



Tourism Sector Resilience to Climate Change in Portugal: Adaptation to Heatwaves and Thermal Comfort Changes

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Tourism flows to the Mediterranean are second to none. The region's famous warm and sunny climate is considered to be a significant "pull" factor for tourism in the region. Thermal comfort is not only a main driver for tourism but can also affect tourist health and wellbeing. For example, extreme thermal events such as heatwaves can have consequences for tourist health from mild discomforts such as skin rashes, headaches and insomnia, to more serious impacts such as the rapid onset of heatstroke and death. Any adverse impact on tourist health makes their and their family members' holiday experience less pleasant and subsequently reduces the location's attractiveness as a future tourist destination.

Global climate change is now a reality. It is also well known that the Mediterranean region is more vulnerable to climate change than central and northern Europe, with extreme weather events likely to occur more frequently together with accelerated warming and sea level rise.

In this paper we show how future climate scenarios may impact thermal comfort levels in the main Portuguese tourism regions. Special attention will be given to future occurrences of heatwaves and their potential impact on the tourism attractiveness of these regions. The Physiologically Equivalent Temperature (PET) index was used to evaluate human thermal comfort. Heatwave episodes for each location were calcu-

lated based on weather thresholds used in the national heatwave early warning system. Downscaled daily climate data from the Hadley's Centre HadCM3 General Circulation Model (GCM) forced by the SRES scenarios (A1, A2, B1, and B2) was used to calculate future PET values and heatwave episodes for each region.

Current and future adaptation measures suitable to reduce tourist vulnerability to heatwaves as well as adaptation measures needed to adjust to changes in thermal comfort in Portugal are presented. These results are likely to be extremely useful for the sector's strategic planning over the next decades since they offer a coherent set of potential scenarios against which the Portuguese tourism sector can position itself.