



# REUNIÓN DE COMUNICACIONES DE LA ASOCIACIÓN PALEONTOLÓGICA ARGENTINA

SALTA

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**LIBRO DE RESÚMENES**

**BENTHIC FORAMINIFERA MORPHOGROUPS AS PROXIES FOR PALEOECOLOGICAL ANALYSIS. AN EXAMPLE FROM THE LOWER CRETACEOUS AGUA DE LA MULA MEMBER OF THE AGRIO FORMATION (PATAGONIA, ARGENTINA)**

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Foraminiferal morphogroups are widely used in paleoecological and paleoenvironmental reconstructions of extant and ancient marine environments. Since morphological features of foraminiferal tests (i.e. chamber arrangement, mode of coiling, wall structure, type and number of apertures) are strongly related to lifestyle and feeding strategies of foraminifera, test morphology can hypothetically be used for interpreting paleoenvironmental changes at the sea-floor. Here we present the first morphogroup analysis of benthic foraminiferal assemblages from the Agua de la Mula Member of the Agrio Formation in the Neuquén Basin (Northern Patagonia, Argentina), and provide a statistical comparison with a similar approach based on species' abundances (see a companion abstract for the species analysis). Bulk samples were obtained across sedimentary succession at five localities spread from central to northern Neuquén province. Samples were processed with standard procedures, specimens picked (up to n=300), assigned to morphogroups and counted. Paleosynecological entities, i.e., fossil associations and assemblages, were created based on cluster analysis (complete linkage on Bray Curtis calculated on relative abundances) and statistically evaluated with permutations (pvclust package of R software). Results were confirmed with principal coordinates analysis (PCoA) and permutational multivariate analysis of variance (PERMANOVA). Assemblages and associations were characterized in terms of their alpha diversity. The relationships between the paleosynecological entities and the explanatory variables, such as facies types, position into sequence stratigraphic schemes, biozone and geographic location, were assessed with PCoA, redundancy analysis (RDA), partial RDA and PERMANOVA. The amount of information shared by both species and morphogroups matrices, was calculated with a co-inertia analysis. The 7,709 specimens studied were distributed into thirteen morphogroups, eight of them calcareous (hyaline and aragonitic), and five with agglutinated tests. Life positions and feeding strategies of foraminifera were inferred from the literature. Seven benthic fossil associations based on morphogroups were identified, that in turn cluster into two groups dominated by either infaunal or epifaunal morphotypes. Multivariate analyses showed significant values of localities in both morphogroup and species composition of samples, while facies and sedimentary sequences are weakly associated to both matrices. As expected, biozones showed significant influence in species distribution, and not in morphogroups. This is in agreement with species turnover, that is closely related to changes over geological time, while morphogroups are expected to recur over time. Interestingly, the co-inertia coefficient showed a moderate value (RV=0.71) that implies that both matrices share a significant amount of information, but differ.