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**ABSTRACT BOOK**

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## PALEOECOLOGY AND TAPHONOMY OF NEOGENE CETACEANS: NEW PERSPECTIVES FROM THE SOUTHWESTERN ATLANTIC OCEAN

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The Neogene was a key time for cetaceans diversification and cosmopolitan distribution, mainly driven by important changes in global climate and ocean productivity. Neogene deposits from the Atlantic and Pacific Oceans and the Mediterranean and North Seas provide a rich cetacean fossil record from this critical evolutionary time. In the Southwestern Atlantic Ocean, Miocene outcrops in Patagonia (Argentina) hold an important, albeit still poorly known, fossil record of modern lineages (= Neoceti) which in the last ten years have been continuously and exhaustively explored from a systematic, paleoecological, and taphonomic points of view. The most fossiliferous cetacean's outcrops comprise the lower Miocene Gaiman Formation, the upper Miocene Puerto Madryn Formation, and the Bajo del Gualicho Formation of uncertain Miocene age. Numerous specimens were collected in the XIX century, and many have been recently studied taxonomically and anatomically. Modern fieldwork efforts have resulted in new and more well-preserved specimens, increasing the taxonomic diversity of the assemblage but also the taphonomic and paleoecological information. This record has yielded an ecologically and taxonomically diverse cetacean community composed of odontocetes (the dominant group including ziphiids, platanistoids, physeteroids, kentriodontids, eurhinodelphinids, and stem odontocetes) and mysticetes (balaenids, neobalaenids, cetotheriids and balaenopteroids). Odontocetes are composed of small to large size marine forms, displaying a variety of feeding strategies (i.e., raptorial, combination suction, capture suction). Moreover, mysticetes are also represented by small to large size forms with ecological specializations ranging from skim to engulfment feeding. For the Gaiman Formation, two stratigraphically distinct cetacean assemblages are identified: one including small-sized odontocetes (mainly platanistoids), preserved mostly in inner shelf embayment deposits and dominated by isolated postcranial and cranial elements to associated cranial-postcranial skeletons. The other comprises large-size odontocetes and mysticetes (mainly physeteroids and balaenopteroids), preserved in open inner shelf deposits with isolated cranial elements as the most common category of preservation. Environmental, ecological, and biological factors have been identified as the main aspects controlling the cetacean assemblages in shelf environments from the Gaiman Formation. Preliminary results for the Puerto Madryn Formation show a variety of preservation styles, ranging from isolated cranial or postcranial elements to articulated specimens. Ongoing studies will allow determining which factors-controlled preservation and distribution of cetaceans in this unit as well as in the remaining Miocene fossiliferous outcrops in Patagonia. Integrative studies of the Patagonian record will be of great value to characterize the evolution of cetacean's communities during the Neogene in the Southwestern Atlantic Ocean.