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Dataset

3D models related to the publication: The neuroanatomy and pneumaticity of *Hamadasuchus* from the Cretaceous of Morocco and its significance for the paleoecology of Peirosauridae and other altirostral crocodylomorphs

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Abstract
The present 3D Dataset contains the 3D models analyzed in Pochat-Cottilloux Y., Rinder N., Perrichon G., Adrien J., Amiot R., Hua S. & Martin J. E. (2023). The neuroanatomy and pneumaticity of *Hamadasuchus* from the Cretaceous of Morocco and its significance for the paleoecology of Peirosauridae and other altirostral crocodylomorphs. *Journal of Anatomy*, https://doi.org/10.1111/joa.13887

Keywords: Crocodylomorpha, *Hamadasuchus*, Kem Kem, paleoneuroanatomy, Peirosauridae

Submitted:2022-11-16, published online:203-06-14. https://doi.org/10.18563/journal.m3.183

Inv nr.	Description
UCBL-FSL532408_M3#1097	labyrinths
UCBL-FSL532408_M3#1098	pneumatic cavities
UCBL-FSL532408_M3#1094	braincase osteology
UCBL-FSL532408_M3#1096	endocast

Table 1. List of models derived from specimen UCBL-FSL 532408 belonging to *Hamadasuchus sp.*. Collection: Université Claude Bernard Lyon 1 (Villeurbanne, France).

INTRODUCTION

We scanned a specimen belonging to Peirosauridae (*Hamadasuchus*) and its internal structures as well as braincase osteology were reconstructed (fig. 1, 2, 3, 4 and table 1). This specimen comes from the Kem Kem group of Morocco (late Albian – Cenomanian; Sereno et al., 1996; Martin & de Lapparent de Broin, 2016; Ibrahim et al., 2020).

METHODS

The studied material consists of a complete skull of a crocodylomorph (UCBL-FSL 532408; Fig. 1), currently curated in the geological collections of Université Lyon 1. The skull was CT scanned in November 2020 at the Laboratoire Mateis (INSA Lyon, Villeurbanne, France) to reconstruct its internal soft anatomy, as well as the bones constituting the braincase. We used a Vtomex laboratory X-ray computed tomograph (GE Phoenix X-Ray GmbH): scanning parameters were set to 140 kV tube voltage and 80 µA current and a 0.5 mm copper filter was used at the source exit. The acquisition was made with a voxel size of 86 µm and a one second exposure time for each of the 1,200 projections. Avizo Lite (version 9.5.0), MeshLab (version 2020.07) and Blender (version 2.91.2) were used for the volume rendering and calculations, as well as processing of scans of the endosseous labyrinths, sinuses and cranial endocast.

Institutional abbreviation: UCBL: Université Claude Bernard Lyon 1 (Villeurbanne, France).

ACKNOWLEDGEMENTS

This work was supported by the Agence Nationale de la Recherche (SEBEK project no. ANR-19-CE31-0006-01 to Jeremy E. Martin). The authors would like to thank Céline Salaviale (Université Lyon 1, France) for help during the segmentation of the specimen; Emmanuel Robert and Nicolas Roumenoff (Université Lyon 1) for legal and conservative clarifications.

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Pochat-Cottilloux Y., Rinder N., Perrichon G., Adrien J., Amiot R., Hua S. & Martin J. E. (2023). The neuroanatomy and

