

Bolivia, Benjamín Morales Arnao from Peru and Bernard Francou from France; archaeologist Constanza Ceruti from Argentina; anthropologist Mattias Borg Rasmussen from Denmark; environmental scientist Bob Nakileza from Uganda; and botanist Rosa Isela from Bolivia.

Mountain guides and alpinists

by Ignacio Palomo

In April 2014, an avalanche on Mount Everest's most commonly used climbing route tragically claimed the lives of 16 Nepalese guides. As a result, the world's highest mountain was closed to mountaineers for the remainder of the year, drawing attention to the growing risks posed by changing climatic conditions.

Since then, scientific evidence of the impact of climate change on mountaineering communities has only accumulated. There is growing evidence that permafrost degradation is increasing mountaineering risks due to a higher probability of rockfalls. Similarly, the stability of certain mountain shelters is affected by loose rocks, as is the case of the Arête des Cosmiques shelter in the Mont Blanc massif. Extreme weather events also make mountaineering a riskier undertaking, and attribution science has rapidly progressed in recent years to be able to link specific extreme events to climate change. For example, the storm that killed over 40 people on an Annapurna trek in 2014 has been associated to the higher frequency of storms in this area caused by climate change. The accessibility of summits and huts is also being affected

by glacier retreat, as walking on loose or steep rocks is more challenging. Certain ice-climbing routes, such as the Diamond Couloir on Mount Kenya, are now often snowless, making climbing more difficult and exposed. The Konkordia hut in the Swiss Alps, which used to be located a few metres from the Aletsch glacier, a World Heritage Site, now requires the use of a stair to ascend a rock wall of more than 100 m.

One reason for society's limited concern with climate change is that many people do not perceive an immediate impact on their lives. Those who directly experience impacts seem to be more aware of and troubled by shifts. Studies have shown that exposure to floods and droughts in the UK has increased concern about climate change: in the words of one author, "seeing is believing".

Alpinists and mountain guides witnessing glacier retreat and increased rockfall are extremely aware of these events and have been adapting their mountaineering practice in response. Some are becoming climate advocates. At the 2009 UN Climate Change Conference (COP15) in Copenhagen, 27 Nepali mountaineers from the Everest Summiters Association highlighted the environmental changes occurring in the Himalayas. In 2014, the 25zero Project was established to document and draw attention to the glaciers of 25 mountains near the equator, which are projected to diminish significantly within the next 25 years. Live footage from the peaks was beamed to the 2015 COP21 in Paris. Tim Jarvis, the environmental scientist who founded the project, said it "focuses on tropical glaciers because they are the most susceptible to climate change, and referred to the difficulties these countries face for adaptation". Other mountaineers are trying to make a difference individually: for example, by using more sustainable means to reach mountains, including public transport or by cycling, adding an extra challenge.

As hiking and mountaineering become increasingly popular, the inspiring stories of alpinists and mountain guides are enhancing our knowledge and helping to find innovative ways of mitigating climate change. The inspiring voices of mountain guides and alpinists from the tropics interviewed in this book include Saúl Luciano from Peru, Marco Cruz from Ecuador, Sonia Altamirano from Bolivia and Will Gadd from Canada.

Artists

by Olivier Dangles

Ice has long been a source of fascination for humans: the magic of water turning to ice, the lure of immense polar ice caps, the grandeur of snow-covered peaks, the vertigo inspired by crevasses: ice caps are the quintessential symbol of adventure. Since time immemorial, Indigenous art has also represented glaciers, which have deep spiritual and cultural significance for communities. For the Tlingit people of Alaska, glaciers are imbued with spiritual significance, depicted in carvings, totems and ceremonial objects. Their art portrays glaciers as linked to powerful ancestral spirits and as an integral part of the natural world, influencing weather patterns and ecosystems. In the Andes, the Quechua and Aymara view glaciers as sacred entities called *apus*, or mountain spirits. Their textiles, pottery and festivals frequently feature stylised representations of glaciers, showing their reverence for the role of glaciers in providing water and fertility to the land. Himalayan communities such as the Sherpa and Ladakhi create *thangka* paintings and ritual objects that depict glacial landscapes,

incorporating intricate details and symbolic elements that reflect their belief in the interconnectedness of glaciers, deities and well-being.

Inspirational for their stunning beauty and profound symbolism, glaciers have served as powerful muses for artists of all kinds: painters, photographers, musicians, poets, cinematographers and more. The artistic representation of mountain glaciers has changed significantly over the centuries, reflecting both scientific and aesthetic developments. In the late 18th and early 19th centuries, glaciers began to fascinate European artists and explorers. Artists such as John Ruskin and William Turner documented glaciers in the Alps, blending meticulous observation with Romantic ideals to capture their sublime beauty and majestic power. These works portrayed glaciers as symbols of nature's grandeur and unpredictability. Later, with the expansion of scientific exploration, artists infused their work with scientific observations. Ruskin's detailed watercolours of Alpine glaciers not only captured their beauty, but served as important records for early glaciological studies. This period saw a blending of art and science, with artists such as Frederic Church participating in expeditions to document glacial landscapes. Later still, in the early 20th century, the Canadian landscape painter Lawren Harris of the Group of Seven made stylised depictions of glaciers in the Canadian Rockies using a minimalist approach, geometric forms and bold colours, reflecting modernist influences and mystical interpretations of nature in the north.

In recent decades, the artistic focus has shifted towards environmental awareness and the impact of climate change. There are examples of artistic interpretations of mountain glaciers in the face of global warming from artists around the world. Pioneering

The Voices of Glaciers

—
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Stories of Grief and Hope amidst shrinking Glaciers in the Tropics

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