

THE SEARCH OF A PROVENANCE PROXY OF THE SEDIMENTS FROM MARINE CORE GEOB 6211-2 USING GRAIN TEXTURE AND LUMINESCENCE METHODS

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RESUMO

Previous studies of sediments from marine core GeoB 6211-2 collected at the upper margin of the Rio Grande Cone off Southern Brazil provided paleoenvironmental data of the last 14 ka (thousand years ago). These studies established the provenance of sediments associated with environmental changes, using grain-size distribution, diatom count, major element concentration, and magnetic methods. Our current study seeks a different approach to determine the provenance of these sediments by combining heavy mineral and quartz grain texture and luminescence data. Heavy minerals will be analyzed using the optical microscope and Raman spectrometry. Quartz-grain textures will be investigated by the optical microscope and the scanning electronic microscope (SEM). We plan to use two luminescence methods to establish the provenance of sediments using quartz grains. The first method is luminescence sensitivity, which is the luminescence intensity measured in response to a unit radioactive dose. This analysis will encompass optically stimulated luminescence and thermoluminescence sensitivities using multi- and single-grain aliquots in a RISO reader. The second luminescence method consists of hyperspectral cathodoluminescence analysis of selected quartz grains, using a cathodoluminescence system with a spectrometer attached to an SEM platform. A growing body of evidence shows that these luminescence methods provide data that can be related to the provenance of sediments. To illustrate the use of these grain analysis methods, we will show a preceding study conducted by André Zular on the provenance of sediments from an archeological site at the Negev desert, Israel.

Palavras-chave: provenance; heavy mineral analysis; luminescence sensitivity of quartz grains; cathodoluminescence.