# Mid-Eocene Climate Optimum environmental changes in Central Asia (Kazakhstan) and potential relations with Eurasian paleoecological dispersals

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**Résumé**

Climatic optima and hyperthermals of the Paleogene period (66-34 Ma) open windows into the past to explore the Earth System under extreme conditions, beyond several tipping points. During this period Central Asia was intensely hot and arid and offered only a few corridors between Asian and European ecosystems that enabled significant dispersal events such as the "Grande Coupure". These events may have been triggered by climatic and/or paleogeographical events including the fluctuations of the proto-Paratethys epicontinental sea and its progressive retreat. To date, it has been difficult to disentangle these various forcing factors. Sedimentary sections and associated climate tracers in this region and period are notoriously rare, and existing records suffer from poor age control that precludes robust correlations. We present here a high-resolution magnetostratigraphic dating of integrated environmental proxies from deposits of the Ili Basin, Kazakhstan, bearing rare Eocene mammal fossils. Preliminary results suggest the section encompasses a significantly wetter phase that can be precisely correlated to the Middle Eocene Climate Optimum, a globally recognized hyperthermal expressed by various extreme climate events from 40.5 to 40.1 Ma. In the studied Ili Basin record, mammal fossils are reported to come precisely from this wet interval. This singular concentration of evidence suggests the MECO may have promoted Eurasian dispersal towards Balkanatolia already in the Bartonian before the Grande Coupure. Further climate modelling and proxy data are required to identify potential controlling mechanisms.

**Mots-Clés:** Paléoclimat, Eocène, Asie Centrale, Magnétostratigraphie

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