

Mountain and rock guide Victor Saunders climbing a variant of the Migot Spur, Aiguille du Chardonnet, France.

BEN TIBBETTS

"The New Normal"

Climate Change and Alpinism in Chamonix

By Katy Dartford

In 2018, Chamonix saw two major rockfalls: one on August 22 on the *Cosmiques Arete*, one of the most famous and popular climbs in the Mont Blanc range. It was also always considered one of the most stable. A month later, on September 25, a huge portion of the south face of the Trident du Tacul, close to the Grand Capucin, rained down onto the glacier. Major sections of *Lépiney*, a classic eight-pitch 5.10, and *Les Intouchables*, an eight-pitch 5.12 bolted by the early free climber Michel Piola as early as 1988, were destroyed.

A day before a portion of the *Cosmiques Arete* fell down, British mountain guide Andy Perkins had been guiding a client and his 13-year-old daughter on the route.

"It had been extremely hot, and there had already been two incidents on the Lachanal, so this appeared to be the better option," Perkins said. "I have no idea how there was no one on the route at the time. It fell at 10 in the morning: prime time! And the *Lépiney*. It's five pitches of solid granite crack that's existed for years and years. You just wouldn't consider that it might fall down."

Another mountain guide, Matt Helliker, wrote of his fears while sharing a photo on Instagram: "Trident yesterday dropped another huge bomb, whilst we were next door on the Chandelle! Adding to yet more tonnage of granite to the Mont Blanc Massif skip! With another heat wave on the way on top of already some of the worst conditions I've seen here in the mountains, it's definitely worth thinking about where to climb safely and when, wherever that is these days, but I don't think it's here!"

June and July of 2019 saw two record-setting heat waves.

"We decided to stop guiding for three weeks on the normal route of Mont Blanc because there were too many rockfalls," says Christian Jacquier, chairman of the Mountain Guide Association of France. "And this summer we also decided to stop on the Aiguille du Tour Ronde and the Dome de Geants."

Neil McNab, a mountain guide and snowboard instructor with over 30 years of experience working in the mountains, says the times are certainly changing. "When I started guiding Mont Blanc in the summer 20 years ago I never reached the summit without duvet jackets, duvet mitts, goggles, balaclava, the full Aretic outerwear. In recent years I've reached the summit in base layers and occasionally even without gloves."

THE CHAMONIX VALLEY

The Chamonix Valley is one of the most visited natural sites in the world, largely due to the draw of Mont Blanc, which, at 15,771 feet, is one of western Europe's highest summit. The region attracts millions of tourists, mountaineers and skiers every year. But according to a recent scientific report on the impacts of climate change on the Mont-Blanc region, it won't be long before the valley has a more favorable temperature for growing grapes.

Co-written by the Research Centre for Alpine Ecosystems (CREA Mont-Blanc) and ARPA Vallée d'Aoste, the report was part of AdaPT Mont-Blanc, a cross-border collaboration to develop strategies to adapt to the challenges of climate change.

The report concluded that in future we can expect "up to 40 fewer days of snow cover, forests climbing upslope and a severely decreased habitat for emblematic alpine species."

Due to the increased dangers, McNab believes certain routes will become even more of a trophy: "As the ice melts on the steep faces, it draws in towards the rock face underneath, it becomes steeper, sharp rocks appear like shark fins, wide open flat faces recede into channels and narrow couloirs, rocky cliffs and buttresses appear, the consequences grow."

Scientists believe the reason for the drastic changes is a rapid increase in the melting of permafrost, the perennial ice found at high altitude that holds together giant slabs of rock. "Glacial shrinkage, a reduction of ice-snow cover, changes in the structure of snow ridges, and permafrost warming create an increase in objective dangers, technical difficulty and commitment," says Jacques Mourey, a doctoral student at the EDYTEM laboratory at the University of Savoie Mont Blanc.

He revealed the effects in his recent study "Rockfalls in the Grand Couloir du Goûter (Mont-Blanc massif): an interdisciplinary monitoring system." Mourey and a team of researchers analyzed 95 routes in Gaston Rébuffat's classic book, *Mont Blanc Massif: The Hundred Finest Routes*. They found that 93 of the routes had been affected by climate change, 26 had been severely impacted and three no longer existed. Those were the *Lépiney Route,* the Bossons ice climbing school and the *Bonatti Route* on the Dru's West Face.

