

Tourism and Climate Change

Threats and opportunities

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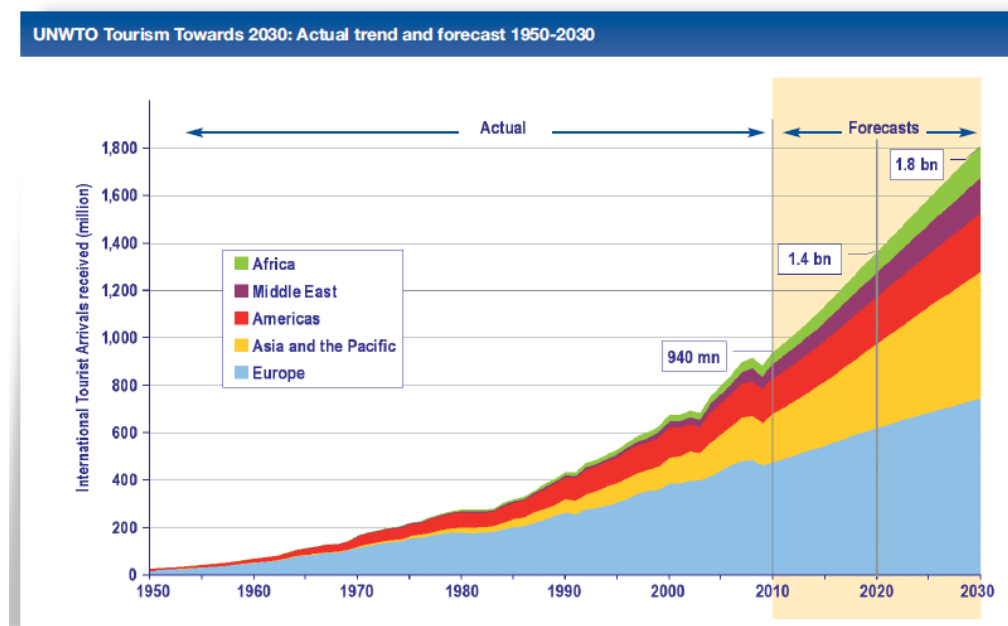
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Summary

1. Relationships between Climate, Weather and Tourism
2. Tourism and climate change (Spain):
 - Direct climatic impacts
 - Indirect impacts
 - Adaptation and Mitigation
3. References

Magnitudes of tourism worldwide

- Based on the information from countries with data available, tourism's contribution to worldwide gross domestic product (GDP) is estimated at some 6%. Tourism's contribution to employment tends to be slightly higher and is estimated in the order of 6-7% of the overall number of jobs worldwide (direct and indirect) (UNWTO, 2012).
- International tourist arrivals grew by 4.4% in 2011 to a total **980 million** (UNWTO, 2012).
- International tourism receipts for 2011 are estimated **at US\$ 1,030 billion** worldwide, (UNWTO, 2012).

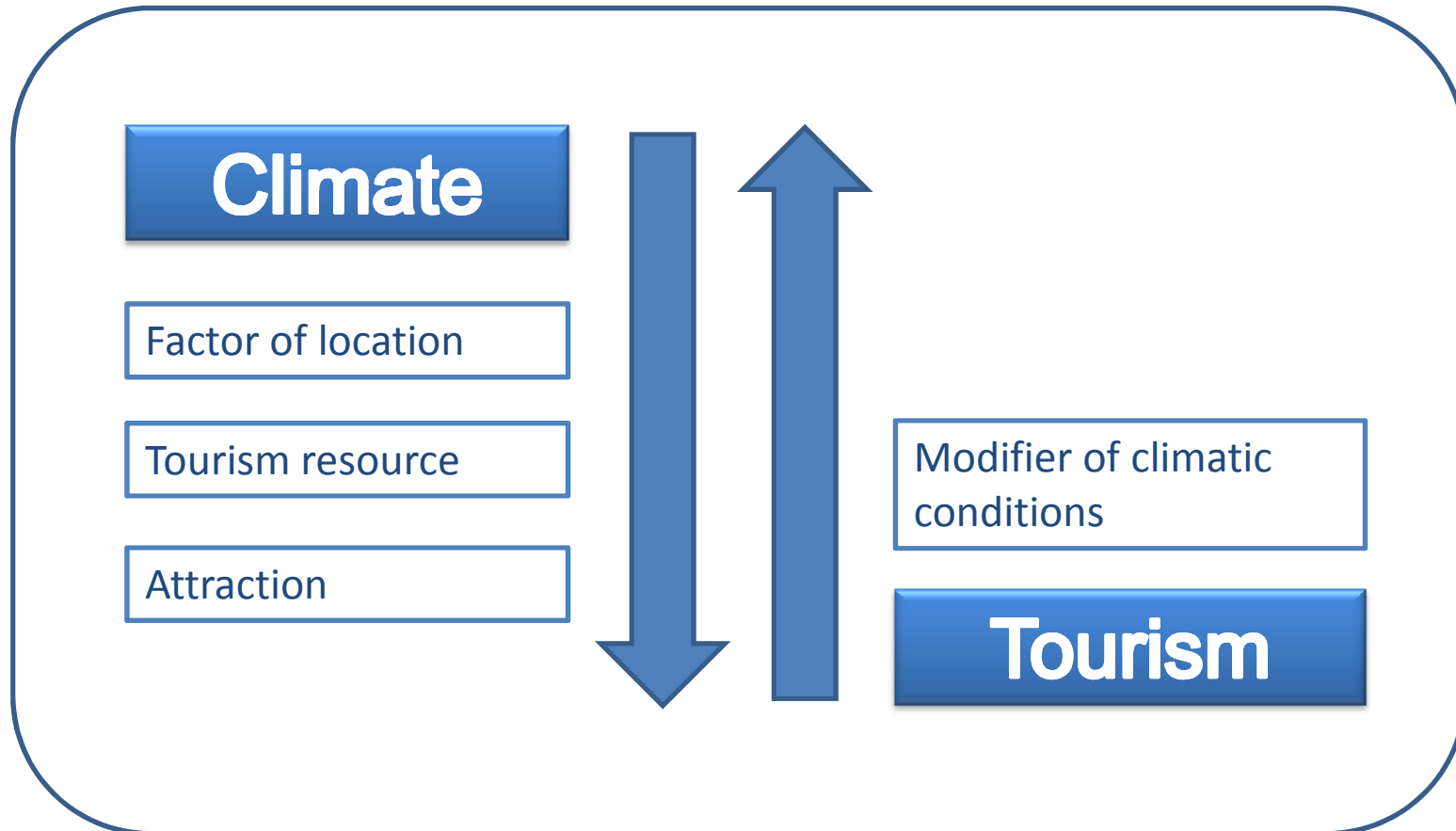


Source: UNWTO, 2012.

Elements of the tourism system



Climate, weather and tourism



Climate, weather and tourism



Climate affects the environmental context in which tourism can be undertaken



Seasonality of tourism activities



Scheduling of tourism activities



Influence on the buildings and tourist facilities



Influence on transport and communications



Feeling of safety



Tourists' enjoyment



Comfort



Degree of tourist satisfaction



Climate, weather and tourism



International and domestic tourism emissions from three main sub-sectors are estimated to represent between 3.9% and 6.0% of global emissions, with a best estimate of 5% (UNWTO, 2008):

Transport \pm 3%.

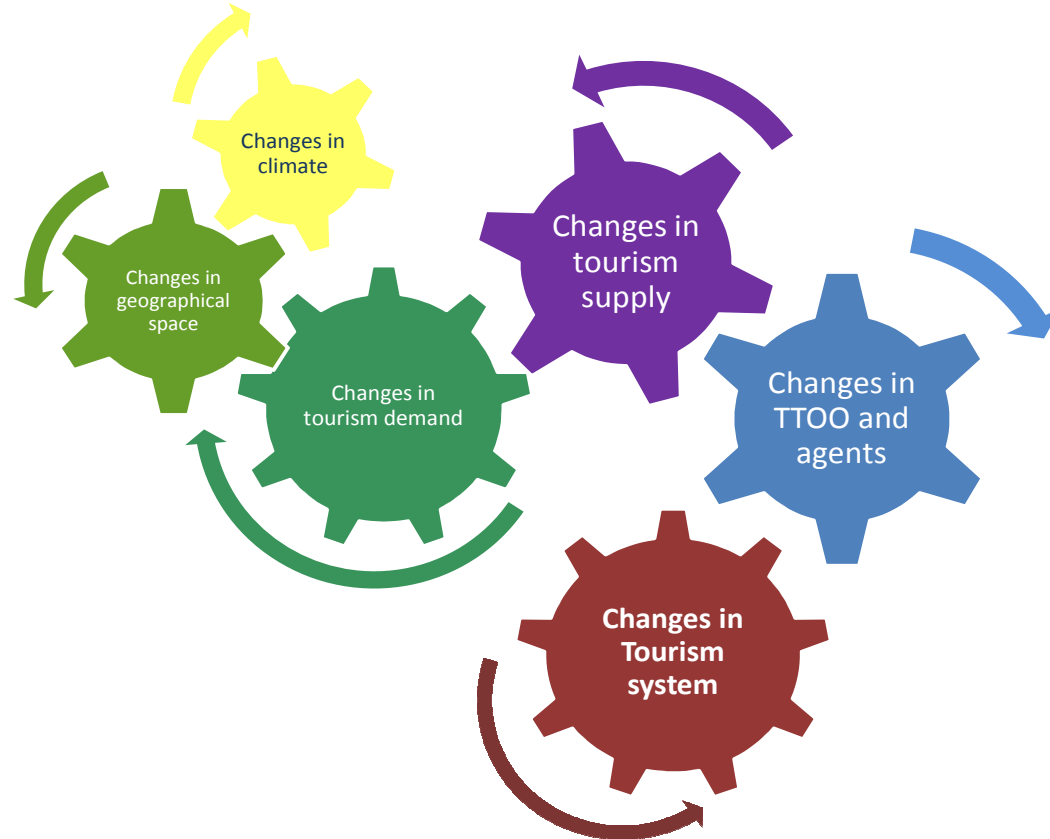
Accommodation \pm 2%.

