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The significance of marine microfossils for paleoenvironmental reconstruction of the Solimões Formation (Miocene), Western Amazonia, Brazil

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Abstract: Micropalaeontological studies of borehole cores 1AS-7D-AM and 1AS-8-AM, from Atalaia do Norte, Amazonas state, Brazil, support previous evidence for Miocene marine ingressions in Western Amazonia. Three marine incursion events are recorded: the first in the Early/early Middle Miocene (in both cores), the second in the late Middle/early Late Miocene (1AS-8-AM), and the third in the Late Miocene (1AS-7D-AM). The first event is characterized by exclusively mangrove taxa, and the last two present a mixture of marine, fresh, and brackish water taxa. However, at the end of the third event an increase of fluvial influence is demonstrated by the predominance of freshwater taxa. These marine incursions reached the study area through narrow and geographically limited connections, controlled by the tectonic setting, at a time between the Early/early Middle Miocene and late Middle/Late Miocene. Thereafter, fluvial conditions were reestablished before Pliocene times.

Key words: Solimões Formation; western Amazonia; marine incursion; microfossils.

1. Introduction

Several works have indicated marine incursions in the Neogene of western Amazonia, including in the Solimões Formation, Amazonas, Brazil. These occurrences are predominantly associated with floodplain deposits, connected to coastal environments and mangrove areas,