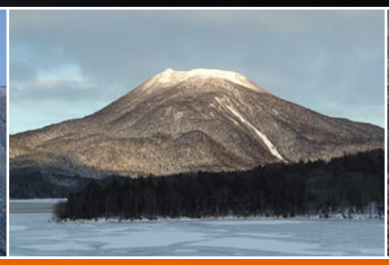
Geoheritage, Geoparks and Geotourism

Patricia Erfurt-Cooper
Editor




Volcanic Tourist Destinations

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This book is dedicated to my family, who have endured my preoccupation with this work on many occasions

Foreword

For centuries people have been attracted by volcanic landscapes. Whether active or dormant, the unique dynamics of volcanic environments have encouraged travellers to visit to the remotest locations. Artists have been inspired to paint volcanoes such as the perfect shape of Mt. Fuji or Mt. Vesuvius erupting. Volcanoes have provided archaeologists with history and scientists with landscapes buried and preserved under layers of volcanic ash with examples including Pompeii and Herculaneum (Vesuvius), the Caribbean island of Montserrat (Soufrière Hills), the landscape that was buried by Mt. St. Helens and many others. Volcanoes have featured as dramatic backdrops in movies and as major topics in the literature, scientific as well as fiction, and have been regarded as an unforgettable visitor experience. Some volcanoes are easy to access tourist attractions, whereas others can only be found in more remote locations (e.g. Alaska, Antarctica or Kamchatka). While some volcanoes are visited for their special individual features, others are included in tour packages as highlights of the trip agenda.

More than 30 years ago (1980), Mount St. Helens in the USA (see Chap. 15) was making the news worldwide with a cataclysmic eruption which consequently claimed 57 lives. Apart from raising awareness about volcanic activity, this eruption opened a window of opportunity for volcanologists to study eruptive events and their precursors as never before possible. Some of the more destructive volcanoes require ongoing monitoring and there is constant pressure for reliable data on all mountains which have been identified as active. Despite all efforts, unfortunately, lives are still lost and economies are affected when volcanic eruptions take place and cause a natural disaster. The more recent events that affected not just the local population, but also disrupted air travel worldwide, were created by the volcanoes Eyjafjallajökull in Iceland and Puyehue in Chile. These and other eruptive events (Table 1) have contributed to further advancing research into volcanic processes and their impact on the environment, as well as leading to the development and upgrade of essential risk management strategies.

Heightened volcanic activity frequently attracts an increased number of visitors (e.g. Kilauea, Hawaii in early 2011; see Chap. 21) compared to 'normal' activity or quiescence. Chaitén volcano for example (Chile; see Chap. 26) was uncharted and not recognised as a potentially active volcano until its unexpected reawakening in early May 2008. The last eruption of this volcano is thought to have happened several thousand years ago and the recent events did not just take the locals but also the scientific community completely by surprise. On the economic side Chaitén's eruption stimulated the local tourism industry with a sudden increase of visitors to the area, an additional reason of concern for the local authorities.

When it comes to monitoring tectonic activity, funding is one of the main issues. This leaves dormant volcanoes with the potential to reactivate largely unsupervised and possibly even unrecorded. Although more volcano observatories are gradually established, some remote areas or volcanoes in developing countries are not yet monitored sufficiently to detect early warning signs indicating eruptions due to logistical, financial and political restrictions (Tilling 1989). Figure 1 gives an overview of the major distribution of active volcanoes worldwide.

Table 1 Examples of recent volcanic eruptions (countries in alphabetical order)

Recent major eruptive events	
2009 Redoubt, Alaska (ash)	2011 Bromo, Indonesia (ash, pyroclasts)
2006 Augustine, Alaska (lava, ash)	2012 Etna, Italy (lava, ash, strombolian)
2011 Mt. Erebus, Antarctica (lava lake)	2012 Stromboli, Italy (ash eruption)
2012 Soufriere Hills, Montserrat Caribbean (ash, lava dome, pyroclastic flows)	2001 Mt. Usu, Japan (lava domes, ash)
	1996 Mt. Unzen, Japan (lava dome, lahars, pyroclastic flows)
2010 Chaitén, Chile (ash, pyroclastic flows, lava)	2012 Mt. Sakurajima, Japan (ongoing ash eruptions)
2012 Puyehue Volcano, Chile (ash eruption)	2012 Karymsky, Kamchatka, Russia (lava, ash)
2010 Galeras, Colombia (ash, gas)	2007 Ruapehu, New Zealand (lahars, current unrest)
2012 Nevado del Ruiz, Colombia (ash, lahars)	2012 White Island, New Zealand (crater lake, ash eruptions)
2007 Mt. Karthala, Comoros Islands (lava flows)	2012 Tongariro, New Zealand (ash, pyroclasts)
2012 Rincón de la Vieja, Costa Rica (increased activity)	2011Ulawun, Papua New Guinea (gas, steam)
2011 Nyiragongo, DR Congo (lava lake)	2010 Mayon, Philippines (ash, gas, lava)
2012 Nyiamulagira, DR Congo (lava flows, gas)	1993 Pinatubo, Philippines (ash, pyroclastic flows)
2012 Reventador, Ecuador (ash, pyroclastic flows)	2010 Piton de la Fournaise, Reunion (lava flows)
2012 Tungurahua, Ecuador (lava, gas, ash)	2012 El Hierro, Spain (submarine eruption)
2012 Santa María/Santiaguito, Guatemala (ash, lava)	2011 Kilauea, Hawaii, USA (lava lake)
2011 Eyjafjallajökull, Iceland (fissure, ash eruption)	2008 Mt. St. Helens, Washington State USA (ash, pyroclastic flows)
2011 Grímsvötn, Iceland (subglacial)	2011 Ambrym, Vanuatu (lava lake)
2000 Hekla, Iceland (tephra, lava)	2008 Lopevi, Vanuatu (ash, pyroclasts)
2000 Mt. Batur, Indonesia (lava flows)	2012 Yasur, Vanuatu (strombolian, ash)
2010 Merapi, Indonesia (lava dome, pyroclastic flows)	
2012 Mt. Lokon, Sulawesi, Indonesia (ash eruption)	
2012 Krakatau, Indonesia (lava dome growth)	

