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**The Late-Quaternary Climatic Signal According to Palynology in a Deep-Sea Turbiditic Levee (Rhône Neofan, Gulf of Lions, Northwest Mediterranean)**

The core MD99-2344 (2326 metres water depth and 10.77 metres long) was retrieved on the outer right levee of the Petit-Rhône turbiditic neofan. The sedimentary facies consist of 8.50 metres of more than one hundred, stacked, centimetric, fine grained turbidites, overlaid by 2.30 metres of carbonate oozes (hemipelagites) spanning the last deglacial and the Holocene. Pollen and dinocyst studies of the muddy top of the turbiditic layers and of the oozes clearly show the sources of the sediments. The turbidites display a fluvial source (abundant pollens and no dinocysts), the oozes display a marine source (abundant dinocysts and no pollens). The limit between these two facies corresponds to the starvation of the deep-sea fan when the river disconnected from the canyon, during the sea level rise. Within the turbidites, the pollen signal is similar to that recorded on the shelf (i.e. closer to the river mouth). The transition from dominantly altitude taxa to dominantly steppe taxa has been identified and is correlated to an age of 18.4 ka (<sup>14</sup>C, BP), with respect to the pollen record on the shelf. The upward increase of Pine pollen grains is interpreted as the retreat of the river mouth, in relation with sea level rise. The coeval decrease of reworked elements (Mesozoic and Cenozoic) is interpreted as a decrease of the continental erosion. Our study shows that palynological constituents are valuable paleo-environmental proxies (continental vs. marine environments, climate, eustatism) within turbiditic deposits, where other proxies (nannofossils, foraminifera) are absent or fail because of reworking.