

Estimation of the mixing ratios of quartz in the possible source rocks that make up the present river bed sediments by using ESR

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Bedrock is broken down by weathering into unconsolidated materials, which are then carried downstream by rivers. When a new procedure for clarifying provenance of sediment is established, it can give significant information on the erosion processes, river contention, and crustal movement suggesting the environments at the time of sediment transportation.

Recently, Electron Spin Resonance (ESR) signals are used as indicators of sediment provenance. The E_1' center signal intensity of quartz is shown to be a useful parameter to investigate the provenance of aeolian dust [1] - [3]. The Al, Ti-Li, and E_1' center signal intensities of quartz are useful in determining sediment provenance [4]. The Al and Ti-Li center signal intensities of quartz are possible to estimate the mixing ratios of sediment provenance [5].

In this study, we will report estimation of the mixing ratios of the source materials that make up the present river bed sediments by using ESR signal intensities of Al, Ti-Li and E_1' centers.

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