



The Eocene Chapedony metamorphic core complex in Central Iran: preliminary structural results

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Recently, U-Pb zircon dating of migmatite and granite of the Chapedony dome revealed the existence of a high-grade metamorphic core complex in Central Iran (Ramezani and Tucker, 2003, *Amer. J. Sci.*, 303, p. 622-665). Here, we report preliminary structural data from the Chapedony metamorphic core complex. The hanging-wall unit is represented by the Posht-e-Badam complex, which mainly contains greenstones, schists, gneisses, amphibolite and marbles. On top of it, a terrestrial Eocene collapse basin is exposed. We suggest that this basin is a result of extension related to exhumation of the Chapedony metamorphic core complex.

The dome structure is elongate in NNE-SSW direction and comprises mainly high-grade metamorphic rocks, migmatites and amphibole gneisses, which are cored by a number of post-kinematic granite and hornblende-diorite intrusions. These units yielded ages ranging from 44 to 47 Ma. Detailed geothermobarometry to reveal peak P-T conditions is in preparation. Along dome margins, ductile mylonitic shear zones are exposed, which mainly show a NE-SW-trend of both foliation and lineation mostly parallel to elongation of the dome. We interpret this Chapedony/Neybaz/Khoshoumi shear zone as a ductile low-angle normal fault in contrast to the previous thrust interpretation. The shear zone exposes a variety of mylonitic rocks ranging from protomylonitic augen gneiss through mylonitic orthogneiss to ultramylonite and phyllonite, mostly along upper boundary of the shear zone. These fabrics indicate that hydrothermal activity assisted to shearing by lowering of shear resistance. Structural data indicate that NE-SW stretching and tectonic unroofing contributed to dome formation. No Eocene ductile metamorphic overprint has been found in the hangingwall unit. The overlying Eocene terrestrial basin is considered to have formed at northeastern mar-

gin within a halfgraben-type rollover structure due to NE-SW extension. The basin is filled by bad-sorted sandstone and conglomerate with clasts, which are derived from the denudating Posht-e-Badam complex in the hangingwall of exhuming Chapedony dome.

The existence of the Eocene Chapedony metamorphic core complex reveals that the Iranian plateau was affected by magmatic underplating and crustal extension very similar to southern sectors of the Tibetan plateau. Consequently, similar plate tectonic processes might have formed structures in both regions.