Scientists obtain new data on the weather 10,000 years ago from sediments of a lake in Sierra Nevada

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Alpine lake in Sierra Nevada (Granada). Credit: UGRdivulga

A research project which counts with the participation of the University of Granada has revealed new data on the climate change that took place in the Iberian Peninsula around the mid Holocene (around 6.000 years

ago), when the amount of atmospheric dust coming from the Sahara increased. The data came from a study of the sediments found in an Alpine lake in Sierra Nevada (Granada)

This study, published in the journal *Chemical Geology*, is based on the sedimentation of atmospheric dust from the Sahara, a very frequent phenomenon in the South of the Iberian Peninsula. This phenomenon is easily identified currently, for instance, when a thin layer of red dust can be occasionally found on vehicles.

Scientists have studied an Alpine lake in Sierra Nevada, 3020 metres above sea level, called Rio Seco lake. They collected samples from sediments 1,5 metres deep, which represent approximately the last 11.000 years (a period known as Holocene), and they found, among other paleoclimate indicators, evidence of atmospheric dust coming from the Sahara. According to one of the researchers in this study, Antonio García-Alix Daroca, from the University of Granada, "the sedimentation of this atmospheric dust over the course of the Holocene has affected the vital cycles of the lakes in Sierra Nevada, since such dust contains a variety of nutrients and / or minerals which do not abound at such heights and which are required by certain organisms which dwell there."

More atmospheric dust from the Sahara

This study has also revealed the existence of a relatively humid period during the early phase of the Holocene (10.000 – 6.000 years approximately). This period witnessed the onset of an aridification tendency which has lasted until our days, and it has coincided with an increase in the fall of atmospheric dust in the South of the Ibeian Peninsula, as a result of African dust storms.

"We have also detected certain climate cycles ultimately related to solar

causes or the North Atlantic Oscillacion (NAO)", according to García-Alix. "Since we do not have direct indicators of these climate and environmental changes, such as humidity and temperature data, in order to conduct this research we have resorted to indirect indicators, such as fossil polen, carbons and organic and inorganic geochemistry within the sediments".

Provided by University of Granada