



Provenance signatures from heavy mineral analysis and garnet geochemistry of river sediments from the southern Tauern window (Eastern Alps, Austria)

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The mineral chemistry of heavy minerals has been widely used to identify, discriminate, and characterise sediment source areas. In particular, the heavy mineral garnet has important implications for the identification of the potential lithologies exposed in the source area(s) and their evolution through time because it has a wide range of major element composition and of its high importance in defining metamorphic conditions.

We sampled stream sediments and adjacent source-rocks in the southern Tauern window of the central Eastern Alps in Austria. The Tauern window exposes an old continental basement belonging to the European foreland. Our study area encompasses metamorphic rocks in the Dorfertal, Timmeltal and Frosnitzal valleys, and accompanying sediments from recent rivers. Heavy mineral assemblages and major element composition of garnets are used to study the source to sink relations. The studied rivers are draining the same geological (well-defined) source area (i.e. Venediger nappe, Eclogite zone, Glockner nappe). In our research, we like to answer following question: Do the recent river sediments show similar heavy mineral suites and garnet composition compared with those present in the source rocks?