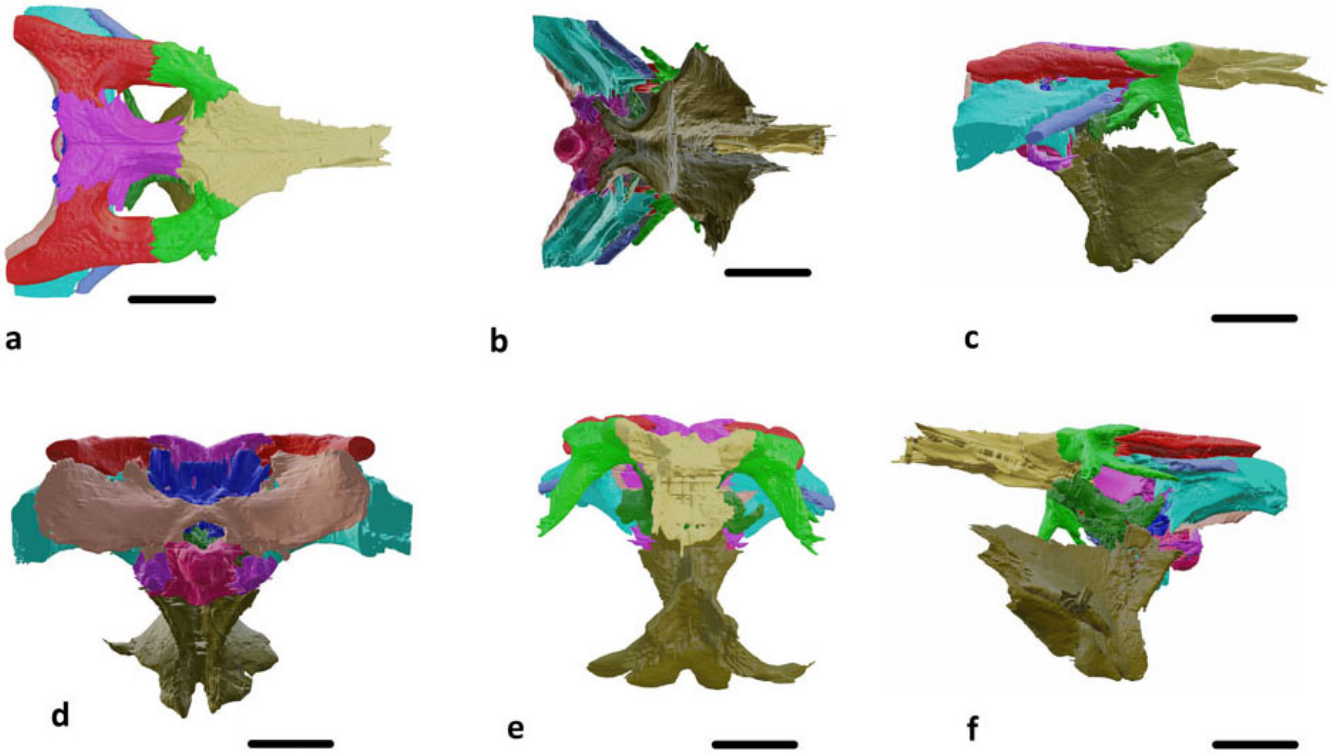

Figure 1. Three-dimensional reconstruction of the posterior part of the skull of UCBL-FSL 532408 (*Hamadasuchus*) based on segmented bones in dorsal (a), ventral (b), lateral (c), posterior (d), anterior (e) and ventrolateral (f) views. Scale bars are 5 cm.

pneumaticity of *Hamadasuchus* from the Cretaceous of Morocco and its significance for the paleoecology of Peirosauridae and other altirostral crocodylomorphs. *Journal of Anatomy*, https://doi.org/10.1111/joa.13887.

