

## Weather and Climate Information for Tourism

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### Abstract

The tourism sector is one of the largest and fastest growing global industries and is a significant contributor to national and local economies around the world. The interface between climate and tourism is multifaceted and complex, as climate represents both a vital resource to be exploited and an important limiting factor that poses risks to be managed by the tourism industry and tourists alike. All tourism destinations and operators are climate-sensitive to a degree and climate is a key influence on travel planning and the travel experience. This chapter provides a synopsis of the capacities and needs for climate services in the tourism sector, including current and emerging applications of climate services by diverse tourism end-users, and a discussion of key knowledge gaps, research and capacity-building needs and partnerships that are required to accelerate the application of climate information to manage risks to climate variability and facilitate successful adaptation to climate change.

*Keywords: tourism, outdoor recreation, sustainability, adaptation, climate services, climate sensitivity*

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### 1. Introduction

The tourism sector is one of the largest and fastest growing global industries and is a significant contributor to national and local economies around the world. Tourism represents far more than just travel for leisure and holidays. Tourism encompasses travel for education, health, religion, conventions and conferences, general business travel and visiting friends and relatives. The United Nations World Tourism Organization [1] defines tourism as including: "... the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes not related to the exercise of an activity remunerated from within the place visited." According to the UNWTO [2], international tourist arrivals have grown from just over 200 million in 1980 to 922 million in 2008. International travel is also forecast to almost double to 1.6 billion arrivals by 2020 [3]. The economic importance of the sector worldwide is demonstrated by World Travel and Tourism Council [4] estimates that in 2008 the global travel and tourism industry, contributed 9.6 per cent of global Gross Domestic Product (GDP) and 7.9 per cent of world-wide employment.

While the majority of international tourism currently occurs in developed countries, the sector is a vital contributor to the economy of many developing countries. Between 1995 and 2007, it is estimated that international tourism in emerging and developing markets grew at twice the rate of industrialized countries – by 11 per cent for Least Developed Countries and 9 per cent for other low and lower-middle income economies [5]. Visitor spending represented more than 10 per cent of national GDP in 36 developing countries in 2006 [6]. The UNWTO [7] also estimates that tourism is a primary source of foreign exchange earnings in 46 out of 50 of the world's LDCs. With the growth of tourism in developing countries, international tourism is increasingly promoted by development organizations and many governments as having an important role in contributing to the United Nations Millennium Development Goals, particularly the alleviation of poverty in LDCs, gender equality and environmental sustainability.

While comparable global statistical data on domestic tourism are not available, its volume was estimated at around 8 billion trips worldwide in 2005, of which 4 billion were estimated to be from same-day visitors and 4 billion from overnight tourists. The shorter-term nature of much domestic tourism, particularly day trips or weekend holidays, increases the importance and relevance of nowcast and short-term forecast information for decision-making by tourists. Consequently, domestic tourism is an important consideration of this review.

The tourism sector is characterized by considerable diversity and a fragmented structure. While varied conceptualizations of the subsectors that comprise the tourism sector are used in academia and by international organizations, major components include: transportation (air lines, cruise ships, rail lines, ground coaches and taxis, for example), accommodation (hotels, apartments, youth hostels, for example), food and hospitality services (restaurants, bars and pubs, for example), travel agents and tour service operators, visitor attractions (cultural or sporting events, casinos, parks, museums, for example) and tourist focused retail or service providers (insurance, conventions, tourist equipment rentals, for example). Tourism operators differ in terms of ownership (government, non-government organizations, private businesses), size (there is a predominance of small and medium-sized enterprises in the sector, but also many international conglomerates) and purpose (for-profit or non-profit, as well as conservation, education, community development mandates). Tourism operators have also adapted to provide tourism services in every climatic zone on the planet from

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deserts and high mountains to the tropics and polar regions. As a consequence of this heterogeneity, there are extensive differences in the nature of climate sensitivities and abilities of tourism operators worldwide to incorporate climate services into decision-making.

Equally as diverse are the motivations and characteristics of domestic and international travellers. Major global tourism market segments include: sun and beach tourism, sports tourism, adventure tourism, nature-based tourism, cultural tourism, urban tourism, health and wellness tourism, cruises, theme parks, visiting friends and relatives and meetings and conferences. The disparate climate requirements and preferences of tourists within these major market segments, as well as between groups within each major market segment (golf, ski, and windsurfing segments of sports tourism, for example), create very different demand-side climate sensitivities within the tourism sector.

The interface between climate and tourism is multifaceted and highly complex. Figure 1 outlines the temporal scales (extreme events, seasonality, interannual variability, climate change) at which climate influences different subsectors of tourism, either directly (blue lines) or indirectly (black and red lines). Importantly, climate is but one macroscale influencing factor on the tourism system and interacts with other macroscale factors as well. The selected media headlines in Table 1 provide illustrative examples of the varied climate sensitivities in tourism supply (tourism destinations and tourism operators) and demand (tourism arrivals and travel patterns) around the world.

