

Foreword

The geological and paleontological potential of the James Ross Basin, located at the northeastern tip of the Antarctic Peninsula, seems inexhaustible. A late Mesozoic–early Cenozoic sedimentary succession nearly 7 km thick is exposed within the basin, and numerous fossiliferous levels make it possible to carry out fundamental research into the evolution of both marine and continental floras and faunas at this high paleolatitude locality. This situation, linked to the spirit of scientific collaboration that governs Antarctica thanks to the Antarctic Treaty System, has resulted in innumerable important scientific contributions to date. In this Special Issue, “Geology and Paleontology of the James Ross Basin, Antarctic Peninsula”, the essence of the Antarctic Treaty is honored and celebrated. Ten original scientific works are presented by researchers from ten different countries (Argentina, Australia, Belgium, Canada, Chile, New Zealand, Poland, Spain, UK, USA) in a collaboration that highlights the current state of knowledge of this classic geological site, addressing both highly relevant questions and opening exciting new lines of inquiry for Antarctic Earth Sciences.

The contributions presented here have been divided into the following categories: eight Reviews, one Article, and one Trend. The Reviews give us a critical and updated look at different lines of paleontological research. Mesozoic and Cenozoic microbiotas, and their response to contemporary climate and continental configurations, were analyzed by Cecilia Amenábar et al. The paleobiological significance of the Antarctic faunas was studied comparing them with the well-known ones of the same age from the US Gulf Coast by J. Alistair Crame, and the history of predation of shelly benthic faunas in the James Ross Basin over the last 125 million years was analyzed by Elizabeth M. Harper et al.

The fossil record of five groups of vertebrates was reassessed by various groups of specialists. The examination of plesiosaurs by José Patricio O’Gorman et al. focuses on the Weddellian forms occurring in Patagonia, Western Antarctica, and New Zealand, while non-avian dinosaurs in the James Ross Basin are reviewed by Matthew C. Lamanna et al. Birds, i.e. the avian dinosaurs, are revised with comments on the importance of some of these records for the evolution of major clades by Carolina Acosta Hospitaleche et al. A synopsis of the land mammal records, and the role of Antarctica in their evolution with respect to paleogeographic changes, is provided by Javier N. Gelfo et al. Finally, a summary and update of the whale assemblage and its relevance is placed within the broader context of cetacean evolution by Mónica R. Buono et al.

A detailed age model is proposed for the late Mesozoic–early Cenozoic López de Bertodano, Sobral and Cross Valley–Wiman formations in the Article of Manuel Montes et al. These authors based their study on a new magnetostratigraphic section which integrates dinoflagellate cyst biostratigraphy, an Iridium anomaly, U-Pb zircon dating, and strontium isotope values from macrofossils.

In his Trend paper, Marcelo Reguero remarks that the paleontological heritage value of Seymour Island makes it a place well worth protecting into the future. Key fossil occurrences and outcrops are clearly highlighted.

Although, somewhat inevitably, some key topics and biotas are not included in this volume, it will form a valuable reference work for further scientific investigations into this key global locality.

Guest Editors:

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