

# IPROMO 2020 Summer School

## *Mountains in a changing climate: Threats, challenges and opportunities*

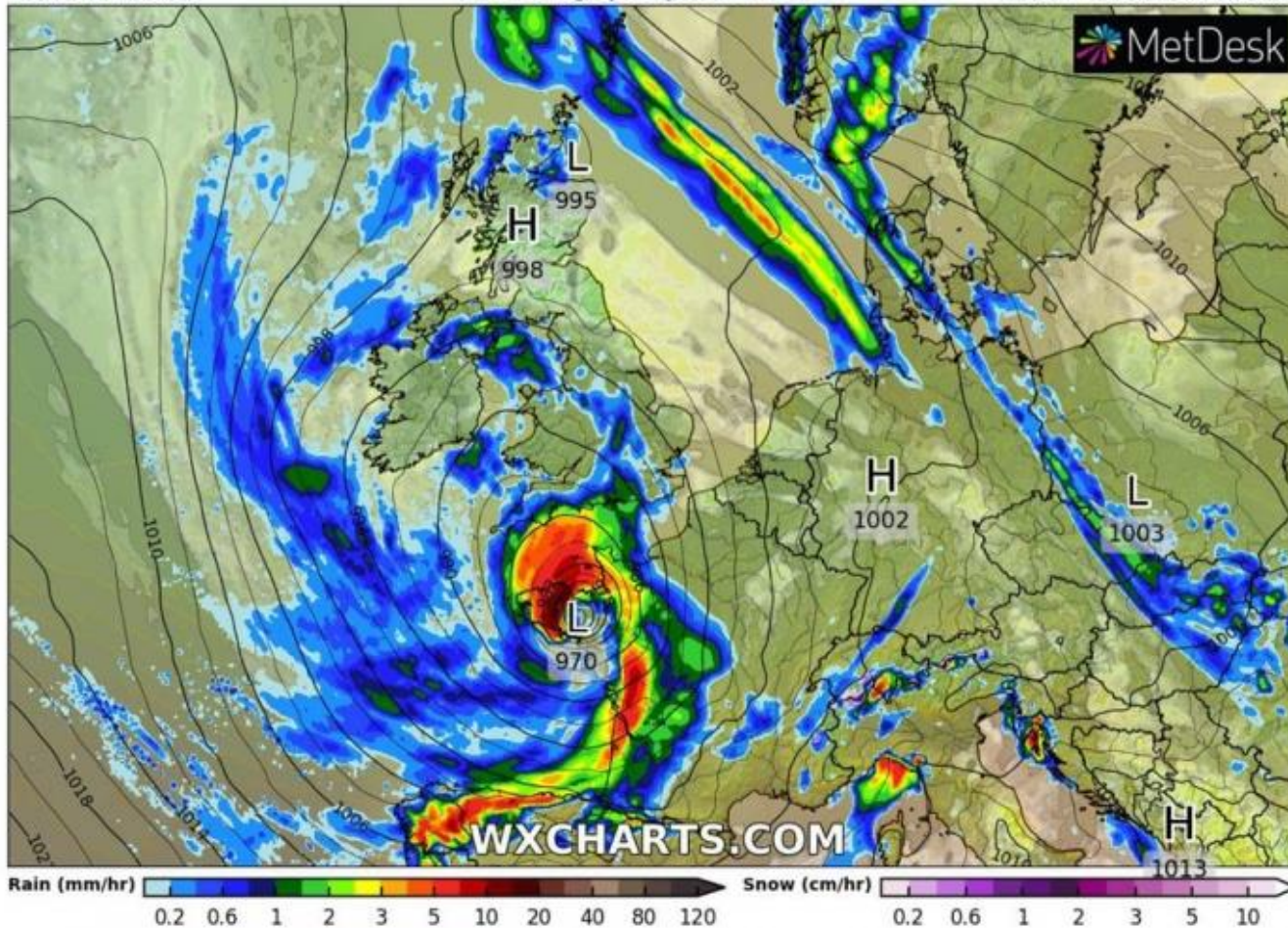
Brief storm report

Danilo Godone – CNR-IRPI

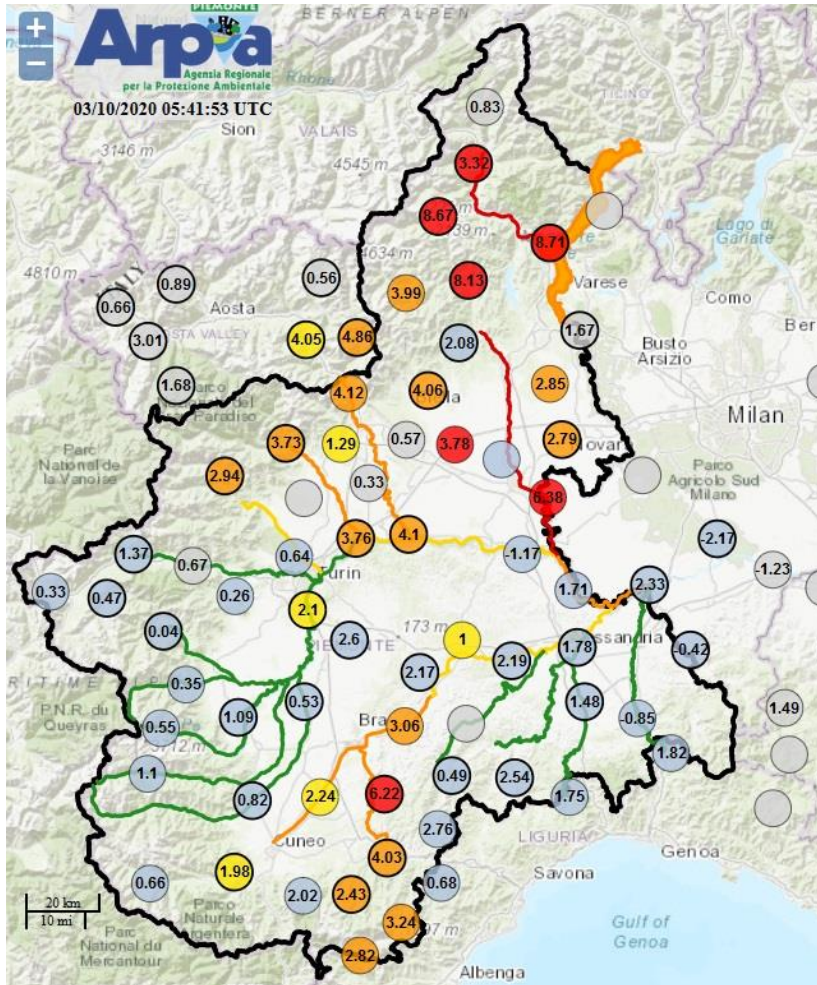
# Storm Alex

**Overview - Precip, Cloud, Temperature & Pressure**  
ICON-EU 0.0625°  
1 hr average precipitation rate

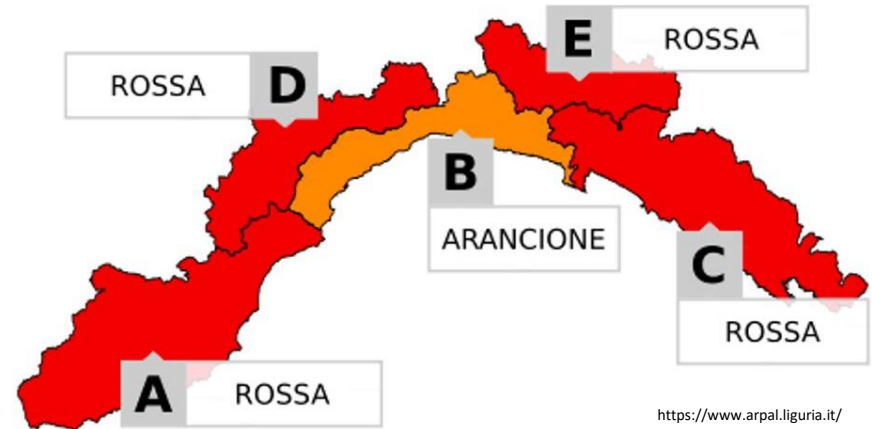
Run: Wed 30 Sep 06Z  
Valid: Fri 2 Oct 00:00 UTC



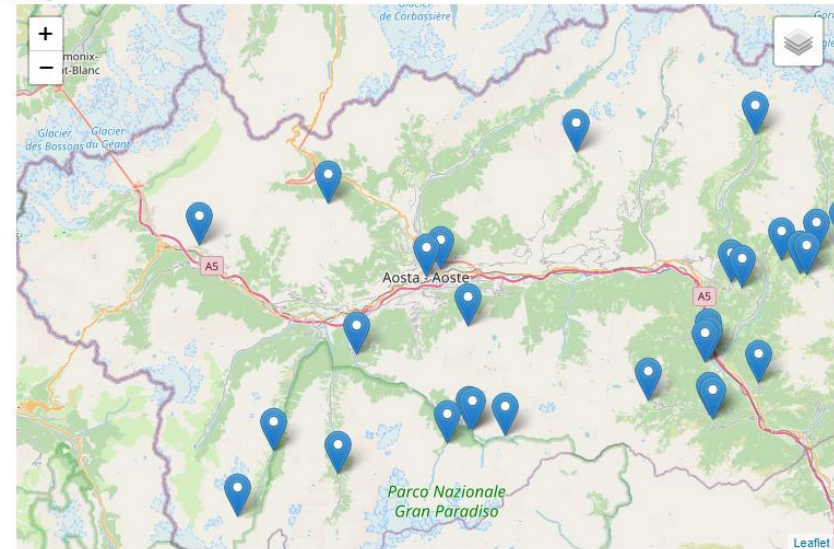