Source Compiled by Author from various sources

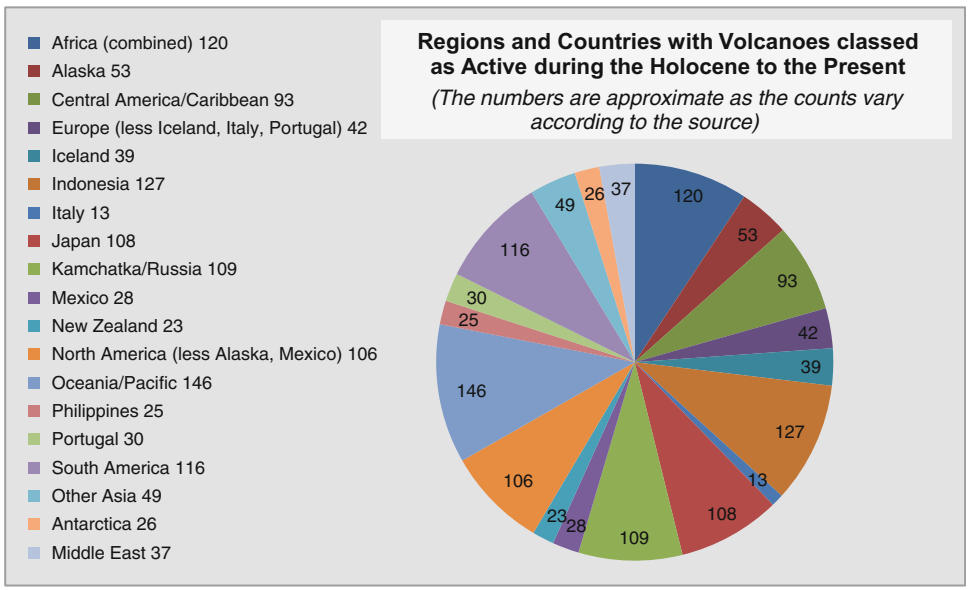

Fig. 1 Worldwide distribution of active volcanoes. Compiled by Patricia Erfurt-Cooper

Reference

Tilling, R. I. (1989). Volcanic hazards and their mitigation: Progress and problems. Reviews of Geophysics, 27, 237–269.

Preface

Volcanic landscapes, both active and dormant, and their related features provide priceless natural resources, which are used worldwide as tourist attractions that are popular with people from a wide range of backgrounds.

The preparation for this book has taken rather longer than anticipated but combining the collective information was a complex task. The delay, however, turned into a blessing, as in the meantime several more volcanic areas acquired protected site status, either as inclusion on the UNESCO World Heritage list or as members of the growing geopark associations such as the European Geopark Network, the Japanese Geopark Network and the UNESCO Global Geoparks Network.

Throughout this book, earth science and social science go hand in hand and some chapters may be more 'technical' than others. However, the aim is to provide a broad insight into volcano tourism and all factors involved. Some chapters focus predominantly on the geoscience aspects of the area described, while others emphasise the overall geodiversity of the natural and cultural heritage and its integration into various tourism sectors from geotourism, health tourism based on volcanic hot springs, adventure tourism and ecotourism. Therefore this is not an earth science text book as such, although the chapters are contributed by highly qualified scientists from various disciplines including volcanologists, seismologists, geologists, geomorphologists, geographers, tourism researchers and experts specialising in protected site management.

The main focus of this book is on the rich geodiversity in volcanic areas, which includes their geological heritage, with features and attractions of particular landforms as an important part of the whole geoexperience individual regions have to offer.

This book aims to contribute to the emerging geotourism literature as well as to the existing literature about protected sites. The individual chapters will enhance the knowledge of volcanic and geothermal environments and raise awareness about hazards and potential risks in these particular natural settings.

The chapters are separated into individual parts and provide a broad perspective on active and dormant volcanic destinations, although this is by no means exhaustive. Detailed descriptions of volcanic heritage and how it is showcased in geoparks are discussed in some chapters, while others include a focus on local biodiversity or cultural heritage as additional attractions and as an essential part of the overall learning experience. Widespread evidence suggests that volcanoes, dormant as well as active, have been and still are an important focal point within cultural and religious settings and in local histories. In many regions or countries (e.g. Japan, Indonesia), events and festivals related to volcanoes are held on a regular basis and attract large numbers of visitors.

Additional natural resources are frequently seen alongside the volcanoes with associated volcanic hot springs successfully used by resorts and spas for health and wellness purposes. These are another major draw cards for visitors, particularly in countries such as Japan, Iceland and New Zealand, where active volcanoes are common as a scenic backdrop to the spa experience.

Despite the time it took to edit this book it was an enjoyable and rewarding, although challenging undertaking, encouraged by the need for new and advanced information about an unusual tourism sector and the opportunity to fill a gap in the current tourism literature. I am sure that every reader will find something of interest and enjoy the different geosites and their aspects of conservation, sustainability and education based on their volcanic heritage as they are portrayed in this book.

June 2014 Patricia Erfurt-Cooper

Acknowledgments

With grateful thanks I wish to acknowledge all contributors to this book for sharing their knowledge, research findings and field experience to increase the awareness about the multitude of volcanic destinations. Without their efforts, time and commitment this book would not have been possible and their cooperation and patience throughout the duration of this project is greatly appreciated.

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