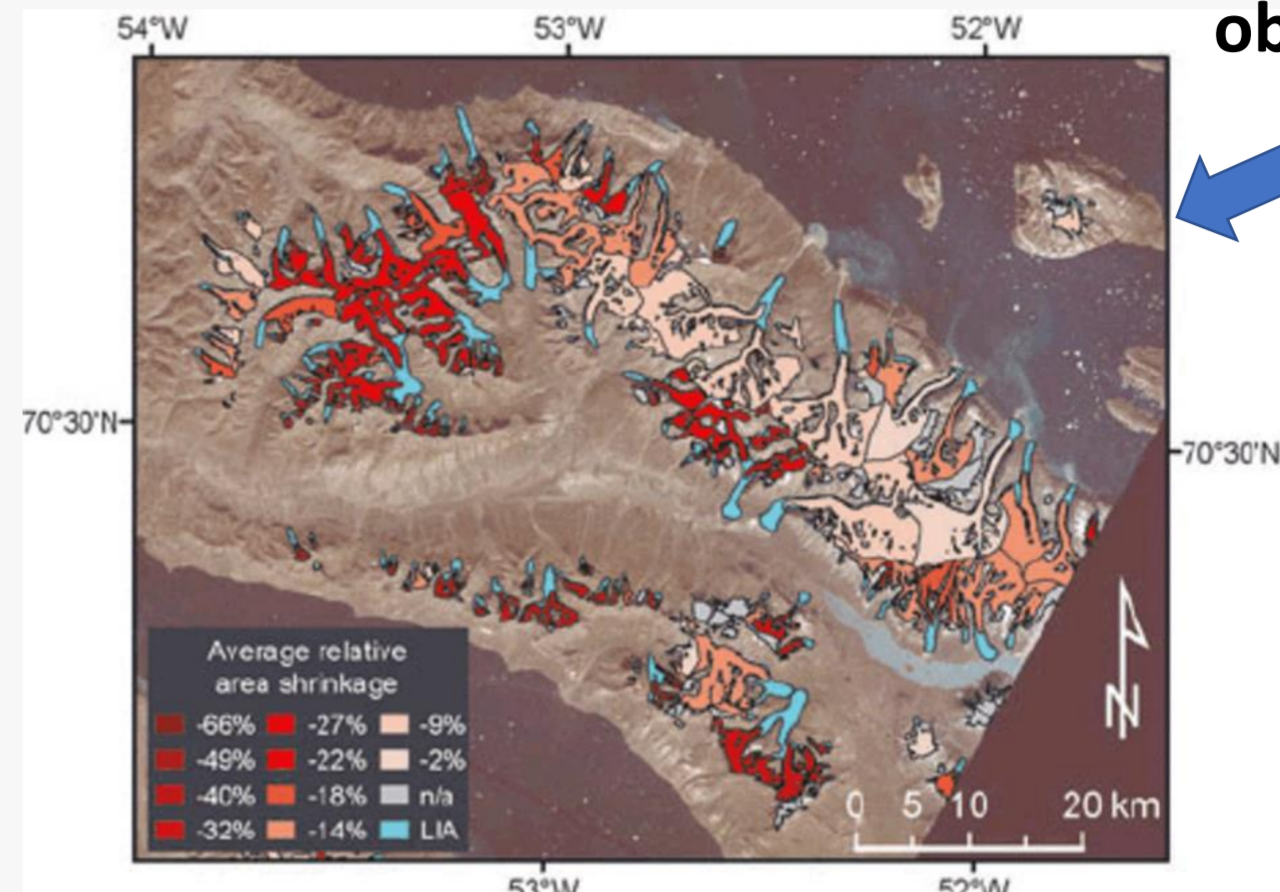
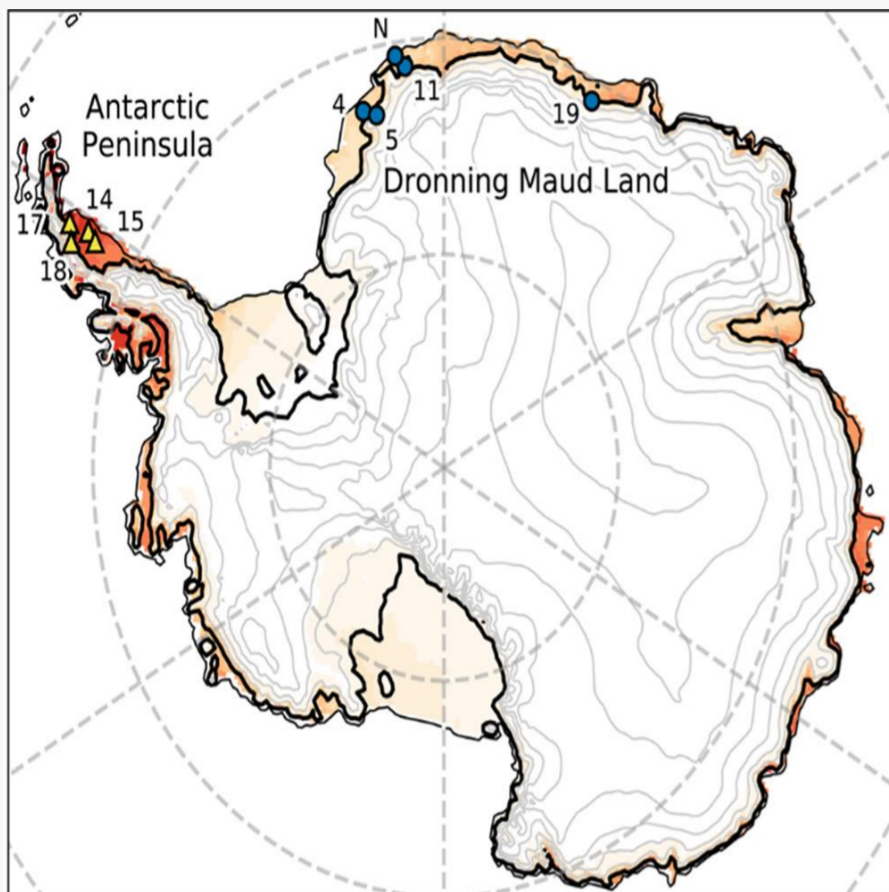


