Book Review

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Australian caves and karst systems

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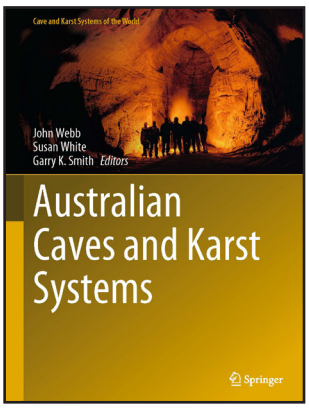

This book, the 24th in Springer's series "Cave and Karst Systems of the World", is the first to be dedicated to the caves and karst of an entire continent: Australia (including Tasmania). In addition to the monumental "Hypogene Karst Regions and Caves of the World" released in 2017, the books in the series are generally dedicated to individual countries (for example Romania, Croatia, Turkey, and Hungary), to karst areas (e.g. Mammoth Cave in Kentucky, Greenbrier Valley in West Virginia, Burnsville Cove in Virginia, Ankarana in Madagascar), or to smaller regions (Florida, Sicily, Lagoa Santa in Brazil), or themes of karst interest, such as glaciation and speleogenesis, tectonics and karst.

Australia does not stand out for the amount and extension of karst areas, nor for the length and depth of the caves. However, this continent distinguishes itself from the others by the great geodiversity of karst forms and phenomena, which reflect the different types of rocks, their different geological history, and the various climatic zones and relative vegetation biomes. In Australia there are almost no Mesozoic carbonate rocks, so abundant in many cave countries worldwide. The major karst areas are in old and "hard" rocks, dolomites and limestones of the Neoproterozoic and Paleozoic. These formations are deformed in the eastern part of the continent but are horizontal in the northern part. Many karst areas, on the other hand, are in younger "soft" rocks, tertiary and quaternary limestones only moderately or poorly cemented. All these areas are currently found in climates ranging from tropical and monsoon to arid and dry, with large zones of warm to cold temperate climate.

Australia is also moving slowly northwards, so several tens of millions of years ago the climate was very different from today (e.g., the central deserts were covered by open and savanna tree coverage). Finally, while most of Australia consists of a stable and ancient craton, several eastern and southern areas have been affected by major crustal movements, with eruptions, earthquakes, and the formation of mountain ranges that have had a considerable influence on karst.

The organization of the book reflects this great geodiversity of the continent. The first chapters provide a more general part dedicated to the interaction between man and karst, including the use of caves, speleodiving, and conservation of caves and karst areas. Following this, there are respectively five to seven chapters on karst in "hard" and "soft" rocks, three chapters on caves in non-karst areas (two on volcanic caves, one on other caves), three chapters on cave deposits (speleothems, clastic sediments, and paleontological deposits), and two final chapters on fauna (bats and invertebrates).

The chapters are well illustrated, with many beautiful photographs showing the external and internal morphologies, speleothems and spectacular karst landscapes, which will give the temptation to the reader to go visit caves and karst areas in Australia.

Altogether, twenty-two authors collaborated on this book. A project that commenced several years ago and has seen the absence of several notable Australian authors. This includes Ken Grimes and Robert Wray, who passed away in 2016 and 2017, respectively, as well as Armstrong Osborne and Andy Spate, both of whom faced personal challenges that limited their expected contributions. Nevertheless, the project has yielded valuable insights into the state of karst and speleological knowledge in Australia, and will serve as a foundational resource for future scientific and speleological research in the region.

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