

# TOURISM AND CLIMATE CHANGE IN ASTURIAS. EVIDENCES AND POTENTIAL EFFECTS

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## INTRODUCTION

Tourism activities are closely related to weather and climate. In a broad sense, climate can be considered a key aspect determining the geographical distribution, a resource and, in some cases, a tourism attraction by itself of tourism destinations (Gomez Martin, 2005; 2006). In Asturias, the temperate Atlantic climate creates an environment of green landscapes characterized by moderate to high precipitation with abundant cloudiness and, in general, moderate temperatures. In this sense, climate plays an important role in determining the enjoyment and satisfaction of the tourists visiting the region; up to 8% of the visitors indicated a *better meteorology* as an aspect to improve tourism in the region (SITA, 2009).

Climate, together with other factors, is responsible for the seasonal character of tourism activities in Asturias; the months of July and August are, by far, the most important ones regarding tourism arrivals and hotel occupancy. This seasonality is even more marked for those destinations linked to tourism activities highly dependent on weather, such as sun, sea and sand and ski tourism. Finally, weather also affects the level of tourism expenditure, the safety of the visitors and their perception of comfort.

All these aspects reveal some of the linkages between weather/climate and recreation/tourism in Asturias. This links also warn us of the importance of considering the effects and impacts on the tourism sector derived from climate change. The increase of temperatures –more significant during the summer period–, the reduction in the precipitation or changes in the cloud cover might all create new conditions, both positive and negative, for the development of certain tourism activities. For this reasons, it is necessary to propose adaptation measures in order to maximize the potential benefits while minimizing the

impacts. Due to the reciprocal relationship between climate change and tourism, where tourism is at the same time affected by and driver of climate change, mitigation measures must be proposed to minimize the emissions of greenhouse gases associated to the tourism activities. Based on an analysis of the evidences and existing information about the impacts of climate change on tourism, this article characterizes the most important consequences on three destination types –coastal, mountain and urban– and present the main opportunities for adaptation and mitigation.

## **THE TOURISM SECTOR IN ASTURIAS**

The productive structure of Asturias has changes substantially in the last years, with an important increase of the service sector. Within this sector, 9.3% of the Gross Added Value and 10.4% of the employment were associated to tourism in 2008 (SITA, 2009).

In 2008, Asturias received 5.9 million visitors from which around 1.8 million were day travelers. Regarding the visitors that make use of tourism accommodation –approximately 1.8 millions– they come mainly from other Spanish regions (84.4%), followed by foreign visitors (8.4%) and tourists from the same region (7.2%). Tourists choose Asturias as their destination to meet new places (24.5%) and because of the beauty of the environment (23.3%). The activities preferred by tourists while in the region are: visit villages (84.4%), visit monuments (72.3%), visit museums (38.1%), go to the beach (26.9%) and do hiking routes (22.4%).

## **CLIMATE CHANGE IMPACTS ON TOURISM IN ASTURIAS**

The diversity in activities presented previously reflects the richness in resources that characterizes Asturias, with virtually all tourism segments represented (from nature to cultural, health, golf or business tourism). For the analysis of the impacts of climate change, three tourism spaces have been selected: coastal regions, mountain regions and urban areas.

### **Coastal products and destinations**

Coastal regions are one of the most popular geographical spaces for tourism in Asturias, although it has experienced an increasing complexity and diversification in recent years.

For coastal products and destinations, the projected changes associated to climate change are very likely to increase the suitability for certain activities (e.g. sun, sea and sand activities) due to an improvement in the weather requirements for this type of recreation (higher temperatures, less precipitation, etc.). These positive aspects, however, could be offset by other impacts such as the loss of beach area and damage to infrastructures due to sea level rise.

### **Mountain products and destinations**

Mountain ecosystems in Asturias are located in the limit of their ecological and geographical (altitudinal) distribution and therefore are highly vulnerable to the impacts of

climate change. As a consequence, all the tourism activities developed in these environments are in a fragile equilibrium and their future viability is uncertain. The main impacts are related to the reduction in the snow cover and an increase in temperatures that will challenge the future of winter resorts associated to ski. On the contrary, the enlargement of the summer season could favor the development of other tourism products associated with nature and sport activities. In any case, the projected ecosystem changes will modify the aesthetic qualities and the fragility of these environments, which could limit the advantages derived from the improvement in the climate conditions.

### **Urban areas and destinations**

The low dependency of urban tourism destinations in relation to weather conditions makes this modality of tourism less sensitive to the effects associated to climate change. Increases in temperatures and a reduction in precipitation may stimulate urban tourism and the visits to monuments. However, it is important to consider that built heritage, especially historic patrimony, was designed according to a specific past climate and the new conditions can threaten its future conservation.

### **ADAPTATION AND MITIGATION STRATEGIES**

Climate change adaptation includes those actions that minimize the negative impacts and, if possible, maximize the new opportunities brought about by the new conditions. Tourism is a highly dynamic industry with a high capacity to adapt to changes both in the market and in the environment. Despite this great dynamism not all stakeholders in the sector possess the same adaptability. Tourists have the highest flexibility, as they can easily change the period of the holidays, the timing of their activities, etc. in order to adapt to adverse or new conditions. Tour operators, transport providers and other industry agents have a moderate capacity to adapt, as they can favor certain routes or destinations when they face unfavorable conditions, either climate related or not. Finally, the group with a lowest capacity to adapt includes local small and medium businesses, accommodation providers and local communities. This is the group that will be mostly affected by climate change.

Although adaptation needs to be place and activity specific, addressing the needs and challenges of each market segment, there are a number of general adaptation principles highly relevant to tourism (Simpson *et al.* 2008):

- Climate change will impact many resources of a region or country, including the water resources, agriculture, and so on. All these resources are relevant to tourism. Therefore, adaptation in the tourism sector can not be approached in isolation, but must be integrated within the broader context of a region's or country's development.

- The tourism sector has been dealing and adapting to climate variability for many years. Therefore, there is already a great potential to use this knowledge to adapt to projected changes, making sure all stakeholders are involved to benefit from their experience.

- Recognize that, although climate change is a global phenomenon, the impacts, and therefore the adaptation, are mainly local.

— Recognize that adaptation is an iterative process that requires continuous monitoring and adjustment.

The mitigation of the emissions associated to tourism activities in Asturias and globally is likely to become a major component of the sustainable development policies in the future. The World Tourism Organization (Scott *et al.* 2008) proposes four basic mitigation strategies for the tourism sector: (i) a reduction in the use of energy; (ii) improvements in the energy efficiency; (iii) establishment of renewable energies and; (iv) development of carbon sequestration programs and tourism emissions offsetting.

## CONCLUSION

In a broader context, and from the perspective of climate suitability and tourists' comfort, certain forms of tourism in Asturias could benefit from climate change as compared to other tourism destinations for example in the Mediterranean. However, these benefits could be offset by the deterioration of the environmental conditions that characterize the region.

In the coming years, climate change must be one of the key components of tourism policies in Asturias. The adaptation and mitigation strategies that can minimize the impacts and maximize the opportunities must take into account that, even though climate change must be approached at the global level, any action must be initiated at the local level.