

LUMINESCENCE CHARACTERISTICS OF QUARTZ FROM BRAZILIAN SEDIMENTS AND CONSTRAINTS FOR OSL DATING

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This study analyzes the optically stimulated luminescence (OSL) characteristics of quartz grains from fluvial, eolian and shallow marine sands of north, northeastern and southeastern Brazil, with special focus on the applicability of the single-aliquot regenerative dose (SAR) dating protocol. All analyzed Brazilian sediments presented a fast component dominated OSL signals and reliable dose-response curves. These characteristics indicated that the sediments are favorable to luminescence dating and good behavior regarding their luminescence characteristics relevant for radiation dose estimation. However, some samples from the Lençóis Maranhenses region in northeastern Brazil showed inadequate OSL sensitivity correction, hampering the implementation of the SAR protocol and their ability to behave as a natural dosimeter. The sands of Solimões, Madeira and Amazonas rivers are composed of lithic polimineralic grains that contribute to the high IR signal. The quartz grains from the Solimões, Madeira and Amazonas rivers have a good performance as radiation dosimeters even in the presence of feldspar contamination. While the shallow marine and eolian samples showed a narrow and reliable dose distribution, most of the fluvial samples have a wide dose distribution, suggesting incomplete bleaching and natural doses estimates dependent on age models.