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Rapid climatic variability in the west Mediterranean during the last 25 000 years from high resolution pollen data

N. Combourieu Nebout¹, O. Peyron², I. Dormoy², S. Desprat¹, C. Beaudouin², U. Kotthoff³, and F. Marret⁴

¹Laboratoire des Sciences du Climat et de l'Environnement, UMR 1572 CNRS/CEA/UVSQ, 91198 Gif sur Yvette Cedex, France

²Laboratoire de Chrono-Environnement, UMR 6249 CNRS, Université de Franche-Comté, UFR des Sciences et Techniques, 16 route de Gray, 25030 Besançon, France

³Department of Geosciences, Hamburg University, Bundesstrasse 55, 20146 Hamburg, Germany

⁴Department of Geography, Roxby Building, University of Liverpool, Liverpool, L69 7ZT, UK

Abstract. High-temporal resolution pollen record from the Alboran Sea ODP Site 976, pollen-based quantitative climate reconstruction and biomisation show that changes of Mediterranean vegetation have been clearly modulated by short and long term variability during the last 25 000 years. The reliability of the quantitative climate reconstruction from marine pollen spectra has been tested using 22 marine core-top samples from the Mediterranean. The ODP Site 976 pollen record and climatic reconstruction confirm that Mediterranean environments have a rapid response to the climatic fluctuations during the last Termination. The western Mediterranean vegetation response appears nearly synchronous with North Atlantic variability during the last deglaciation as well as during the Holocene. High-resolution analyses of the ODP Site 976 pollen record show a cooling trend during the Bölling/Allerød period. In addition, this period is marked by two warm episodes bracketing a cooling event that represent the Bölling-Older Dryas-Allerød succession. During the Holocene, recurrent declines of the forest cover over the Alboran Sea borderlands indicate climate events that correlate well with several events of increased Mediterranean dryness observed on the continent and with Mediterranean Sea cooling episodes detected by alkenone-based sea surface temperature reconstructions. These events clearly reflect the response of the Mediterranean vegetation to the North Atlantic Holocene cold events.

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