

Preface

During the Miocene, two huge Atlantic transgressions flooded the Patagonian coast and much of the Argentine continental interior, covering more than 1 million km² and reaching poorly known areas of southern Paraguay and Bolivia and western Uruguay. The deposits of both transgressions are micropalaeontologically rich, which allowed the first reliable estimates of their ages and provided knowledge of the main environmental changes that occurred in the different regions involved. The knowledge of these transgressions coincided with the birth of geological science in Argentina, from the pioneering observations by Alcide d'Orbigny and Charles Darwin. However, few works have attempted a comprehensive study of these deposits from a modern perspective.

The first of these transgressions is known as the *Patagoniense* on the Patagonian coast, but it was virtually unknown in the Chacoparanense Basin, where it was erroneously assigned to the Maastrichtian; this is called the *Laguna Paiva Transgression* (TLP), which started during the Early Aquitanian (Early Miocene). The second transgression occurred between the Middle Miocene and the early Late Miocene; it is known by various names but is referred to in this work as the *Entrerriense-Paranense Transgression* (TEP). The dating of both events, as well as their correlation with global eustatic changes and with the moments of greater convergence between the South American and Nazca plates, is useful to consistently explain the origin of the two transgressions. They were mainly produced by the complex interaction of changes in sea level and the distal subsidence that occurred in the eastern margin of southern South America, related to Neogene Andean tectonics.

This book organizes and updates the most significant advances of the last two centuries and presents an unpublished micropaleontological study of more than 20 stratigraphic sections. This information is supplemented by numerous sedimentological observations and analyses, which allow the proposal of a new lithostratigraphic framework for the Neogene of the Chacoparanense Basin. This book is structured to facilitate fluent reading. A complete review of the knowledge of transgressions in Argentina and similar transgressions in other countries of South America is first discussed, along with the state of the art of different aspects relevant

to these topics (age, paleoenvironment, micropaleontology, etc.). Then, the main findings for the TLP and TEP of the Chacoparanense Basin and the TEP of Península de Valdés are presented. Finally, the complete stratigraphic Profiles (Appendix A), Mineralogical Analysis (Appendix B), Distribution Charts (Appendix C), Systematics (Appendix D), and Plates (Appendix E) are presented.

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