

# Analysimg More Than 20-Million-Year-Old Vegetation Study Climatic Evolution

The research work is based on the study of samples obtained in sedimentary bowls from the south of Spain to Turkey. The results drawn in the project point out that 14 million years ago, glaciations in the south pole caused a **climatic change**, that turned from subtropical to warm.

C@MPUS DIGITAL The characteristics of the vegetation that inhabited Earth 21 million years ago can be vital to get to know climatic evolution in the last million years and the causes for these changes. A thesis of the University of Granada has analysed samples of the sedimentary bowls of the geographic section from the south of Spain to Turkey to check that 14 million years ago there were glaciations in the south pole that changed the ruling subtropical climate into warm and transformed the characteristic vegetation of this area. A result that can be "vitally important to determine if the present climatic change is due to a natural period or, on the contrary, it is a consequence of the bad management of man", according to the author of the work, Gonzalo Jiménez Moreno.

Although the project has been focused on the palynological study of numerous localities of the Miocene, the conclusions obtained suggest that the cooling experienced in the planet 14 million years ago also extended to Upper Miocene, Pliocene and Pleistocene, with the respective change in the climate and the vegetation.

## Pollen analysis

From the remains of pollen it has also been possible to characterize a climatic latitudinal gradient in the southwest of Europe and climatic changes with regard to Milankovitch cycles (the Serbian astrophysicist Milutin Milankotovitch who devoted his career to develop a mathematical theory of climate in which he established, among other results, that changes in the seasonal distribution of sunshine, due to astronomical factors, are the responsible for the expansion and retreat of the big glacial layers). In addition, the scientist of the University of Granada points out that another reason for the drop in temperature and the transformation of the vegetation was "the progressive raising of the European Alpine Arch during the Miocene".

The importance of this study, which has been published in one of the most prestigious journals of this field "Palaeogeography, Palaeoclimatology, Palaeoecology", lies, according to Jiménez Moreno, in the fact that "to the available data of the past we will be able to know how vegetation will behave when there are **climatic changes** and if those transformations are due to a natural phenomenon or a bad action of man".-Universi Granada

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