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ANTARCTICA IN THE GLOBAL EARTH SYSTEM:
FROM THE POLES TO THE TROPICS

Abstract Book



Eocene whales from the La Meseta Formation, Antarctica: Clues on the radiation of Pelagiceti in the Southern Hemisphere.

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Eocene cetacean records, mainly from the northern hemisphere, documented one of the most outstanding processes of mammalian evolution such as the shift from terrestrial to an aquatic lifestyle. On the other hand, Eocene Southern Hemisphere records are significant in documenting the other critical episode in cetacean evolution: the radiation of fully aquatic whales (i.e. Pelagiceti). Pelagiceti, spread into temperate latitudes far from the Tethys Sea, and include the Basilosauridae and Neoceti the group comprising the modern lineages Mysticeti and Odontoceti. The most significant Pelagiceti records from the Southern Hemisphere were recovered from Eocene beds of the La Meseta Formation (Marambio = Seymour Island, Antarctica), and consists in fragmentary basilosaurid materials and a single specimen of the earliest member of Mysticeti, the holotype of *Llanocetus denticrenatus*.

During the last five years, fieldwork conducted in the Marambio (=Seymour) Island by the Dirección Nacional del Antártico – Instituto Antártico Argentino and Museo de La Plata, resulted in the collection of new cetacean material which increased our knowledge of the Antarctic cetaceans. Here we report new significant remains including one of the most complete skeleton of a Pelagiceti indet.(in study), a complete cheek tooth of *Llanocetus* as well as new remains of archaeocete basilosaurids. All these specimens were exhumed from upper levels of the Submeseta Formation (Submeseta II Allomember, level 39). The Pelagiceti indet. corresponds to a large and juvenile specimen represented by associated cervical and thoracic vertebrae, ribs and forelimb elements. The cheek tooth is completely preserved and the accessory cups of the crown form a characteristic broad palmate which allow confidentially referred it to *Llanocetus*. Finally, the archaeocete material includes one specimen represented by teeth, skull bone fragments including part of a periotic. Preliminary observations of the periotic bone show a similar anatomical configuration of the cochlear region with the basilosaurid *Zygorhiza*.

Eocene Antarctic basilosaurids are relevant because they are represented by small-medium sized forms with morphology closer to New Zealand than to Peruvian basilosaurids, suggesting that at least two clades radiated into the Southern Hemisphere. Its records also suggest a rapid spread of these whales into high latitudes, documenting an early global dispersal of the group at least as early middle Eocene. Finally, future studies of the juvenile specimen of Pelagiceti indet. could provide insights into the taxic diversity and paleoecological aspects of these whales during the Paleogene in these latitudes.