

Reunión de Comunicaciones de la Asociación Paleontológica Argentina 2018

Libro de resúmenes



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THE TREMADOCIAN RHYNCHONELLIFORM BRACHIOPOD SHELL BEDS OF NW ARGENTINA FROM A PALAEOECOLOGICAL VIEW

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Occupation of shallow environments by rhyntonelliform brachiopods is rare during the Lower Ordovician. However, in the NW Argentina basin thgroup, especially *Tarfa purmamarcaensis* Benedetto, occupied high-energy environments as early as the Tremadocian. This species forms up to 15 cm thick monospecific concentrations in shoreface and offshore transition settings, and polytypic pavements in relatively deeper water offshore environments. Origin of such concentrations could be linked to the population dynamics of *T. purmamarcaensis*. The geometric morphometrics analysis allowed differentiating four growth stages in the ontogeny of the species. The juvenile phases are absent in high-energy proximal environments while no representatives of the fourth phase (hypermaturing adults) have been found in the open platform deposits. On the other hand, measurement of a large number of shells showed that juveniles are scarce in the shoreface while adults are almost absent in the offshore. Although concentrations are usually linked to physical processes (storm events), the low taphonomic indices of the shells suggest that transport was not a significant factor. Morphological differences (i.e., development of cardinal canals, ribs incurved posterolaterally) in specimens from different environments suggest that the population dynamics could have been the main cause in generating different concentrations. According to the source-sink model, high productivity of brachiopods in the shoreface environment and a passive transport of larvae to the offshore might explain not only the thicker shallow-water concentrations but also the differences in shell growth of populations inhabiting these environments.

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A THOUSAND WAYS TO DIE: EXCEPTIONAL PRESERVATION OF SEA STARS ON A PALEOSURFACE FROM LA MESETA FORMATION (EOCENE, ANTARCTIC PENINSULA)

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A single paleosurface within the Cucullaea I Allomember (La Meseta Formation, Eocene) exposed in Marambio (Seymour) Island, Antarctica, yielded exceptionally well-preserved starfishes. This allomember was deposited in a sandy to muddy-sandy tidal flat environment, associated with lenticular densely packed shell-beds with erosive bases interpreted as the infilling of small tidal channels. Forty-five specimens were identified and assigned to *Zoroaster* aff. *Z. fulgens* Blake and Zinsmeister. Individuals were preserved with complete discs, articulated proximal and distal parts of rays, and spines, a preservation considered exceptional for fossils in the Class Asteroidea. Five posture categories were recognized among the sea stars: 1) resting position, with straight extended arms; 2) pseudocopulation posture, with superimposed discs and alternated arms; 3) trackway currents, with curved and irregularly arranged arms; 4) escape posture, with one or two leading arms raised and the others curved downward; and 5) oral side up, with arms extended and slightly curved upward. These postures are similar to those known for living starfishes. The exquisite preservation (i.e., almost all specimens lack signs of disarticulation; with most spines, spinelets, pedicellariae and terminal ossicles in life position) allow to infer that the starfishes were simultaneously killed and buried by a rapid event. This kind of exceptional preservation of starfishes is the third record in the world and the first from Antarctica.

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