Mourey identified 25 geomorphic and cryospheric changes due to climate change that were affecting classic mountaineering routes. On average, each of the 95 routes studied had been affected by nine geomorphic changes. The appearance of bedrock (85 itineraries affected), wider crevasses and bergschrunds (78) and steeper glaciers (73) were the three most commonly observed changes.

To gather his data, Mourey went out in the field himself numerous times to check the changes, but he also used reports from mountain guides who "had to deal with thinner and weaker snow bridges, and crevasses that were never or rarely observed, now appearing more often."

Mourey says it's very important that



Spontaneous rockfall on the Southeast Ridge of the Tour Ronde, in 2017, as seen from the summit of the Aiguille De Toule.

JAYSON SIMONS-JONES

guides work with scientists in a practical way. "We [on the mountain] see events, important events, and we can describe it. We can send information, via smartphone, for their database. And so we increase their knowledge and then we have feedback from them in terms of what's going on and some recommendations (of where to climb). So, it's a kind of an exchange."

For Andy Perkins, it's the middle ground "between 3,000 meters and, say, 4,000 meters that is starting to get affected very quickly. This includes routes like the *Cosmique Arete*, the *Lépiney* and the *Bonatti Pillar* on the Dru, which was totally washed away by a series of huge rockfalls between June and September 2005.

"When the freezing level goes above 5,000 meters for more than a couple of weeks, I'd be staying out of anything in that 3,000-4,000-meter band," Perkins says. "I wouldn't even go anywhere near it because even if you're approaching something nominally safe, with the size of the mountains above you, if a rock the size of a district hospital decides it's going to detach itself, you'd want to be a long way away from it. In the case of the *Cosmiques Arete* it had been super-hot and then, bingo, it fell down. So we have to readjust: There is no normal anymore."

These changes have also affected seasons for optimal climbing conditions. "Snow and ice routes are in fantastic nick in early June," says Perkins. "Climbing snow and ice routes like the *Whymper Couloir* is now too late by the third week of June, unless you get really lucky. In the 1980s I used to come here in the last week of June or the first week of July and we'd be doing snow and ice routes. Now I wouldn't dream of doing that. The season has contracted by two weeks."

Perkins sees the possibility of the season contracting in August as well, due to the heat. "Take Mont Blanc. I think we will start to see more years when guides will decide they don't want to do it between early and mid-August. Then it will cool off. So there will be a hole in the middle of the season in August and the classic season from mid-June to mid-September will lose two weeks."

An increased avalanche risk could follow, Perkins warns, presenting other dangers. "Everyone will be forced together into smaller areas, which makes it more dangerous as our decision making is affected by the actions of other people skiing or climbing above you."

WEAKENING STRUCTURES

The thawing permafrost also poses a big problem for cable-car supports and the foundations of mountain shelters. As it can no longer serve as a natural cement, structures above the ground start to move and weaken. "The Bochard gondola was shut in April because the pylons that are driven into the permafrost moved," Perkins says.

Pierre-Allain Duvillard, a geomorphologist and an associate researcher at the EDYTEM (Bourget du Lac) and PACTE (Grenoble) laboratories, recently carried out a study of infrastructures built on permafrost in the French Alps since 1990. He found that out of an inventory of 947 elements, 148 of them present a risk of destabilization and deterioration, and 30 have already suffered damage. An example is the Cosmiques Refuge, in the Chamonix Valley, which had to undergo development works after a landslide of 600 meters in 1998.

THE FUTURE OF ALPINISM

Some are wondering how long the practice of alpinism is actually going to last.

"I believe that in 100 years we won't have a job anymore," says Perkins, "because a mountain guide's terrain du jour is glacial terrain. Or rather, that the job will be totally different to what it is now to the point of being unrecognizable."

McNab says: "I don't have children, but if I had, I wouldn't persuade them to be mountain guides. On a positive note, we are so much more informed, educated and aware of this high-mountain environment than ever before, we have more tools with which to make our decisions and encourage safe passage, and our skills are at a level never seen before. The negative consequences of this are that we can do more, go farther, go steeper, go bigger, bigger even than the mountain conditions today might support and with media coverage as the judge, the competition to be out there doing the most extreme descents or climbs is leading the way."

Katy Dartford is a freelance journalist and adventure-travel writer. Originally from London, she moved to Chamonix after discovering her passion for the mountains. She climbs, runs and skis when not working in TV and radio news or writing about travel.