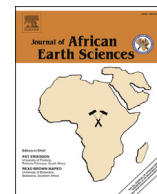




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Middle to late Cambrian shallow marine trace fossils from the Imfout Syncline (Western Meseta, Morocco): Palaeoecological and palaeoenvironmental significance in NW-Gondwana



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ABSTRACT

The present research provides the first evidence of invertebrate activity assigned to the ichnogenus *Selenichnites* occurring together with moderately diverse ichnofossils from the middle to late Cambrian of the Moroccan Meseta. The invertebrate traces occur in sandstone strata of the El Hank Formation within the Imfout Syncline, in the northern part of the Rehamna Massif (Coastal Block, western Moroccan Meseta). Bedding surfaces from the top of the El Hank Formation near the Imfout Dam show diverse forms of current ripples and distincts crescentic ichnofossils in concave epirelief scattered on the surface. In this section, the traces provide evidence of the ethology of an organism inhabiting the relatively shallow waters of the area during this time. *Selenichnites* co-occurs with the ichnogenes *Arenicolites*, *Diplocraterion*, *Lingulichnus*, *Monocraterion*, *Skolithos* and unidentified burrows, and the ichnoassemblage is referred to the *Skolithos* ichnofacies.

These traces can be referred to arthropods (e.g. polychaete worms and amphipod crustaceans), lingulid brachiopods, annelids and/or phoronids. The Imfout *Selenichnites* represents the first occurrence of this ichnogenus from the Cambrian of the Moroccan Meseta, and the second from the Cambrian deposits of Morocco. The potential tracemakers are still questionable, but were most likely xiphosurans, trilobites, euthycarcinoids or crustaceans. If so, the Imfout traces could be among the oldest pieces of evidence for the presence of horseshoe crabs during the Cambrian.

The combination of sedimentological and ichnological data indicates that the El Hank Formation was deposited in a sublittoral soft ground environment next to a sandy shore. It was originally part of an early Palaeozoic shallow marine epicontinental platform in west-central Morocco. In addition to the equivalent Cambrian deposits from the Anti-Atlas, the El Hank Formation constituted a part of the northern Gondwana platform domain during the transgression coming from the Rheic Ocean onto the West African Craton margin.

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1. Introduction

Trace fossils provide only conjectural information on the nature of the living organisms responsible for the traces, but conversely they provide a unique window into behaviour that body fossils cannot provide. The ichnogenus *Selenichnites* is a stratigraphically

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