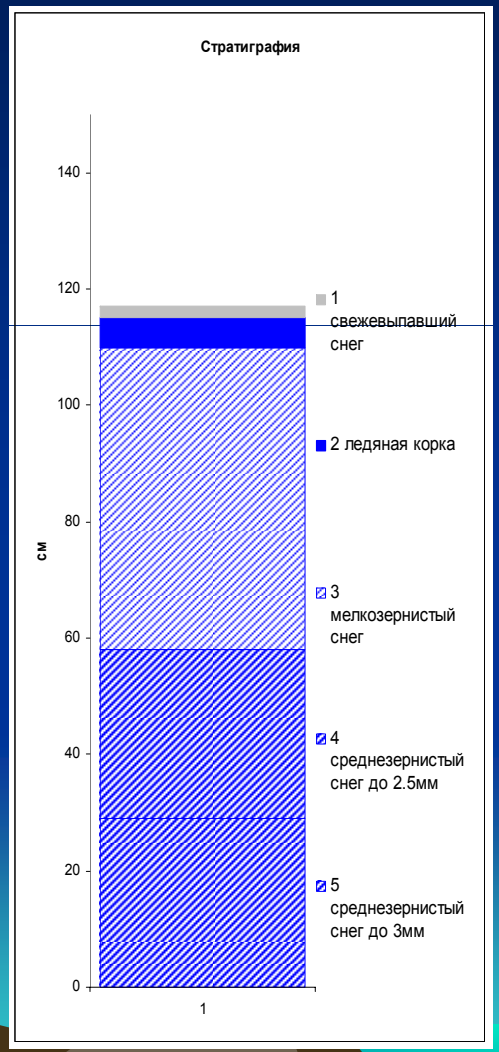
Thickness of snow cover

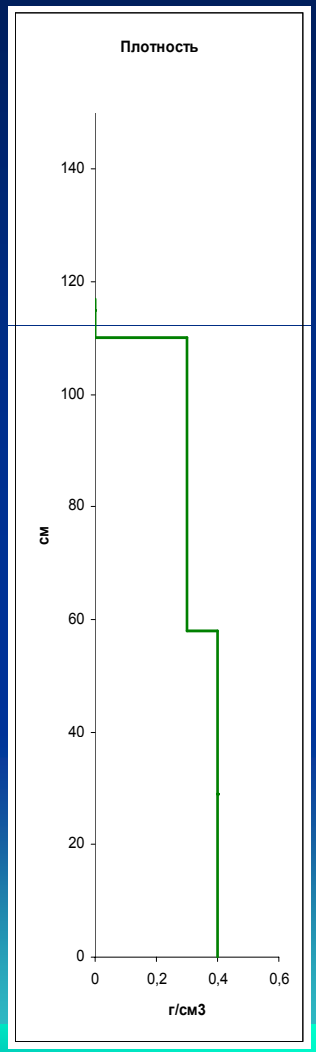
Investigations of snow cover stratigraphy determine the absence of changes both in metamorphism processes, and in distribution of temperature and density in the snowpack layers





