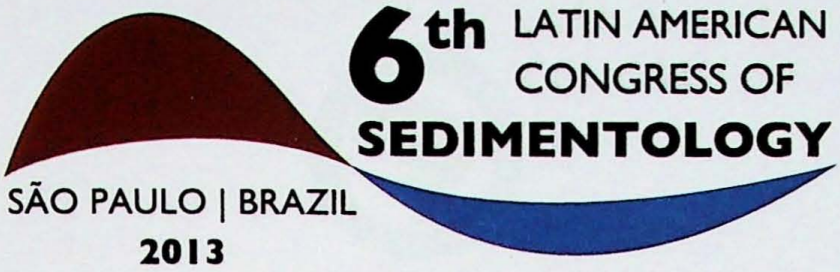

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The Quaternary aeolian record from Lençóis Maranhenses, Northeast Brazil

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Optically stimulated luminescence (OSL-SAR) ages obtained in aeolian deposits from the east coast of Maranhão State, Brazil, allowed the identification of at least four generations of dune fields, including the active one. The two oldest generations (G1/G0: OSL ages from 259±25 to 88±9 ky) were not distinguished by field criteria, only by geochronological data. Generation 2 corresponds to aeolian features stabilized by vegetation that occurs up to 135 km far from the present coast line. 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. These climatic variations reduced the capacity of aeolian transportation and led the dune field system to stabilization. Provenance analysis by heavy minerals allowed identifying the continental shelf eastward from the Parnaíba river mouth as the sedimentary source for the east coast of Maranhão State aeolian deposits, which is fed by alongshore littoral drift to west. The Parnaíba river apparently has a minor direct contribution as sedimentary source for active and inactive aeolian generations.