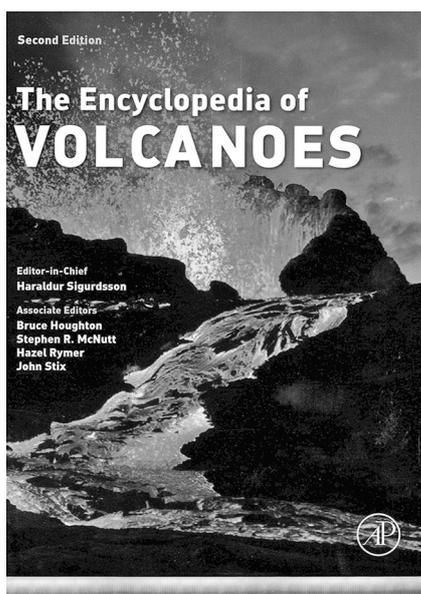


The encyclopedia of volcanoes (second edition), by Haraldur Sigurdsson, Bruce Houghton, Steve McNutt, Hazel Rymer and John Stix (Eds.), 2015. Academic Press, USA. 1,456 pages. Hardback: price \$133,00, ISBN 978-0123859389.



In 2000 five renowned volcanologists edited an ‘Encyclopedia of volcanoes’; this has recently become ‘The Encyclopedia of Volcanoes’. The title could be misleading because the tome is not dedicated to the description of individual volcanoes or famous eruptions but rather is an encyclopedic collection on volcanology. This second edition is more ambitious (as suggested by the use of a definite article in the title), but, in fact, there is nothing comparable in the volcanological literature. Other texts deal with specific themes but not a single one attempts to treat all aspects of volcanology, from the origin of primary magmas to volcanoes in art, as does the present book. The treatment of all main volcanic themes is arranged in 80 chapters of 18 pages on average; each chapter having been entrusted to one or more recognised authors in that particular field of volcanology. Over one hundred contributors have been called in to present a complete and unifying picture of volcanology. They have often completely rewritten the original chapters in order to document the dramatic increase in research on volcanoes during the last decades. Before discussing a work like the present one some questions need to be answered.

For instance, ‘Why write an encyclopedia?’, and ‘Why buy an encyclopedia?’ These are just issues that come to mind when you look at this ponderous volume on volcanoes of more than one thousand and four hundred pages thick (and weighing over 3 kg), even if this huge number of pages includes 35 blank ones at the end of the volume. An encyclopedia may have an anachronistic ring about it in this internet era. How can knowledge be fixed in a book that will be consulted over a long period of time, while there is an unstoppable flow of updates on the internet? The best and, perhaps sole, answer is the sheer quality of the work. Entries in the book should be so innovative and accurate, linked to the reliability of the team of scientists involved in its production, that any comparison with what can be extracted from the internet is futile.

Let us have a detailed look to see if it meets such high standards. As noted above, this is the second edition of a seminal publication in volcanology, which means that the present evaluation will be mainly comparative in nature. How innovative is this new edition? Do those that own a copy of the first edition have to buy this second one? Can it be recommended to new readers? Let us consider some numbers. The number of printed pages of the two editions is nearly the same (1,417 *vs* 1,421), as is the number of chapters (80 *vs* 78). In order to preserve the original structure, the addition of seven new chapters meant that seven old chapters had to be axed. Consequently, the original chapters on ‘Phreatoplinian eruptions’, ‘Lava fountains and their products’ and ‘Volcaniclastic sedimentation around island arcs’ have been replaced by ‘Submarine explosive eruptions’, ‘Volcanic lightning’ and ‘Volcanism on Mercury’. Other chapters were merged, e.g., ‘Composition of magmas and origin of magmas’ into ‘Composition and origin of magmas’ or split into two, e.g., ‘Physical and thermodynamic properties of magmas’ subdivided into ‘Thermodynamic and transport properties of silicate melts and magma’ and ‘Chemical thermodynamics and the study of magmas’. For a full evaluation of the depth of the novel versions a look at the list of contrib-