C. Parov, I. Kamenova, M. Chaney & I. Ivanov

Space Research and Technology Institute, Bulgarian Academy of Sciences (SRTI-BAS)

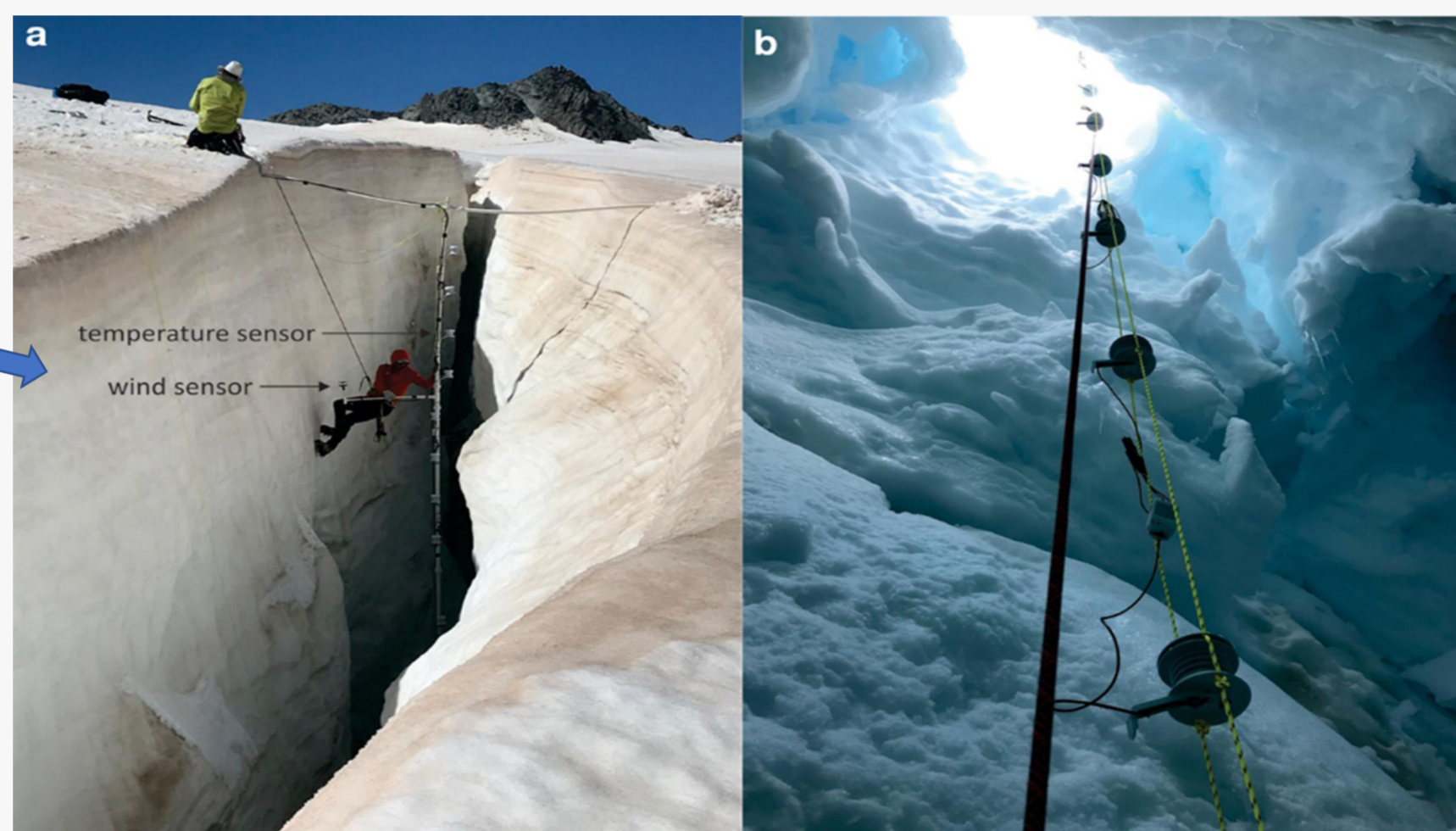
STUDY AREA

The aim of the present study is to establish the relationships between the formation of glacial crevasses on Livingstone Island and solar activity. The study will use in situ data as well as optical and radar data from various satellite platforms

