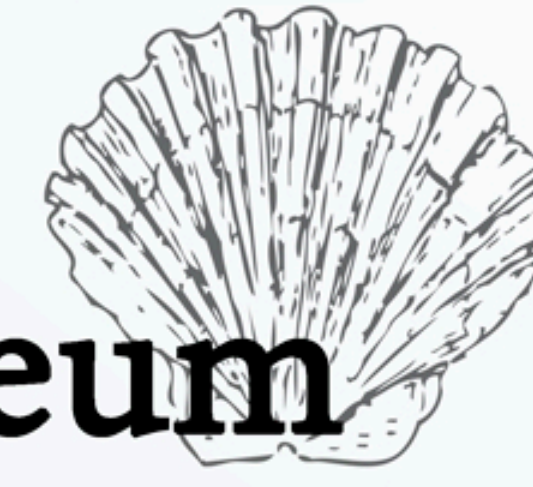




# "Project PAMEV" The creation of a Virtual Museum



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The PAMEV project "Paleontología de la Macaronesia Espacio Virtual" is a Biblioteca Universitaria de Las Palmas de Gran Canaria (ULPGC) initiative, with the economical support of the Ministerio de Economía y Competitividad del Gobierno de España. PAMEV is aimed to the digitalization and virtualization of the paleontological collection from Azores, Madeira, Canarias and Cape Verde Archipelagos belonging to the Laboratorio de Paleontología, research group BIOCON of the Universidad de Las Palmas de Gran Canaria. The final objective of this tool is the development of an integrated space, for the promotion of the collections of the ULPGC in the fields of the zoology, botany, geology, palaeontology, ecology, oceanography and climatic change from The Canaries and other subtropical Atlantic Archipelagos.

## INTRODUCTION

The PAMEV project "Paleontología de la Macaronesia Espacio Virtual" is a Biblioteca Universitaria of the ULPGC initiative, with the support of the Ministerio de Economía y Competitividad del Gobierno de España, will be developed over two years. The purpose is to develop an interesting and helpful web based tool, which works as a Virtual Museum centre around the ULPGCs Collections.

## OBJECTIVES

- The implementation of a virtual museum that allows the free access and total interactivity both visitors as scientific community.
- Development of digital models with 3D reconstruction of the fossil collections
- Create virtual rooms developed for permanent and temporary exhibitions.
- Promoting a place of scientific cooperation between the Biblioteca Universitaria, researchers and research groups and general public.
- Establish a framework where the scientific community in the area of Earth Sciences, can generate new ideas, projects, working lines and promote information and knowledge exchanges.

## MATERIALS

ULPGCs paleontological collections are divided in two branches according to origin: marine origin collection and terrestrial origin collection.

### • Marine origin collection:

Its covers the ecological and climatic history of the Canaries and the North Atlantic practically from origin. Is consist on specimens from Miocene-Pliocene, Pleistocene and Holocene age, subject of a large number of scientific papers.



**Figure 1. a)** Fossil of *Patella ambrogii* (Lecointre 1952). **b)** Fossil Tooth of *Carcharodon megalodon* (Agassiz, 1843)

### • Terrestrial origin collection:

Including remains of vertebrates as reptiles, mammals and birds from the Canary Islands and Cape Verde. The fossil record of this collection ranges from the Pliocene to the recent Holocene, including holotypes and paratypes.



**Figure 2. a)** Fossil of *Caniomys tamarani* (López-Martínez & López-Jurado, 1987) **b)** Fossil Tooth of *Carcharodon megalodon* (Mateo, García-Márquez, López Jurado & Barahona, 2001)

