

Combining $^{40}\text{Ar}/^{39}\text{Ar}$ single crystal dating with paleodosimetric methods: toward a unified chronological framework for the Italian's acheulean sites?

SÉBASTIEN NOMADE¹; ALISON PEREIRA^{1,2,3,4}; PIERRE VOINCHET²; MARTA ARZARELLO³; JEAN-JACQUES BAHAIN²; CHRISTOPHE FALGUÈRES²; BIAGIO GIACCIO⁵; HERVÉ GUILLOU¹; VINCENT SCAO¹

¹ Laboratoire des Sciences du Climat et de l'Environnement, CEA-CNRS-UVSQ, Université Paris-Saclay, F-91191 Gif-sur-Yvette, France. (sebastien.nomade@lsce.ipsl.fr; herve.guillou@lsce.ipsl.fr; vincent.scao@lsce.ipsl.fr)

² Département Hommes et environnements, MNHN, UMR 7194 du CNRS, 1 rue René Panhard, 75013 Paris, France. (alison.pereira@lsce.ipsl.fr; pvoinch@mnhn.fr; bahain@mnhn.fr; falguere@mnhn.fr)

³ Sezione di Scienze Preistoriche e Antropologiche, Dipartimento di Studi Umanistici, Università degli Studi di Ferrara, Italy. (rzmrt@unife.it)

⁴ Ecole française de Rome, Piazza Farnese, IT-00186, Roma, Italy

⁵ Istituto di Geologia Ambientale e Geoingegneria, CNR, Roma, Italy. (biagio.giaccio@cnr.it)

With the goal of providing an accurate and precise chronological framework for Middle Pleistocene archeological sites, a research network including geochronologists, archeologists and paleoanthropologists from various French and Italian institutions launched in 2010 a wide study of Middle-Pleistocene archaeological sites of central and southern Italy. This study combining $^{39}\text{Ar}/^{40}\text{Ar}$ with paleo-dosimetric methods applied to Italian sites between 700 ka to 300 ka is unprecedented. The chronological framework we built permits us to replace all the investigated sites into a coherent climatic and environmental context. Our work provides the opportunity to compare lithic industries from a technical and evolutionary point of view within a homogeneous temporal frame. These results border the current limitations of the $^{40}\text{Ar}/^{39}\text{Ar}$ method and will guide expected advances to apply our approach to other European sites