# Regional impact



<http://www.arpa.piemonte.it/news/allerta-arancione-per-rischio-idrogeologico-aggiornamento-delle-ore-8>



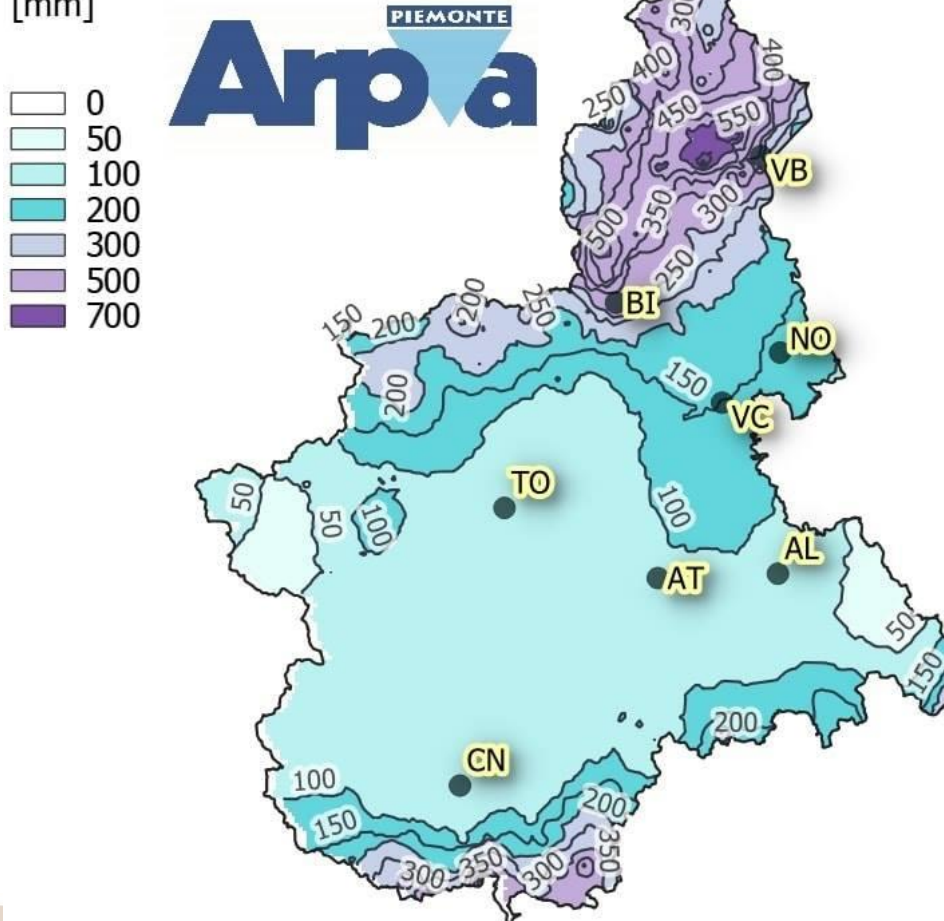
<https://www.arpal.liguria.it/>



<https://cf.regione.vda.it/dissesti.php>

# Rainfall

Rain 1-4/10/2020  
[mm]



- > 50% of the mean annual precipitation;
- Tanaro (SW) river level 5.93 m (historical record);
- Toce (NE) river level 9.34 m (historical record);
- In 12 hours, in every drainage basin (even the largest ones), the maximum level reached the outlet.

