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Dataset

3D models related to the publication: Internal tooth structure and burial practices: insights into the Neolithic necropolis of Gurgy (France, 5100-4000 cal. BC).

Le Luyer Mona[1]*, Coquerelle Michael[2], Rottier Stéphane[1], Bayle Priscilla[1]

[1] *UMR 5199 PACEA, Université de Bordeaux, CNRS, MCC, Bâtiment B8, Allée Geoffroy Saint Hilaire, CS 50023, 33615 Pessac Cedex, France*
[2] *Department of Oral Surgery, Rey Juan Carlos University, Alcorcon, Spain*
***Corresponding author**: mona.le-luyer@u-bordeaux.fr

Abstract
The present 3D Dataset contains the 3D models of external and internal aspects of human upper permanent second molars from the Neolithic necropolis analyzed in the following publication: Le Luyer M., Coquerelle M., Rottier S., Bayle P., 2016. Internal tooth structure and burial practices: insights into the Neolithic necropolis of Gurgy (France, 5100-4000 cal. BC). Plos One 11(7): e0159688. doi: 10.1371/journal.pone.0159688

Keywords: modern humans, Neolithic, upper permanent second molars

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INTRODUCTION

The 3D models correspond to virtually reconstructed crowns of upper permanent second molars (UM2) from 20 Neolithic humans of the necropolis of Gurgy (France) (see Table 1). Crown tissue proportions, thickness and distribution of enamel, as well as enamel-dentine junction shape were assessed to characterize subtle phenotypic dental variation and its underlying causes among individuals buried at Gurgy. In order to finely quantify size and shape variations in a micro-evolutionary context, original methods and templates were developed. The results show that intrasite dental variation reflects burial practices and chronocultural parameters. Underlying causes of these internal tooth structure variations were suggested (see Le Luyer et al., 2016).

METHODS

Following the half-maximum height method (Coleman & Colbert, 2007; Spoor et al., 1993), a semi-automatic threshold-based segmentation with manual corrections was conducted using Avizo 7.0 (Visualization Sciences Group). The 3D surface models were generated using a constrained smoothing algorithm. For each specimen, the outer enamel surface (OES) and the enamel-dentine junction (EDJ) are provided in .ply format, and can therefore be opened with a wide range of freeware. For slightly worn teeth, reconstructions of the apex of dentine horn tips were made using Avizo 7.0 (Visualization Sciences Group).

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BIBLIOGRAPHY

Coleman, M. N., Colbert, M. W., 2007. Technical note: CT thresholding protocols for taking measurements on three-dimensional models. Am J Phys Anthropol 133(1), 723-725. doi: 10.1002/ajpa.20583.

Spoor, F., Zonneveld, F., Macho, G. A., 1993. Linear measurements of cortical bone and dental enamel by computed tomography: applications and problems. Am J Phys Anthropol 91(4), 469-484. doi: 10.1002/ajpa.1330910405.

Le Luyer M., Coquerelle M., Rottier S., Bayle P., 2016. Internal tooth structure and burial practices: insights into the Neolithic necropolis of Gurgy (France, 5100-4000 cal. BC). Plos One 11(7): e0159688. doi: 10.1371/journal.pone.0159688.

Model IDs	Taxon	Short description
M3#75_GLN04-206-ULM2	*Homo sapiens*	OES and EDJ of left UM2
M3#74_GLN04-201-ULM2	*Homo sapiens*	OES and EDJ of left UM2
M3#76_GLN05-213-URM2	*Homo sapiens*	OES and EDJ of right UM2
M3#77_GLN05-215A-URM2	*Homo sapiens*	OES and EDJ of right UM2
M3#78_GLN06-215B-URM2	*Homo sapiens*	OES and EDJ of right UM2
M3#79_GLN06-223-URM2	*Homo sapiens*	OES and EDJ of right UM2
M3#80_GLN04-229-URM2	*Homo sapiens*	OES and EDJ of right UM2
M3#81_GLN05-243B-ULM2	*Homo sapiens*	OES, EDJ and reconstructed dentine horn tip of left UM2
M3#82_GLN04-248-ULM2	*Homo sapiens*	OES, EDJ and reconstructed dentine horn tip of left UM2
M3#83_GLN04-252-ULM2	*Homo sapiens*	OES and EDJ of left UM2
M3#84_GLN04-253-ULM2	*Homo sapiens*	OES and EDJ of left UM2
M3#85_GLN05-257-URM2	*Homo sapiens*	OES, EDJ and reconstructed dentine horn tip of right UM2
M3#86_GLN04-264-ULM2	*Homo sapiens*	OES and EDJ of left UM2
M3#87_GLN04-277-URM2	*Homo sapiens*	OES and EDJ of right UM2
M3#88_GLN04-289B-URM2	*Homo sapiens*	OES and EDJ of right UM2
M3#89_GLN06-291-URM2	*Homo sapiens*	OES, EDJ and reconstructed dentine horn tip of right UM2
M3#90_GLN05-292-URM2	*Homo sapiens*	OES and EDJ of right UM2
M3#91_GLN05-294-ULM2	*Homo sapiens*	OES, EDJ and reconstructed dentine horn tip of left UM2
M3#92_GLN05-301-ULM2	*Homo sapiens*	OES and EDJ of left UM2
M3#93_GLN05-308-URM2	*Homo sapiens*	OES and EDJ of right UM2

Table 1. List of models. OES: outer enamel surface. EDJ: enamel-dentine junction. UM2: upper permanent second molar