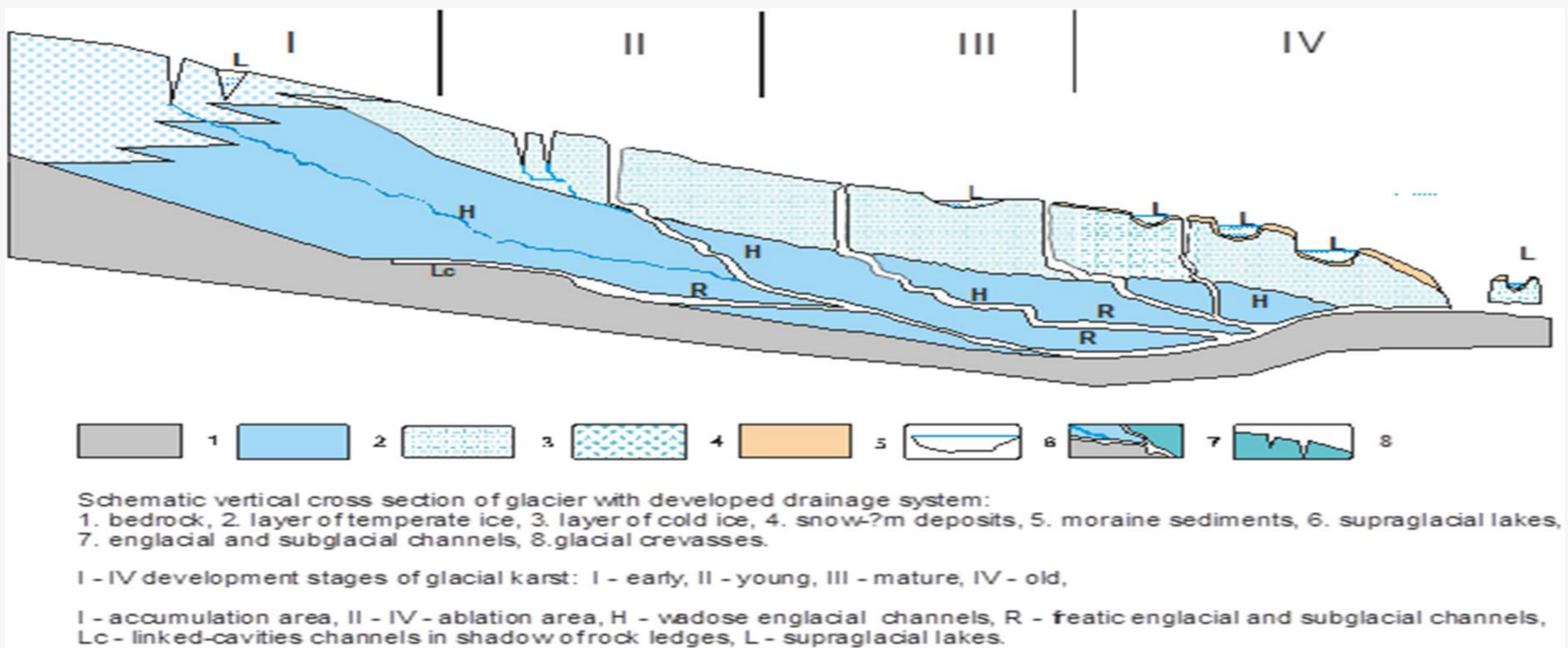


Satellite observations

Mounting sensors in a glacial crevasse

