

# Central and South America among the Most Exposed Regions

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## INTRODUCTION

### Central and South America among the most exposed regions

Representative Concentration Pathways (RCPs) are theoretical projections made by the Intergovernmental Panel on Climate Change (IPCC) to model climate, particularly Greenhouse Gas (GHG) concentration pathways. RCP 4.5 is the fourth projection out of eight, consists of a moderate emissions scenario and considers the peak of GHG concentration for the year 2040. Based on this RCP, the tourism climate risk index determined eight zones of highest exposure, two of them in Central and South America, specifically in central South America and in the Caribbean Small Island Developing States (SIDS), whose economies are highly dependent on tourism. Moreover, none of the low exposure zones are in South or Central America [1,2].

## DESCRIPTION

### Types of tourism and natural resources affected

Nature tourism is expected to be the main tourism type affected by climate change. In the region under study, it is of concern given that two-thirds of foreign tourists visit at least one protected natural area.

Nature tourism includes sun and beach tourism as well as mountain and snow tourism. Already the first research on tourism and climate in the region focused on these issues, with greater emphasis on coastal destinations. Both types of tourism are experiencing the impacts of climate change since they are based on natural resources particularly affected by global warming: Coasts and tropical islands (especially the smaller ones), mountains and polar regions [3].

The reviewed publications do not address cases of snow tourism and climate change despite the fact that the most significant evidence of global warming is glacial retreat in the Alps, Norway, Iceland, Kenya and even in Latin American countries such as Argentina and Peru.

The warming of mountain regions has exceeded the global average and is also evident in the region, due to the retreat of glaciers. Numerous mountain tourism activities are experiencing

costs, such as skiing and cycling, canoeing and rafting, climbing and hiking. Some climbing routes are becoming more dangerous due to ice slides and increasingly frequent avalanches. As an example, in 2007 the Pastoruri glacier was the first tourist destination to be closed due to "adverse weather conditions" in Peru due to the impact of visitors and climate change [4].

### Cursed trilogy: Geography, science and economics in a context of inequality

In another publication we called the critical situation of several Latin American countries the "cursed trilogy". They are geographically located among the areas most exposed to climate change (between the tropics and the center of South America). They have little scientific knowledge production capacity, as can be deduced from the proportion of their GDP devoted to science and technology; and they have economies that are not very diversified and are highly dependent on tourism, often of a single type of tourism, i.e., tourism offer little diversified: Partly due to small surface areas and consequently, with little landscape and cultural diversity; partly due to an unrealized process of converting resources into tourist attractions. In some cases, there are also high population densities.

This situation is framed in an unfavorable context: Latin America and the Caribbean present inequality scenarios (income asymmetries) incomparable with other regions of the world. This is evidenced by a Gini coefficient of 49.3 in 2013. These data imply a decrease in relation to 2002 (53.9) and a situation similar to that of a century and a half ago, calculated at 46.4 for 1870. This regional average would correspond to the seventeenth position among the most unequal countries in the world, according to the World Bank [5].

In short, tourism is suffering increasing impacts due to climate change in a region that, additionally, is among those that produce the least tourism impacts. Indeed, if the greatest impact of tourism on climate is represented by air travel, South America and Africa are among the regions that contribute the least in terms of air travel.

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## Research shortage and underrepresentation

Although the number of scientists studying the relationship between tourism and climate change has quadrupled between 2010 and 2020 worldwide, it is important to note that South and Central America are among the regions with the lowest growth of authors, along with the Middle east and other island destinations. This data reinforces the cursed trilogy of sites with little research despite their climatic and economic disadvantages.

It is also possible that South American research has less visibility since it is not always published in English. In fact, in a previous publication we detected that only 10 percent of the articles on tourism and climate change in Latin America had been written in English. In a subsequent review, just over half of the articles on the same topic in South and Central America had been published in that language: 26 in English, 19 in Spanish and 3 in Portuguese [6].

## Few documents from global and regional international organizations

On the one hand, we note that the relationship between tourism in the region and the UN-SDGs (Sustainable Development Goals of the United Nations) is rare among the publications reviewed, particularly the 13th goal on climate change entitled "Take urgent action to combat climate change and its impacts".

On the other hand, we have recently observed that of the 16 regional organizations that have working areas on tourism, 10 have published documents on climate change and only five refer to tourism: The Association of Caribbean States, the Caribbean Tourism Organization (CTO), the Latin American Council of Social Sciences (CLACSO) the Latin American Parliament (Parlatino) and the Central American Integration System (SITCA).

## CONCLUSION

In sum, the state of affairs for South and Central America shows a region with areas heavily exposed to climate change whose nature based tourism offers are experiencing increasing costs. These areas also include states and destinations whose economies are highly dependent on tourism and with little capacity in terms of knowledge production. The region as a whole is characterized by historical inequity and a marked scarcity of research on the subject. This results in a low production of documents published by regional international organizations with diagnosis and adaptation and mitigation policies.

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