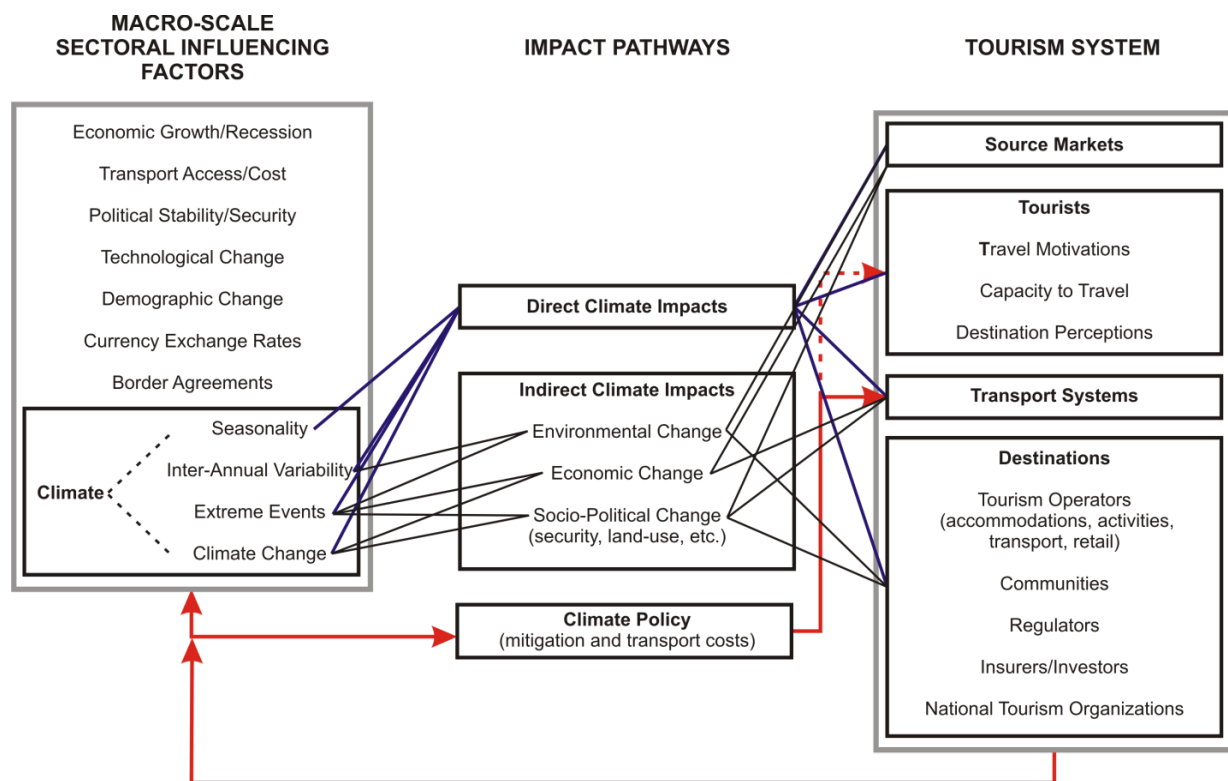


Figure 1. Climate influences on the tourism sector

Tourism destinations and tourism operators are affected by climate variability and change in a number of ways. All tourism destinations are climate-sensitive to a degree, in that they are influenced by natural seasonality in demand, are affected positively or negatively by interannual climate variability that brings heatwaves, unseasonable cold, drought or storms and heavy rain, which can affect not only tourist comfort and safety (and thereby satisfaction), but also the products that attract tourists (snow cover, coral reefs, wildlife, for example). Climate variability also influences various facets of tourism operations (water supply and quality, heating-cooling costs, snowmaking requirements, irrigation needs, pest management, and evacuations and temporary closures, for example). An international survey of 66 national tourism and meteorological organizations found that a large majority (81 per cent) felt weather and climate were major determinants of tourism in their nation [8]. Indeed some argue that climate is among the most dominant factors affecting global tourist flows [9][10].

There is a general consensus that destination image is a key determinant in destination choice (among other macroscale influencing factors, such as travel distance, time, holiday cost, and travel motivation and those set out in Figure 1) [11] and that climate is dominant attribute of destination image along with scenery and cost [12]. A review of destination image studies found that natural beauty and climate were of universal importance in defining destination attractiveness [13]. Some tourism destinations can be considered climate-dependent, in that climate is the principal resource on which tourism to the destination is predicated (for example, many Small Island Developing States).

In the same way that climate affects the destination choice of travellers it highly influences the timing of travel. Seasonal demand is one of the main defining characteristics of global tourism, and is comprised of two elements – natural and institutional seasonality [14]. Seasonal climate fluctuations at tourism destinations and at major outbound markets, particularly at high latitudes, are a key driver of tourism demand at global (Figure 2) and regional scales. When climatic resources are no longer suitable for certain tourism markets, such as ski or beach holidays, tourism operators can be forced to close seasonally (Figure 3).

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