# Aosta Valley



# Collapsed bridge



● ○ REDMI NOTE 8 PRO  
AI QUAD CAMERA

# Anzasca Valley

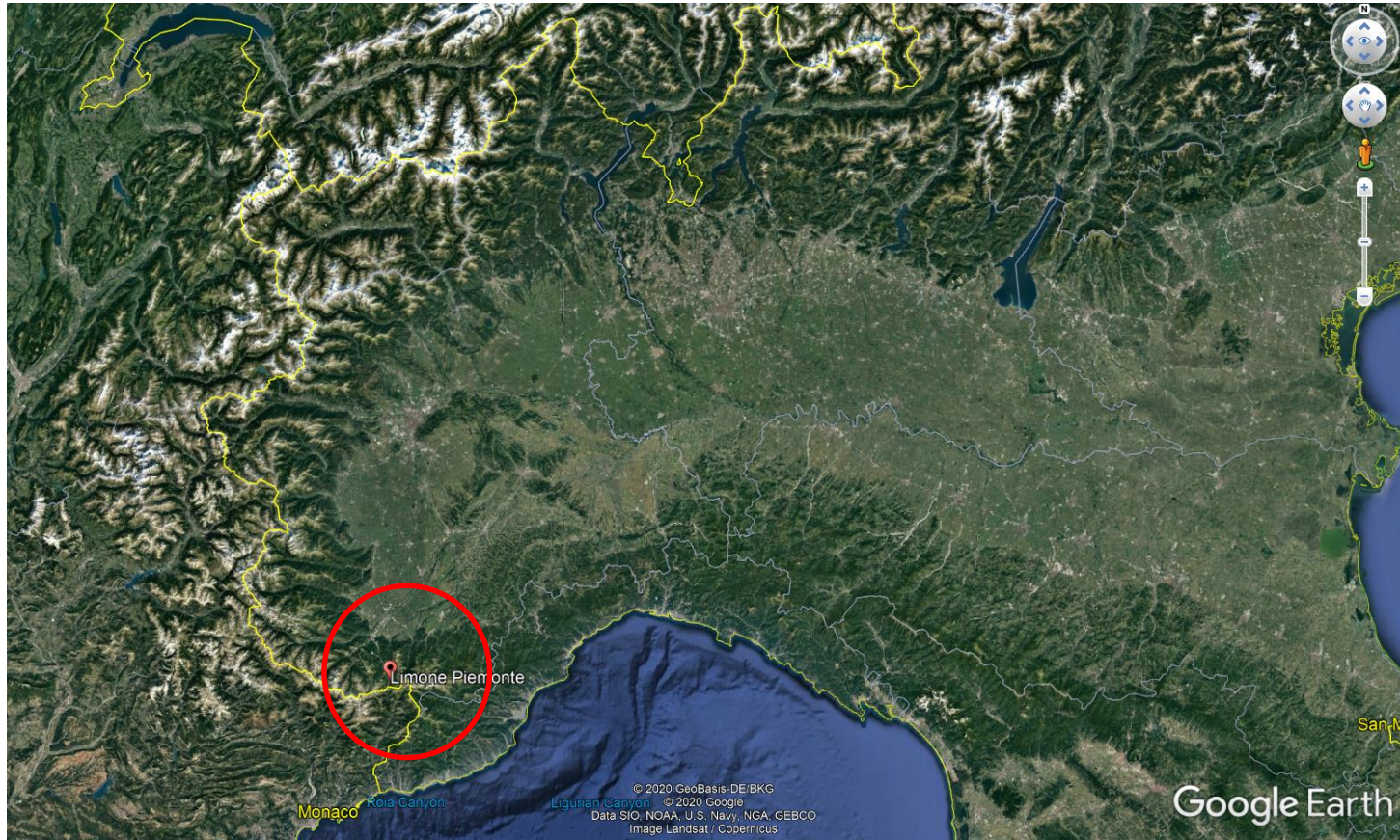


# Collapsed bridge and bank erosion





# Vermenagna Valley



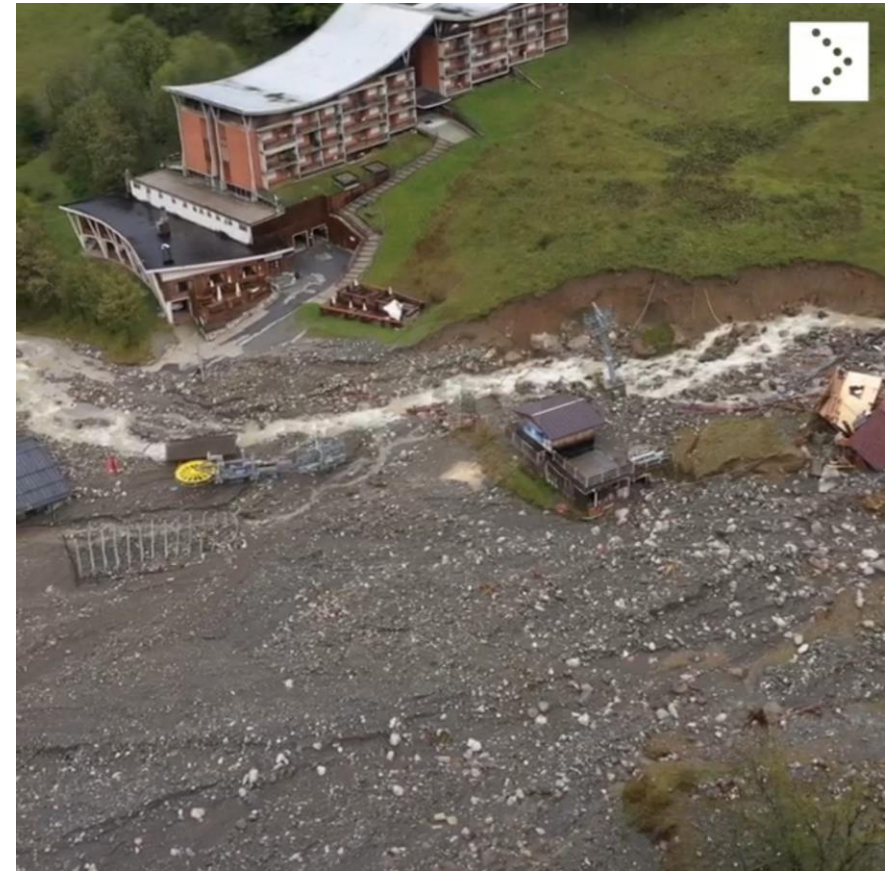
# Flooding



# Flooding and collapsed house

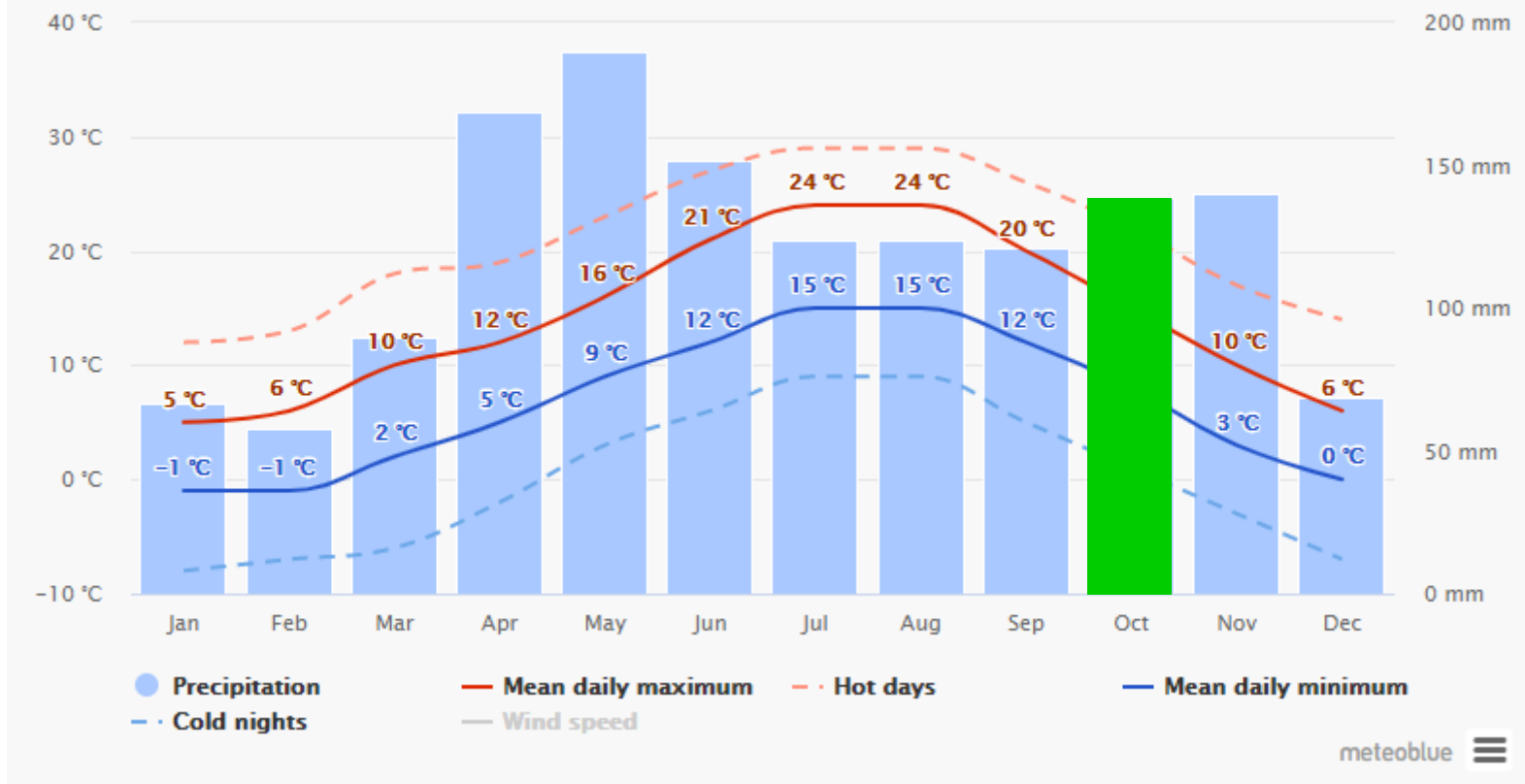


