EGU2020-14958

<https://doi.org/10.5194/egusphere-egu2020-14958>

EGU General Assembly 2020

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The Holocene *Cedrus* pollen record from Sierra Nevada (S Spain), a proxy for climate change in N Africa

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In this study, we synthesized pollen data from seven sites from the Sierra Nevada in southern Spain to investigate the response of forests in the western Mediterranean area to centennial- and millennial-scale climate changes and to human impact during the Holocene. In particular, here we focused in *Cedrus* pollen abundances, which most-likely originated from Northern Africa and were carried to Sierra Nevada by wind. Although *Cedrus* abundances are generally lower than 1% in the studied pollen samples, a comparison with North African pollen records shows similar trends at long- and short-term time-scales. Therefore, this record could be used as a proxy for changes in this forest species in North Africa. A Middle and Late Holocene *Cedrus* pollen increasing trend has been observed in the Sierra Nevada synthetic record, which seems to be the result of decreasing summer insolation. This would have produced overall cooler annual temperatures in Northern Africa (Atlas and Rif Mountains), benefiting the growth of this cool-adapted montane tree species, and lower summer evaporation, increasing available moisture during the summer, which is critical for this water-demanding species. Millennial- and centennial-scale variability also characterize the Sierra Nevada *Cedrus* synthetic record. *Cedrus* abundance oscillations could have been produced by well-known millennial-scale climatic variability that controlled cedar abundance in montane areas of N Africa.