"The Cenerian orogeny – an interpretation of the early Paleozoic orthogneisses and amphibolites in the context of a peraluminous arc system"

The pre-Mesozoic basement units in the Alps are well known for their late Paleozoic granites, which intruded early Paleozoic gneiss terranes, mainly composed of paragneisses, orthogneisses and amphibolites. The large volumes of paragneisses with greywacke composition favor the setting of an accretionary complex at an active margin. The steep sheets of orthogneisses are predominantly (strongly) peraluminous. Their volumetric proportion indicates melting of the lowermost 5 km of the accretionary complex. The corresponding heat transfer occurred in “intermingling zones” where migmatites are closely associated with amphibolites (e.g., Aar massif). Most amphibolites are banded and might represent mylonitized equivalents of such “interminglings”. In addition, eclogitic amphibolites and meta-ultramafics point to the subduction of an oceanic slab.

These gneiss terranes show a similar geology like other Variscan basements in Europe and elsewhere on the globe, where peri-Gondwanan subduction-accretion complexes cratonized during peraluminous arc magmatism.