Activities (museums, thematic parks, resorts), minimum percentage.



Climate, weather and tourism

Changes in climate cause changes and adjustments in the tourism system.



.... Uncertainty....



Climate system

+

Tourism system

Tourism and climate change (Spain)

Share of GDP



Tourism
represent about
10-12 % GDP
(IET,
2011).

International Tourism



56,7 million tourists
crossing borders into
Spain
(IET, 2011).

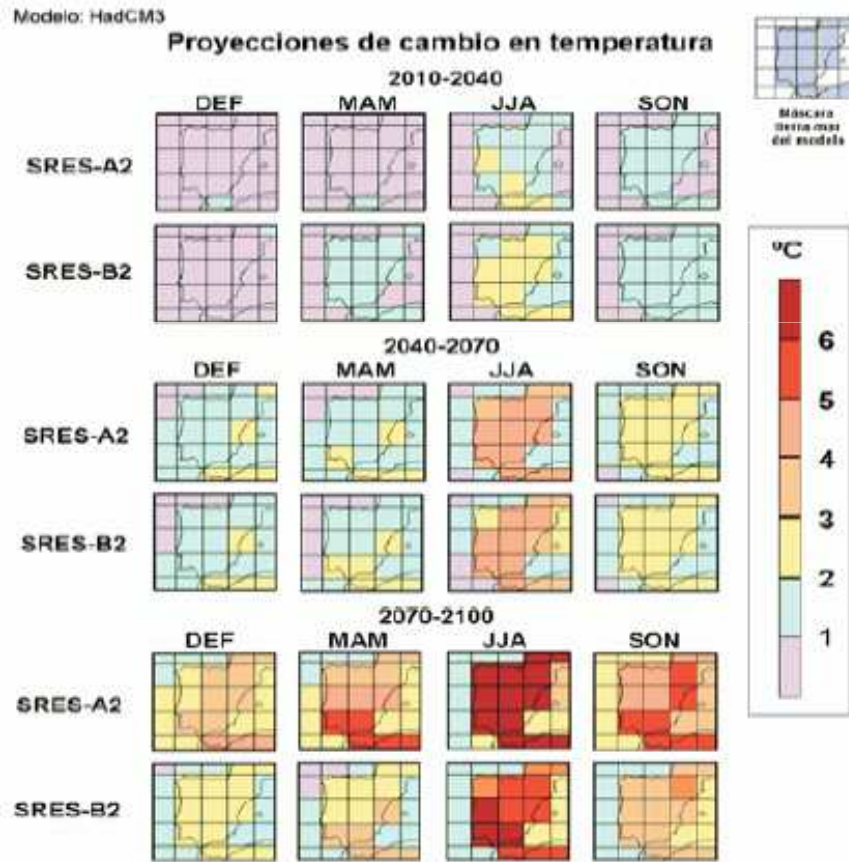
Domestic Tourism



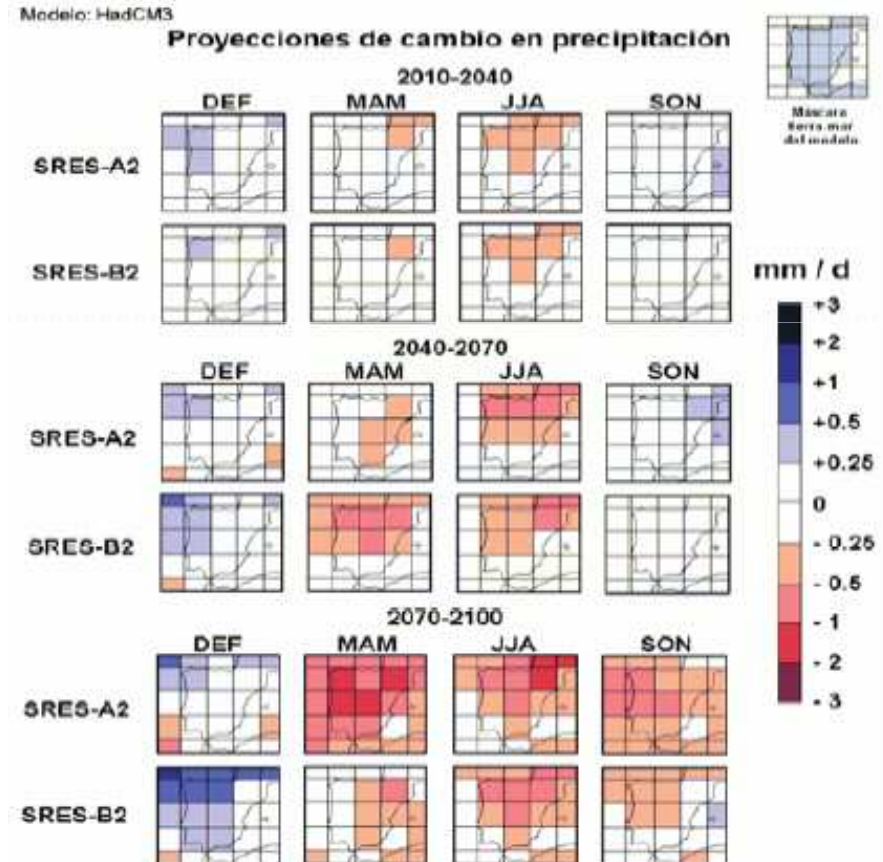
160,8 million trips,
most of them -91,7%-
to
destinations inside
Spain
(IET, 2011).

Tourism and climate change (Spain)

High exposure to climate change....



Source: MMA, 2005.

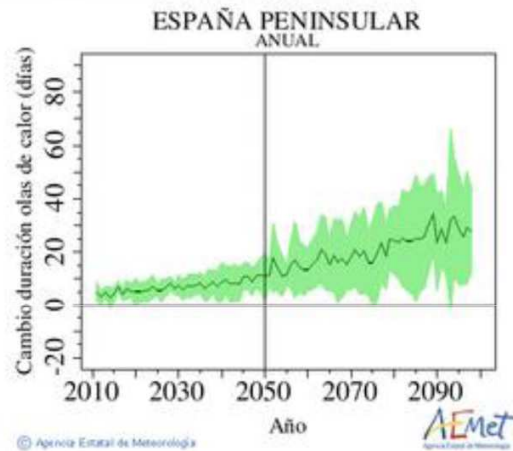


Source: MMA, 2005.

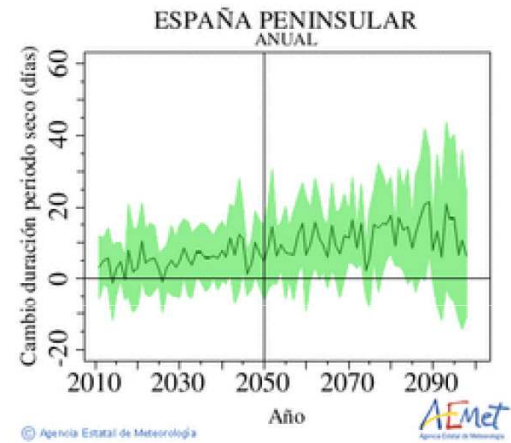
Tourism and climate change (Spain)

High exposure to climate change....

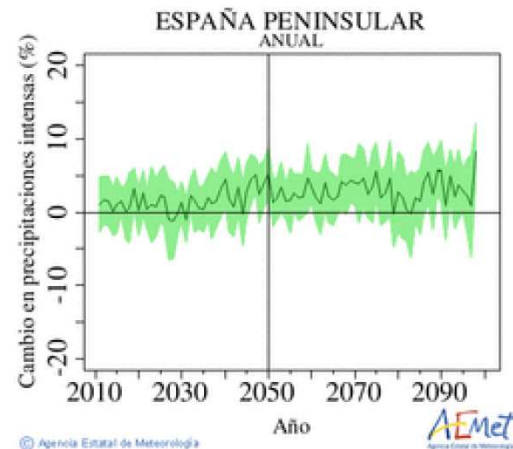
Cambio de duración olas de calor



Cambio duración periodos secos



Cambio en precipitaciones intensas



Source: AEMET, 2010.

Tourism and climate change (Spain)

High sensitivity to climate change....

The emergence of many of the resorts that exist today has been guided by the desire to make the most of a favorable regional and local climate conditions.

Many of the tourist products offered incorporate this element of the environment as input, showing the high tourist potential of the climate resource .



Tourism and climate change (Spain)

High sensitivity to climate change....

