

guardian.co.uk

Climate change lays waste to Spain's glaciers

Spain loses 90% of its glaciers thanks to global warming, threatening drought as rivers dry up

Giles Tremlett

guardian.co.uk, Monday 23 February 2009 17.28 GMT

A [larger](#) | [smaller](#)



Spain has lost 90% of its glacial ice in the last century

The Pyrenees mountains have lost almost 90% of their glacier ice over the past century, according to scientists who warn that global warming means they will disappear completely within a few decades.

While glaciers covered 3,300 hectares of land on the mountain range that divides Spain and France at the turn of the last century, only 390 hectares remain, according to Spain's environment ministry.

The most southerly glaciers in Europe are losing the battle against warming and look set to be among the first to disappear from the continent over the coming decades. Their loss will have a severe impact on summer water supplies in the foothills and southern plains south of the Pyrenees.

"This century could see (perhaps within a few decades) the total, or almost total, disappearance of the last reserves of ice in the Spanish Pyrenees and, as a result, a major change in the current nature of upper reaches of the mountains," the authors of the report on Spain's glaciers said.

Scientists have ruled out the idea that the progressive deterioration of glaciers around the globe are part of normal, long-term fluctuations in their size. Europe's glaciers are thought to have lost a quarter of their mass in the last 8 years.

Prof Wilfried Haeberli, director of the World Glacier Monitoring Service, said that the rate of glacier loss is particularly quick. "Small glaciers disappear faster so the relative loss is much larger."

"They are the best indicators of climate change," he said. "I would even say these figures (for Spain) are optimistic. If the loss of ice goes on at the speed of the past 10 years they may disappear within ten to 20 years."

Scientists warn of potentially dramatic effects to agriculture as glaciers that feed rivers disappear, taking away a major source of summer water.

The glaciers under threat in Spain feed rivers such as the Gállego, the Cinca and the Garona which water the foothills and plains south of the Pyrenees.

"During the dry season, especially in Spain, they are nourished by glacier and snow melt," said Prof Haeberli.

He said that smaller glaciers, such as those in Spain and some in tropical countries such as Colombia and Kenya, would soon disappear as the planet heats up.

Even the Alps, though, stand to lose up to 75% of its glacial area by mid-century.

Glaciers provide a unique record of global climate change as scientists have been tracking their development since the International Glacier Commission was founded in Switzerland in 1894. Spanish glaciers were among those measured at the end of the 19th century.

The World Glacier Monitoring Service last year reported that glaciers around the planet were melting at a rate unseen for 5,000 years.

"It has become obvious that the ongoing trend of worldwide and fast, if not accelerating, glacier shrinkage ... is of a non-cyclic nature," the service's report for the decade up to 2005 said.

The rate of melting more than doubled over that period when compared to the previous decade.

Changes were "without precedent in history" and would produce "dramatic scenarios", including the complete loss of glaciers in some mountains systems, according to the report.

"Glacier shrinkage ... is not a periodic change and may lead to the deglaciation of large parts of many mountain regions by the end of the 21st century," the monitoring service report warned.

Early figures for 2006 and 2007 indicate that the speed of glacier melt around the world continues to increase.

guardian.co.uk © Guardian News and Media Limited 2009