

Ichnology of Subtidal Sandwave Complexes and Intertidal Flats: the Cambrian Mesón Group, Northwest Argentina

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The Mesón Group comprises extensive deposits in northwest Argentina and includes, from base to top, the Lizoite, Campanario, and Chahualmayoc formations. Thick-bedded, large scale, planar and trough cross-bedded quartzites of the Lizoite and Chahualmayoc formations mostly represent deposition in subtidal sandwave complexes. Trace fossils are relatively rare in both units. Opportunistic assemblages of the *Skolithos* ichnofacies are associated to colonization windows. The Campanario Formation consists of bioturbated, planar cross-bedded and ripple cross-laminated sandstones, thinly interbedded sandstones and mudstones, and red mudstones, representing deposition in extensive tidal flats and shallow subtidal areas. Trace fossils are abundant in the Campanario Formation. Sand flat deposits are dominated by vertical domiciles of suspension feeders and passive carnivores of the *Skolithos* ichnofacies (e.g. *Skolithos*, *Monocraterion*, *Arenicolites*, *Diplocraterion*). Mixed flat facies comprises both horizontal feeding, locomotion, and resting traces of the *Cruziana* ichnofacies and vertical dwelling traces of the *Skolithos* ichnofacies. Sedimentologic, sequence stratigraphic, and ichnologic analyses demonstrates that the Mesón Group is a heterochronous unit, shedding light into the controversy regarding its age. Presence of *Syringomorpha nilssoni* and *Rusophycus jenningsi* suggests that the group may range into the Lower Cambrian. The upper part of the Mesón Group is erosionally attenuated due to valley incision, followed by accumulation of fluvial to tide-dominated estuarine deposits of the lower interval of the Upper Cambrian to Tremadoc Santa Rosita Formation.