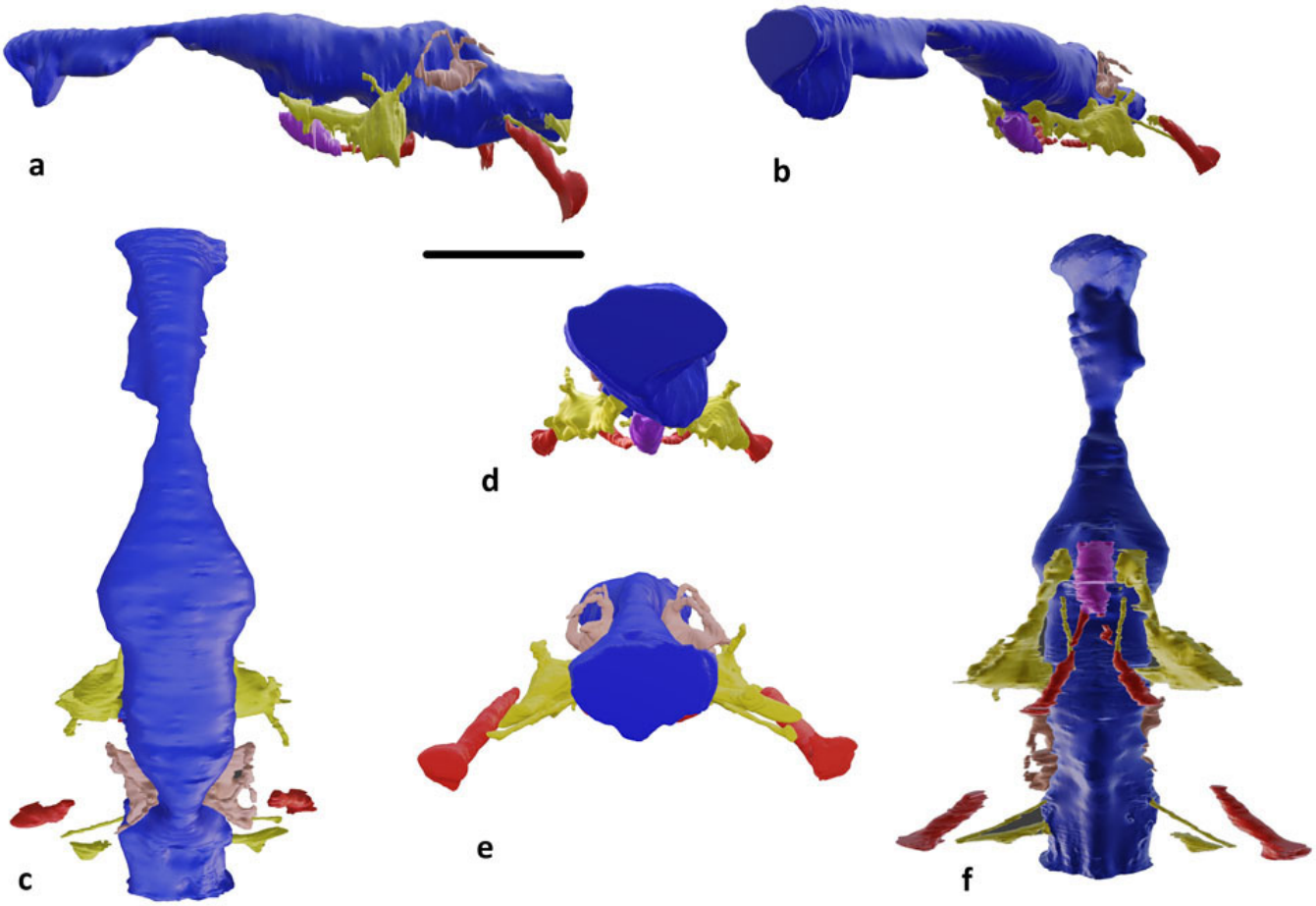

Figure 2. Three-dimensional reconstruction of the endocranial cavities within the braincase of UCBL-FSL 532408 (*Hamadasuchus*) in lateral (a), anterior ¾ (b), dorsal (c), anterior (d), posterior (e) and ventral (f) views. Blue: endocast, red: internal carotid artery, yellow: cranial nerve, purple: pituitary fossa. Scale bar is 3 cm.

