
The North African Middle Stone Age settlement dynamics at the A'in Beni Mathar – Guefa'it basin (Eastern Morocco)

M. Gema Chacón*^{†1,2,3}, María Soto⁴, Morales Juan Ignacio⁵, Leticia Menéndez^{1,2}, Arturo De Lombera⁶, Antoni Canals^{1,2}, Alfonso Benito-Calvo⁷, Andoni Tarrío⁷, Mohamed Souhir⁸, Said Bengarmra⁸, Hamid Haddoumi⁸, Kamal El Hammouti⁸, Hassan Aouraghe⁸, and Robert Sala-Ramos^{1,2}

¹Institut Català de Paleoecologia Humana i Evolució Social (IPHES) – Campus Sescelades URV (Edifici W3), 43007 Tarragona, Espagne

²Àrea de Prehistòria, Universitat Rovira i Virgili (URV), Avinguda de Catalunya 35, 43002 Tarragona, Spain – Espagne

³Histoire naturelle de l'Homme préhistorique (HNHP) – Museum National d'Histoire Naturelle, Université de Perpignan Via Domitia, Centre National de la Recherche Scientifique : UMR7194 – Institut de Paléontologie Humaine 1, rue René Panhard 75013 Paris, France

⁴Stone tools, Diet and Sociality at Olduvai Gorge (SDS), Department of Anthropology and Archaeology, University of Calgary – Alberta T2N 1N4, Canada

⁵Dep. Història i Arqueologia, Seminari d'Estudis i Recerques Prehistòriques (SERP), Facultat de Geografia i Història, Universitat de Barcelona, Spain – Espagne

⁶Grupo de Estudios para a Prehistoria do Noroeste (GEPN), Dpto Historia I, Universidade de Santiago de Compostela, Santiago de Compostela 15782, Spain – Espagne

⁷Centro Nacional de Investigación Sobre la Evolución Humana (CENIEH), Burgos, Spain – Espagne

⁸Faculté de Sciences, Département de Géologie (FSO), Université Mohamed Premier, Oujda, Morocco – Maroc

Résumé

Abstract

The region of eastern Morocco is very rich in sites and archaeological remains. Many Pleistocene and Holocene sites have been discovered during the last 20 years. Systematic surveys and excavations were realized in the frame of the Spanish-Moroccan research project that started in 2006. Fieldwork permitted the identification of new archaeological Middle Stone Age open air sites in this region. It is the first time since the 1990' (Wengler 1993a, 1993b, 1997; Wengler & Vernet 1992) that new sites belonging to this chronological period have been discovered in this region.

Lithic assemblages, found on the surface as well as in stratigraphic position, are located on the exposed surfaces of river banks, around springs and on the slopes.

*Intervenant

†Auteur correspondant: gchacon@iphes.cat

Since a technological point of view these sites contain a typologically and technologically homogeneous set of flake assemblages with a significant Levallois component (main modalities: preferential Levallois radial cores (centripetal) and Levallois of preferential flake) but also discoidal strategies. The number of retouched flakes are also important and mainly denticulates, notches and scrapers. Some sites contain clear examples of tanged pieces and bifacial foliate typical from the Aterian assemblages. Aside from the presence or absence of these type of Aterian pieces, there are no other distinctions between the Mousterian and the Aterian industries in terms of either lithic attributes, proposing that two 'industries' could be variants of the same entity.

The preliminary results of the technological analysis of these lithic assemblages allowed their attribution to the North African Middle Stone Age (Mousterian and Aterian). They present technological attributes which are very similar to those of other contemporaneous sites from the region (ex. la Station Météo d'Aïn Beni Mathar and the Grotte de Rhafas – Doerschner et al 2016; Wengler 1993, 1997; Ifri N'ammam – Nami&Moser 2010 ; Taforalt – Bouzougar&Barton 2012; Barton et al. 2016) as well as from other regions of Morocco (ex. Arzarello et al. 2012, 2013 ; Dibble et al. 2012 ; El Hajraoui et al. 2012; Ramos-Muñoz et al. 2016). But there are difference between the sites of the Aïn Beni Mathar – Guefa'it basin also depending of the localization and the proximity of raw materials procurement areas and the type of activities realized.

