Late-Variscan – early Alpidic magmato-sedimentary evolution of a rifted continent: examples from the Tauern Window

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The late- and post-Variscan magmato-sedimentary evolution is documented in rock associations outcropping in the western Tauern Window. This area marks the southeastern part of the Variscan orogenic belt which evolved into a continental margin during the breakup of Pangea. An extensional regime governed the time span between Late Carboniferous and Middle Jurassic, when post-rift subsidence started and led to widespread flooding in Late Jurassic times.

Our studies focus on the late Palaeozoic history, when extension within the Variscan crust led to the formation of intramontane graben systems and favored the generation and emplacement of granitoid melts, mainly as granodioritic sills or laccolithic bodies within the basement. Volcaniclastic layers and tuffs or ignimbrites were embedded at different levels of the post-Variscan sediment sequence.

Widespread basement-exhumation affected the graben fillings. Fining-upwards sequences of clastic sediments filled the tectonic grabens which were separated by horsts of early Variscan crystalline basement or late Variscan granitoid intrusives. The studied area has undergone Alpine metamorphism and deformation which erased much information. However, new U-Pb age determinations on zircons and geochemical data of volcanic layers and plutonic rocks (Zentralgneise) allow now a reconstruction of the sedimentary and tectonic evolution in the time span between the late Variscan orogenic collapse and the early Alpine subsidence.