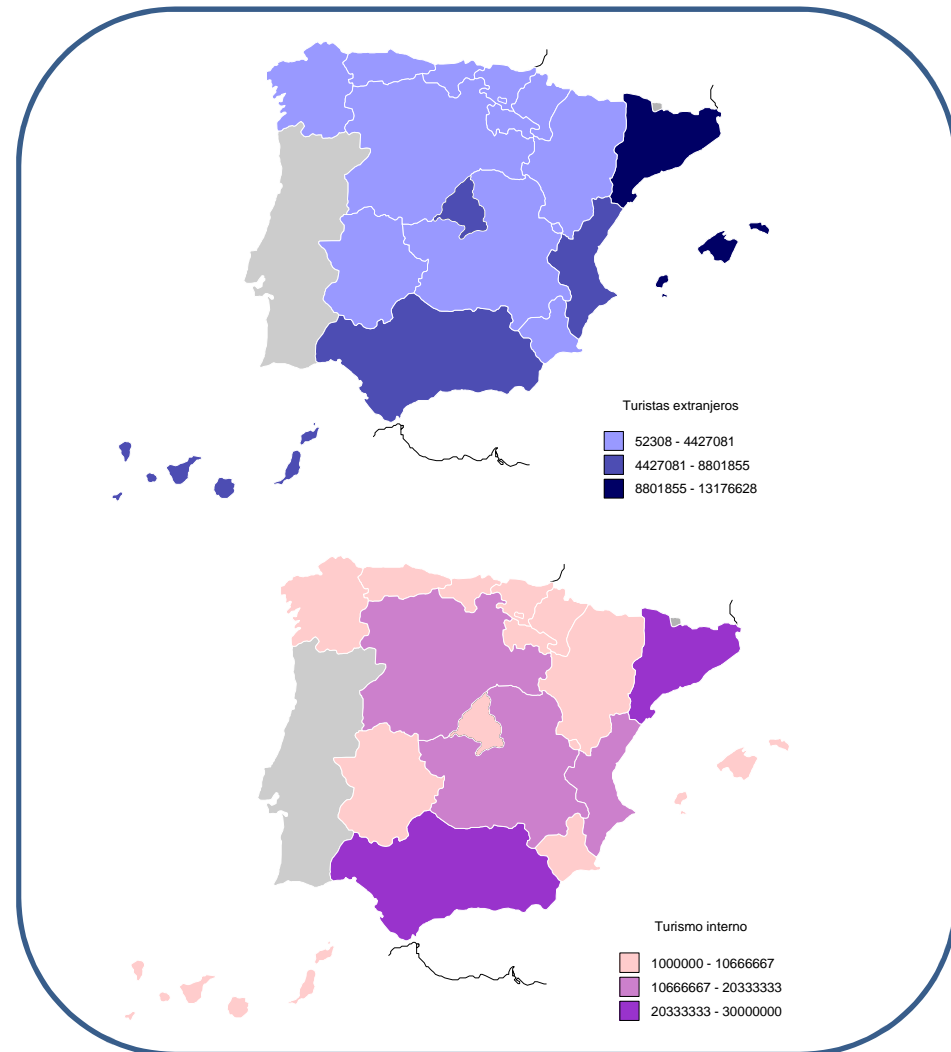
*Everything Under The **Sun***



Tourism and climate change (Spain)

High sensitivity to climate change....

The activities and types of tourism dependent on atmospheric conditions are responsible for creating more tourist traffic.



Tourism and climate change (Spain)

Not insignificant impacts....

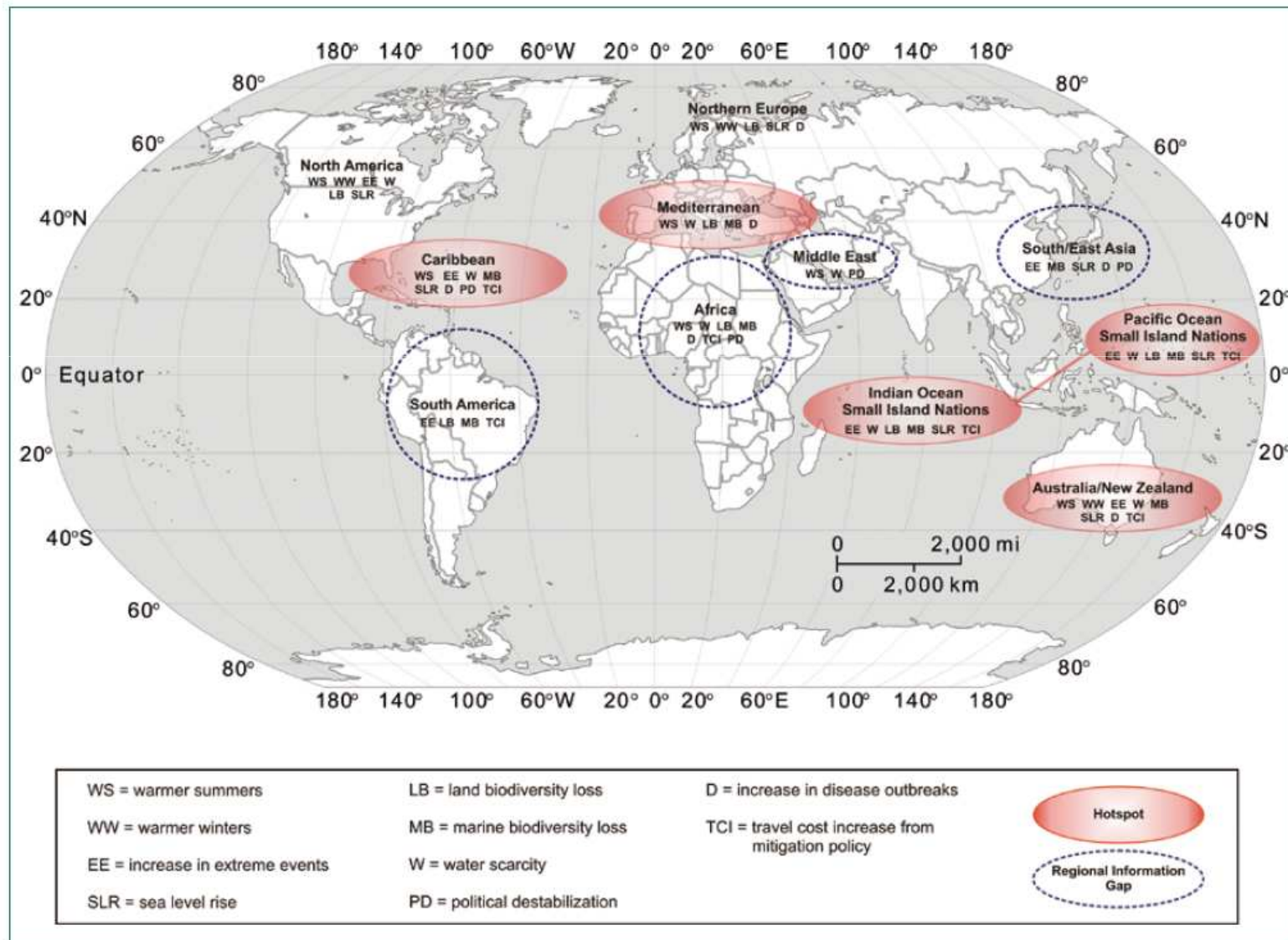
Major climate change impacts and implications for tourism destinations

Impact	Implications for tourism
Warmer temperatures	Altered seasonality, heat stress for tourists, cooling costs, changes in plant-wildlife-insect populations and distribution, infectious disease ranges
Decreasing snow cover and shrinking glaciers	Lack of snow in winter sport destinations, increased snow-making costs, shorter winter sports seasons, aesthetics of landscape reduced
Increasing frequency and intensity of extreme storms	Risk for tourism facilities, increased insurance costs/loss of insurability, business interruption costs
Reduced precipitation and increased evaporation in some regions	Water shortages, competition over water between tourism and other sectors, desertification, increased wildfires threatening infrastructure and affecting demand
Increased frequency of heavy precipitation in some regions	Flooding damage to historic architectural and cultural assets, damage to tourism infrastructure, altered seasonality
Sea level rise	Coastal erosion, loss of beach area, higher costs to protect and maintain waterfronts
Sea surface temperatures rise	Increased coral bleaching and marine resource and aesthetics degradation in dive and snorkel destinations
Changes in terrestrial and marine biodiversity	Loss of natural attractions and species from destinations, higher risk of diseases in tropical-subtropical countries
More frequent and larger forest fires	Loss of natural attractions; increase of flooding risk; damage to tourism infrastructure
Soil changes (e.g., moisture levels, erosion and acidity)	Loss of archaeological assets and other natural resources, with impacts on destination attractions

Source: UNWTO, 2008.

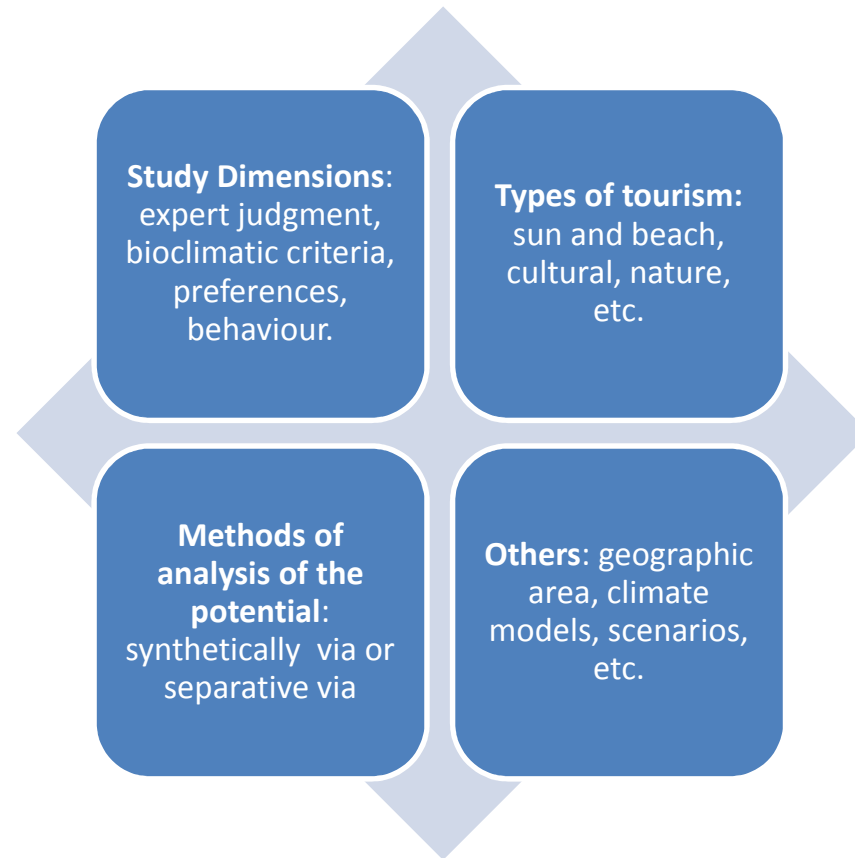
Tourism and climate change (Spain)

Not insignificant impacts....

