MILLENIAL-SCALE AMAZONIAN VEGETATION CHANGES DURING THE LATE PLEISTOCENE

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ABSTRACT

The knowledge of the Amazonian landscape evolution and the vegetation-climate relationship allow us to better understand processes related to this singular biodiversity origin and the potential consequences of the ongoing climate changes to the region. The Late Pleistocene was marked by regional vegetation changes in response to important climatic oscillations at different timescales. The extension of these changes and how they took place remain a much-debated topic. In particular, the impact of the millennial-scale climatic changes on the vegetation is still poorly known due to the scarcity of high-resolution archives. Marine sediment deposits close to large drainage basins can potentially record a regional continental signal, from which we can access its paleoenvironmental history. As such, palynology represents an essential tool for assessing past floristic shifts. The Amazon River delivers great amounts of suspended particles to the ocean altogether with pollen grains sourced from several Amazonian ecosystems, especially those at the lowlands. Our research is based on palynological and microcharcoal analyses on the marine core GeoB16224-1 (6°39.38'N, 52°04.99'W), retrieved from an area under the influence of the Amazon sediment plume on the French Guiana continental slope. The main objective is to investigate the response of the Amazon vegetation to the Late Pleistocene millennial-scale climatic changes between ca. 47–12.8 ka. Thus, we opted for an average temporal resolution of approximately 250 yr. Preliminary results indicate the predominance of pollen grains from herbaceous taxa, such as Poaceae and Cyperaceae. The second most abundant group is composed of cold-adapted taxa, mainly Podocarpus, Hedyosmum, Ilex and Alnus, which increase towards the Last Glacial Maximum, ca. 19.6–24.6 ka BP. The tropical forest taxa group shows a great diversity but in a relative low abundance and is composed of taxa such as Alchornea, Malpighiaceae, Moraceae/Urticaceae, Schefflera and Cedrela/Trichilia. The pollen assemblages indicate significant shifts in the vegetation composition related to the Late Pleistocene climate changes.

Keywords: Palynology; Quaternary; Amazon.