utors is called for. Only eleven chapters were produced by the same authors; in thirty-two chapters the original authors are joined by one to four new ones and as many as thirty-five chapters have been written by seventy-six new authors. The non-uniform distribution of new authors reverberates in the degree of updating of topics covered. In fact, chapters in which there was no addition or change of authors remained almost or completely unchanged. Chapters to which new authors have been added are partially or completely rewritten. And finally, chapters reviewed by new authors are rewritten in full. The graphic layout has changed significantly, replacing almost all of the old b/w illustrations by more legible and intriguing full-colour ones. Diagrams also evolved from flat to block (3D). As this volume is intended for the general reader a glossary precedes each chapter and references are avoided, except for a section of 'Further readings', comprising a list of major texts on the subject matter, which is provided at the end of each chapter. Although the latter is an understandable choice so as to avoid further increase of the total number of pages of this book, a brief reference list is an element of weakness to those readers who wish to deepen their knowledge of the topics covered. It is, however, correct to specify that in the new edition some chapters are accompanied by a more robust bibliography, such as chapter 27 ('Strombolian and Hawaiian eruptions'), which has a 5-page bibliographic appendix.

Obviously, it is not possible to provide a critical description of each individual chapter. The work is divided into nine thematic sections, beginning with the 'Origin and transport of magma' (chapters 1 to 11), 'Eruptions' (chapters 12 to 16), 'Effusive volcanism' (chapters 17 to 24), 'Explosive volcanism' (chapters 25 to 38), 'Extraterrestrial volcanism' (chapters 39 to 44) and finally 'Investigating volcanic interaction' (chapters 45 to 50), 'Volcanic hazards' (chapters 51 to 62), 'Eruption response and mitigation' (chapters 63 to 70) and 'Economic benefit and cultural aspects of volcanism' (chapters 71 to 78). Among the things I like to mention here are the two chapters dedicated to pyroclastic currents, that replace the old concepts of pyroclastic flow and surge. The description of deposits and processes of the most hazardous volcanic phenomena fills an obvious gap of the previous edition. Subplinian and plinian eruptions are also described with greater accuracy through the illustration of the lateral facies variations from proximal to distal. Chapter 47 is one of the most peculiar sections, having been written as complementary to the analogous chapter in the first edition. The new

chapter concentrates on hydrothermal venting associated with submarine arc volcanoes, contrary to the old chapter that focused on mid-oceanic ridges. But – do not throw away the old book! In chapter 60, 'Impacts of eruptions on human health', the authors add some case studies such as the ones of Pompeii and Herculaneum. They describe the deaths of the Roman inhabitants as essentially related to high-temperature pyroclastic surges. My experience on this topic allows me to state that almost 40 per cent of Pompeii deaths are due to walls collapsing under the sheer weight of the accumulated lapilli and that pyroclastic currents killed people by suffocation rather than by intense heat. In such a huge book there are also some scattered amenities that are fun to spot.

In this era of political correctness, even titles underwent changes and the previous 'Archaeology and volcanism' became 'Volcanoes, ancient people, and their societies'. Paragraphs dedicated to Pompeii and Herculaneum in Italy and Akrotiri in Greece have now been discarded, claiming that these events are 'so well known that they need not be mentioned in detail here'(!?). These classic locations are now replaced by descriptions of what seems to be the new fashion in volcanology, or at least in volcanological tourism, with new paragraphs dedicated to air balloon flights above ignimbrites in Cappadocia or extreme sports such as volcano surfing on Cerro Negro. A little criticism is based on my love of films and bibliographies. The nice chapter 78, 'Volcanoes in literature and film', has not been updated. Of course, some new books and films have treated volcanic topics during the last 15 years, but it should be noted that the famous film *Stromboli* by Roberto Rossellini is illustrated with a poster (fig. 78.4) in Spanish! Rossellini is one of the most important representatives of Italian neorealism and the film was produced and filmed in Italy, meaning that the use of the Spanish version of the *Stromboli* poster, rather than the original Italian, is a fall from grace.

One of the most extraordinary things about this encyclopedia is its sheer breadth and another core attraction is its wealth of case studies. Memorable facts pervade many chapters in this book, whether these concern a rigorous history of volcanology or a trendy topic such as the climatic impacts of volcanic eruptions. If you wish to boost your understanding of volcanology, you should read this book.

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