ISSN: 2274-0422

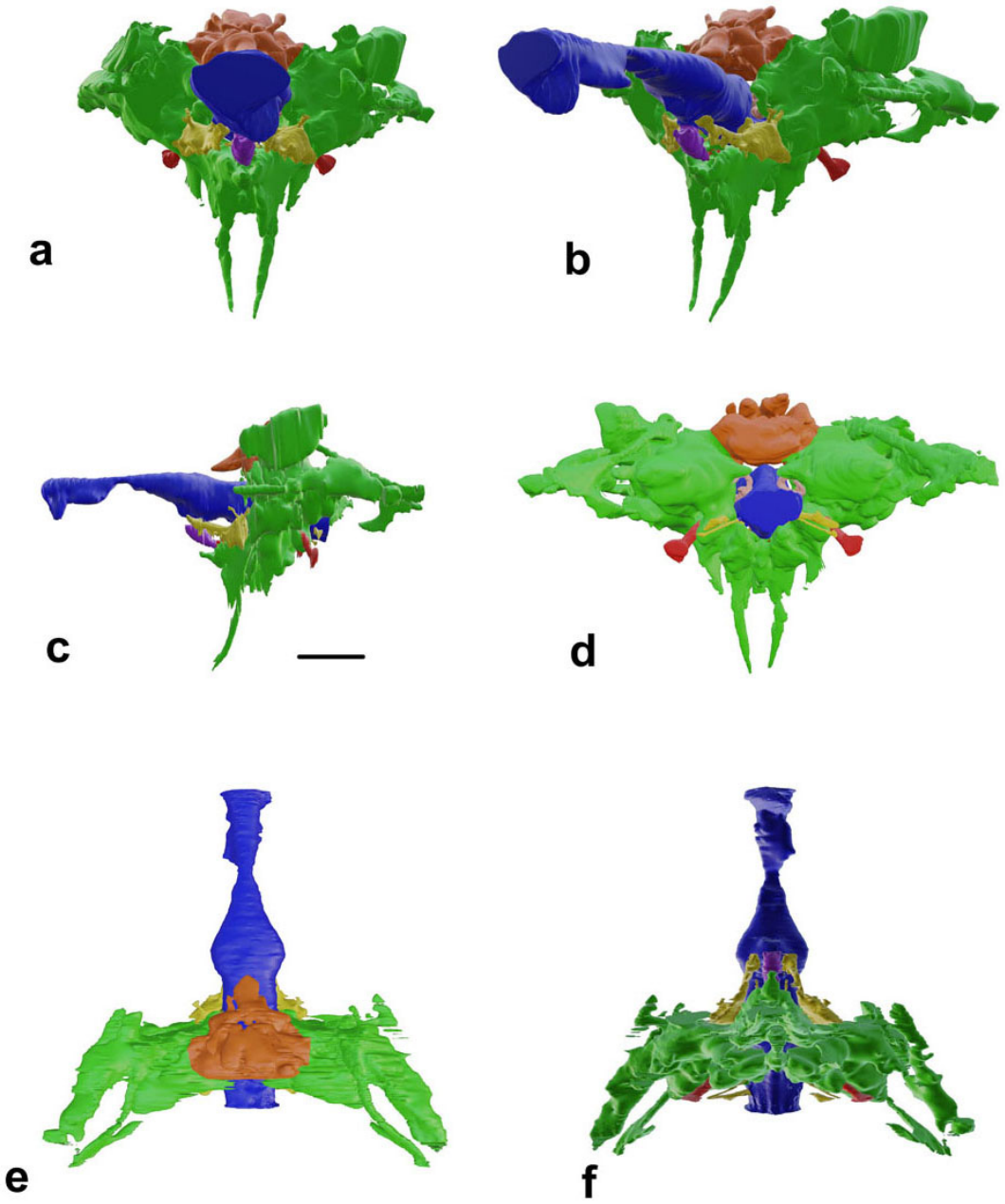

Figure 3. Three-dimensional reconstruction of the pneumatic cavities within the braincase of UCBL-FSL 532408 (*Hamadasuchus*) in anterior (a), anterior ¾ (b), lateral (c), posterior (d), dorsal (e) and ventral view (f). Blue: endocast, green: pharyngotympanic sinuses and eustachian system, orange: intertympanic diverticulum, red: internal carotid artery, yellow: cranial nerve, purple: pituitary fossa. Scale bar is 2 cm.

