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'Major melt' for Alpine glaciers

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Europe's Alps could lose three-quarters of their glaciers to climate change during the coming century.

That is the conclusion of new research from the World Glacier Monitoring Service (WGMS) in Zurich.

Scientists base their conclusion on forecasts of temperature and precipitation changes in a new computer model of Alpine glaciation.

Glaciers are crucial in providing fresh drinking water, and are also key for tourism, irrigation and hydro-power.

There is already strong evidence of a major ongoing melt.

In the 1850s, according to WGMS data presented at the European Geosciences Union (EGU) annual meeting in Vienna, nearly 4,474 sq km of the Alps were glaciated.

By the 1970s, the area covered had fallen to just under 2,903 sq km, and in 2000, it was down to 2,272 sq km.

"From 1850 to the 1970s, there is an average loss of 2.9% per decade," WGMC's Michael Zemp told EGU delegates.

"From the 1970s until 2000 it is 8.2% per decade, and we see most of that increase since 1985," he said.

Warm projections

As temperatures rise, the minimum altitude at which glaciers form also rises.

To some extent that can be mitigated by changes in

precipitation; more snow in winter will help glaciers accumulate more ice.

The WGMS has developed a computer model which calculates what projected temperature and precipitation changes for the Alps will mean for the glaciation altitude.

According to the OCCC, a national Swiss scientific grouping, summers are likely to get warmer by about 3C before the end of the century, and precipitation is likely to increase by about 10%.

"The summer temperature increase is 3C, which is very bad for glaciers," Dr Zemp told the BBC News website, "and the annual precipitation increases, which creates a bit better conditions for glaciers.

"You get a rise of 340m in the level that enables glaciation."

Across the Alps, this would mean a loss of 75% in the glaciated area.

Summer needs

This is only one projection for future Alpine climate, albeit one endorsed by an august scientific panel.

Summers could be cooler, winters could see higher snowfall.

But, commented Michael Zemp: "Even a rise of just 1C would see a loss of 40%.

"And even if you halted climate on today's level, glaciers would continue to retreat because of very bad years in the last two decades."

Melting of glaciers could be serious news for people living in or near the Alps.

They act as freshwater reservoirs, storing winter snowfall and releasing it over the summer, when it is most needed for

drinking and agriculture.

Without them, the stored water would descend in a rush in spring, as soon as the snow began to melt.