Geophysical Research Abstracts,
Vol. 10, EGU2008-A-11065, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-11065
EGU General Assembly 2008

The ambiguity of the Bitlis massif in the Southeast Anatolia

1. Bousquet(1), R. Oberhänsli(1) O. Candan(2)

(1) Institut für Geowissenschaften, Universität Potsdam, Germany, (2) Jeoloji Mühendesi, Dokuz Eylül University, 35100 Bornova-Izmir, Turkey

Eastern Turkey is a high elevation plateau that has formed as a result of the collision of the Arabian Plate to Eurasia along the Bitlis-Zagros fold and thrust belt. The collision has also caused westward displacement and counter-clockwise rotation of the Anatolian block forming the right-lateral North Anatolian Fault Zone (NAFZ) and the left-lateral East Anatolian Fault Zone (EAFZ) . The region is considered as a part of Alpine-Himalayan system. The study of earthquake locations in the Arabian Plate and Anatolian plateau show that subcrustal earthquakes do not exist in the region. This observation strongly indicates the absence of the subducting Arabian Plate beneath the Anatolian plateau. Seismic studies (Al-Lazki et al. 2003; Gök et al. 2003) indicate that lithospheric mantle is either thinned or totally removed in the region. The crustal thickness are assumed to be thinner (45–48 km) relative to its high elevation of the plateau (Zor et al. 2003). This is interpreted The conclusion drawn from these observations is that Thus the eastern Turkey plateau is interpreted as being supported by a hot mantle but not a thick crust (Sengör et al. 2003). Lower crustal flow is an important geological process whose consequences we are only beginning to understand. It can allow extension at the surface to be distributed over a wider region than it is in the mantle part of the lithosphere, with profound implications for the relative vertical motions development in such regions.

The Bitlis Massif in south-eastern Anatolia, north of the Arabian Plate, constitutes part of the Anatolide-Tauride block, and is today accreted to the Eastern Turkey. Metamorphic studies carry on the Bitlis Massif allow to constrain the thermal evolution of

the massif by the occurrence of metamorphic index minerals. Glaucophane, relics of carpholite in chloritoid-bearing schists and pseudomorphs after aragonite in marbles document a LT - HP metamorphic evolution occur in the whole massif. This indicates that (i) the Bitlis massif represents a promontory of the Arabian indentor that was stacked to form a nappe complex during the closure of the Neo-Tethys and (ii) that the Bitlis massif never evidenced temperatures over 400˚C.

We will discuss consequences of the Bitlis massif evolution - a cold continental block within an hot environment- for the Eastern Anatolian plateau.