



Did a drought crisis lead to cultural changes in Eolian Islands during the Bronze Age? New data from archaeological excavations and carbon isotopes analysis of archaeobotanical remains

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Agricultural potential is commonly regarded as a key factor for the development of pre-modern complex societies in Mediterranean regions. For this reason, the assessment of paleo-rainfall regimes is considered fundamental to understand the influence of short-term climate fluctuations on ancient human communities, especially in those areas characterised by critical environmental conditions such as Eolian archipelagos.

Usually, plant remains in archaeological contexts are used to assess agricultural practices and any strategies adopted by ancient populations to face climate changes. Within this work we intend to extend the traditional archaeobotanical approach by using carbon isotope analysis of ancient plant remains in order to infer paleorainfall trends. For this purpose forty samples of plant remains recovered from Bronze Age archaeological contexts recently excavated in Filicudi and Salina islands, Eolian archipelagos, were selected to be submitted to AMS (Accelerator Mass Spectrometry) radiocarbon dating, archaeobotanical and carbon stable isotopes analyses. This approach allowed the reconstruction in the analyzed samples of the variation of the carbon isotope composition, expressed through the $\delta^{13}C$ term, in a diachronic scale as obtained by the combined radiocarbon dating analyses performed on the same archaeological material. The obtained results show clear chronological pattern of variation of the $\delta^{13}C$ term in the plant tissues which find correspondence with other climatic proxy records and from which paleoclimatic information have been inferred.

From the archaeological point of view, the obtained results allow the evaluation of the influence of climate on the dynamics of population of Eolian island by reconsidering archaeological indicators coming from the recent excavations carried out in the sites of Filicudi and Salina.