Geophysical Research Abstracts, Vol. 8, 06651, 2006
SRef-ID: 1607-7962/gra/EGU06-A-06651

Balancing of Alpine shortening in north-eastern Calcareous Alps (Wienerwald, Austria): accommodation of strike-slip displacement?

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The north-easternmost Northern Calcareous Alps (NCA) outcropping in the Wienerwald exposes a section which is different in structure from all other portions of the NCA unit. In contrast to the area west of the ca. E-W striking, newly identified dextral Kaumberg fault (see also Neubauer et al., this volume), which separates there NCA from the Rhenodanubian Flysch zone, the NCA Wienerwald is characterized by nearly NE-trending isoclinal folds with ca. subvertical to steeply southeastward directed axial surface and associated thrusts, which seemingly overprint earlier, gently S-dipping thrusts. This Wienerwald-Aderlaa fold zone (WAFZ) extends beneath the Vienna basin towards the Aderklaa region, is well identified by hydrocarbon exploration, and its formation is, therefore, older than subsidence of the Vienna basin. We tentatively identify the WAFZ to accommodate pre-Karpathian W-directed shortening at the front of the Bohemian spur by folding, whereas oblique thrusting is dominant mechanism to the W of Kaumberg fault. Balancing of folds yields an average value of shortening to ca. 40 percent of the pre-folding length. The shortening is therefore similar to the ca. 30 km dextral apparent offset along the Kaumberg fault. A detailed structure of surface structures show that palaeostress assessment of fault and striae yield a succession, which is compatible with proposed tectonic evolution of the region. The presence of nearly isoclinal folds with Upper Triassic Hauptdolomite Fm. in their fold cores also indicates that their thickness is tectonically reduced by blind thrusting in fold cores. Consequently, abundant rauhwackes at the apparent base of Hauptdolomite Fm. are explained to be of tectonic origin consistent with detailed investigations of their microfabrics and mineralogy.