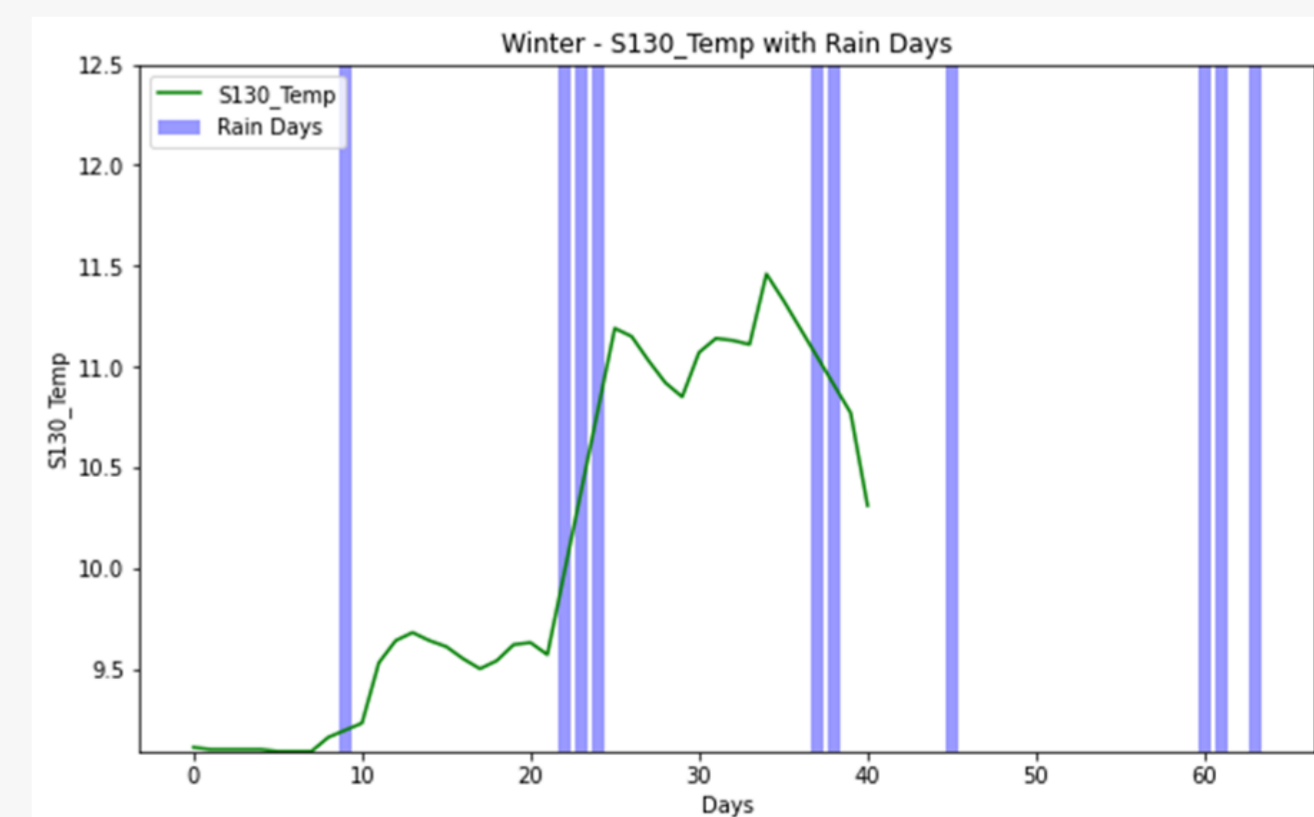
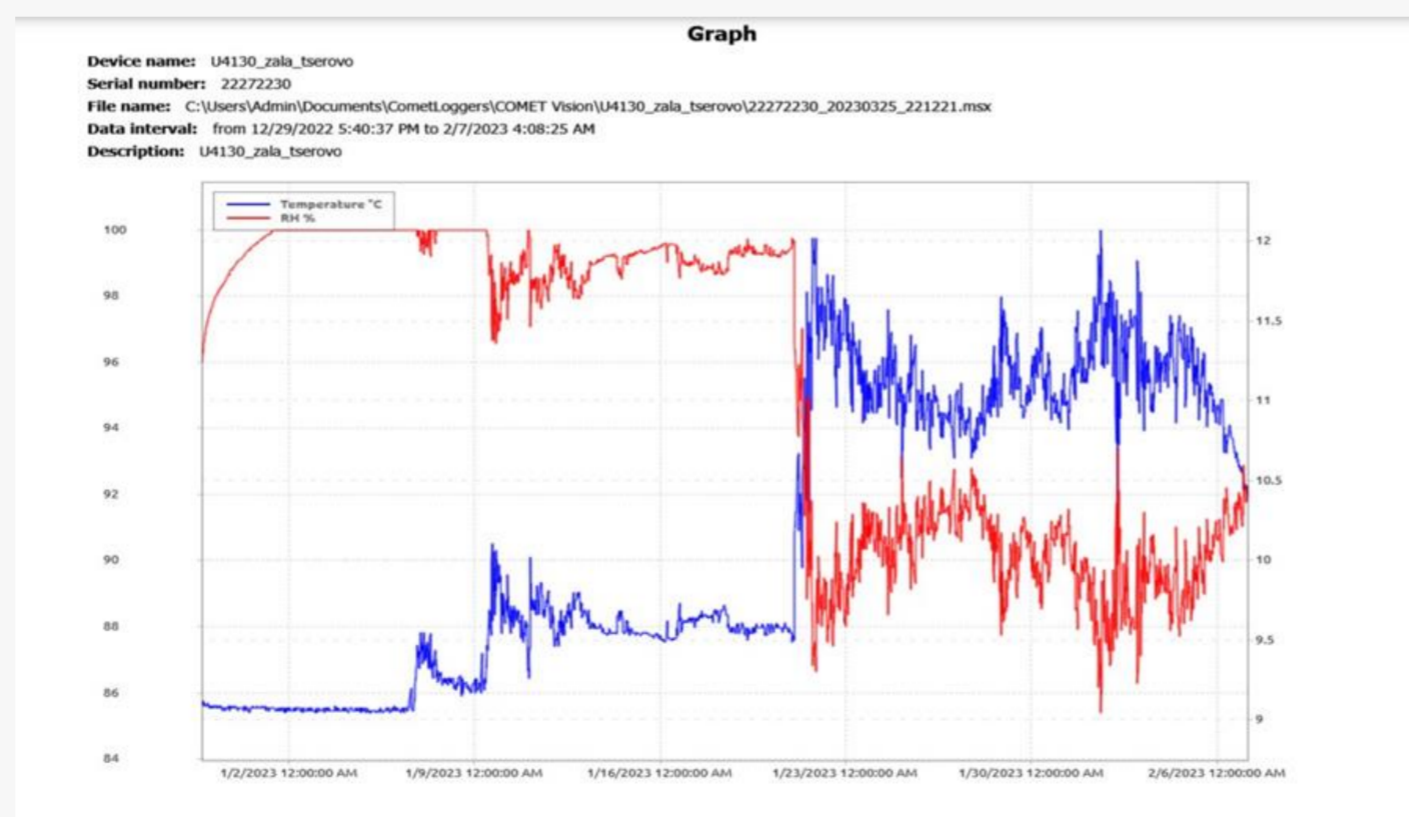


