11° congreso de la Asociación Paleontológica Argentina

17 al 21 de octubre de 2016 General Roca, provincia de Río Negro, Argentina.

A late Campanian large-sized elasmosaurid from James Ross Island with comments on the paleohistology of Antarctic elasmosaurids

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The humerus MLP 12-II-1-1 collected from the upper Campanian Gamma Member of the Snow Hill Island Formation gives new evidence about the moment of appearance of relatively large elasmosaurids in the James Ross Basin. The MLP 12-II-1-1 consists in a single humerus severely weathered. However, a fragment of the anterior margin shows a concave area, which is a feature shared by Vegasaurusmolyi O'Gorman, Salgado, Olivero, Marenssi, 2015 and other indeterminate Weddellian elasmosaurids. The paleohistological analysis shows a cortical region with a compact bone, which it is entirely of secondary origin. This area is composed of numerous secondary osteons conforming a dense Haversian bone tissue, reaching the most peripheral region of the cortex. The microstructure of the humerus reveals a very important secondary reconstruction evidenced by the Haversian tissue. This coincides with the general assumption that the number and density of secondary osteons increase as size and age do. The most remarkable feature of MLP 12-II-1-1 is its large size. A preliminary comparison of proportions among other aristonectines and non aristonectines elasmosaurids indicate a size of between 600-650 mm, which is larger than the 440 mm long humerus of the Cenomanian Thalassomedonhaningtoni Welles, 1943 that is considered one of the largest elasmosaurids. The specimen MLP 12-II-1-1 has similar size of some aristonectine propodials. These specimens indicate that relatively large elasmosaurids, probably aristonectines, were present in Antarctica at least since the late Campanian. *Proyecto subsidiado por PICTO 2010-009.