4 Weather and Climate

Introduction

Weather can be regarded as a vital resource for tourism, and Robinson (1976) suggested weather was a major element which contributes to tourism development. Although it is seen as less important in Peters' (1969) grouping (see Chapter 3), Boniface and Cooper (2001) devote a separate chapter to climate, suggesting its importance for tourism, and this book follows suit with an entire chapter containing a discussion of weather and climate. However, it is climate ('average weather conditions over a period of time') that is particularly significant and Holden (2016) considers it to be the most important factor affecting tourism.

This chapter discusses weather as a resource for tourism, and stresses that weather (and the related concept of climate) provides a very significant context for many tourism activities. The discussion below indicates that variations in climate occur in regular annual cycles and we refer to these as seasonal changes. The seasons, the cause of which is explained below, are a very significant aspect of tourism and the seasonality of tourism is largely the result of climate.

Key perspectives

Boniface and Cooper (2001) indicate that climate can be viewed as a significant resource for tourism, but they emphasise its importance, when they also state that it imposes constraints on tourism in terms of limiting the appeal of a destination. However, climate can be viewed as a particularly important resource for tourism for the following reasons:

- Climate includes a number of aspects (e.g. temperature, snow, wind speed and direction) that are major influencing factors on certain types of tourism. So, for example, beach-based tourism is linked strongly to high levels of sunshine, whilst ski tourism requires snow, and sailing and kite surfing need wind of a certain strength to make the activities possible.
- It is often a *combination* of climate factors acting together, such as sunshine hours and high temperatures for sunbathing, or snow and low temperatures

for skiing, that enable certain types of tourism activity to occur in particular locations.

- Much tourism takes place out-of-doors, so even with modern technology, it is not possible to avoid weather and climate in relation to these types of tourism activity.
- There are climate zones around the world with differing climate conditions, some of which encourage tourism, others which do not.
- Climate has been very important historically in assisting in the creation of certain types of tourism destinations, such as coastal resorts and mountain ski resorts.
- Climate continues to be important, both in relation to domestic tourism and international tourism, leading to regular movement of people at certain times of the year from tourist origin areas to tourism destinations. This is what is termed 'seasonality' in tourism and is linked closely, although not exclusively, to climatic seasons.
- Climate change is one of the most significant factors affecting all life on earth in recent history and has important impacts on tourism (this issue is discussed in detail in Chapter 11).

As indicated in Chapter 3, Robinson (1976) indicated that 'good weather' is important for tourism, but he does not give a clear definition of 'good weather'. Robinson indicated when fine weather is important and how 'bad weather' can seriously affect tourism activities. Indeed, when discussing tourism in Britain, he stated that British weather is notoriously fickle and there is a general lack of sunshine, despite mild conditions, even in much of southern Britain. This, he argued, is why the Spanish Costas, as well as the French Mediterranean coast and large parts of the Italian and Greek coasts have become desirable destinations for British tourists who are seeking 'guaranteed sunshine'.

However, it is also the case that 'good weather' includes snow for winter sports and related activities. Mountain areas such as the Alps have become popular for winter tourism activities because of the almost guaranteed snow cover which allows skiing for several months of the year. Nevertheless, as discussed later in Chapter 11, global warming is affecting the nature and length of the ski season, as well as the actual location of ski tourism.

What is considered 'good weather' for certain types of tourism is perceived in relation to 'bad weather' elsewhere, by potential tourists. This contributes to the travel behaviour of these tourists that takes place at particular times of the year. Hence, from November to the end of February, northern Europe usually has generally cool, often cold weather, accompanied by cloud and frequent rain and also the strong possibility of snow in the period. This perceived 'poor weather' in the northern part of Europe has led to the development of 'winter sun' locations. These locations are almost always south of the northern European countries, such as the UK, Germany, the Netherlands, Belgium, Sweden, Norway and Denmark.

The winter sun locations are however relatively close to these countries, in terms of being two to three hours' flight time away from the northern European generating areas, or at most, two to three day's drive time. These European 'winter sun' destinations are located particularly in Spain and Portugal, but also on the French Mediterranean coast and the southern Italian coastal areas. In the last 20 years or so, countries in North Africa such as Tunisia and Morocco, have also become popular winter sun destinations for northern Europeans.

