



Melting glaciers require mitigation and adaptation. Matthias Watzak-Helmer in Project Manager / FEDARENE

Worse than 2003: Swiss glaciers are melting more than ever before! Italian Alps glacier collapse! Zermatt suspends summer skiing as glacier melts! Hiking routes closed due to falling rocks!

Headlines like these have been around the news all summer. They describe the crucial state of alpine glaciers, which are heavily affected by global heating. Glaciers are retreating at historicallyunprecedented rates and, in 2022, only glaciers above around 3500m altitude did not lose mass in the Alps. The IPCC states that the tipping point for mountain glaciers worldwide will be most likely reached in case of global mean temperature of 2°C above preindustrial age, but for sure inbetween 1.5° and 3.0° C. It would even be earlier for alpine glaciers as they are at lower altitude. A tipping point means ecosystem exceeds that the its temperature limits and will collapse, becoming lost forever. With today's temperature rise of more than 1°C, we already see the heavy and fast impact on alpine glaciers. Mitigation measures are therefore needed to stop global heating applied jointly with adaptation measures to adjust to the new circumstances.

Why are melting glaciers bothering us? Isn't skiing during winter nicer anyway? What can be done to reduce the impact of global heating?

Glaciers have several important and very crucial functions for us.

Glaciers store short term precipitation and set it free over a longer period. This ensures a stable drinking water supply and more stable water levels in rivers. Worldwide, an estimated 1.9 billion people rely on glaciers as their primary source of drinking water. Stable water levels of rivers ensure a good energy supply from hydropower plants and allow cargo ships to efficiently transport goods. The further glaciers melt down, the more alternative drinking water sources like energy-intense seawater desalination plants will have to be harnessed, in addition to more renewable energy sources and less efficient transport routes - despite all their downsides - and small artificial glaciers will be used as regional water source.

www.regilience.eu





ICLEI











Additionally, the tourism sector is suffering from melting glaciers. Α melting opportunity for early skiopenings in autumn and especially summer skiing will cause either the shut-down of alpine skiing resorts or necessitate high effort countermeasures to facilitate skiing. One idea is to protect snow with huge plastic sheets, another is to reassemble ski lifts into deeper frozen areas of the glaciers. Both are costly endeavours. Faster erosion and falling rocks caused by thawing alpine permafrost already led to closed hiking routes, endanger alpine huts and whole villages. Adaptation measures are set to reduce the risk of falling rocks by covering mountain faces with steel nets and installing massive steel fences.

Furthermore, glaciers and high alpine areas are the natural habitat of unique species like the snow hare, snow grouse, and alpine flora like the <u>glacier</u> <u>buttercup</u>. As the snow line retreats towards the mountain top, the natural habitat of these highly specialised animals and plants is getting narrower. From below, new species are invading their space to live and high alpine residents have nowhere to flee to and <u>face extinction</u>. Sadly, the melting of the alpine glaciers itself will heat up the planet by an estimated additional 0,1°C. New solutions and adaptation measures will have to be set in place and additional mitigation measures will have to be introduced to protect the alpine habitat as we know it today. Initiative like the <u>Alpine Space programme of Interreg</u> <u>Europe</u> are addressing these challenges.

Luckily, regions and regional actors will receive support in their work on climate adaptation. <u>REGILIENCE</u> and its sister projects provide a broad portfolio of topics that will be addressed in information sessions and highlight upcoming funding opportunities for regions.

Follow us:

www.regilience.eu

F65













This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101036560.