pit 26.02.1985





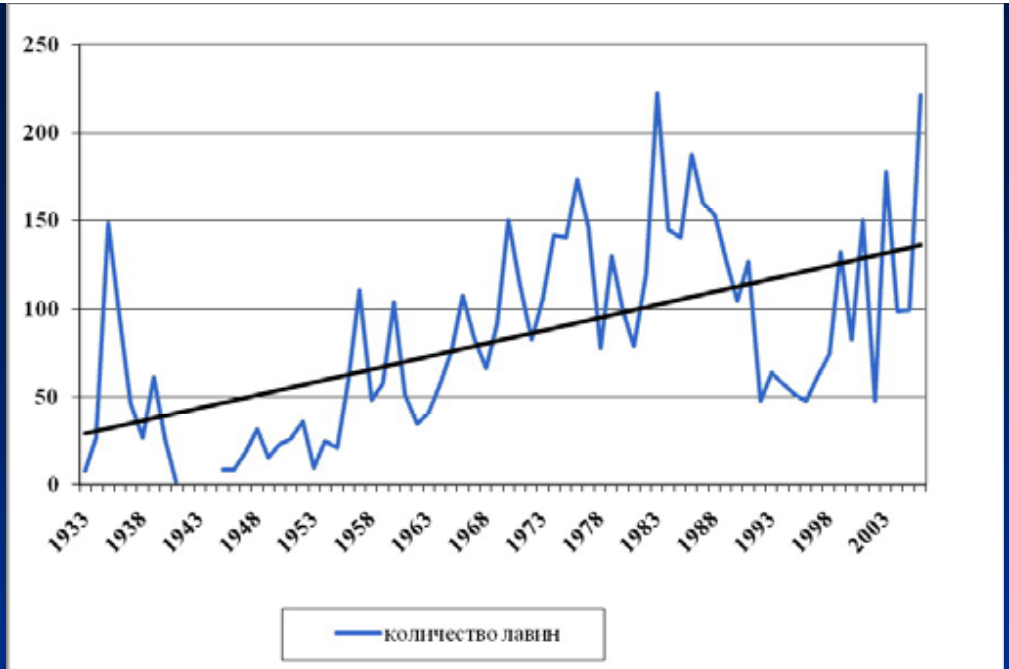
pit 14.03.2008

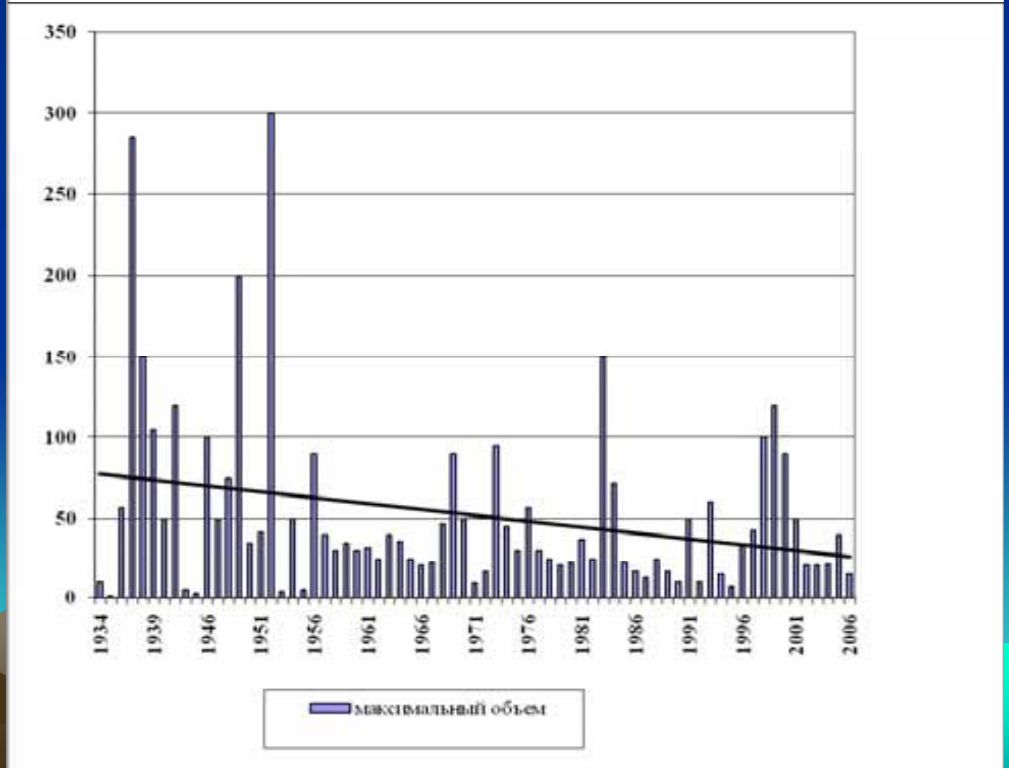
Through the comparison of data on winter types by snowiness and temperature conditions we have determined that around the test area winters of mean snowiness (68%) and moderate temperature (76%) dominate

Winter types by snowiness and temperature conditions

Types of winters	Snow cover thickness, cm	Number of winters
Snowy	More than 85	**4(16%)**
Mean snowy	from 50 to 85	**16(68%)**
Not snowy	Less than 50	**4(16%)**
	Mean air temperature	
Warm	More than -9º	**3(12%)**
Temperate	from -9º to -13º	**18(76%)**
Cold	Less than -13º	**3(12%)**

The intensity of avalanche processes is at its maximum. There is a reduction of avalanche volumes simultaneously with the increase of their number





Conclusions

- **For the last 25 years of regular observations on snow cover and meteorological conditions we conclude that:**
- **General properties of snow cover are stable**
- **There is a tendency for increase of winter period temperature as well as mean annual temperature but these trends are not statistically significant**
- **The intensity of avalanche processes is at its maximum simultaneously there is a reduction of its volumes**


THANK YOU
FOR ATTENTION