Glacial karst (Cryokarst) – a set of phenomena and processes developing on the surface of and inside a glacier as a result of the melting of ice and the action of flowing water, similar to the karst phenomena that develop in carbonate rocks.



Correlations between outside temperature ('Temp') and all other variables are:

Rain	0.003997
Temp	1.000000
SunSpots	0.111024
SunFreq	0.026695
S130_Temp	-0.647297
S40_Temp	-0.544902
S130_Temp_Lag3	-0.714367
S130_Temp_Lag-3	-0.465519
S40_Temp_Lag3	-0.427206
S40_Temp_Lag-3	-0.554904
Temp_Lag3	0.554964
Temp_Lag-3	0.554964



CORRELATIONS IN FOCUS

The outside temperature correlates negatively with that of both indoor sensors. It is also 3 days ahead and 3 days back. Preliminary findings, obtained after more than 5 months of data collection and analysis, show a significant negative correlation between air temperatures in the deep underground streams (at a depth of 130 meters below the surface) and temperatures at the cave entrance (at a depth of 40 meters) during of the winter months. The opposite trend is observed in spring and summer, where higher outdoor temperatures are associated with increased temperatures at the cave entrance, accompanied by lower temperatures in the deeper zone. Additionally, by using "lagged correlations" in the resulting analysis—examining correlations between indoor temperatures and outdoor temperatures over the preceding and following seven days—cyclical changes in heat exchange between the near-atmospheric layer and underground temperatures in the karst system were observed. In particular, a constant increase in temperature at the entrance of the cave was noted three days before an increase in outside temperatures during the spring-summer season.