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Modern pollen distributions and their relationship with environmental gradient in Southern Morocco

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Terrestrial signals in marine sediment archives are frequently used for paleoclimate reconstructions. A little is known about the origin of terrestrial components such as pollen and spores, organic and inorganic elements in the sedimentary archives. The aims of this study is to investigate the geographic distribution pattern of pollen and spores in southern Morocco in relation to environmental gradients, and different transport mechanisms in order to link temporal variations in marine sediment cores to environmental changes in southern Morocco. Pollen taxa of *Argania spinosa*, Cichorioideae, Poaceae and Cyperaceae exhibit high percentages and concentrations in the semi-arid Souss Massa basin and the relatively humid Tensift basin accompanied with higher values of Fe/Ca and Ti/Al. Moreover, the simulation between distribution of *Olea/Phillyrea* and Ti/Al ratio suggests that *Olea/Phillyrea* are mainly dispersed by wind transport. However, *Artemisia* and *Quercus* distributions are limited to the south of High Atlas and the northern Anti Atlas. Chenopodiaceae, Caryophyllaceae, and Amaranthaceae (CCA) show a maximum percentages in littoral sites especially of Souss and Draa basins according to the important production of pollen quantities, the high values of CCA from north to south of study area are indicated the starts of Saharan-type climate with increasing values of *Acacia*, *Ziziphus*, *Asphodelus* and *Tamarix* taxa may indicate plants adaptation to droughts, and/or a dominant aeolian transport. The South of Morocco which is known by higher wind inflows and low rainfall during the year occurring as occasional events during the winter, we conclude that pollen are primarily transported by the NE trade winds and occasionally with rivers in the basins.