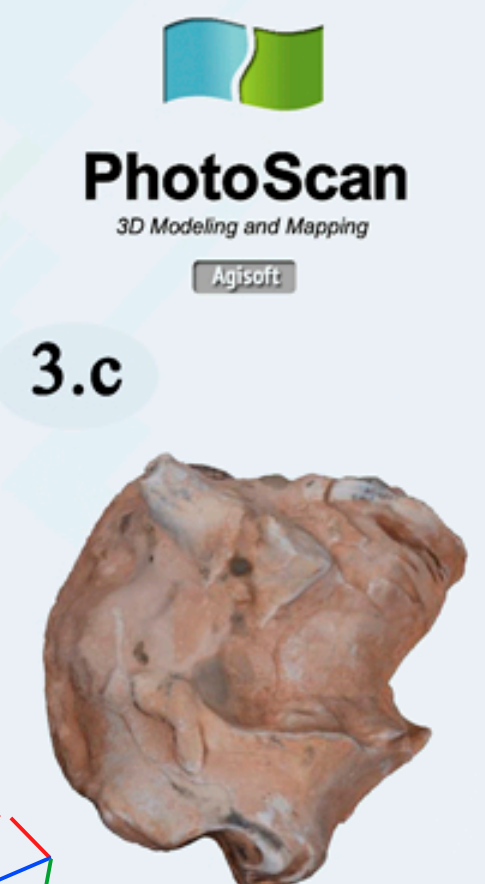
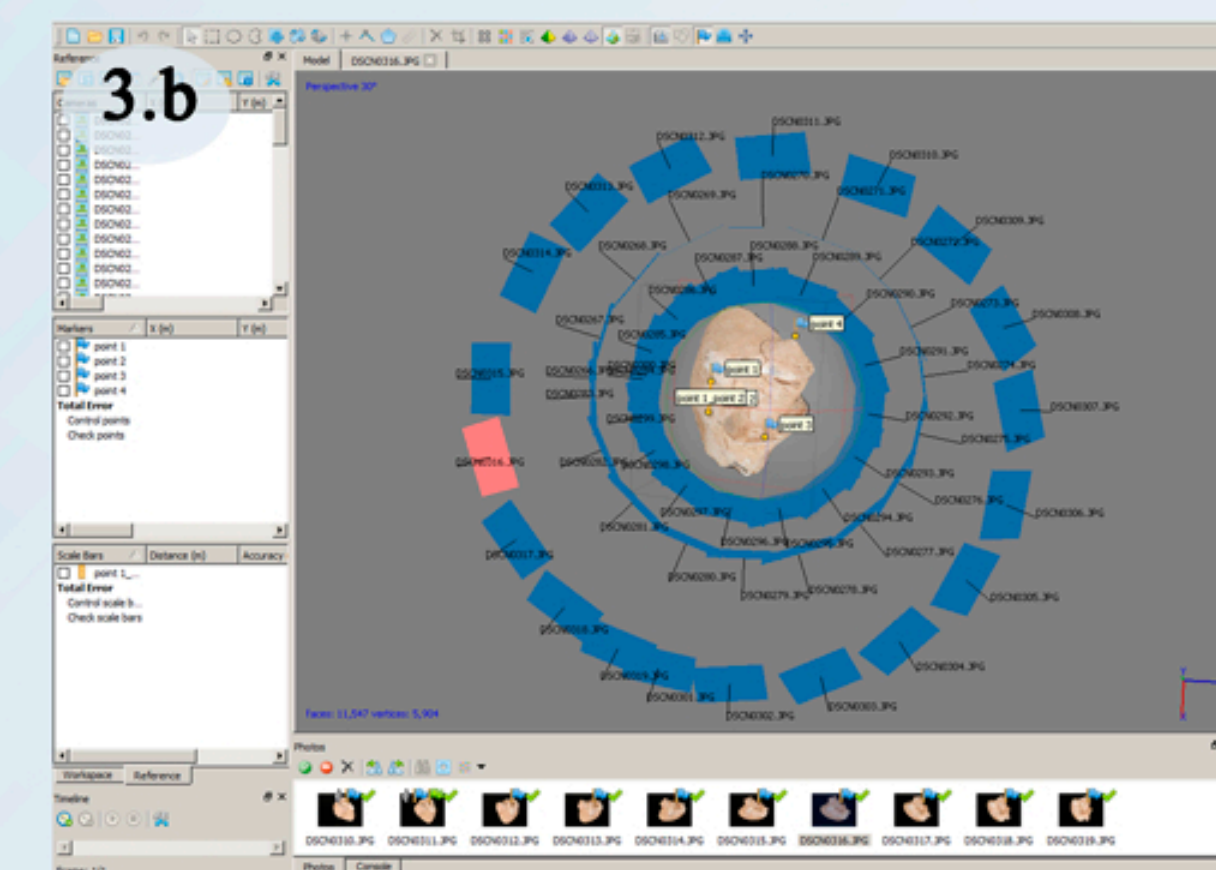
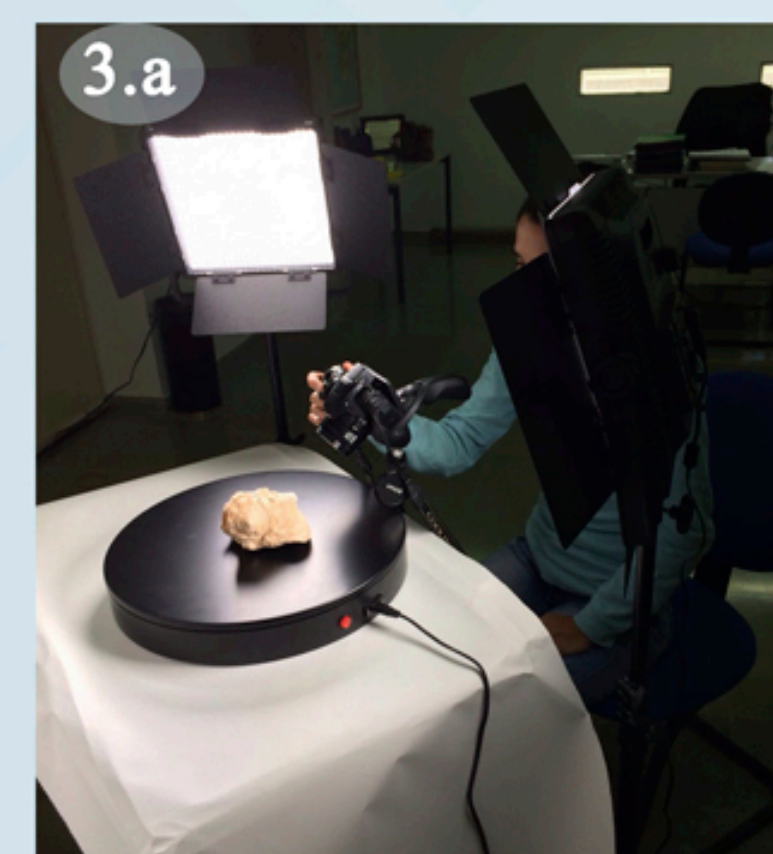
## METHODS

