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ONOCERANE I WITNESSES TO DRY CLIMATIC PHASES AT THE END OF LAST GLACIAL MAXIMUM AND DURING THE YOUNGER DRYAS IN NORTHERN BRAZIL

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Onocerane-related compounds are very uncommon molecules that are seldom encountered in the plant kingdom and even more rarely in sediments. In living plants, onoceranoids have been isolated from taxa as diverse as ferns, club mosses and Fabaceae. In this latter, onocerin (onoceranediol) is supposed to render the roots water-impermeable and to allow the plants belonging to this genus to colonize water-depleted media. In sediments, onoceranes have been observed up to the Carboniferous but mainly in post-Cretaceous series always deposited in continental settings (lacustrine, intramontane basins, lagoonal or brackish contexts).

We here report on the first occurrence of onocerane I in Late Pleistocene and Quaternary sediments, collected in a lake located almost under the Equator (Lagoa do Caço, NE Brazil). The comparison of onocerane I abundance with palynological results all through the last 20,000 years allow us to exclude ferns and club mosses as possible producers of onocerane in this setting. Onocerane I is only found in significant amounts in two distinct sedimentary intervals: the first, rapidly deposited at the end of Last Glacial Maximum (c.a. 21,000 cal yrs B.P.) and the second during the Younger Dryas (between 13,000 and 12,000 cal yrs B.P.) (figure 1). These two periods are both documented as having been dryer than those prevailing presently. Therefore, the presence of onocerane I in the sediments deposited during these two intervals testimonies to the development of plants adapted to water-deficient environments. No evidence of a possible precursor can be deciphered from palynological results, probably due to the poor conservation of the pollen of these plants.

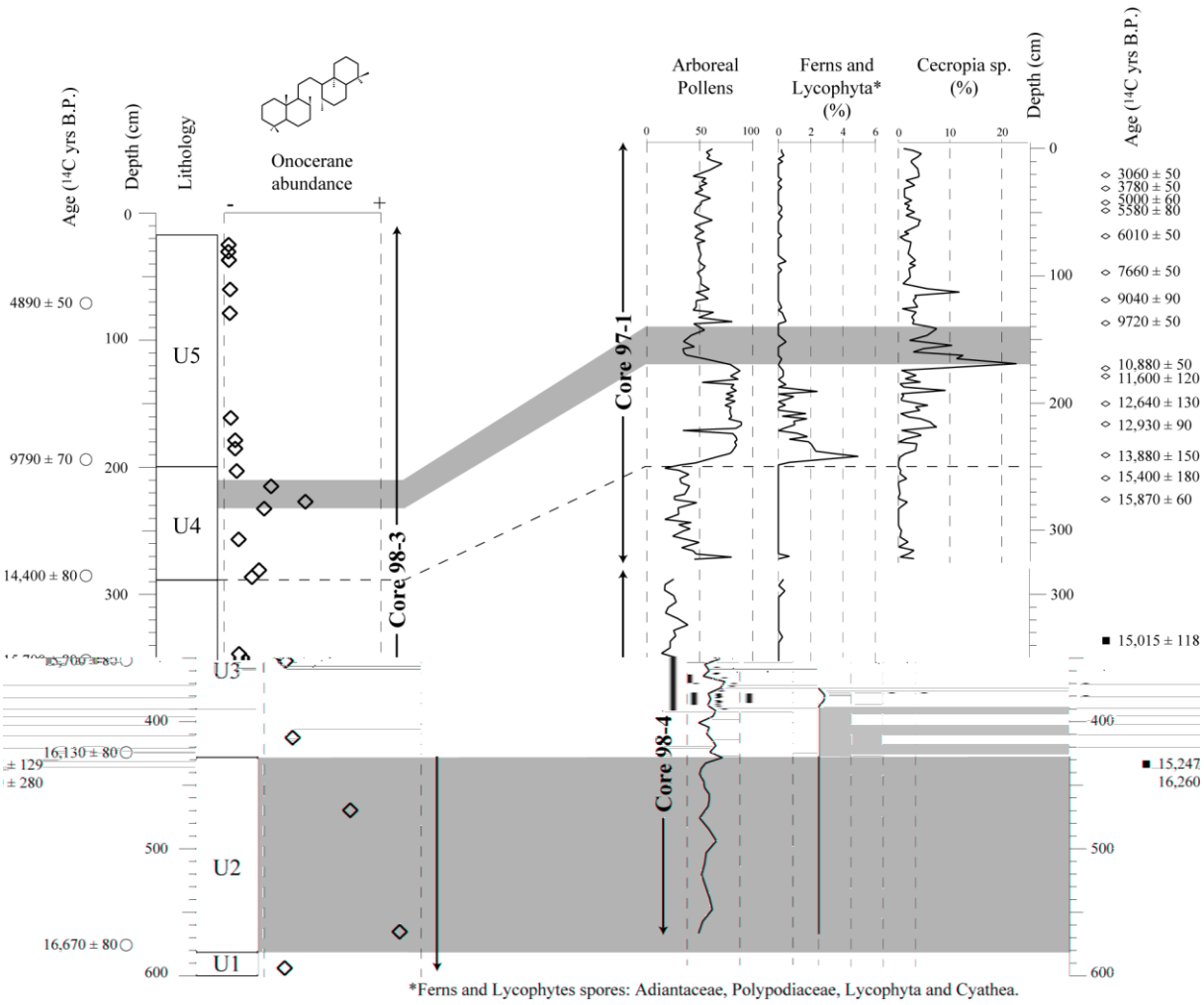

Figure 1: Onocerane abundance compared to pollen results

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