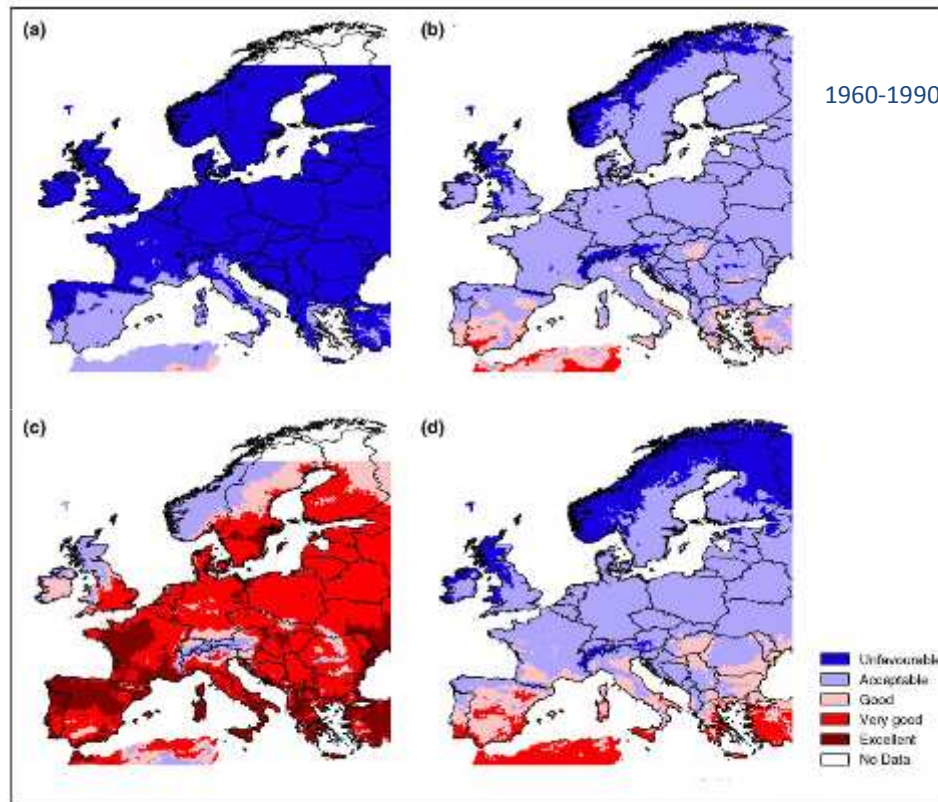


Source: UNWTO, 2008.

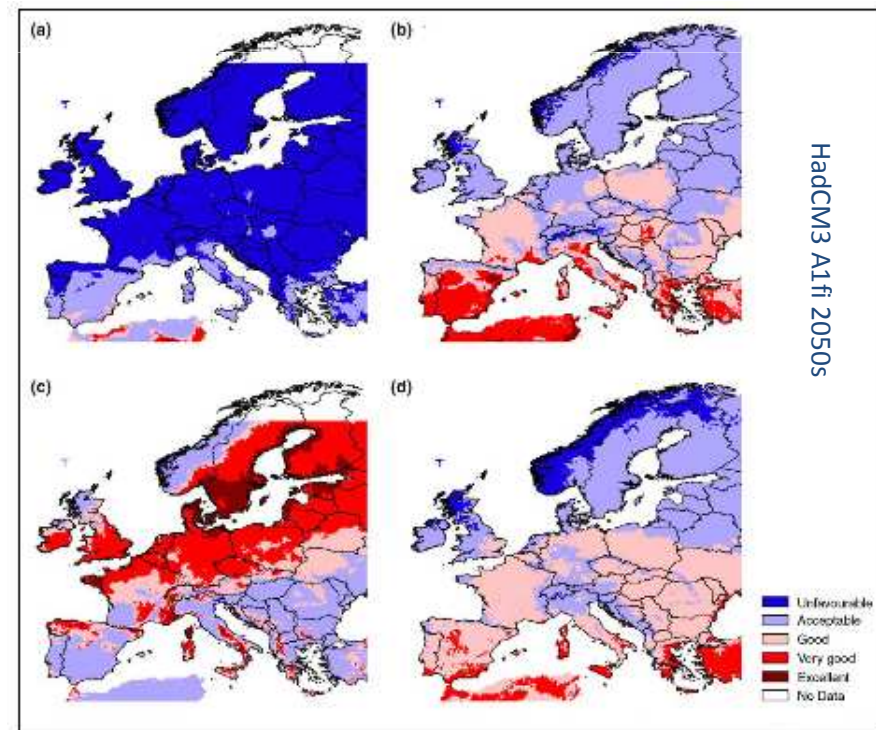
Tourism and climate change (Spain): Direct climatic impacts

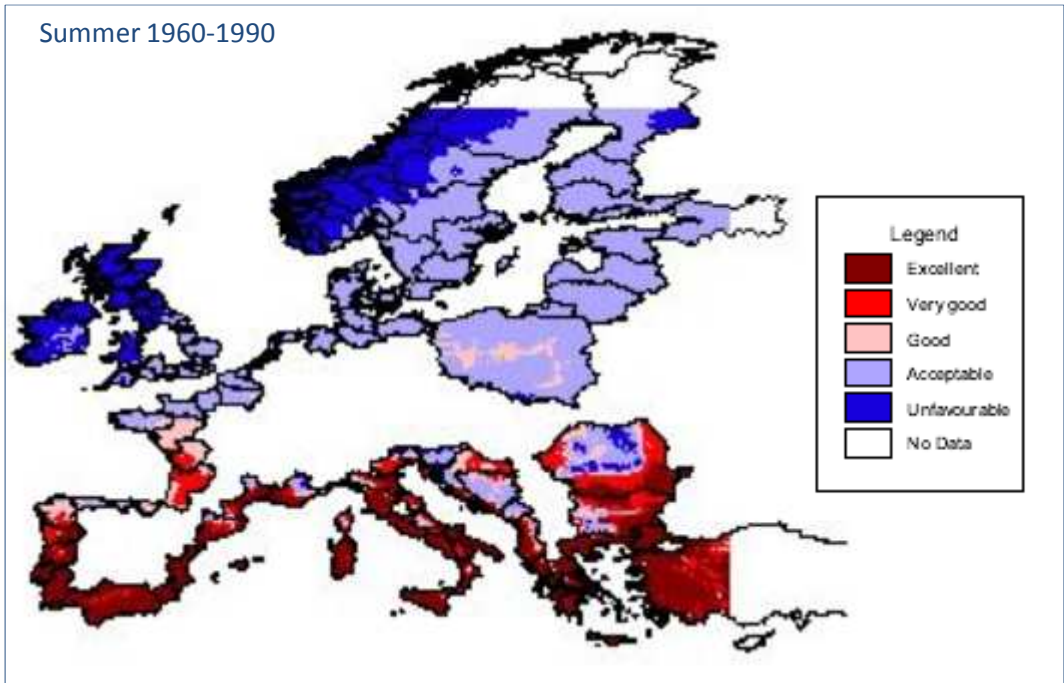


Tourism and climate change (Spain): Direct climatic impacts

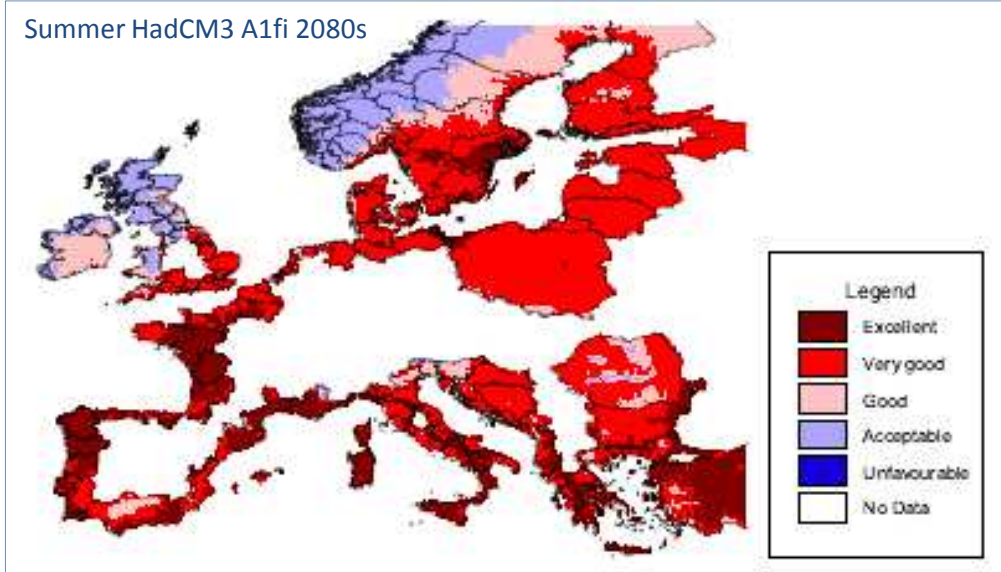


TCI Mieczkowski
Preferences
Nature tourism, walking...



