



Séminaire International de Paléontologie, Évolution,
Paléoécosystèmes et Paléoprimatologie
Salle 410, bât. B35 (3ème étage, aile nord)

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Between a Rock and a Braincase: Cortical reorganisation in the African hominin fossil record

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Understanding hominin brain evolution is essential for reconstructing the origins of human cognition, behaviour, and social complexity. Because brains do not fossilise, palaeoneurology relies on endocasts, natural or digital replicas of the internal surface of the braincase, to infer brain size, shape, and aspects of cortical organisation. High-resolution imaging and automated sulcal-imprint detection were applied to African fossil endocasts, while a separate comparative dataset (extant humans and Pan) was analysed with density-based mapping to quantify intra-specific sulcal variability and provide an interpretive baseline. Within the fossil sample, configurations of key sulci delineate distinct morphotypes spanning from more ancestral to more derived arrangements, highlighting anatomical diversity within assemblages that include taxa under debate.

Considered alongside the comparative variability patterns, these results support a mosaic model of evolution, in which cortical reorganisation unfolded in stages and differed across lineages rather than following a single linear trajectory. This research demonstrates how advanced digital methods, anchored by a rigorously characterised comparative framework, refine inferences about cerebral change through time.