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ABSTRACT BOOK



## **POLLEN RECORDS AND CLIMATOSTRATIGRAPHY: A POWERFUL TOOL FOR SHORT-TO LONG-DISTANCE CORRELATIONS OF CENOZOIC DEPOSITS**

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Palynology contributes for long to stratigraphy, based on presence-absence of plant taxa (i.e., families, genera or species), a method severely thwarted by longitudinal and mainly latitudinal-altitudinal distribution of plants.

Following pollen analysis applied to late Quaternary deposits, so successful not only for climate reconstructions but also for short-to long-distance stratigraphic correlations, we developed a similar approach for the whole Cenozoic thanks to actual botanical identification of pollen grains based on their complete and rigorous morphological examination. Usually, identifications are provided at the genus level considering that most of the modern genera existed since the early Paleocene.

The age of each studied exposed or drilled section is first determined using worldwide biostratigraphic markers (planktonic foraminifers, calcareous nannofossils, dinoflagellate cysts for marine sediments; micromammals for lacustrine deposits) and paleomagnetism. Then, pollen countings allow establishing diagrams in which pollen percentages and/or ratios express the climate evolution and match with reference oxygen isotopic curves. In such a frame, it is possible to identify similar and parallel climatic changes that may be reliably correlated. Illustrative examples are shown from the European and Mediterranean Pliocene and Miocene and from Paleocene and Eocene from the Arctic Ocean, i.e. from the icehouse and greenhouse worlds, respectively.

Finally, this Russian doll-like process, with biostratigraphic datation followed by climatostratigraphic correlations, may result in the astronomical deciphering of the most favourable sections. Such stratigraphic studies were supported by Total since 1970.