

Rare earth element geochemistry in fresh rock-weathered rock-soil

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In order to use rare earth elements(REEs) as a tracer for clarifying provenance of stream sediments, we reconfirmed invariability of REE patterns in weathering and soilification. However, Nesbitt[1] suggested that the rare earth element had been mobilized and fractionated during supracrustal alteration of the Torrongo granite, southeastern Australia. Nevertheless, recently, our replicate estimation for REE patterns in sediments revealed that there is nearly no variation in chondrite-normalized REE patterns. Therefore, based on our recent data for REE geochemistry, to confirm consistent characteristics of rare earth elements(REEs) pattern normalized by standard material and apply it to trace the provenance of stream sediments, we estimated REE abundance for fresh rock, weathered rock and soil at the same site (See Figure 1). In Figure 1, Eu/Eu^* and $(La/Yb)_N$ are similar to one another. Our results show that there was no variation in REE patterns regardless of weathering degree and soilification of original granitic rock.

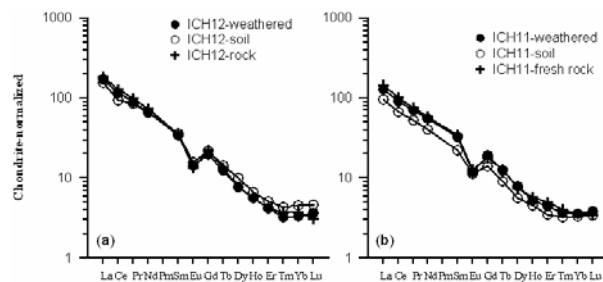


Fig. 1. Chondrite-normalized REE patterns for granite, weathered granite and soil.

Reference

[1] Nesbitt, H.W.(1979) Nature **279**, 206-210.