



## **The last Deglaciation in the Mediterranean region: a multi-archives synthesis**

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Multiple proxies record past climatic changes in different climate archives. These proxies are influenced by different component of the climate system and bring complementary information on past climate variability. The major limitation when combining proxies from different archives comes from the coherency of their chronologies. Indeed, each climate archives possess their own dating methods, not necessarily coherent with each other's. Consequently, when we want to assess the latitudinal changes and mechanisms behind a climate event, we often have to rely on assumptions of synchronisation between the different archives, such as synchronous temperature changes during warming events (Austin and Hibbert 2010).

Recently, a dating method originally developed to produce coherent chronologies for ice cores (Datice, Lemieux-Dudon et al., 2010) has been adapted in order to integrate different climate archives (ice cores, sediment cores and speleothems (Lemieux-Dudon et al., 2015, Bazin et al., in prep)). In this presentation we present the validation of this multi-archives dating tool with a first application covering the last Deglaciation in the Mediterranean region. For this experiment, we consider the records from Monticchio, the MD90-917, Tenaghi Philippon and Lake Orhid sediment cores as well as continuous speleothems from Sofular, Soreq and La Mine caves. Using the Datice dating tool, and with the identification of common tephra layers between the cores considered, we are able to produce a multi-archives coherent chronology for this region, independently of any climatic assumption. Using this common chronological framework, we show that the usual climatic synchronisation assumptions are not valid over this region for the last glacial-interglacial transition. Finally, we compare our coherent Mediterranean chronology with Greenland ice core records in order to discuss the sequence of events of the last Deglaciation between these two regions.