

Geochemical Correlation and Distinction between Similar Meta-sedimentary Units from the Eastern Alps

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A study based on major and trace element geochemistry has been done on meta-sedimentary rocks coming from four lithostratigraphic units, showing identical petrographic features and metamorphic characters, in order to detect geochemical similarities or differences among them. The four lithostratigraphic units (named B, T, M and R) crop out at the boundary between the Merano-Mules and Monteneve metamorphic complexes, belonging to the Austro-alpine crystalline basement of the Alps. In the study area, the passage from one complex to the other is not sharp and the lithostratigraphic setting is still ambiguous. XRF and ICP-MS analyses were carried out on rocks collected, from the four units, along a cross-section through the boundary between the two complexes. Considering both major and trace elements as variables, chemical data have been treated by statistical analysis. Cluster analysis pointed out that rocks from the sampling area B form a well defined group with respect to the samples from the other areas. The contents of several major

trace elements, or combinations thereof, have been plotted in binary and ternary diagrams. Some of them confirm the common pelitic character of the protoliths and others clearly show systematic differences between the B group and the other samples. Chemical data have been plotted in the A-CN-K diagram (Nesbitt & Young, 1984, 1989) to obtain information on the nature of the protoliths and on processes which may have occurred prior to metamorphism. Samples from the B group and samples from the other groups plot along two different alignments. They should represent a short part of trends corresponding to an intermediate stage of weathering of rocks derived from two different sources, and could have been affected by slight K-metasomatism.

Nesbitt HW & Young GM, *Geochim. Cosmochim. Acta*, **48**, 1523-1534, (1984).

Nesbitt HW & Young GM, *J. Geol.*, **97**, 129-147, (1989).