# Flooding/mud flow and damaged cableway

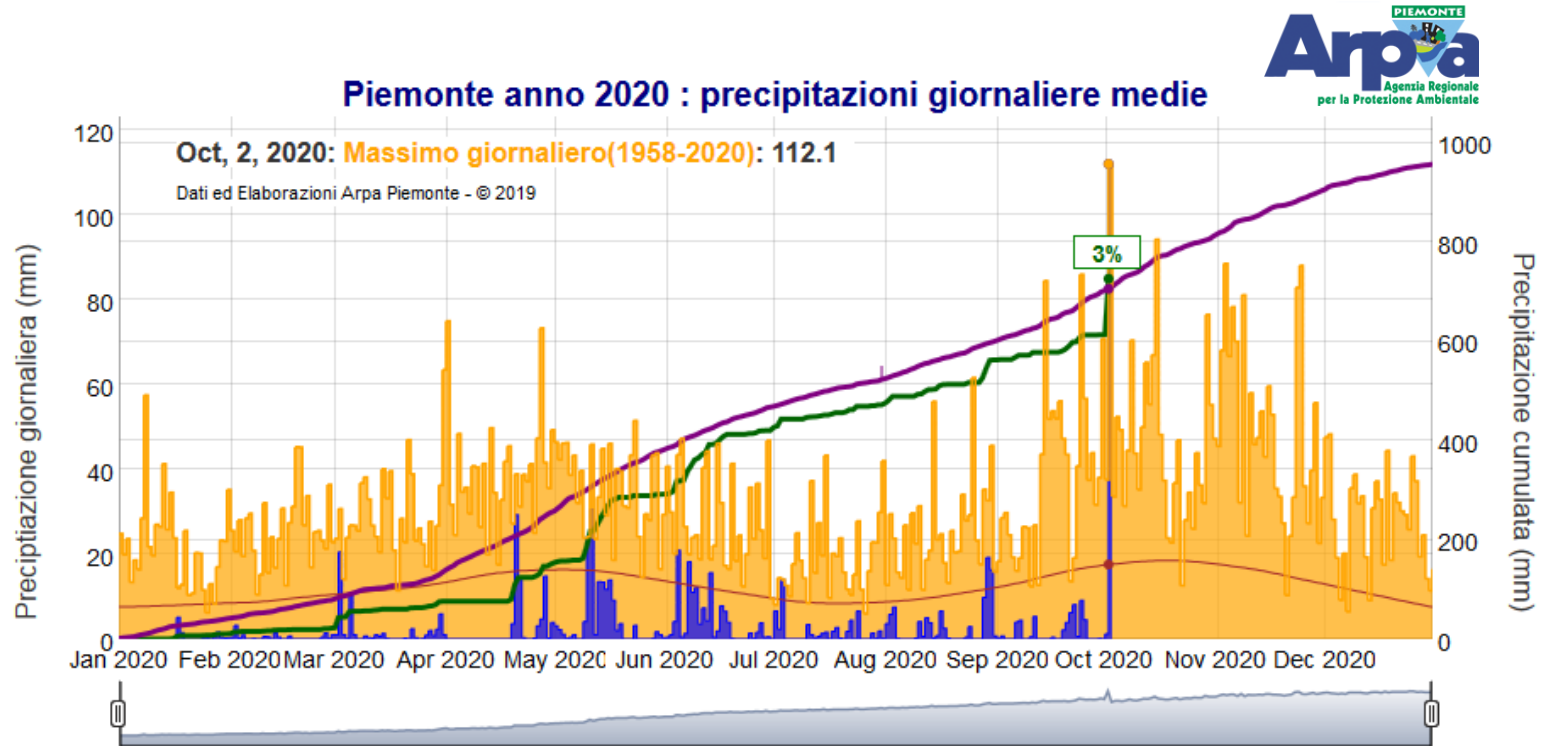


# Vermenagna Valley

Average temperatures and precipitation

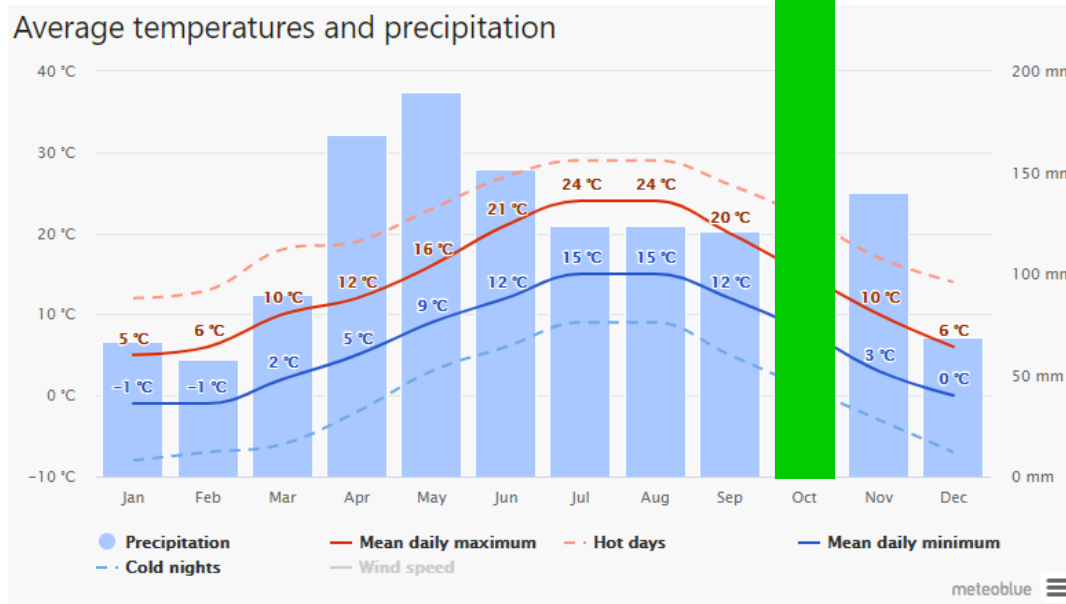


# Vermenagna Valley



Limone Piemonte (CN) 580 mm in 24 hours

# Vermenagna Valley



# Tanaro Valley





# Shallow landslide



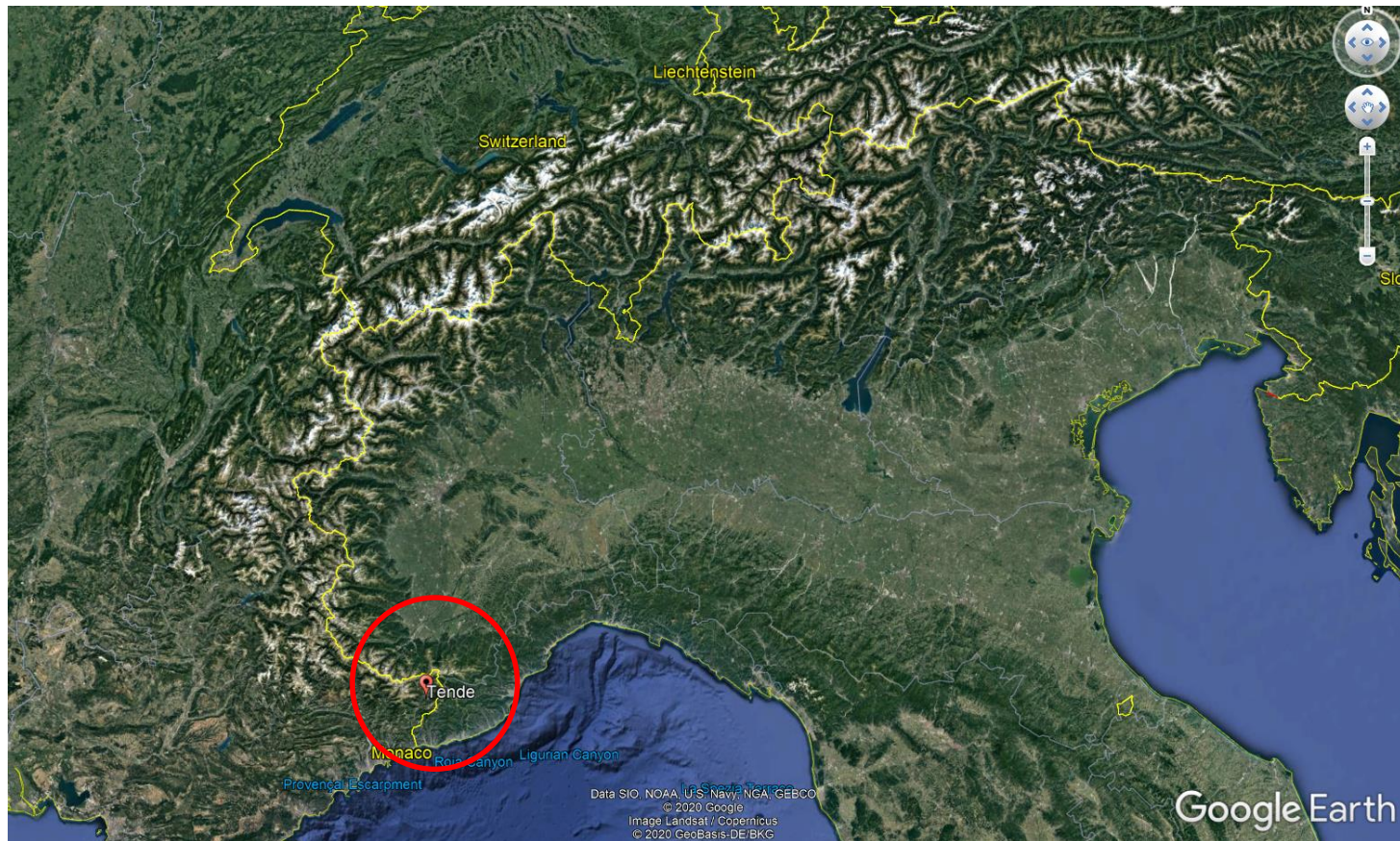
