EGU24-1845, updated on 24 Dec 2024
https://doi.org/10.5194/egusphere-egu24-1845
EGU General Assembly 2024

Variability of the North Atlantic westerlies during MIS 31-16 (1.1-0.65 Ma) from SW Iberian margin records

Xiaowen Quan[1], Maria Fernanda Sanchez Goñi[1,2], Paul Moal-Darrigade[1], Qiuzhen Yin[3], and Josue Polanco-Martinez[4]

[1]Université de Bordeaux, Sciences et environnements, Environnements et Paléoenvironnements Océaniques et Continentaux, PESSAC, France (quanxw195@163.com)

[2]Ecole Pratique des Hautes Etudes, Paris Science Lettres University (EPHE, PSL), 75014 Paris

[3]Earth and Life Institute, Earth and Climate Research Center Université catholique de Louvain, 1348 Louvain-la-Neuve, Belgium-Belgique

[4]Unit of Excellence GECOS, IME, University of Salamanca, 37007 Salamanca, Spain

The driving mechanisms of the middle Pleistocene Transition (MPT) are still unclear but the most likely hypotheses are related to ice-sheet dynamic feedbacks, such as ice albedo, precipitation at the ice margins, elevation-temperature and the regoliths. Here we focus on the “precipitation at the ice margins” hypothesis. To test this hypothesis, we have analysed the pollen content of SW Iberian margin sedimentary sequences that document changes in the direction and intensity of the westerlies during the MPT. In my presentation I will show the pollen-based vegetation and winter rainfall changes in the adjacent landmasses of the southwestern Iberian margin during the MPT. Changes in the reconstructed vegetation from IODP Site U1386 (1.2-0.8 Ma), combined with IODP Site U1385 (0.8-0.67 Ma), and their comparison with changes in the North Atlantic Ocean thermal gradient reveal the variability in the intensity and position of the westerlies and in the position of the moisture source, respectively. Preliminary pollen results reveal a long-term decreasing trend in the Mediterranean forest cover during MIS 31-20 (1.1-0.8 Ma), associated with long-term southward migration of the thermocline water source. This trend abruptly shifted northward at 0.8 Ma, and probably was related to progressive northward shift of the westerlies that bring moisture to the margin of the ice sheets feeding the ice caps, and leading to the shift of the dominant ice sheet cyclicity from 41 kyrs to 100 kyrs.