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Blueschists along the suture zone between the Ergun block and the Xing'an block in Inner Mongolia, northeastern China

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Blueschists and related metamorphic rocks are exposed in the Toudaoqiao area of the Honghuaerji-Yimin district in the Inner Mongolia, northeastern China. These HP metamorphic rocks occur along the Tayuan-Xiguitu fault, separating the Ergun block and the Xing'an block. The HP metamorphic area belongs to the eastern segment of the Xingmeng Orogenic Belt (Li and Oyang, 1998), and it is located in the eastern parts of the Central Asian Orogenic Belt (Sengor et al., 1993). The blueschists and the related metamorphic rocks have been found in 1980's, and preliminary geological study was performed (Ye et al., 1994). According to them, there are phyllites, glaucophane-albite-chlorite-epidote schists, chlorite-quartz schists, and albite-chlorite-glaucophane schists. The mineral assemblages suggest typical LT-HP conditions.

We have had an opportunity to have a field survey in the Toudaoqiao area, and collected blueschists and other metamorphic rocks. The blueschists consist mainly of chlorite, epidote, glaucophane, with subordinate amounts of white mica, quartz, albite, hematite, apatite and titanite. A schistosity is well defined by orientation of glaucophane and chlorite. Glaucophane is of euhedral to subhedral prismatic crystal with size up to 0.3mm long. It is partly replaced by chlorite along the rim and the cleavage. The chlorite is euhedral to subhedral, and its size is up to 0.3mm across. Epidote is of anhedral rounded grain with size up to 0.1mm across. White mica is of anhedral platy crystal, and its size up to 0.2mm across. Texture and the mineral assemblage of the blueschists suggest the metamorphic conditions of typical epidote-blueschist facies.

The HP metamorphic rocks in the Toudaoqiao area is located along the Tayuan-Xiguitu fault, that is supposed to be the boundary between the Ergun block and the Xing'an block (Ge et al., 2005; Sui et al., 2006). In the eastern side of the fault, there occour significant Xinlin ophiolite (Li, 1991) and the Tahe granite (Ge et al., 2005), and these indicate a suture zone. The collision is supposed to take place in the Early Paleozoic time(Ge et al., 2005). The precise study of the other parts of the fault have never been done so far. The present study on the metamorphic rocks, in the western part of the Tayuan-Xiguitu fault will contribute to better understanding the collision tectonics between the Ergun block and the Xing'an block.

Reference:

Li and Oyang, 1998, Marine Geology &Quaternary Geology, 18, 45-54; Sengor et al., 1993, Nature, 364, 299-307; Ye, H.W. et al., 1994, M-SGT Geology Issue, 73-83; Ge, W.C. et al., 2005, Chinese Science Bulletin, 50, 1239-1247; Sui, Z.M. et al., 2006, Global Geology, 25, 229-236; Li, R.S., 1991, Heilongjiang Geology, 2, 19-32.

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