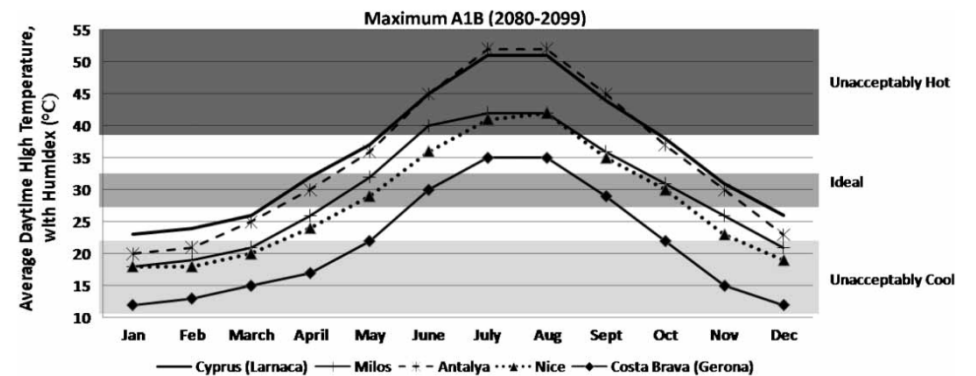
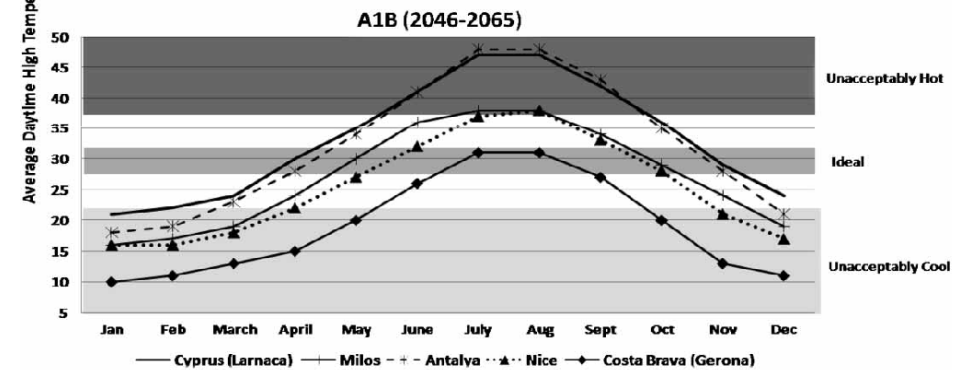
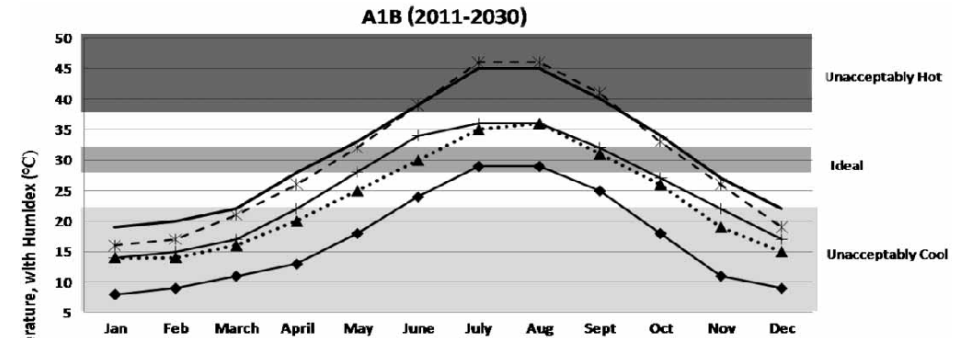
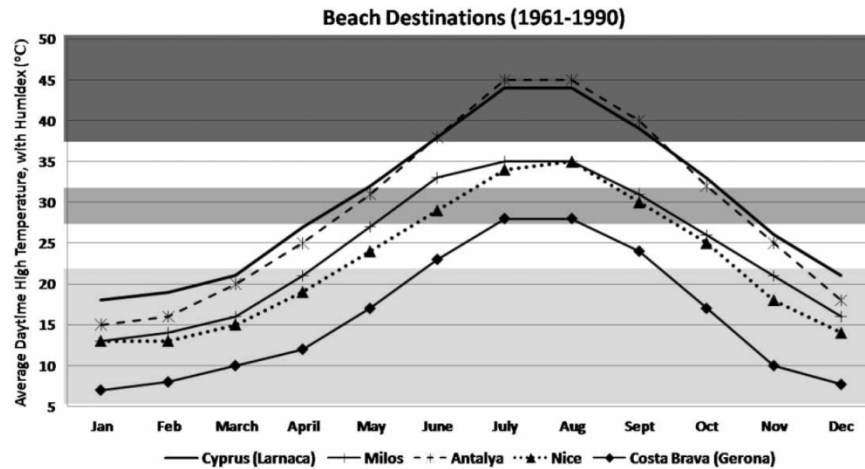


C-TCI Preferences Sun and beach tourism



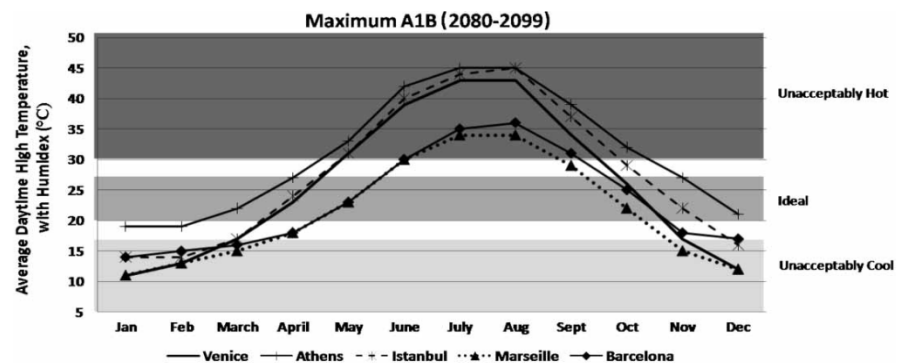
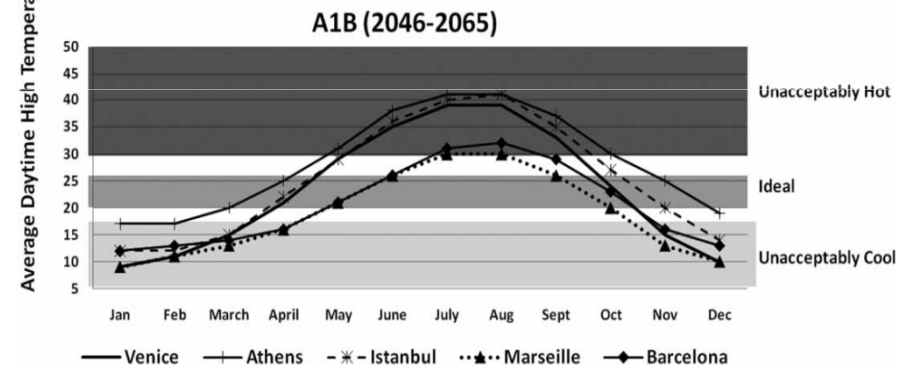
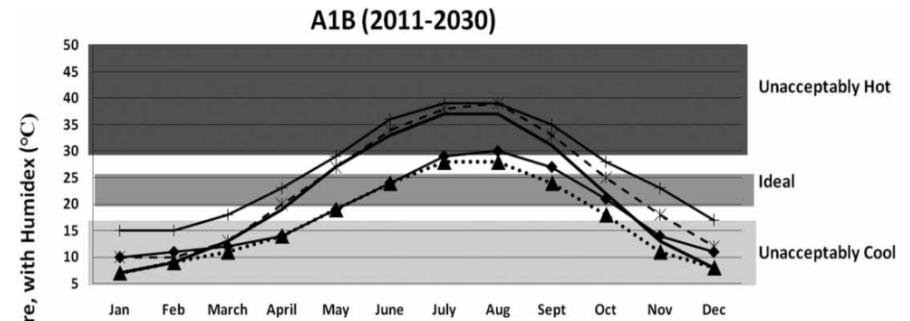
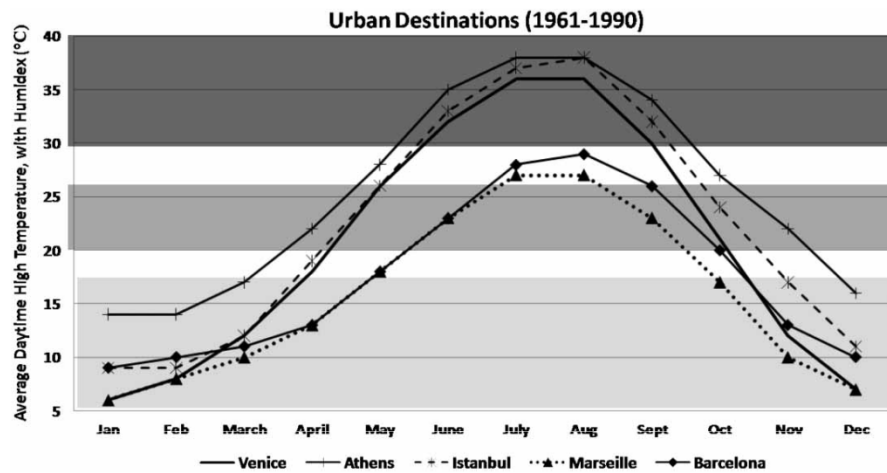
Source: Moreno, Amelung, Gómez Martín and Scott (submitted).

