



Holocene climate variability in the western Mediterranean through a multiproxy analysis from Padul peat bog (Sierra Nevada, Spain)

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The Iberian Peninsula, located in the Mediterranean area, is an interesting location for paleoclimate studies due to its geographic situation between arid and humid climates. Sediments from peat bogs and lakes from Sierra Nevada, in southeastern Iberian Peninsula, have been very informative in terms of how vegetation and wetland environments were impacted by Holocene climate change. These studies are essential if we want to understand the past climate change in the area, which is the key to identify the possible environmental response of the Sierra Nevada ecosystems to future climate scenarios. Padul basin, located in the southwest of the Sierra Nevada mountain range, contains a ca. 100 m-thick peat bog sedimentary sequence that was deposited during the past 1 Ma making this area interesting for paleoenvironmental and paleoclimatic reconstructions. A new 43 m-long sedimentary record has recently been retrieved from the Padul peat bog. In this study we have developed a multiproxy analysis of the Holocene part of the Padul-15-05 core including pollen analysis, XRF-core scanner, magnetic susceptibility and organic geochemistry, supported by an age control based on AMS radiocarbon dates, providing with information about vegetation and climate variability during the past 9.9 cal ka BP. This multiproxy reconstruction of the Padul-15-05 evidences the Mediterranean as a sensitive area with respect to global-scale climate system, showing relevant climate episodes such as the ca. 8, 7.5, 6.5 and 5.5 cal ka BP events during the early and middle Holocene. The trend to aridification to the late Holocene is interrupted by more arid and humid periods as the Iberian Roman Humid Period (from ca. 3 to 1.6 cal ka BP), the Dark Ages (from ca. 1.5 to 1.1 cal ka BP), the Medieval Climate Anomaly (from ca. 1.1 to 1.3 cal ka BP) and the Little Ice Age period (from ca. 500 to 100 cal yr BP).