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Stratigraphic and paleogeographic correlation between the Tethys and the Atlantic realms across the Cretaceous-Paleogene transition: Tunisia, Spain and France

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Based on the high resolution biostratigraphical analysis, the El Kef (K/Pg boundary stratotype section and GSSP point) and Ellès sections (Tunisia) and the Agost and Caravaca sections (Betic cordillera, Spain), located at Tethyan realms, are showing a complete section in its Cretaceous-Paleogene transition interval may be compared with their neighbors in the Atlantic realm (Bidart section, SW France).
At the Tethys realm, all the biozones and subzones are easily recognized by their biomarkers. Even the uppermost Maastrichtian is developed and indicated by P. hantkeninoides. This biomarker is absent at the Atlantic section of middle latitude: (Bidart, SW France). This later are characterized by P. hariaensis biomarker which have larger paleogeographic extension, it is why we have choose to consider this late species as indicator of the uppermost Cretaceous subzone at Atlantic realm and the P. hantkeninoides as indicator of Tethys realm.
At El Kef section, the G. cretacea biozone spans 55 cm. It is more expanded than at Agost (12,5 cm), Caravaca (15 cm) relative to the Tethys realm, and to Bidart (10 cm) relative to Atlantic realm but it is nearly expanded than at Ellès section in Tunisia (66 cm).
In spite of the reduced G. cretacea biozone expansion at El Kef K/Pg boundary stratotype and the auxiliary sections, Caravaca and Agost sections (Spain), like as elsewhere, at the Bidart (France) and the Ellès section (Tunisia), the Pv. longiapertura FAD is observed at the upper part of the relevant biozone.
At the El Kef section the Pv. eugubina zone spans 5.7 m, it is largely expanded than at Caravaca and Agost sections spanning respectively (42 cm and 65 cm), it is also more expanded than at Bidart section (SW France) spanning 107 cm. But it is approximately equivalent than Elles (5.8 m). This zone is subdivided into Pv. sabina and E. simplicissima subzones. The deposition thickness of the zones and subzones are less expanded than at El Kef and Elles sections. This would be related to a less deposition ratio and/or to the sedimentary basin morphology.
In summary, with this high resolution stratigraphical analysis, we confirm the completeness and continuity records across the K-Pg transition of El Kef (K/Pg boundary stratotype section and GSSP point) and Ellès sections in Tunisia, Agost and Caravaca sections (Betic cordillera, Spain), relative to the Tethys realm characterized by low latitude, and the Bidart section relative to the Atlantic realm characterized by middle latitude. These sections are complete containing all stratigraphical zones and subzones of the Upper Maastrichtian-Lower Paleogene interval without any stratigraphic hiatus. The Ellès, Agost and Caravaca sections may be proposed as auxiliary sections of low latitude like as Bidart section for the middle latitude.