ISSN: 2274-0422

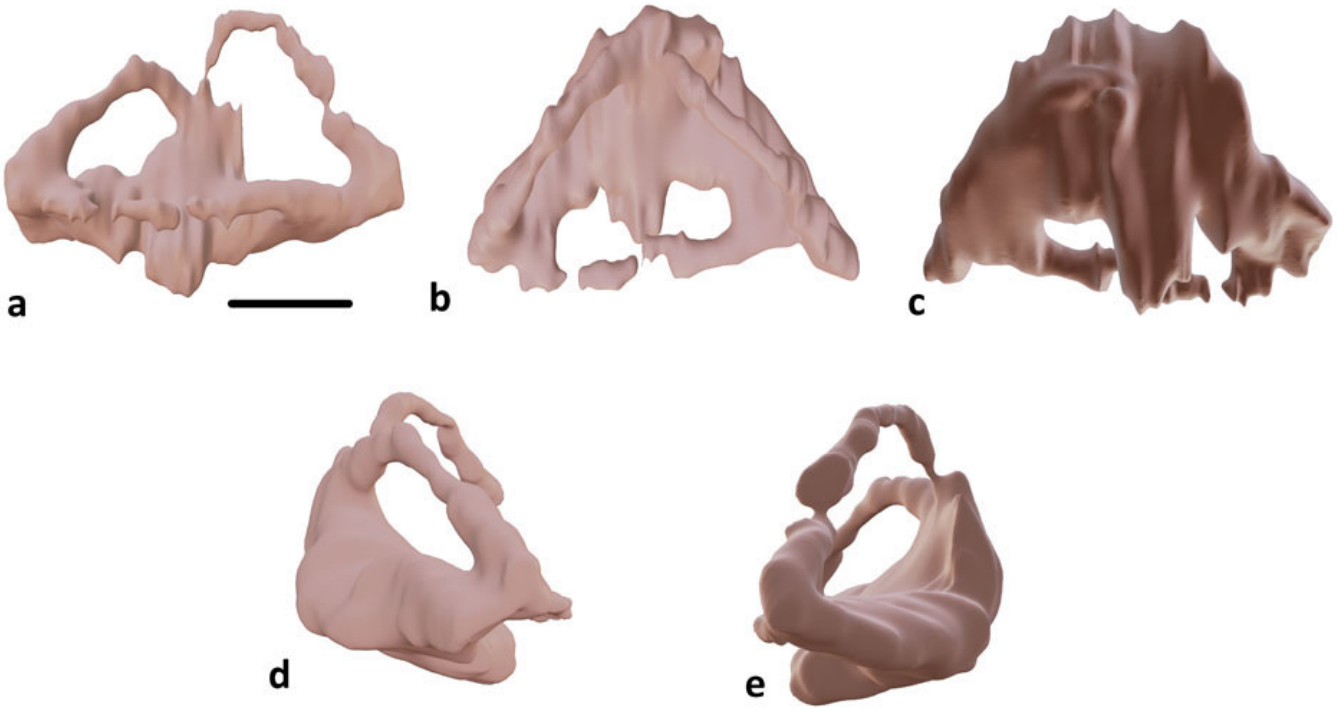

Figure 4. Three-dimensional reconstruction of the right endosseous labyrinth of UCBL-FSL 532408 (*Hamadasuchus*) in lateral (a), dorsal (b), ventral (c), posterior (d) and anterior (e) views. Scale bar is 5 mm.

ISSN: 2274-0422