The late Quaternary palaeoenvironmental changes along the western South-American continental slope: A reconstruction based on dinoflagellate cysts and TEX_{86}

T. J. VERLEYE[1]

[1]Ghent University, Department of Geology and Soil Sciences, Research Unit Palaeontology, Krijgslaan 281/S8 WE13, Belgium.
thomas.verleye@ugent.be

There is still controversy about the impact and the extent of major high-latitude climate reversals such as the northern hemisphere Younger Dryas and the southern hemisphere Antarctic Cold Reversal. Particularly, the extent to which the southern hemisphere high-latitude ocean-atmosphere dynamics determine the southern South American climate, caused by shifts of the Antarctic Circumpolar Current (ACC) and southern westerly wind (SWW) belt, is still a matter of debate. A late Quaternary palaeoenvironmental reconstruction using dinoflagellate cysts and organic geochemical proxies was carried out at ODP Site 1233 (41°0'S, 74°27'W) in the Southeast Pacific, and allowed a better insight into the late Quaternary climate dynamics, i.e., temperature variations, latitudinal shifts of the ACC/SWW-coupled system, changes in the supply of nutrients, etc. Additionally, studies were carried out to improve and to refine environmental proxies such as the process length variation of *Operculodinium centrocarpum* as a density proxy, the knowledge of ecological preferences of certain dinoflagellate cyst species and the TEX_{86} index as a temperature proxy. These proxies subsequently allowed a more detailed reconstruction of the palaeoenvironment at Site 1233 during the last 25 kyr.

Our results demonstrate that climate variability in the Southeast Pacific mid-latitudes during the last 25 kyr is closely coupled to global atmospheric and oceanographic reorganisations. Both the northern and southern hemisphere high-latitudes play a crucial role in regulating millennial-scale climate variability, while the effects of variable tropical circulations seem to superimpose on the large scale fluctuations controlled by (sub)polar dynamics.