# Flooding and damaged road



# Flooding in Ormea



# Roya Valley



# Flooding and collapsed road



# Flooding



# Tende Tunnel collapsed bridge



Florent Adamo

# Tende Tunnel collapsed bridge and mud flow

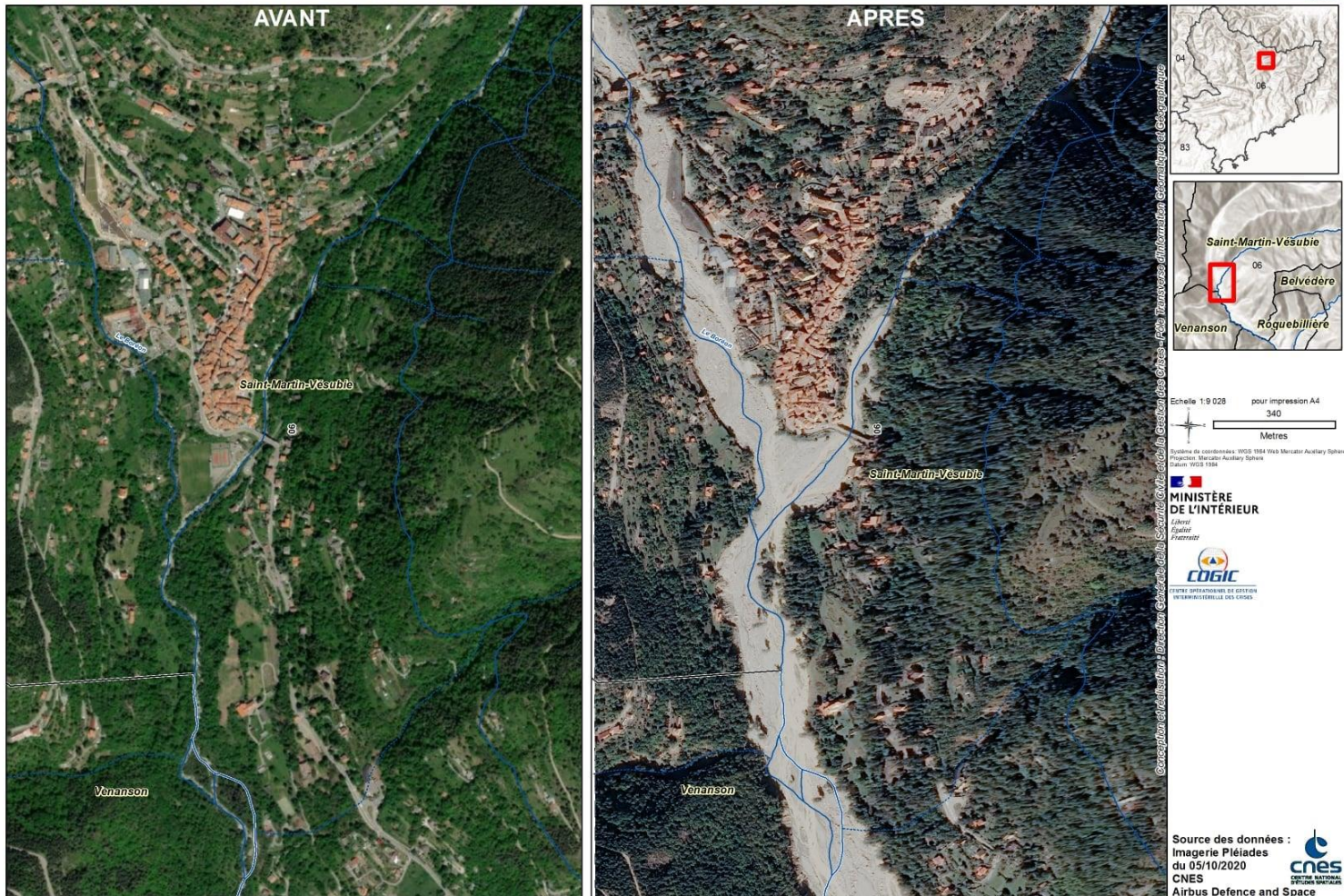




# Aerial view of aftermath

Département des Alpes-Maritimes - Imagerie satellite Pléiades du 05/10/2020

