

STRUCTURAL EVOLUTION OF PENNINIC BASEMENT THRUST SHEETS IN THE TAUERN WINDOW: IMPLICATIONS FOR MESOZOIC PALEOGEOGRAPHY OF THE EASTERN ALPS

KURZ, Walter¹, NEUBAUER, Franz², GENSER, Johann², DACHS, Edgar³, UNZOG, Wolfgang¹

¹Institut für Geologie & Paläontologie, Universität Graz, Heinrichstraße 26, A- 8010 GRAZ. e-mail: walter.kurz@kfunigraz.ac.at

²Institut für Geologie & Paläontologie, Universität Salzburg, Hellbrunnerstraße 34, A- 5020 SALZBURG.

³Institut für Mineralogie, Universität Salzburg, Hellbrunnerstraße 34, A- 5020 SALZBURG.

The Penninic oceanic sequence of the Glockner Nappe and the foot-wall Penninic thrust sheets of continental basement exposed within the Tauern Window (Eastern Alps) have been investigated in detail. The basement slices are covered by sedimentary sequences of different geodynamic settings. These units are incorporated into a nappe stack that was formed during the collision between a Penninic Zentralgneis block in the north and a southern Austroalpine block. In the foot-wall the Venediger Nappe and the Storz Nappe are characterized by metamorphic Jurassic shelf deposits (Hochstegen Group) and Cretaceous flysch sediments (Kaserer and Murtörl Groups). In the hanging-wall the Eclogite Zone and the Rote Wand - Modereck Nappe comprise Permian to Triassic clastic sequences (Wustkogel Quartzite) and remnants of platform carbonates (Seidlwinkl Group) as well as Jurassic volcanoclastic material and rift-sediments (Brennkogel Facies), covered by Cretaceous flyschoid sequences. The Permian to Jurassic evolution documents an extensional regime. Rifting within a simple shear regime resulted in the formation of an oceanic basin (South Penninic Glockner basin). The units that are incorporated within the Rote Wand - Modereck nappe probably formed an extensional allochthon within this basin. Nappe stacking was contemporaneous to and postdated subduction-related (high pressure) eclogite and blueschist facies metamorphism. Emplacement of the eclogite-bearing units of the Eclogite Zone and the Glockner Nappe onto Penninic continental units (Zentralgneis block) occurred subsequent to eclogite facies metamorphism. The Eclogite Zone, a former extended continental margin, was subsequently overridden by a pile of basement-cover nappes (Rote Wand - Modereck Nappe; former extensional allochthon). An alternative explanation for the emplacement of this unit is a ductile out-of-sequence thrust. Low-angle normal faults that have developed during the Jurassic extensional phase might have been inverted during nappe emplacement.