Tourism and climate change (Spain): Direct climatic impacts



Average Daytime High temperature, Humidex Preferences
Sun and beach tourism

Tourism and climate change (Spain): Direct climatic impacts

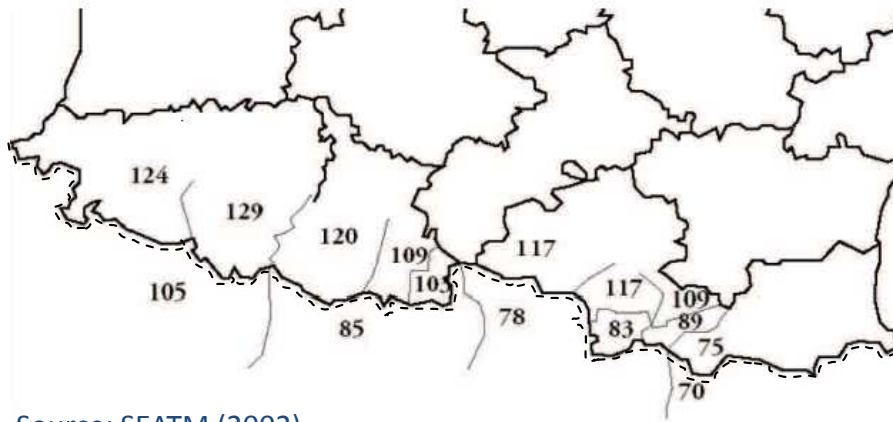


Average Daytime High temperature, Humidex Preferences Urban tourism

Source: Rutty and Scott, 2010.

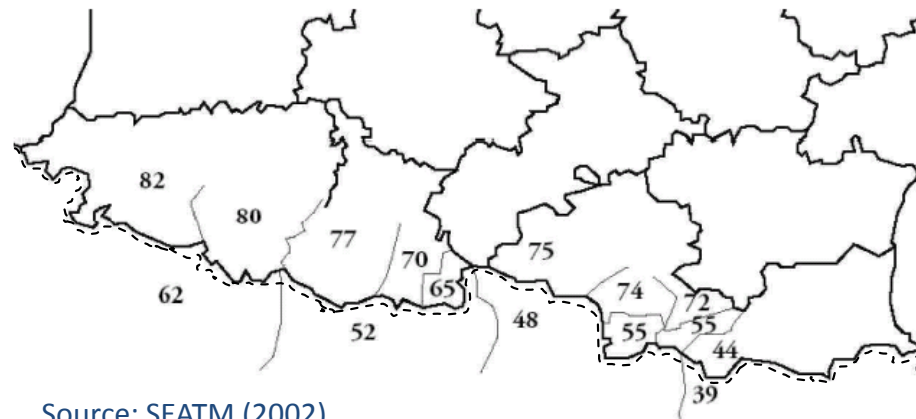
Tourism and climate change (Spain): Direct climatic impacts

Average duration (days per year) snow cover in the Pyrenees at 1,500 meters.
Present.



Source: SEATM (2002).

Average duration (days per year) snow cover in the Pyrenees at 1,500 meters.
Future (+1.8°C).



Source: SEATM (2002).

Tourism and climate change (Spain): Indirect impacts

Quantity/quality of water

Increase in sea level

EXTREME PHENOMENA

Changes in biodiversity

Forest fires

Plagues

Aesthetic degradation of the landscape

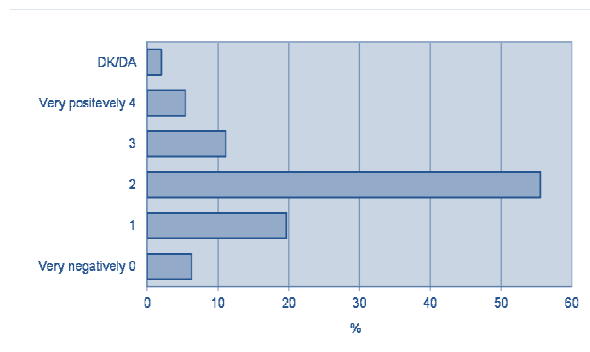
Tourism and climate change (Spain): Indirect impacts

The role of the episode of extreme heat in decision-making during the pre-holiday period.

Did the extreme episode influence you to modify your holiday plans?	%
No	92.59
Yes, this summer's holiday plans were altered due to the extreme episode	7.12
Don't know/Doesn't apply	0.28

The impact of the episode of extreme heat during the holiday period.

How did the conditions of extreme heat affect the development of your holidays?



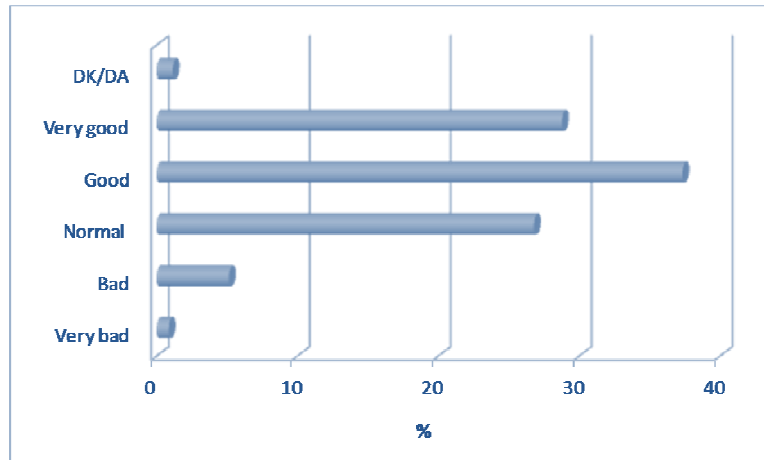
During the holidays, how did the conditions of extreme heat affect your feelings of enjoyment, safety and comfort?

	1 Decreased noticeably	2	3	4	5 Increased noticeably	DK/DA
Comfort	17.09 %	37.89 %	33.90 %	7.12 %	2.56 %	1.42 %
Safety	6.84 %	14.53 %	69.52 %	6.27 %	1.71 %	1.14 %
Enjoyment	7.69 %	17.66 %	49.29 %	16.24 %	7.98 %	1.14 %

Tourism and climate change (Spain): Indirect impacts

Post-holiday assessment and impact on future decision-making.

Regarding the effects of meteorological aspects had on their practices and tourism activities, what was the overall balance of your holiday?



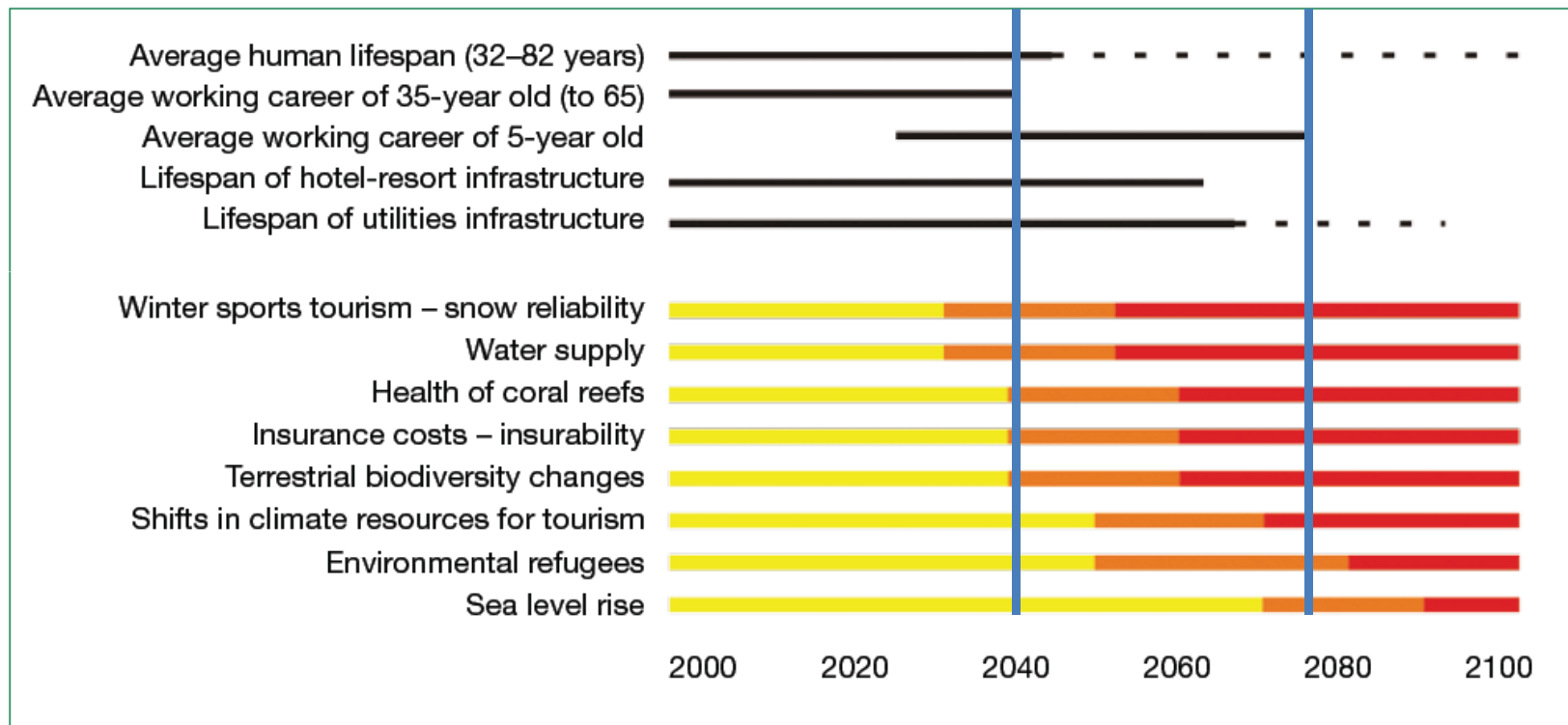
To what extent do you think tourist infrastructures, facilities and services were adapted to cope with the extreme episode?

