3D models related to the publication: First partial cranium of *Togocetus* from Kpogamé (Togo) and the protocetid diversity in the Togolese phosphate basin.

Koffi Evenyon Kassegne[1], Mickaël Mourlam[2], Guillaume Guinot[2], Yawovi Zikpi Amoudji[1], Jérémy E. Martin[3], Kodjo Adika Togbe[1], Ampah Kodjo Johnson[1]*, Lionel Hautier[2]*

[1] *Département de Géologie, Faculté des Sciences, Université de Lomé, B.P. 1515 Lomé, Togo ; christophe_johnson yahoo.fr and kevenyon gmail.com*

[2] *Institut des Sciences de l'Evolution de Montpellier, Université Montpellier, CNRS, IRD, Cc 064; place Eugène Bataillon, 34095 Montpellier Cedex 5, France; email: lionel.hautier@umontpellier.fr*

[3] *Univ. Lyon, ENS de Lyon, Université Claude Bernard Lyon 1, CNRS, UMR 5276 Laboratoire de Géologie de Lyon : Terre, Planètes, Environnement, F-69342 46 Allée d'Italie, Lyon, France, jeremy.martin@ens-lyon.fr*

*Corresponding authors: Dr. Lionel Hautier lionel.hautier@umontpellier.fr, and Dr. Christophe Johnson christophe_johnson@yahoo.fr

Abstract

This contribution contains the 3D models described and figured in the following publication: Kassegne K. E., Mourlam M. J., Guinot G., Amoudji Y. Z., Martin J. E., Togbe K. A., Johnson A. K., Hautier L. 2021. First partial cranium of *Togocetus* from Kpogamé (Togo) and the protocetid diversity in the Togolese phosphate basin. *Annales de Paléontologie*, Issue 2, April–June 2021, 102488. https://doi.org/10.1016/j.annpal.2021.102488

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Model Id nr	Description
M3#768	3D surface virtual restoration.
M3#770	µCT data of the cranium. Resolution: 315.6µm

Table 1. List of 3D data representing ULDG-KPO1 (*Togocetus cf. traversei* models). Collection: University of Lomé, Togo.

INTRODUCTION

We present here the 3D model of a partial skull of cetacean discovered in middle Eocene phosphate deposits from Kpogamé (Togo). The dental and cranial characteristics of the new Togolese specimen recall those of protocetid taxa described in Africa, Asia, and North America, but also display significant differences. A 3D model of the cranium, teeth, and vomer was here reconstructed (see Fig. 1 and Table 1) in order to reveal hidden anatomical features (e.g., tooth roots). In particular, we showed that the new specimen shares a number of morphological features with the Togolese taxon *Togocetus* (Kassegne et al. 2021). Phylogenetic analyses recovered the new specimen close to *Togocetus* as the first offshoot of protocetids, which is consistent with the middle Lutetian age proposed for the Togolese phosphate deposits. These results enabled us to assign the specimen ULDG-KPO1 to *Togocetus* cf. *traversei*, so that it represents the first and most complete cranial remain of *Togocetus*.