Date d'édition : 5 octobre 2020  
21h13

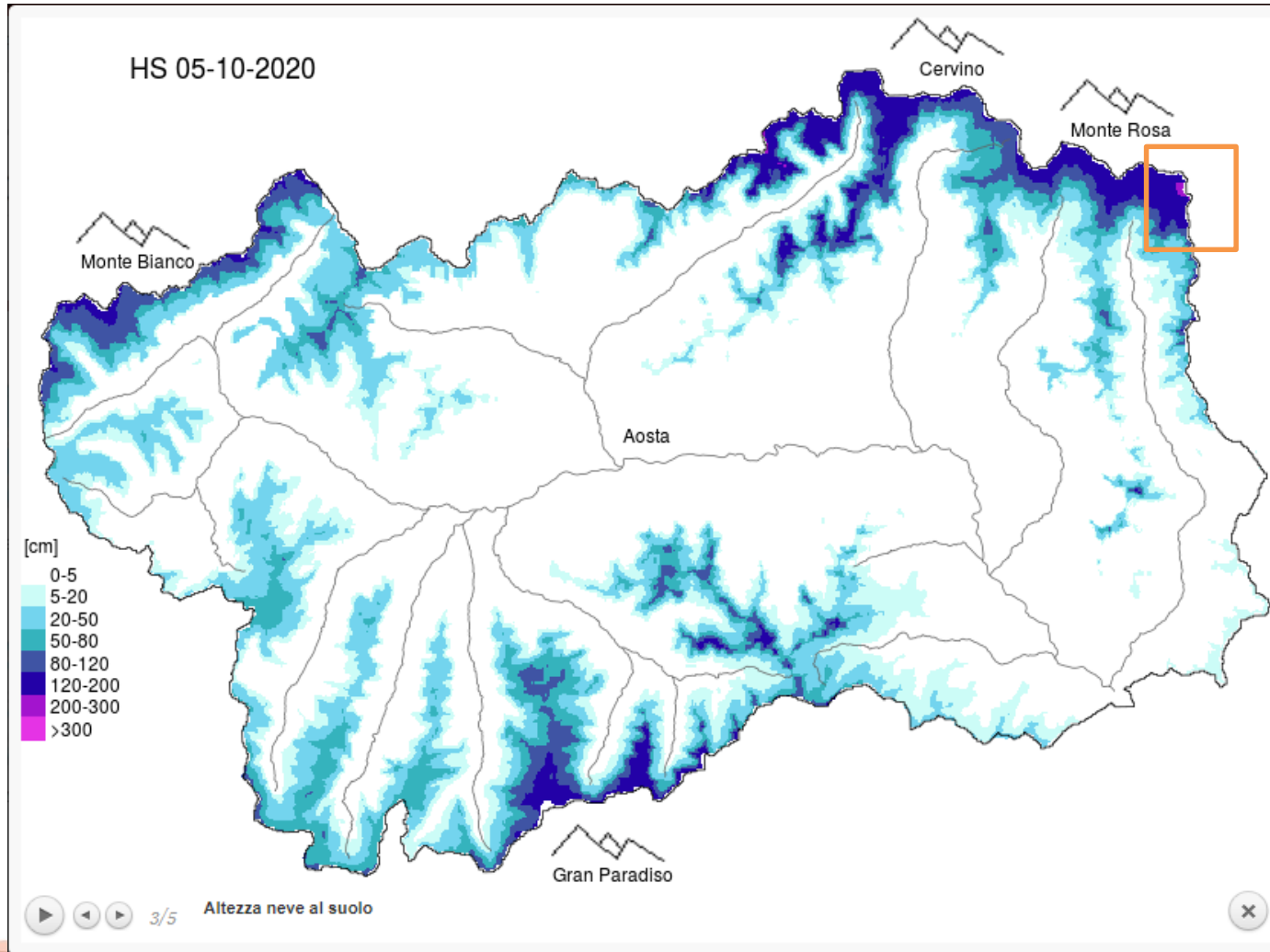




# Sesia Valley



# Aosta Valley



# Snowfall

Station Name  
0035 - Col d'Olen

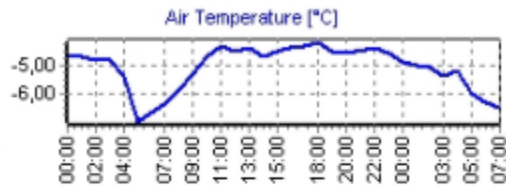
Date and Time  
05/10/2020 07:00:00



Air Temperature [°C]



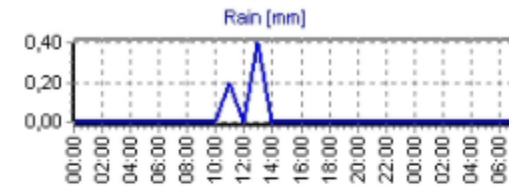
