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The Arrifes geosite: a fascinating glimpse into an Early Cretaceous ecosystem within the Algarvensis aspiring UNESCO Global Geopark (Portugal)

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Over a century after Paul Choffat's initial description of the Arrifes section, a pioneering figure in Portuguese geology who highlighted the vertical arrangement of the strata and the occurrence of a limestone bed containing a copious quantity of orbitolinid tests, this upper Barremian–lower Aptian stratigraphic succession, which is fully exposed along a coastal cliff section located 2.5 km west-southwest of Albufeira (Algarve, southern Portugal), has become one of the most outstanding geosites within the Algarvensis aspiring UNESCO Global Geopark.

Beyond its geomorphological, stratigraphic, and tectonic relevance, recent palaeontological discoveries have shed new light on the high scientific value of the Arrifes section. This geosite yielded not only the first record of Early Cretaceous sauropod tracks in the Algarve Basin, but also an unexpectedly diverse microvertebrate assemblage comprising both aquatic and terrestrial taxa, invertebrates, and plant remains. To date, the fauna of this new vertebrate fossil-bearing locality is represented by actinopterygian and chondrichthyan fishes, lissamphibians, chelonians, crocodyliforms, dinosaurs, lizards, and pterosaurs. The microfossil flora assemblages are represented by charophytes, pollen and spores, and dinoflagellate cysts. Moreover, among many other trace fossils, this geosite also yielded Portugal's first Mesozoic record of termite coprolites.

Ongoing research on the Arrifes fossil biota will further open a window into an Early Cretaceous ecosystem from the Algarve Basin. This will contribute to a more comprehensive understanding of this geosite's palaeobiodiversity and palaeoenvironments, as well its palaeoecology and paleobiogeography.