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Dataset

3D models related to the publication: Neuroanatomy and pneumaticity of the extinct Malagasy 'horned' crocodile *Voay robustus* and its implications for crocodylid phylogeny and palaeoecology.

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Abstract

The present 3D Dataset contains the 3D models analyzed in: *Perrichon et al., 2023. Neuroanatomy and pneumaticity of Voay robustus and its implications for crocodylid phylogeny and palaeoecology.*

Keywords: Brain endocast, Malagasy crocodiles, neurovascular system, paratympanic sinus

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MODELS

Inv nr.	Taxon	Collection
MHNL 50001387	*Crocodylus niloticus*	MHNL, France
MNHN F.1908-5	*Voay robustus*	MNHN, Paris
NHMUK PV R 36684	*Voay robustus*	NHM, London
NHMUK PV R 36685	*Voay robustus*	NHM, London
NHMUK PV R 2204	*Voay robustus*	NHM, London
UM N89	*Mecistops sp.*	ISEM, Montpellier
UCBLZ 2019-1-236	*Osteolaemus tetraspis*	UCBLZ

Table 1. Involved specimens for which the 3D models of the skull, inner ear, pharyngotympanic sinus and neurovascular systems are provided. Additionally, the intertympanic sinus is provided for NHMUK PV R 2204 (*Voay robustus*). Collections : Musée des Confluences, Lyon, France (MHNL); Museum National d'Histoire Naturelle, Paris, France (MNHN); Natural History Museum, London, UK (NHM); Collections de Zoologie de l'Université Claude Bernard Lyon 1, Lyon, France (UCBLZ); Institut des Sciences de l'Evolution de Montpellier, Montpellier, France (ISEM)

INTRODUCTION

The internal morphology of four specimens of the extinct malagasy crocodile *Voay robustus* (Fig. 1) was described and compared with that of *Crocodylus niloticus*, *Osteolaemus tetraspis* and *Mecistops* sp. (see Table 1). Endocranial characters were reviewed to discriminate *Voay* from *Crocodylus* and assess its similarities with *Osteolaemus*, in order to decipher the relationships of *Voay* with the two latter species.

METHODS

Specimens were scanned at the level of the basicranium (scan parameters are given in SI data). CT data was segmented manually and semi-automatically within AVIZO 8. The 3D surface models are provided in .ply format, and can therefore be opened with a wide range of freeware (we used Meshlab, Blender, and Morphodig). The surface scans of the skulls were digitalized using an Artec Space spider surface scanner and exported in PLY format with Artec Studio.

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BIBLIOGRAPHY

Perrichon G., Pochat-Cottilloux G., Conedera D., Richardin P, Fernandez V., Hautier L. and Martin J. E. 2023. Neuroanatomy and pneumaticity of Voay robustus and its implications for crocodylid phylogeny and palaeoecology. https://doi.org/10.1002/ar.25367

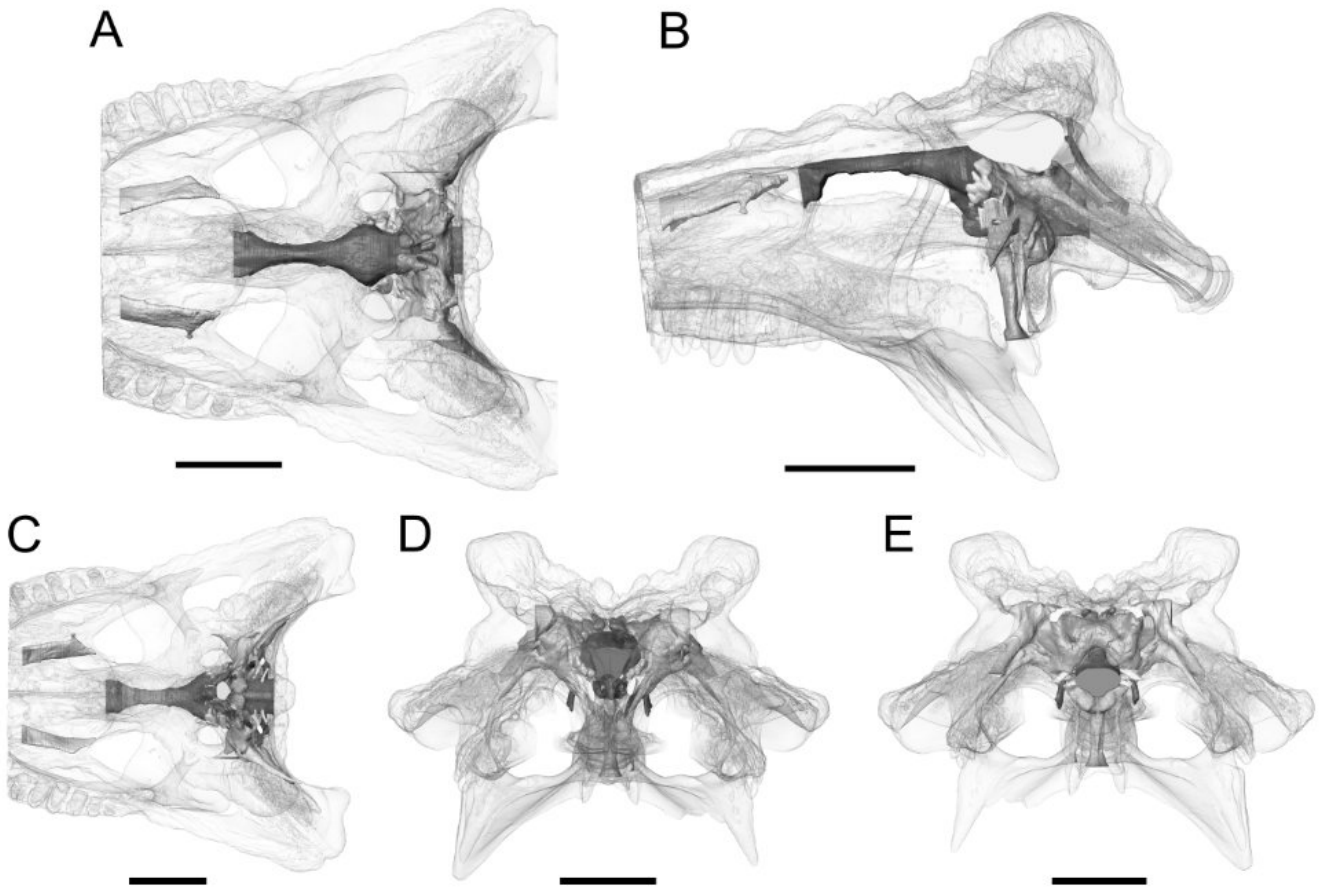

Figure 1. Transparent 3D reconstruction of the rear skull of Voay robustus NHMUK PV R 36685 showing the endocranial elements. A, dorsal; B, left lateral; C, ventral; D, anterior; C, posterior views. Scale bars equals 5 cm.

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