**-6,5 °C**



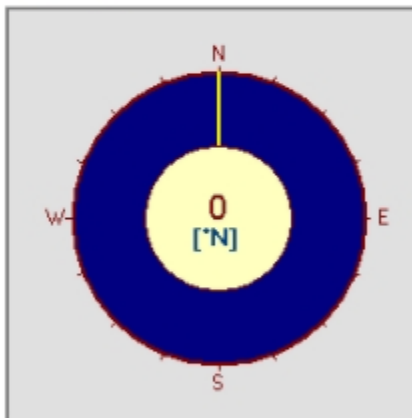
Rain [mm]



**0 mm**



Wind Rose



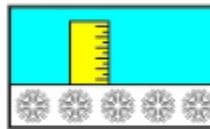
Avg Wind Speed [m/s]

**0 m/s**

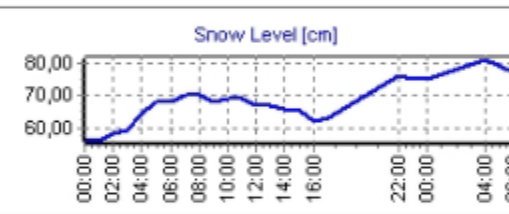
Max Wind Speed [m/s]

**0 m/s**

Snow [cm]



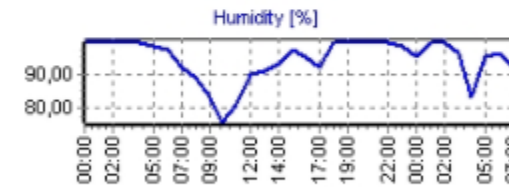
**— cm**



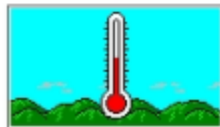
Humidity [%]



