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# 10 years of $^{40}\text{Ar}/^{39}\text{Ar}$ dating in central and southern Italy: redraw the chronological framework of the environmental changes and human settlement over the last 800 ka

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## Résumé

Since 2010 a mainly French-Italian group from various institutes have collected chemically analyzed and dated by  $^{40}\text{Ar}/^{39}\text{Ar}$  about one hundred of tephra layers collected from proximal (volcanoes flanks) and distal areas including paleolacustrine sequences, lakes sediments, fluvial/alluvial terraces and archaeological sites. Still under construction, this currently growing tephrochronologic database allowed already to date with a great precision and accuracy sea level, climatic and environmental variations. It is also a very useful tool to

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reconstruct the hominin and faunal evolution over the last 800 ka using the same temporal framework. We will illustrate the convenience of this tephrochronological database via the illustration of progresses we made to precisely and accurately date several glacial terminations (e.g. TII, TV, TVIII and TIX), the timing and duration of millennial climatic variability during glacial inceptions at the end of MIS 5, MIS 19 and during MIS 12 glacial as well as some key archaeological sites from the Italian peninsula.