Level of adaptation	%
0 not adapted	6.84
1 little adaptation	19.66
2 moderately adapted	31.91
3 highly adapted	25.07
4 complete adaptation	14.53
DK/DA	1.99

Adaptation positively mentioned	Missed adaptations
Air conditioning (closed spaces)	Extend permanent awning-covered areas
Evaporative cooling (open spaces)	Increase the number of shady areas
Increased watering of urban green spaces	Make free water consumption possible by providing public water fountains
Modified scheduling outdoor activities	
Extension opening hours swimming pools and water parks	
Intensification of fire prevention campaigns	

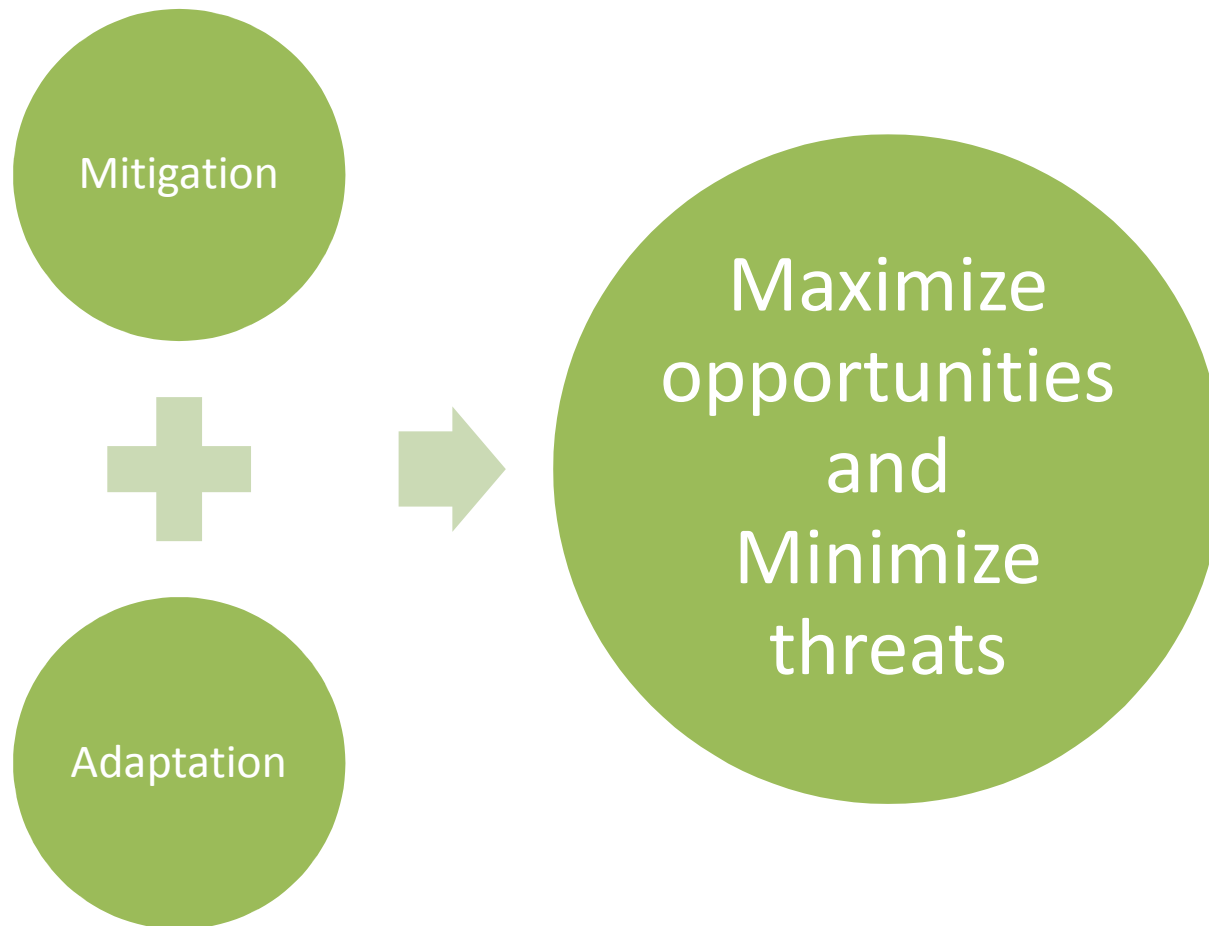
Tourism and climate change (Spain): Indirect impacts

Timeline of people, infrastructure and the onset of impacts of climate change in tourism

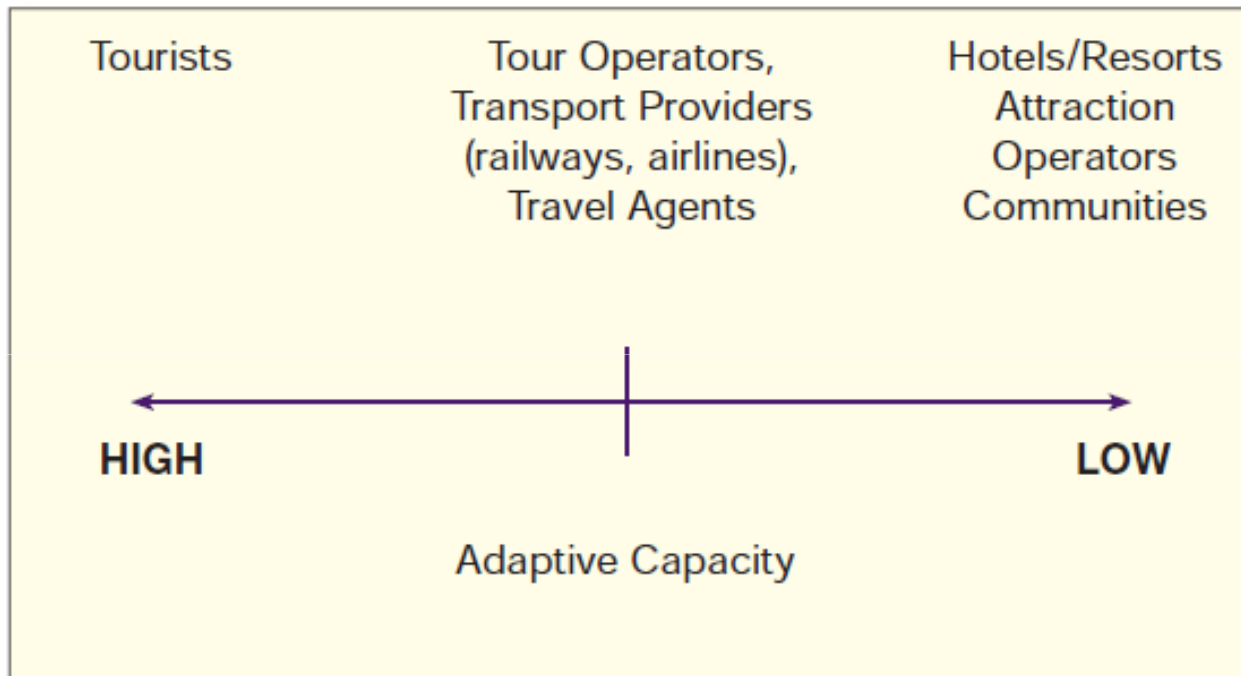


Source: UNWTO, 2008.