In the USA and Canada, the US southern state of Florida, as well as islands in the Caribbean have become 'winter sun' destinations for North Americans. These locations all have much higher temperatures and longer sunshine hours than northern locations in the USA and Canada. For Australians and New Zealanders, the islands of Fiji and the Indonesian island of Bali have become, in the last 30 years, important 'winter sun' destinations. The reasons for this are the same as for the winter sun attractions of the Caribbean for North Americans – the contrast between winter weather at home and the probably better weather in the destination.

A key difference between the Northern hemisphere countries, such as the UK, France and the USA and those countries, such as Australia and New Zealand, in the southern hemisphere, is that winter and, hence, 'winter sun' holidays occur at different times of the year. A 'winter sun' holiday for an American will be in the period from November to February, but for an Australian, a winter holiday will take place between May and August. But why is this? And why is that southern European countries have different weather conditions at different times of the year to northern European countries, or that the northern parts of North America have different weather to the Caribbean? The answer to these related questions requires an understanding of, first, the power of the sun to heat the earth, and second, the way the earth moves in space.

The relationship between the sun and the earth and effects on weather and climate

It is a result of the earth revolving around the sun (taking 365 and a quarter days) and that the axis of the earth (an imaginary line that passes through the centre of the earth from the North to the South Pole) is not vertical, that gives the earth different weather conditions at different times of the year and this is explained below.

The earth is a planet of the sun. This means, along with other planets such as Mars, Venus and Jupiter, that the earth revolves around the sun. This is a regular movement, and as indicated above, this takes a set length of time – what we call one earth year. This revolution has been going on for millions of years. Another regular movement of the earth is that it rotates about its own axis. This takes a period of 24 hours. It is a combination of the revolution of the earth about the sun and the rotation of the earth about its axis that contributes to different weather

conditions. As these conditions are similar on a year-by-year basis at different times of the year – for example, each spring in the UK (or Australia, or the USA for that matter) is similar to the spring of the previous year, in that particular place (and over many springs, conditions in each place are known to be similar) that we average weather conditions in each period of time, and call this concept 'climate'.

The earth is heated by the power of the sun – this is solar radiation. The sun is felt to be hottest when it has a high angle in the sky in relation to the earth's surface. If the sun is at its maximum angle of 90 degrees (vertical to the earth's surface), it will provide concentrated heat on the surface. If the sun is at an angle of only 30 degrees to the vertical, then the heat is spread over a far bigger area and will be far less powerful. The analogy of a torch may help here. Imagine holding a torch one metre above the ground and shining the torch vertically straight down, at 90 degrees to the ground. The beam of light will be concentrated. But if the torch, still held one metre above the ground, was at an angle (not vertical), but still pointed at the ground, then the area of the beam will be far larger, as the light is far less concentrated. If the torch beam analogy is replaced by the concept of solar radiation, then it should be clear why it is hotter (think of the vertical torch beam) than when the sun (think again of non-vertical torch beam) is at an angle much less than 90 degrees.

Figure 4.1 is an attempt to show the effect of the angle that the sun's rays hitting the earth's surface has on heating. It uses the analogy of the torch beam to show this. The torch on the right is vertical and the distance across its beam is shown as 'A'. The area on the ground of this torch beam is the same width as the beam's width, shown as 'A'. The torch on the left is at an angle to the vertical (it is not at 90 degrees, but less). Although the width of the beam in the left side torch is 'A' (the same as the right side torch), when the beam reaches the ground it spreads out over a larger area – shown as 'B'.

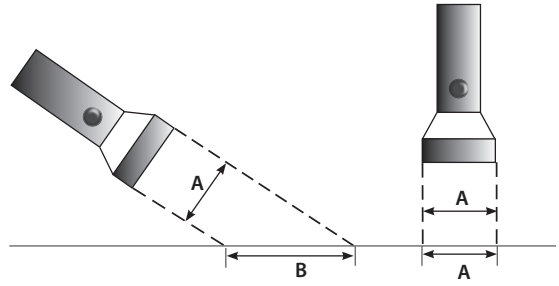

Figure 4.1: When a beam of light is at anangle it spreads over a wider area.

Figure 4.2 shows the effect of the curve of the earth's surface on the sun's heating capability. In Figure 4.2 the sun's rays are shown approaching and striking the earth – in this example from the left side. The rays are the same distance apart in space before they reach the earth. When the rays strike the earth at the Equator the length of 'A' on the earth's surface is the same as the width of the rays in space. However, on Figure 4.2, the rays striking nearer the North Pole are further apart at this location than at the equator. Here the heat is less concentrated, so this area