A converging astronomical time scale for the Aptian Stage

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Résumé

In the last years, several astrochronological frameworks have been published on the Aptian Stage and yield scattered duration of this stage, ranging from 7.2 to 9.6 Ma (Leandro et al., 2022; Charbonnier et al., 2023). Here, I reassess the time scale of the Aptian by using several datasets published from Spain, France and Italy (Beil et al., 2020; Leandro et al., 2022; Charbonnier et al., 2023; Rodriguez-Martinez et al., 2024) to provide a consistent time scale between these basins. The 405-ka eccentricity is recorded and can be correlated thanks to biostratigraphy and chemostratigraphy between these basins. A provision duration of the Aptian Stage falls in between 8 and 9 Ma, with a preferred duration of 8.3 Ma, starting 121.15 Ma and ending 112.9 Ma. Importantly the duration of the OAE1a is assessed at 1.2 Ma. According to the timescale I propose here, he OAE1a started 119.9 Ma and ended 118.7 Ma, in a good agreement with recently published U-Pb from Japan (Li et al., 2024). Altogether, these data point toward a converging astrochronology for the Aptian Stage from multiple sites.
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