Preface

The Canary Islands Archipelago, offshore of the northwestern coast of Africa, originated from ocean-island volcanism over a span of 20 million years. This 600-km-long chain of islands (total population ~2 million), with their beautiful volcanic landscapes, beaches, and year-round mild climate, receives more than 12 million visitors each year. The prime tourist destination is Teide Volcano on the Island of Tenerife, the centerpiece of Teide National Park and the focus of this scientific volume. In 2010, Teide National Park was the most heavily visited national park of any European country and the second most visited worldwide. Teide is a huge volcano that towers 3,718 m (a.s.l.) above the central part of Tenerife, reaching the highest elevation in the Canaries and Spain. Moreover, if its height is measured relative to the seafloor, Teide is the third tallest (~7,718 m) volcanic edifice on Earth after the Hawaiian shield volcanoes Mauna Kea and Mauna Loa. In 2007, the United Nations Educational, Scientific, and Cultural Organization (UNESCO) inscribed Teide National Park as a World Heritage Site, in recognition of its diverse, abundant evidence of the geological processes that underpin the evolution of volcanic islands, complementing other volcanic properties such as Hawaii Volcanoes National Park (USA) and Galápagos National Park (Ecuador).

Because of its imposing physical visage, Teide naturally has long attracted scientific attention following the colonization of the Canaries, but especially during the eighteenth and nineteenth centuries when the emerging "science" of geology began to develop. Beginning in the latter part of the twentieth century, many geoscience and related studies—including the systematic geologic mapping and dating of volcano-related deposits—have been conducted at Teide as well as other Canarian volcanoes, resulting in a substantial scientific literature. For example, during the past 6 years, one of the editors (Carracedo) has published and edited three major books (in Spanish) summarizing the volcanic geology and associated hazards of Canarian volcanoes in general, and of Teide in particular. Unfortunately, to date no comparably comprehensive works in English about Canarian volcanism exist. Thus, this volume marks a milestone in remedying this long-standing deficiency. It provides a wide-ranging summary of the geologic evolution of Teide—the emblematic volcano of the Canaries. In 14 chapters, this volume addresses a wide diversity of topics and disciplines, including: the prehistoric to present-day scientific understanding of Teide, its geodynamic setting within the

context of plate tectonics (i.e., "hotspot" model), development of rift zones and other volcanic structural elements, radiometric and paleomagnetic dating studies, petrologic-geochemical-isotopic evolution of Teide's magmatic system, island-wide geophysical investigations, eruptive history and styles, and volcanic and other geological hazards.

It is noteworthy that the book's last chapter emphasizes the volcanic hazards of the Teide Volcanic Complex (TVC). While the TVC has erupted five times during recorded history (most recently in 1909), such activity has been relatively weak, causing minimal damage and no fatalities. However, larger prehistoric eruptions and flank collapses along the volcano's rift zones testify to much more hazardous activity in Teide's recent geologic past. The episode of volcanic unrest at Teide during mid-2004, together with the related, highly controversial specific "prediction" of an eruption in October 2004 that did not materialize, has greatly enhanced public awareness of volcanic hazards in Tenerife. The 2004 Teide volcanic "crisis" adversely affected Tenerife's tourism economy and disrupted the daily lives of many of its residents. In addition, the submarine eruption near La Restinga (Island of El Hierro) during 2011–2012—the first since 1971 in the Canaries—has further increased public anxiety regarding hazards posed by future volcanic eruptions. On the positive side, however, these recent developments also have prompted the expansion of real-time monitoring studies of Canarian volcanoes.

Carracedo and Troll are perfectly suited to coedit this volume, because of their own extensive experience in working at Teide and other Canarian volcanoes. This fact is immediately apparent from a quick glance at the Table of Contents, which shows that they are authors or coauthors of many of the book's chapters. With its comprehensive discussion and broad spectrum of topical coverage—well illustrated by photographs, diagrams, and tables—this volume should prove to be highly useful to nonSpanish speaking practitioners within the global volcanologic community, especially those specializing in ocean-island volcanism. Given its scope and breadth, the Carracedo-Troll book is destined to have a long shelf life, serving as a valuable reference work for decades to come. Moreover, this book sets a benchmark for the production of similar summaries of the other historically and potentially active volcanoes of the Canary Islands. The lessons that can be learned from the existing data, and new data to be accrued from future studies, are critical for the preparation of effective emergency-response plans when the next episode of volcanic unrest at Teide, or at some other Canarian volcano, culminates in significant and possibly hazardous eruptive activity.

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