

# **LOW-GRADE METAMORPHIC ROCKS IN THE ULTRAHIGH-PRESSURE METAMORPHIC TERRAIN FROM GANGHE, DABIE SHAN, CENTRAL CHINA: WITH IMPLICATIONS FOR CONTINENTAL SUBDUCTION**

1DONG, S., 1LIU, X., 2OBERHÄNSLI, R., 3RATSCHBACHER, L., 4HACKER, B. R. 1Inst. of Geomechanics, CAGS, Beijing 100081, China; 2Inst. für Geowissenschaften, Univ. Potsdam, D-14415, Germany; 3Inst. für Geologie, Univ. Würzburg, D-97070, Germany; 5Depart. of Geological Sciences, Univ. of California, 93106-9630, U.S.A

There has been much debate on the relationships between eclogites and associated rocks since coesite was discovered in eclogite from Dabie Shan, central China. Most geologists now accept that they underwent in situ UHP metamorphism based on petrological, structural and geochronological studies (e.g. Liou et al., 1996; Xue et al., 1996; Rowley et al., 1997). However, A recent study in the Ganghe area reveals that low-grade (LG) metamorphic volcanic and sedimentary rocks subjected to epidote-amphibolite to greenschist facies occur in the UHP metamorphic terrain. Primary sedimentary structures, such as graded, rhythmic and inclined bedding, and channel and slump structures, are well preserved in the meta-sedimentary rocks, and rhyolitic breccia, lithoclasts and plagioclase crystals are preserved in the meta-volcanic rocks. The progressive decrease both of metamorphic grade and deformational intensity from UHP rocks to LG rocks and the absence of a sharp tectonic boundary between them indicate that the LG rocks represent metastable relics barely affected during UHP metamorphism. The protolith age of ~790 Ma and metamorphic age of 232.2 Ma obtained from LG rocks, which agrees well with those from UHP rocks, suggest that both UHP and LG rocks shared the same evolutionary history since Late-Proterozoic times. Apart from a lack of deformation and fluid, rapid subduction, a short stay at mantle depths and rapid exhumation are necessary for the preservation of LG rocks in the subducted continental crust.