**92 %**

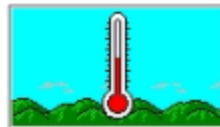


Air Temperature min [°C]



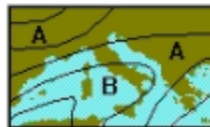
**-6,5°C**

Air Temperature max [°C]

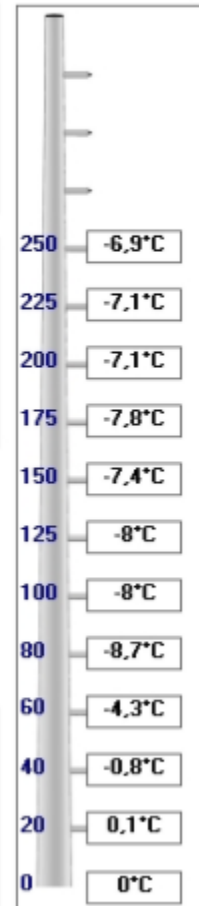
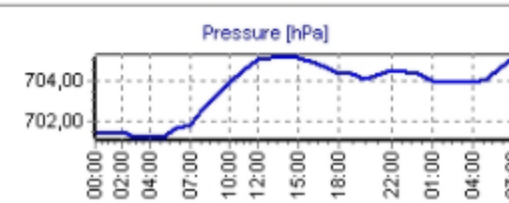


**-4,2°C**

Pressure [hPa]



**705,1 hPa**



# Snowfall

Station Name  
0035 - Col d'Olen

Date and Time  
05/10/2020 07:00:00

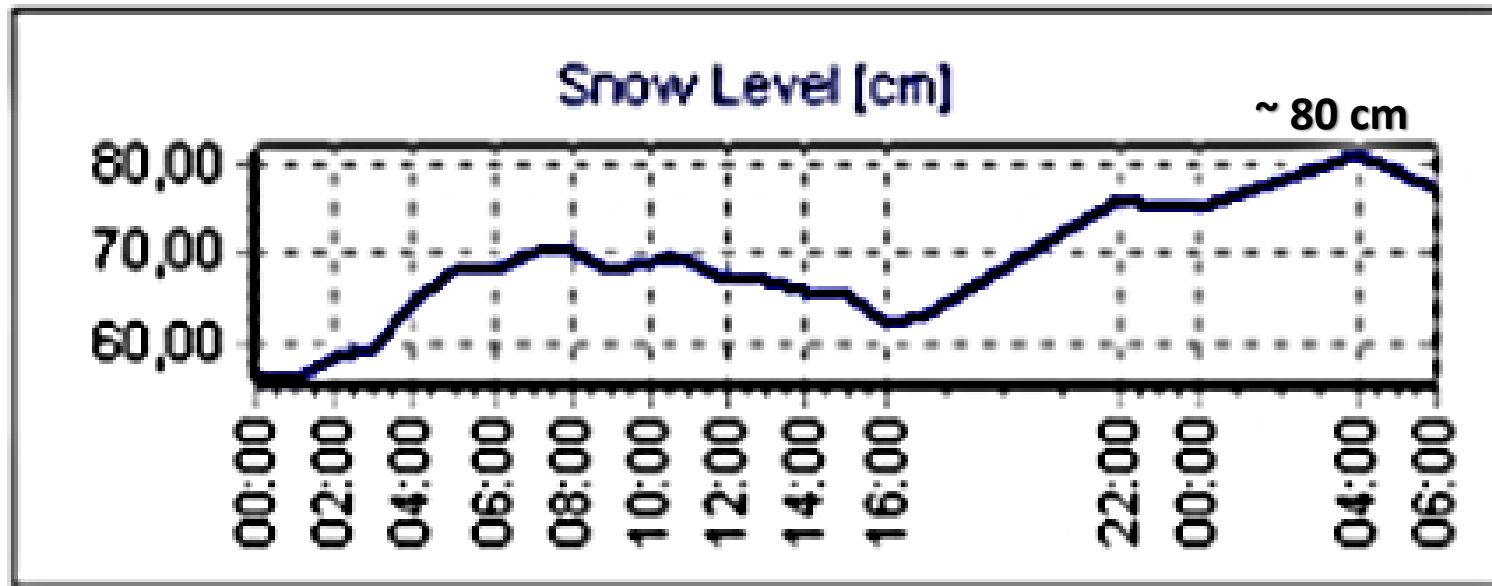


Air Temperature [°C]

Air Temperature [°C]

Rain [mm]

Rain [mm]

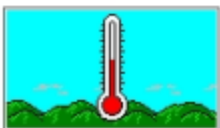


-6,1

Wind Ros

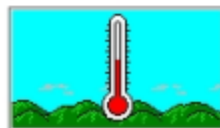
- 6,9°C
- 7,1°C
- 7,1°C
- 7,8°C
- 7,4°C
- 8°C
- 8°C
- 8,7°C
- 4,3°C
- 0,8°C
- 0,1°C
- 0°C

Air Temperature min [°C]



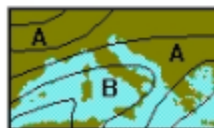
-6,5°C

Air Temperature max [°C]



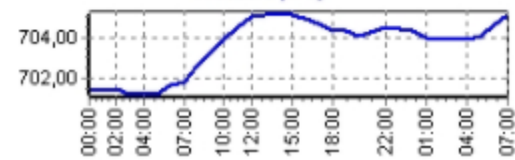
-4,2°C

Pressure [hPa]



705,1 hPa

Pressure [hPa]



# Mosso Institute



# Special Issue Geosciences



*geosciences*

an Open Access Journal by MDPI



## Geo - Hydrological Risks Management

### Guest Editors

Dr. Danilo Godone, Prof. Changdong Li, Dr. Louise Vick

### Deadline

31 December 2020

# Special Issue

[mdpi.com/si/46021](https://mdpi.com/si/46021)

Invitation to submit

[www.mdpi.com/journal/geosciences/special\\_issues/Geo-Hydrological\\_Risks](https://www.mdpi.com/journal/geosciences/special_issues/Geo-Hydrological_Risks)





**Thank for your attention!!!**

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**[d.godone@gmail.com](mailto:d.godone@gmail.com)**