The virtual portal will be developed in OMEKA, an open source software capable of storing and show digital collections.



The virtualization process is based on the following elements:

- Compilation and digitization of the bibliographic sources of the materials and authors of the Collections, adding them to the open access ULPGC institutional repository (ACCEDA).
- Definition of the metadata to include all the information necessary for the organization and description of the collections.
- Photographs of the deposits and fossil specimens.
- Develop of paleontological cartography and others contents as infographics.
- Creation of 3D models of specimens and paleontological sites with digital photogrammetry.



**Figure 3.** Process of digital photogrammetry: **a)** Different photographic shots of a piece are made. **b)** Posteriorly, this pictures are processed in a 3D software, in our case Agisoft PhotoScan and **c)** getting a 3D model.

## RESULTS & DISCUSSION

The project will be started up before the end of 2017 with the launch of the First version of PAMEV, which will include the sections of:

- History.** Files of scientists throughout history which contributed in the develop of the knowledge of the paleontology, paleoclimatology or paleoecology of Macaronesian Archipelagos.
- Paleontological deposits.** Descriptions of the most characteristic deposits accompanied by photos and infographics in 2D and 3D. Also reconstructions of paleoecosystems.
- Fossil collections.** A fiche for each different fossil materials and specimens, including corresponding metadata, photos and a 3D model.
- Glossary.** Definition of keywords for the portal related to paleontology science.
- Institutions.** A small section dedicated to the institutions which have collaborated directly

## CONCLUSION

PAMEV is an innovative web tool aimed to science popularization, education and environmental awareness, intending to be a reference in the fields of zoology, botany, ecology, biodiversity, paleontology, oceanography and climate change in the Canaries and the Macaronesia. With this project we also want to value the Natural heritage of the Canary Islands for conservation purposes and example of good practice in relation to the protection and conservation of the natural environment.