



## **Climate variability and paleoenvironmental reconstruction in the Central-Western Spanish Pyrenees during the last 30,000 yr: El Portalet lacustrine sequence**

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A multiproxy paleoenvironmental study has been performed at El Portalet peatbog site (1802 m a.s.l., 42°48'00" N, 0°23'52" W), located in the central-western southern slope of the Pyrenees (Spain). Palynological, sedimentological and stable isotopic analyses of carbonates and organic matter performed on the 6 m long sequence reflect the vegetation history and the paleoclimatic evolution in the region over the last 30,000 years. The high-resolution analyses in some intervals of the sequence and the well-constrained chronology (13 AMS <sup>14</sup>C) provide an exceptional archive of the climatic events occurring during the Lateglacial period. The patterns shown by the sedimentological and palynological data correlate with the rapid climate changes recorded in Greenland ice cores. The coherent response of the vegetation and the lake system to abrupt climate changes (Heinrich Events 3 to 1, Oldest and Older Dryas Stades, Intra-Allerød Cold Period and 8200 yr B.P.) implies an efficient translation of climate variability from the North Atlantic to mid latitudes. In addition, our results confirm that deglaciation processes occurred earlier in southern than in northern European latitudes, and point to a glacial re-advance in the Pyrenees coinciding with the global Last Glacial Maximum.