Tourism and climate change (Spain): Adaptation and mitigation responses

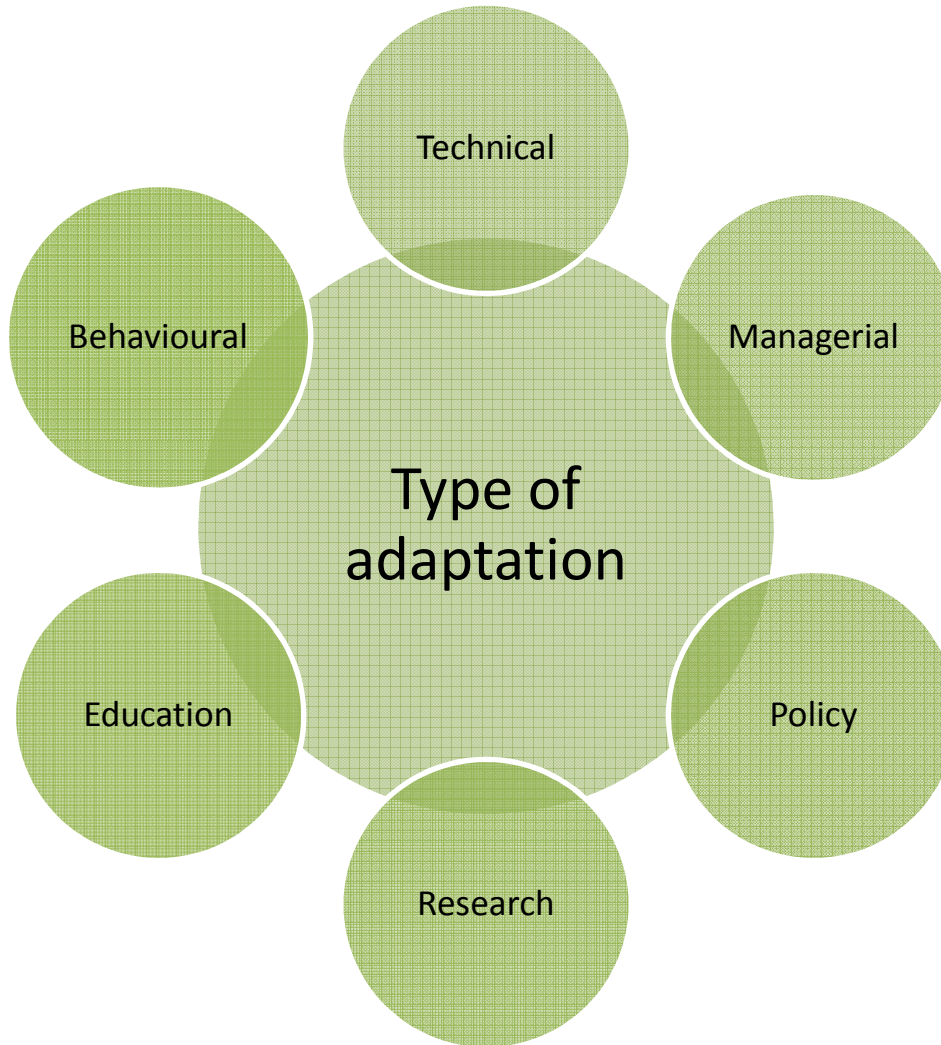


Tourism and climate change (Spain): Adaptation and mitigation responses



Source: Scott, D. and Jones, B., 2006

Tourism and climate change (Spain): Adaptation and mitigation responses

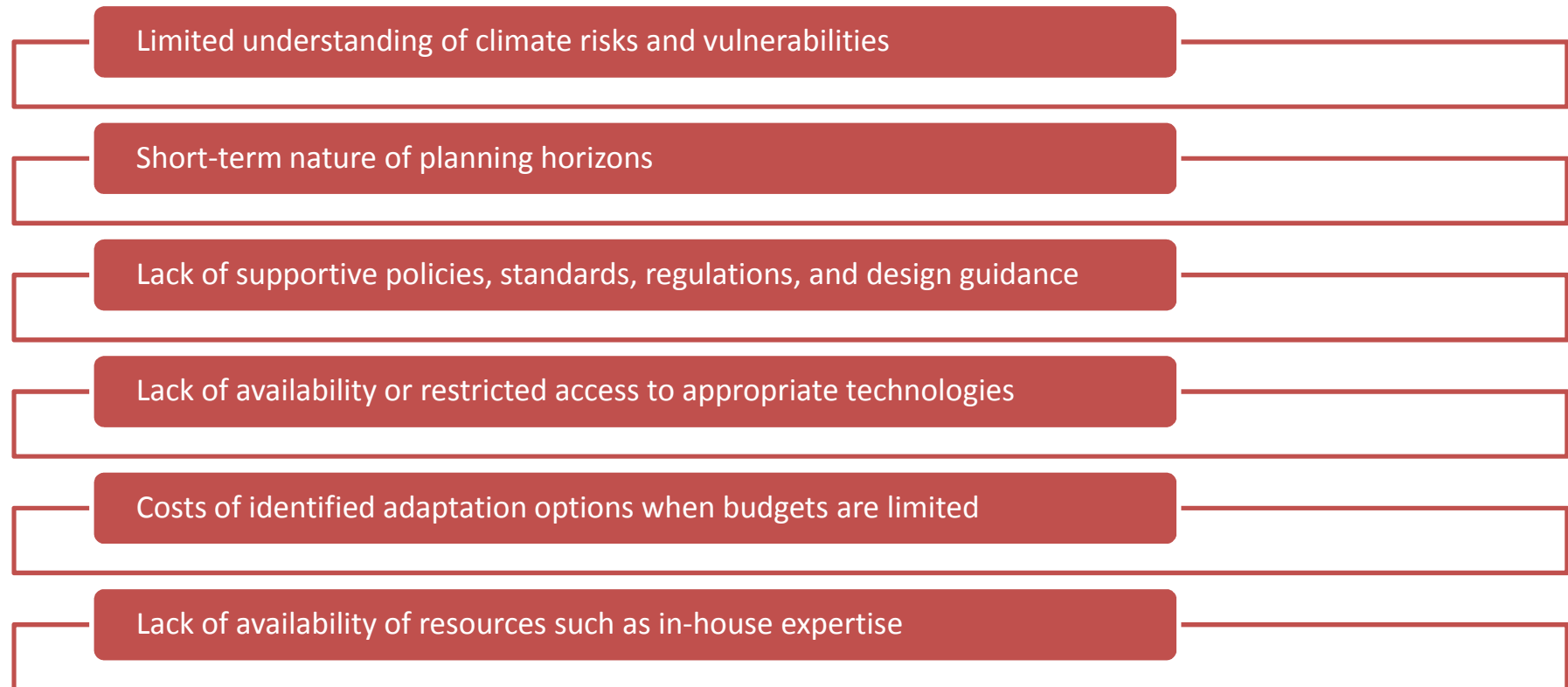


Tourism and climate change (Spain): Adaptation and mitigation responses



Tourism and climate change (Spain): Adaptation and mitigation responses

Barriers to adaptation and mitigation.....



Tourism and climate change (Spain): Indirect impacts

Changes in climate will cause more water demand for

Swimming pools, water parks, etc.



Irrigation of gardens



Personal Hygiene



Drinking water



..... Supply / demand of water

Tourism and climate change (Spain): Adaptation and mitigation responses

Portfolio of climate adaptations utilized by tourism stakeholders

Type of adaptation	Tourism operators/ businesses	Tourism industry associations	Governments and communities	Financial sector (investors/insurances)
Technical	<ul style="list-style-type: none"> • Snow-making • Slope contouring • Rainwater collection and water recycling systems • Cyclone-proof building design and structure 	<ul style="list-style-type: none"> • Enable access to early warning equipment (e.g., radios) to tourism operators • Develop websites with practical information on adaptation measures 	<ul style="list-style-type: none"> • Reservoirs and desalination plants • Fee structures for water consumption • Weather forecasting and early warning systems 	<ul style="list-style-type: none"> • Require advanced building design or material (fire resistant) standards for insurance • Provide information material to customers
Managerial	<ul style="list-style-type: none"> • Water conservation plans • Low season closures • Product and market diversification • Regional diversification in business operations • Redirect clients away from impacted destinations 	<ul style="list-style-type: none"> • Snow condition reports through the media • Use of short-term seasonal forecasts for the planning of marketing activities • Training programmes on climate change adaptation • Encourage environmental management with firms (e.g., via certification) 	<ul style="list-style-type: none"> • Impact management plans (e.g., 'Coral Bleaching Response Plan') • Convention/ event interruption insurance • Business subsidies (e.g., insurance or energy costs) 	<ul style="list-style-type: none"> • Adjust insurance premiums or not renew insurance policies • Restrict lending to high risk business operations

Source: UNWTO, 2008.

Tourism and climate change (Spain): Adaptation and mitigation responses

Portfolio of climate adaptations utilized by tourism stakeholders

Type of adaptation	Tourism operators/ businesses	Tourism industry associations	Governments and communities	Financial sector (investors/insurances)
Policy	<ul style="list-style-type: none"> Hurricane interruption guarantees Comply with regulation (e.g., building code) 	<ul style="list-style-type: none"> Coordinated political lobbying for GHG emission reductions and adaptation mainstreaming Seek funding to implement adaptation projects 	<ul style="list-style-type: none"> Coastal management plans and set back requirements Building design standards (e.g., for hurricane force winds) 	<ul style="list-style-type: none"> Consideration of climate change in credit risk and project finance assessments
Research	<ul style="list-style-type: none"> Site Location (e.g., north facing slopes, higher elevations for ski areas) 	<ul style="list-style-type: none"> Assess awareness of businesses and tourists, as well as knowledge gaps 	<ul style="list-style-type: none"> Monitoring programs (e.g., predict bleaching or avalanche risk, beach water quality) 	<ul style="list-style-type: none"> Extreme event risk exposure
Education	<ul style="list-style-type: none"> Water conservation education for employees and guests 	<ul style="list-style-type: none"> Public education campaign (e.g., 'Keep Winter Cool') 	<ul style="list-style-type: none"> Water conservation campaigns Campaigns on the dangers of UV radiation 	<ul style="list-style-type: none"> Educate/inform potential and existing customers
Behavioural	<ul style="list-style-type: none"> Real-time webcams of snow conditions GHG emission offset programs 	<ul style="list-style-type: none"> GHG emission offset programs Water conservation initiatives 	<ul style="list-style-type: none"> Extreme event recovery marketing 	<ul style="list-style-type: none"> Good practice in-house

Source: UNWTO, 2008.