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From rock to clay: isotope-geochemical study: Toward provenance study

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The importance of reconstructing sediment provenance lies in many earth sciences fields of interest. Siliciclastic rock compositions represent a complicated relationship between origin, sedimentation cycle and processes. These rocks are usually dominated by quartz and may include rock fragments, feldspars, heavy minerals, and clay. In contrast to other constituents, clay is a weathering product and does not directly reflect the original rock. Probably this is why clays are not used as a proxy for sediment origin. The current study explores the potential use of clay's isotopic and geochemical compositions as proxies for their source. This aim uses three isotopic systems (Rb-Sr, Sm-Nd, and Pb-U-Th), clay geochemistry and mineralogy. For this, clay separated from exposed magmatic rocks is compared to unweathered rock (as possible). The mineralogy, elemental composition and isotopic composition are determined on clays, saprolite and rock.