



PARIS les 2 et 3 décembre 2024



**SORBONNE
UNIVERSITÉ**

Campus Pierre et Marie Curie
4, place Jussieu, Paris 5ème



**Société
Géologique
de France**

Réunion conjointe GFC / Groupe Jurassique de la Section STRATI

Organisée par Delphine Desmares, Johann Schnyder et Laurent Riquier



Volume des résumés

RÉUNIONS THÉMATIQUES DU GROUPE FRANÇAIS DU CRÉTACÉ

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VOLUME DES RÉSUMÉS

NEW CHRONOSTRATIGRAPHIC CONSTRAINS ON THE LATE JURASSIC – EARLY CRETACEOUS CARBON CYCLE BY COUPLING U-PB AGES, CHEMOSTRATIGRAPHY AND BIOSTRATIGRAPHY IN THE NEUQUÉN BASIN

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The Jurassic/Cretaceous boundary is still not fixed by the international groups working on it (Berriasian Working Group and Subcommission on Cretaceous Stratigraphy) due to provincialism and the difficulty to establish accurate correlations between palaeogeographic provinces with an unique marker. The Neuquén Basin (western Argentina) is a key area to fix the limit and to document the carbon cycle evolution at the Late Jurassic/Early Cretaceous transition considering both marine organic-rich sediments with high sedimentation rate containing index fossils (ammonites, nannofossils, calpionellids) and preserving numerous volcanic ash layers.

We propose here a new high-resolution carbon isotope curve ($\delta^{13}\text{C}_{\text{org}}$) for the Vaca Muerta Formation in the Las Alcantarillas section encompassing the Tithonian-Berriasian boundary, allowing astrochronological constraints to be proposed coupled to CA-ID-TIMS U-Pb ages. The Las Alcantarillas section (215 m-thick) is newly dated using ammonites, calcareous nannofossils and calpionellids according to the Andean biostratigraphic zonation. In this section, five K-bentonites (volcanic ash layers) have been dated so far ranging from 146.184 Ma in the *P. zitteli* ammonite biozone of the early Tithonian to 143.199 Ma in the late *S. koeneni* ammonite biozone of the late Tithonian, while 2 others are ongoing for the early Berriasian. These data are compared to the Las Loicas section (75 m-thick) 10 km far to the north-east, using carbon isotope ($\delta^{13}\text{C}_{\text{org}}$) chemostratigraphy, where the Jurassic/Cretaceous boundary has been previously proposed from ammonites, calpionellids and nannofossils, including U/Pb ages (Lena et al., 2019). The correlation based on chemostratigraphy and biostratigraphy indicates that the Jurassic/Cretaceous boundary as defined currently in South America from biostratigraphy could be proposed around 155 m in the Las Alcantarillas section what is 60 m above the end of the VOICE (Volgian isotopic carbon excursion) recognized in this section, which corresponds to ~2 Ma. This pronounced negative excursion (5 ‰ of amplitude), is also

identified in other worldwide basins and may be envisaged to help defining the Jurassic/Cretaceous boundary at a global scale.

REFERENCES

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