

The climate catastrophe has arrived in the Alps.

- **Road traffic has caused a great part of that evolution:**
- **Because of transport's contribution to CO₂-production: more than 30% of all the CO₂.**

Melting Glaciers

- Decrease of Alpine glaciers for 150 years, originally a normal evolution (until ca 1970)
- **BUT:**
 - **Massive acceleration for 20 - 30 years:**
 - **Last 30 years: - 20-30% of volume**
 - **Last 150 years: - 50% of volume**
 - **Scenario: 75% of all Alpine Glaciers will have disappeared by 2050**

New „Glacier-lakes“ are formed by melted ice-water

- **Summer 2002 / Monte Rosa (I):** a newly appeared glacier lake threatens the village Macugnaga
- **since 2003 / Switzerland (“Bernese Oberland):** a new lake appears below the “**Trift-Glacier**”. Within 3 – 5 years this lake may contain such a lot of water that it will flood over the borders. Flood will reach the village nearby.
- **Switzerland:** Melted water from the “**Gruben**” **glacier** threatens the village Saas Baalen. **Evacuations will be necessary.**

Risks concerning water cycle

- **1st period / today:** The melting glaciers set free lots of water. The danger of floods grows continuously.
- **2nd period / scenario:** Some regions lack water and certain plants and animals disappear. Lack of drinking water in many Alpine communities and outside the Alps.

The climate catastrophe is accelerated by additional impacts due to road traffic

- **Polluted glacier surface because of soot and dust (PM)**
- **Damages of the ozone-layer because of emissions**
- **Changes of the chemical make-up of the air because of pollutants („acid rain“)**

Permafrost disappears

- **Originally appearing in most areas above 2400 meters**
- **BUT**
- **The frost line moves 100 – 300 meters upwards**
- **Moves up 150 meter per + 1 degree annual temperature increase**
- **Mont Blanc became 2 metres lower during the summer 2003, because of disappearing permafrost.**

Fading Permafrost makes the mountains instable

- 10 greater rock falls since 1991, in areas that used to have permafrost
- 1000 cubic meters of rock came down into the valley, because of melting permafrost in 3400 meter above sea-level! (Mont Blanc, summer 2003)
- In Pontresina, 4,6 million Euro had to be spent for protection as the Permafrost above the city started to melt away.
- 300 cablecars, mountain restaurants or electricity lines in Switzerland are anchored in permafrost. They become unsafe now.

Risks for tourism

- Mountain huts had to be given up because of decreasing permafrost, which also increased the risk of rock fall. (Lobbia hut in the Adamell group, Gouter hut and Charpoua hut (Mont Blanc), cracks in the hut of the Großglockner)
- Many access paths disappeared
- Tourist saison became much shorter
- Forecast: snowline will be at 1500 meters in 10 years, the end of many skiing areas

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