



Vegetation history and quantitative climate estimates in Balkan peninsula from Maliq and Ohrid pollen sequences (Albania): the last climatic cycle, the lateglacial and the Holocene

A. Bordon (1,2), Odile Peyron (1), A.-M. Lézine (2)

(1) Laboratoire de Chrono-écologie, UMR CNRS 6565, Université de Franche-Comté, 16 route de Gray, 25030 Besançon, France, (2) Laboratoire des Sciences du Climat et de l'Environnement, UMR CNRS-CEA 1572, Orme des Merisiers, 91191 Gif-sur-Yvette, France (amandine.bordon@free.fr / (+33)1 69 08 38 63)

Pollen-climate transfer function based on a new modern pollen dataset comprising 2748 samples, has been applied on the late deglacial-holocene pollen sequence of Maliq (Albania) previously published by Denèfle et al (2000).

This provides the first monthly climate reconstructions of middle-altitude areas of Southern Balkans. At Maliq (40°21'N, 20°25'E, 818m altitude), the climate was highly contrasted during the late glacial. The monthly temperature and precipitation estimates at Maliq show that: (1) the vegetation was affected by global climatic events such as Oldest Dryas, Younger Dryas and the 8.2 ka event, (2) despite a decrease of annual precipitations, their seasonal distribution allows the survival of the most resistant temperate forest species such as *Quercus* deciduous, (3) during the Holocene, the values of the climate parameters are similar to modern values, except during the 8.2 ka event. As in Ioannina (Prentice et al., 1992), during the short-time climatic events, drastic decreases in temperature has been highlighted. But the detailed monthly climate reconstructions at Maliq show rainfall seasonality changes during these events, with a drastic decrease of autumn to spring precipitations.

This method has been applied on the last climatic cycle pollen sequence of Ohrid (40°55.000N, 20°40.297E, 705 m altitude). This pollen sequence shows two distinct phases, at the 6/5 glacial-interglacial transition and during the Eemien, as in Ioannina

(Tzedakis et al., 2003). The first one is characterized by the development of the mixed oaks forest, associated with Mediterranean forest elements. The second one is marked by the extremely fast development of the hornbeams and coniferous forest. Due to the higher altitude, the coniferous forest at Ohrid is better developed than at Ioannina. At the end of the interglacial, *Picea* develops at Ohrid suggesting the presence of winter frosts.

Denèfle, M., Lezine, A.-M., Fouache, E., and Dufaure, J.-J. (2000). A 12,000-Year Pollen Record from Lake Maliq, Albania. *Quaternary Research* 54, 423-432.

Prentice, I.C., Guiot, J., Harrison, S.P. (1992). Mediterranean vegetation, lake levels and palaeoclimate at the Last Glacial Maximum. *Nature* 360, 658-660.

Tzedakis, P. C., Frogley, M. R., and Heaton, T. H. E. (2003). Last Interglacial conditions in southern Europe: evidence from Ioannina, northwest Greece. *Global and Planetary Change* 36, 157-170.