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# DUNEFIELD STABILIZATION DURING THE HEINRICH STADIAL 1 CLIMATIC EVENT: THE CASE OF LENÇÓIS MARANHENSES, NORTHEAST BRAZIL

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Resumo

The Lençóis Maranhenses dunefield is located in Northeast Brazil, South America. The active dunefield is the largest coastal dunefield in South America. Eolian features stabilized by vegetation can be observed inland in an area of approximately 16,000 km2, sixteen times larger than the active dunefield itself. Ten sandy samples were collected for luminescence dating (OSL-SAR) in pits and outcrops in previously mapped areas with stabilized aeolian dunes. OSL-SAR ages of stabilization of these features are between 19 and 14 ky, a narrow time interval in the Pleistocene which comprises the climatic event HS-1. During this event the intensity of trade winds decreased and precipitation increased in the area due to a greater influence of the Intertropical Convergence Zone, which was shifting southward. The weakening of the Atlantic Meridional Ocean Circulation (AMOC) induced a southern shift of the intertropical convergence zone (ITCZ) during the HS-1, resulting in a longer wet season and decreased wind strength in Northeast Brazil. These climatic variations reduced the capacity of aeolian transportation and led the dune field system to stabilization. The OSL ages allow us to determine the end of activity of one of the largest Quaternary dunefield system (250x130 km) in South America. The stabilization of this huge dunefield during the Late Pleistocene provides evidence of the effect of global climate changes on Northeastern Brazilian landforms. The last major dune migration occurred approximately 16 ky ago, just after the LGM. So, it is probable that the dunefield development was linked to the lowstand sea level context of the LGM, while the dunefield stabilization was determined by the shift of the ITCZ to south during the HS-1 paleoclimatic event.