This research and the preliminary results obtained until now raise the significance of Eastern Morocco in the debates on the Middle Paleolithic in general and on Mousterian/Aterian/Middle Stone Age in North Africa in particular and also provided important data about the settlement pattern dynamics in open air sites of this geographical area.

References

- Arzarello, M., Boudad, L., Peretto, C., Guislain, S. & Aarab, M. (2012) Le débitage Levallois du site d'Amrane Oukider (Sud-Est du Maroc) : analyse technologique d'un assemblage standardisé. *Comptes Rendus Palevol* 11(8): 567-574.
- Arzarello, M., Boudad, L. & Guislain, S. (2013) Middle Paleolithic occupation of the Moroccan Sahara: Open air sites of the Tafilalt. *Quaternary International* 300(0): 131-141.
- Barton, R.N.E., Bouzougar, A., Collcutt, S.N., Carrión Marco, Y., Clark-Balzan, L., Debenham, N.C., Morales, J. (2016) Reconsidering the MSA to LSA transition at Taforalt Cave (Morocco) in the light of new multi-proxy dating evidence. *Quaternary International*, 413: 36-49.
- Bouzougar, A., Barton, R.N.E., 2012. The identity and timing of the Aterian in Morocco. In: Hublin, J.-J., McPherron, S. (Eds.), *Modern Origins: a North African Perspective*. Springer, Dordrecht, pp. 93-105.
- Dibble, H.L., Aldeias, V., Alvarez-Fernández, E., Blackwell, B.A.B., Hallett-Desguez, E., Jacobs, Z., Goldberg, P., Lin, S.C.H., Morala, A., Meyer, M.C., Olszewski, D.I., Reed, K., Reed, D., Rezek, Z., Richter, D., Roberts, R.G., Sandgathe, D., Schurmans, U.A., Skinner, A.R., Steele, T.E., el-Hajraoui, M., 2012. New Excavations at the Site of Contrebandiers Cave, Morocco, *PaleoAnthropology*, 145-201.
- Doerschner N, Fitzsimmons KE, Ditchfield P, McLaren SJ, Steele TE, Zielhofer C, et al. (2016) A New Chronology for Rhafas, Northeast Morocco, Spanning the North African Middle Stone Age through to the Neolithic. *PLoS ONE* 11(9): e0162280.
- El Hajraoui, M.A., Nespoulet, R., Debénath, A. & Dibble, H.L. (2012) *Préhistoire de la Région de Raba-Témara*. Royaume du Maroc. Ministère de la Culture. Institut National des Sciences de l'Archéologie et du Patrimoine. Rabat: 300 p.

Nami, M. & Moser, J. (2010) La Grotte d'Ifri N'Ammar. Le Paléolithique moyen. Reichert Verlag. FAAK 9. Weisbaden: 337 p.

Ramos-Muñoz, J., Bernal-Casasola, D., Barrena-Tocino, A., Domínguez-Bella, S., Clemente-Conte, I., Vijande-Vila, E., Cantillo-Duarte, J.J., Almisas-Cruz, S. (2016) Middle Palaeolithic Mode 3 lithic technology in the rock-shelter of Benzú (North Africa) and its immediate environmental relationships. *Quaternary International*, 413 : 21-35.

Wengler, L. (1993a) Cultures préhistoriques et formations quaternaires au Maroc oriental. Relations entre comportements et paléoenvironnements au Paléolithique moyen. Thèse de Doctorat d'État ès Sciences, Université de Bordeaux I: 1433 p.

Wengler, L. (1993b) Relations entre le milieu naturel et les modifications culturelles au Paléolithique moyen, le cas des Monts d Oujda (Maroc oriental). *Bull. Mém. Soc. d'Ant. Paris* 5(3): 355-378.

Wengler, L. (1997) La transition du Moustérien à l'Atérien. *L'Anthropologie* 101(3): 448-481.

Wengler, L. & Vernet, J.L. (1992) Vegetation, sedimentary deposits and climates during the Late Pleistocene and Holocene in eastern Morocco *Palaeogeography, Palaeoclimatology, Palaeoecology* 94: 141-167.

Mots-Clés: North African Middle Stone Age, Morocco, open air sites, lithic technology, Levallois, settlement dynamics