
Times of historical developments and environmental changes in the Minoan town of Malia, Crete: an intra and off-site geoarcheological approach

Laurent Lespez^{*1,2}, Maia Pomadere^{*†3}, Arthur Glais[‡], and Charlotte Langohr^{§4,5}

¹Laboratoire de géographie physique (LGP) – CNRS : UMR8591, Université Paris-Est Créteil Val-de-Marne (UPEC) – Meudon, France

²Université Paris-Est Créteil Val-de-Marne - Paris 12 (UPEC UP12) – Université Paris-Est Créteil Val-de-Marne - Paris 12 – 61 avenue du Général de Gaulle - 94010 Créteil cedex, France

³Archéologies et Sciences de l'Antiquité (ArScAn) – Centre National de la Recherche Scientifique : UMR7041, Université Panthéon-Sorbonne – Maison René Ginouvès Boîte 3 21, allée de l'université 92023 NANTERRE CEDEX, France

⁴Université Catholique de Louvain (UCL) – Place de l'Université 1 - 1348 Louvain-La-Neuve, Belgium

⁵Fonds National de la Recherche Scientifique [Bruxelles] (FNRS) – 5, rue d'Égmont, BE-1000 Bruxelles, Belgium

Abstract

The site of Malia, on the northwest coast of Crete, is a good case study for geoarchaeology. A Minoan palatial town developed during the Middle and Late Bronze Ages in an area that was occupied for a long time, and has been the subject of archaeological excavations for a century. A small marsh located near the sea and close to the archaeological site offers rich natural archives and new records. They can now be combined with archaeological data and allow to address some important issues: the questions of chronology and causes of apparent changes are especially important and tricky in the Minoan world where the absolute chronology is still under debate. How can we link the temporal frames of extra and intra-site, for events/breaks but also for more durable situations?

Improvements in defining local archaeological sequences, based on artefacts typologies and stratigraphical evidence from recent excavated areas, lead to a better understanding of relative chronology and historical developments of the settlement, especially during the palatial period: researches in the Area Pi show that the Middle Minoan III phase was not a "gap" after the great fire destruction of the first palace and town of Middle Minoan II, but an extensive occupational phase marked by one or two important earthquakes; a last massive destruction affected the area during LM IA, possibly in relation with the Santorini eruption. Duration of these phenomena, factors and rates of change are difficult to precise and call for a dialogue with specialists of natural sciences.

The investigations conducted off-site offer the opportunity to assess the long-term changes of the environment due to climatic, tectonic or sea level changes or to land use changes related

*Speaker

†Corresponding author: Maia.Pomadere@univ-paris1.fr

‡Corresponding author: arthur.glais@unicaen.fr

§Corresponding author: charlotte.langohr@uclouvain.be

to the change of the human activities. 11 new core-drillings have been added in 2015 to the first investigations of the 1990's. The 40 radiocarbon dates obtained show that all the cores cover the Minoan period. The first geomorphologic, sedimentologic and palynologic results offer the opportunity to reconstruct the landscape at the bottom of the Minoan site from the Late Neolithic to the historic periods and to discuss the causes of the environmental changes. In particular, the question of the direct and indirect impact of the Santorini eruption on the landscape and the town and the effect of the agropastoral practices on the wetland is raised. More generally, based on the results obtained, the methodology of comparison of in-site and off-site and of archaeological and environmental data is discussed.

Keywords: Geoarchaeology, on, site, off, site, Aegean World, Minoan period, wetland, santorini eruption