

Impacts of Climate Change on the Welsh Visitor Economy

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27 April 2011

Outline

- Commissioned by Visit Wales, the Welsh Assembly Government and the Countryside Council for Wales, 2010
- ADAS
- Aberystwyth University
- Manchester University
- University of East Anglia

Effaith Newid yn yr Hinsawdd ar yr Economi Ymwelwyr yng Nghymru The Impact of Climate Change on the Welsh Visitor Economy



Paratowyd ar gyfer:

Croeso Cymru
Llywodraeth Cynulliad Cymru
a
Cyngor Cefn Gwlad Cymru

Prepared for:

Visit Wales
Welsh Assembly Government
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for Wales

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Dyddiad:

1 Mawrth 2010

Date:

1 March 2010



Climate change and the visitor economy

- **Visitor economy** = international tourism + domestic tourism + same-day visits
- The visitor economy is at the same time both a significant perpetrator and a major victim of climate change
- Arguably no other economic sector is in such a conflicted position!

Climate change and the visitor economy

The visitor economy's contribution to climate change

- World visitor economy contributed 4.9% of world emissions of CO₂ in 2005 (UNWTO/UNEP, 2009)
- For comparison - if the world visitor economy was a country it would have been the world's fifth largest emitter (the UK, eighth in the list, contributed 1.8%)
- Tourist air transport alone contributed 2% of global CO₂ emissions

Climate change and the visitor economy

Impacts of climate change on the visitor economy

The visitor economy is especially vulnerable because of the range of potential impacts

... as well as their probable severity

1. **Direct impacts** (climate is a major determinant of destination image)
2. **Indirect impacts**, e.g. water supply, flooding, biodiversity loss
3. **Impacts of mitigation policies**, e.g. fiscal measures to discourage air travel
4. **Social change impacts**, e.g. wider impacts on destination image due to security perceptions

Impacts of climate change on the Welsh visitor economy

- Focusing on direct impacts (for 2050s)
- 70-80% of British tourists cite poor UK weather as their primary reason for holidaying abroad
- Linking weather patterns to visitor patterns:
 - Thermal – e.g. temperature (wind speed/direction)
 - Physical – e.g. rainfall
 - (Aesthetic – e.g. clear skies)

Impacts of climate change on the Welsh visitor economy

- Wales has traditionally been viewed as a family/beach holiday destination
- But increasing emphasis on the ‘independent active’ visitor
- Therefore five activities were identified:
 - Golf
 - Beach activities (3S and other)
 - Walking
 - Mountain biking
 - Urban activities, e.g. visiting indoor/outdoor museums

Impacts of climate change on the Welsh visitor economy

- Using an **activity threshold approach**
- Meta-analysis of all available studies
- Then adapted to Welsh context
- Based on **maximum daily temperature** and **rainfall** (so as to link with available UKCP09 data)

- **Base activity days** – when levels of participation are greater than the background level (i.e. more participation than just the core enthusiast group)
- **Optimum activity days** – peak participation, with the highest participation from non-enthusiasts

Impacts of climate change on the Welsh visitor economy

Table 4 Activity threshold ranges for Wales

Note: All temperature thresholds are defined from daily maximum temperature

Activity	Temperature °C and precipitation ranges			
	Base Lower	Base Upper	Optimum lower	Optimum upper
Golf	14°C & no rain	30°C & no rain	18°C & no rain	26 °C & no rain
Beach (3S ⁵)	26°C & no rain	NA	30°C & no rain	NA
Beach (other ⁶)	18°C & no rain	NA	26°C & no rain	NA
Mountain biking	12°C & no rain	30°C & no rain	16°C & no rain	26°C & no rain
Walking	12°C & no rain and 12 °C with < 10mm rain	30°C & no rain and 30 °C with < 10mm rain	16°C & no rain and 16 °C with < 10mm rain	26°C & no rain and 26 °C with < 10mm rain
Urban (outdoor)	4°C & no rain	30°C & no rain	18°C & no rain	23°C & no rain
Urban** (indoor/museum)	NA	NA	< 18°C no rain < and 18°C & rain > 10mm	> 30°C no rain and > 30°C & rain > 10mm

Table 6 The number of days in summer exceeding the specified optimum lower and upper thresholds for different activities at Cardiff, Aberporth and Betws-Y-Coed.

Note: calculated from UKCP09 weather generator output for the baseline period (1961-1990) and the 2050s under the medium emissions scenario. Minimum, average (in bold) and maximum values from the 100 30-year Weather Generator runs are given.

Cardiff	1961-1990			2050s		
	<i>Minimum</i>	<i>Average</i>	<i>Maximum</i>	<i>Minimum</i>	<i>Average</i>	<i>Maximum</i>
Optimum lower threshold for urban activity (>18°C and dry)	42.6	46	48.6	49.7	64.7	77.6
Optimum upper threshold for outdoor urban activity (>23°C)	14.8	16.8	18.9	28.3	55	80.7
Optimum upper threshold for indoor/museum urban activity (>30°C)	0	0.05	0.2	0.2	3.9	25.3
Aberporth						
Optimum lower threshold for beach activity (>26°C and dry)	0.1	0.3	0.6	0.3	6.5	35.7
Optimum lower threshold for 3S beach activity (>30°C and dry)	0	0	0	0	0.5	8
Betws-y-Coed						
Optimum lower threshold for mountain biking/walking (>16°C and dry)	38.6	41	44	37	55	69
Optimum upper threshold for mountain biking/walking (>26°C and dry)	0.6	1.1	1.8	1.6	12.1	47.3

Almost half as many again optimum days for outdoor urban visits

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But more days will be too hot for outdoor urban visits

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And more days will be too hot even for indoor museum visits

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Many more days will be conducive to general beach activities

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But not many more days will be optimum for 3S beach activities

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More optimum days for mountain biking and walking

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But more days will be too hot for mountain biking and walking

Final conclusions

- Results suggest that there will be more optimum days for most visitor activities important to Wales in the future

BUT

- Wetter autumns and winters may have an adverse impact on visits outside the main summer season
- These are only the direct impacts of climate change on the visitor economy
- Only a limited range of weather variables are included, e.g. wind, lag effect of past rainfall on ground conditions
- Other factors, such as marketing and transport infrastructure are important if Wales wants to capture this growth in demand