

7 December 2011 Last updated at 01:24 GMT

French Alpine glaciers in retreat

By Jonathan Amos Science correspondent, BBC News, San Francisco



In the Ecrins Massif, glacial retreat is more than three times stronger than in the Mont Blanc region

[Continue reading the main story](#)

Related Stories

- [Swiss glaciers 'in full retreat'](#)

Glaciers in the French Alps have lost a quarter of their area in the past 40 years, according to new research.

In the late 1960s/early 1970s, the ice fields slipping down Mont Blanc and the surrounding mountains of the European range covered some 375 sq km.

By the late 2000s, this area had fallen to about 275 sq km.

The research has been presented at the American Geophysical Union (AGU) Fall Meeting, the

world's largest annual gathering of Earth scientists.

It mirrors some findings of retreat occurring in other sectors of the Alps which sit across the borders of several nations, but predominantly Switzerland, Austria, Slovenia, Germany, France, and Italy.

The new French Alps glaciers inventory was produced by Marie Gardent, from the University of Savoie, and colleagues.

It assessed the roughly 600 glaciers in broad areas incorporating the Ecrins, Belledonne, Vanoise, Ubaye and Grande Rousse Arves massifs, as well as the famous Mont Blanc Massif in the north.

The team drew upon map archives, past satellite imagery and aerial photographs. Manual inspection was used to check the automatic delineation methods employed in the pictures was correct.

"We use manual delineation to verify the satellite data because there can be a problem with debris cover on a glacier," explained Ms Gardent.

"Automatic delineation from satellite data will sometimes say there is no glacier when in fact we know there is one there. Also, deep shadows can hide the glacier margins."



A great deal of effort is now going into monitoring the status of Alpine glaciers. The only existing glacial inventory from the French Alps was published four decades ago within the context of the World Glacier Inventory. It found the overall area of ice to be about 375 sq km.

By 1985-86, in spite of a short advancing period in the late 70s/early 80s, glacial coverage had

decreased to a value close to 340 sq km, the new survey shows.

Since then, the withdrawal has accelerated, with the area being reduced to about 275 sq km in the late 2000s.



Nasa's Landsat spacecraft looks down on Mt Blanc and La Mer de Glace snaking off to the north-west This represents an average loss of some 26% over the last 40 years. The retreat is not uniform across the French Alps, however. The greatest losses have been seen in the southern sectors. In the Belledonne Massif, for example, glaciers have almost completely disappeared; and in the Ecrins Massif, glacial retreat is more than three times stronger than in the Mont Blanc Massif.

"The glacier retreat is less important in the northern Alps than in the southern Alps," Ms Gardent emphasised.

"We think this is because of the lower elevation of the mountains in the south, but also because of climatic conditions which are different. There is more precipitation in the north and there is also more cloud."

The northern region includes the biggest French glacier of all - La Mer de Glace, which falls over a 1,000m in altitude down Mont Blanc itself. Its area today is just over 30 sq km, a shade smaller than the 31.5 sq km in the late 1960s/early 1970s.

Efforts to assess and monitor glacier health are going on across the Alpine region.

At this very meeting three years ago, Swiss researchers reported that glaciers on their part of the European range were also losing mass at an accelerating rate.