

LATE QUATERNARY CLIMATIC CHANGES IN TROPICAL SOUTH AMERICA, INFERENCES FROM TERRESTRIAL AND MARINE POLLEN RECORDS

BEHLING, H., Center for Tropical Marine Ecology, Fahrenheitstr. 1, 28359
Bremen, Germany, email: hbebling@zmt.uni-bremen.de

The increasing number of pollen analytical studies of tropical South America, including marine pollen records, shed more light into past vegetational changes and their climatic implications. Studies from different Amazon regions indicate changes in precipitation and temperature. Pollen records from different savanna and forest/savanna transition regions document that the area of rainforest was during full glacial and early Holocene times much smaller than today. Changes seem to be mostly synchronous in the savanna regions north and south of the equator. This suggests that the latitudinal migration of the intertropical convergence zone (ITCZ) may have played an important role. Marine pollen dates e.g. from the upper continental slope off NE Brazil indicate the predominance of semi-arid caatinga vegetation in NE Brazil during the last glacial. The increased fluvial input of high concentrations of pollen and specially fern spores, into the marine deposits, about 40,000, 33,000 and 24,000 $14C$ yr BP and between 15,500-11,800 $14C$ yr BP, indicate short-term periods of high precipitation on the NE Brazilian continent.

Data from SE Brazil show, that during full glacial times modern tropical semi-deciduous forests were mainly replaced by grassland, which shifted at least over 750 km from S to SE Brazil, reflecting dry and cold climatic conditions. A cooling of at least 5 - 7 $^{\circ}C$ is suggested for the full glacial. There is also evidence that tropical Atlantic rain forest in S Brazil were significantly reduced and replaced by cold adapted forest or grassland. Changes of the high pressure cell over the South Atlantic, as well as changes in frequency of the tracks of the Antarctic cold front have played an important role.