

A chemostratigraphic framework for the type-Maastrichtian



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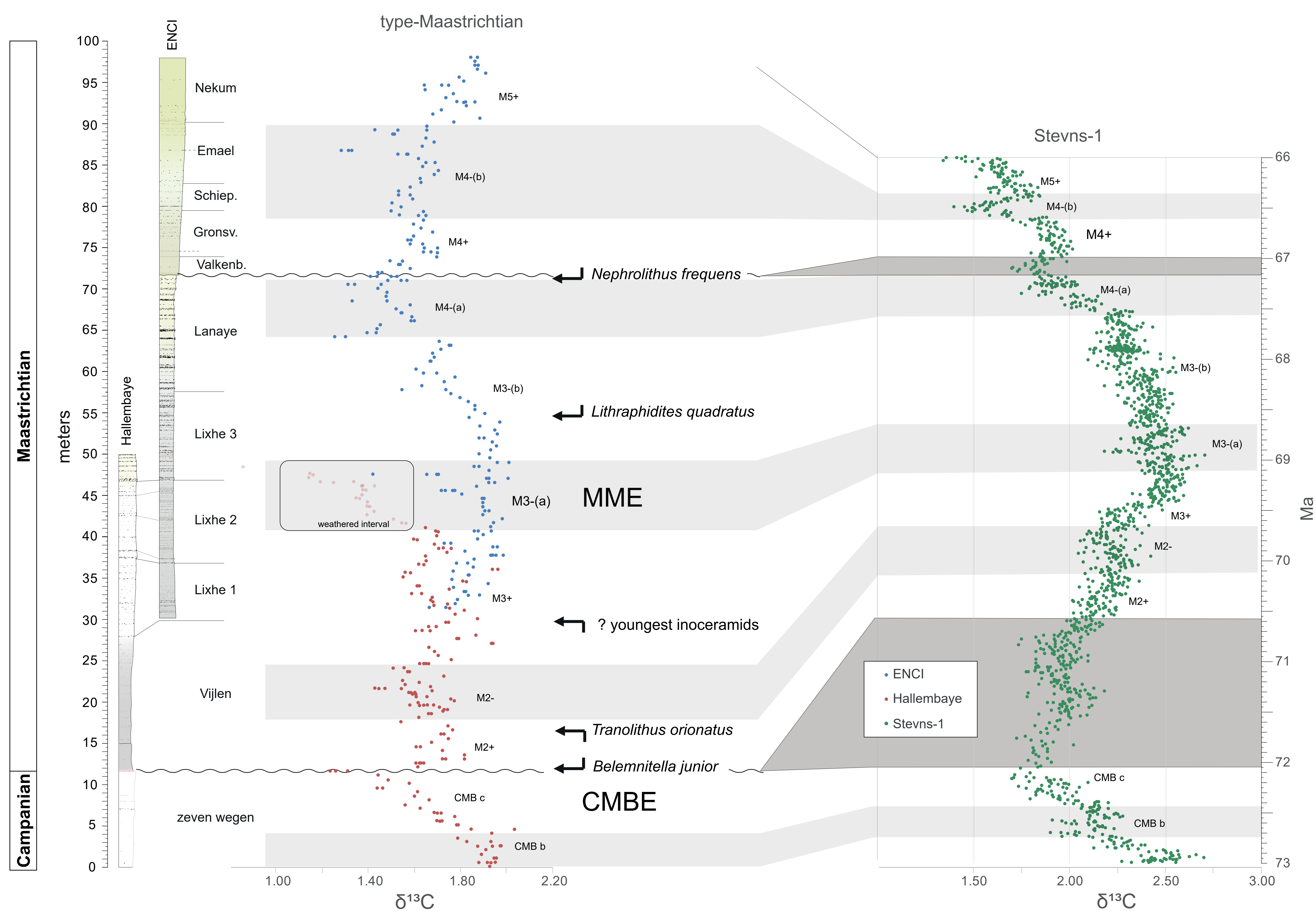
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The youngest time interval of the Cretaceous Period is known as the Maastrichtian, a reference to the marine strata exposed in near the city of Maastricht, in the Netherlands-Belgium border region. The stratigraphic succession at the original type-locality of the Maastrichtian (ENCI quarry, NL) only covers the upper part of the Maastrichtian Stage as it is nowadays defined. However, in combination with similar rock sequences in several other quarries in the region (e.g. Hallembaye, Curfs), a substantial part of the Maastrichtian Stage is represented. So far, the age assessment of, and stratigraphic correlation with, the type-Maastrichtian has been largely based on biostratigraphy¹ and preliminary attempts at cyclostratigraphy². Here we present the first (preliminary) high-resolution stable carbon isotope stratigraphy for the type-Maastrichtian, using the extensive sample set acquired in the context of the Maastrichtian Geoheritage Project.



In recent years, stable carbon isotope stratigraphy has been proven to be a powerful tool for correlating Upper Cretaceous strata on a global scale. When calibrated with biostratigraphic events, carbon isotope stratigraphy can be used to test the synchronicity of bio-events and reconcile inter-regional biostratigraphic schemes.

Therefore, we have generated the first high-resolution stable carbon isotope stratigraphy for the type-Maastrichtian. In combination with elemental data generated using μ XRF (e.g. Ca, Si, Al, Ti, Fe wt%), our record will present the first high-resolution chemostratigraphy for the type-Maastrichtian.

Our preliminary stable carbon isotope record shows a strong correlation with the astronomically calibrated isotope records from Stevns-1 in Denmark³ and other records in Europe, such as Krons Moor/Hemmoor and Gubbio⁴, allowing a regional and global correlation. Important carbon isotope events, such as the Campanian Maastrichtian Boundary Event (CMBE) and the Mid Maastrichtian Event (MME) can be recognized in our record. This new chemostratigraphic framework therefore enables us to refine the age-model for studied strata, and allows a global correlation with the type-Maastrichtian successions, placing the paleontological records from the type-Maastrichtian in a global context.