METHODS

The cranium, upper tooth rows, and vomer were imaged using high-resolution microtomography (µCT) at the MRI platform of the *Institut des Sciences de l'Evolution de Montpellier* (ISEM). Image segmentation of the cranium elements was performed on the µCT images with Avizo.Lite 2019.4 (Thermofisher Scientific) software using the segmentation threshold selection tool. The 3D virtual restoration was performed with MorphoDig software (v. 1.5.3; Lebrun, 2018). The 3D surface model of the skull is provided in .vtk format, and can therefore be opened with a wide range of freeware.
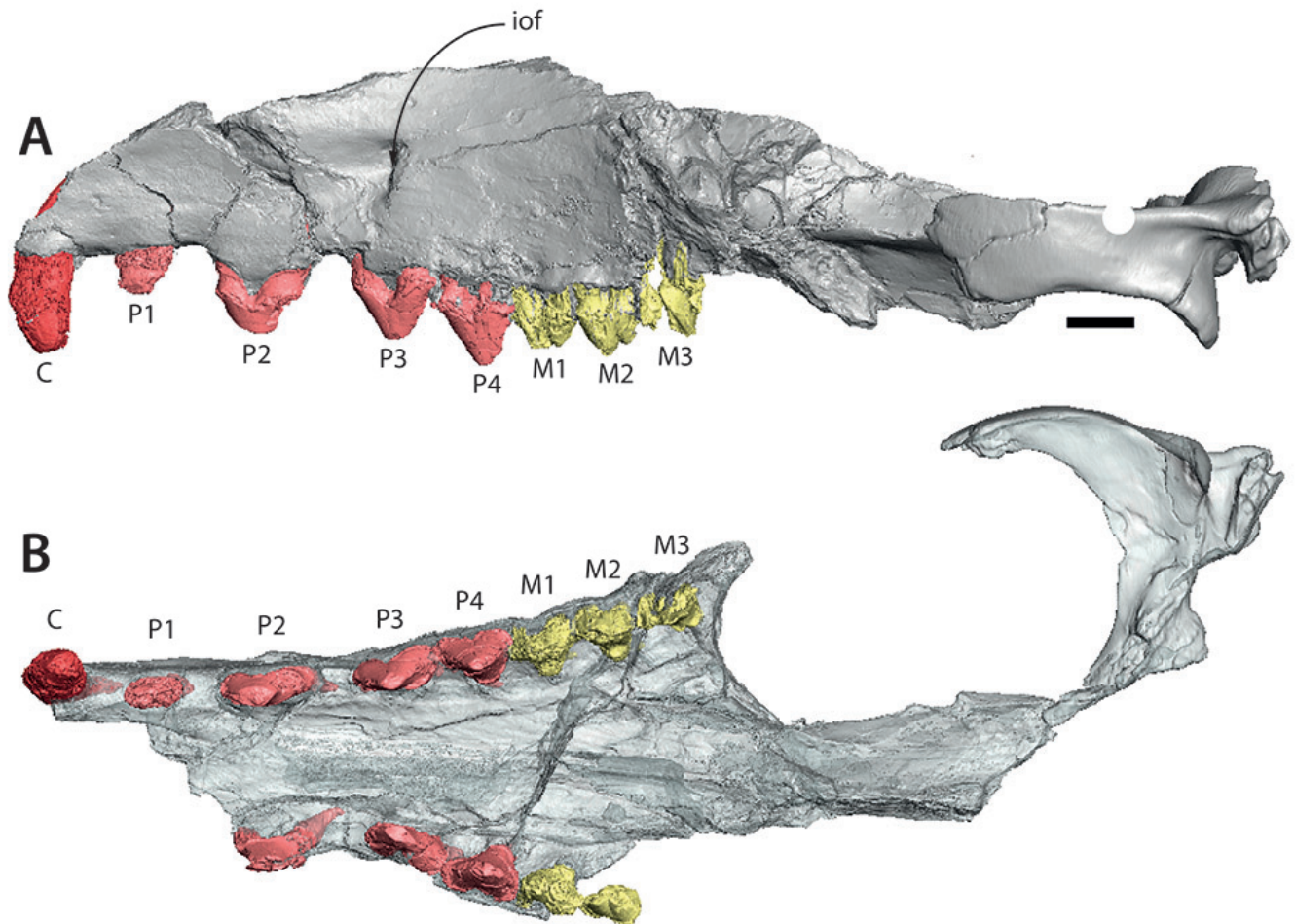
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Figure 1. 3D reconstruction of the cranium and teeth of ULDG-KPO1. A, lateral view of the left side of ULDG-KPO1; B, palatine view. *Abbreviations:* C, canine; iof, infraorbital foramen; M, molar; P, premolar. The cranium elements are in grey, canine in dark red, premolar in light red and molar in yellow. Scale bar represents 2 cm.

BIBLIOGRAPHY

Kassegne K. E., Mourlam M. J., Guinot G., Amoudji Y. Z., Martin J. E., Togbe K. A., Johnson A. K., Hautier L. 2021. First partial cranium of *Togocetus* from Kpogamé (Togo) and the protocetid diversity in the Togolese phosphate basin. *Annales de Paléontologie* volume 107, Issue 2, April–June 2021, 102488. https://doi.org/10.1016/j.annpal.2021.102488