

Use of major, minor and REE elements to characterize weathered granitoids from the Catalan Coastal Ranges (NE, Spain)

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In this work we compare major, minor and REE elements of fresh and weathered sample pairs of granitic rocks (Fig. 1) to discern whether or not weathered rock samples allows the identification of different granitoid types from a geochemical point of view.



Figure1: Fresh and weathered sample pairs of granitic rocks.

Rock sample pairs were collected in the late Variscan granitic plutons of the Montseny and Guillerics massifs (Catalonian Coastal Ranges, NE Spain). Weathered and fresh sample pairs of medium grain size biotitic-hornblendic granodiorites and medium to large grain size biotitic monzogranites were collected for this study.

For the weathered rocks we conclude that: 1) Weathering indices correspond to the early stages of weathering and in no case correspond to intermediate and final stages of transformation into a soil. 2) Mobility of major elements is: $Ca > Mg > Fe > Na > K > Al > Si$. 3) LREE and HREE similarities of fresh and weathered pairs, also indicates early stages of weathering. 4) Projection of major and minor elements into geochemical and geotectonic diagrams can be useful to identify weathered plutonic granitic rocks.