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EARLY CRETACEOUS EXTENSION IN UPPER-MIDDLE CRUST OF NE ASIA: EVIDENCES FROM WIDESPREAD SYN-THINNING GRANITIC DOMES

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Numerous Early Cretaceous syn-thinning granitic domes are widespread in Mongolia and China-Mongolia border area. We observed relationships between deformation and magmatic activity that occurred in Baoder, Naran, Hanwula, Erdene, Altanshiree, Nartyn dome [Daoudene *et al.*, 2012; Cheng *et al.*, 2014; Guo *et al.*, 2015], which developed in eastern Mongolia and China-Mongolia border area during Early Cretaceous crust-scale NW–SE extension.

These domes consist of core Early Cretaceous granitic pluton (~130 Ma), ductile shear zone and brittle detachment fault from center to outside. The hanging walls are undeformed pre-Cretaceous granodiorite, Devonian schists and Early Cretaceous basin. Ductile shear zone and detachment fault mostly developed in

the southwestern part of these domes. Detailed field observation and microstructures showed that all the core pluton and ductile shear zones were formed in a same tectonic stress field, which indicated a unified top-to-the-NW shearing. The deformation grade increased toward outside. All those implied that formation of foliations of those domes are closely related to emplacement and uplift of the core plutons.

The granitoids in core plutons have geochemical similarities in major and trace elements. They are all plotted in the HKCA field and show high Fe* values that fall in the A-type granites field, similar to other Early Cretaceous A-type and highly fractionated I-type granites (with A-type characteristics) in the nearby regions [Wang *et al.*, 2015].

Thus, we suggest that these domes imply a unified top-to-the-NW shearing in the upper and middle crust with syn-thinning magmatism. They are similar to other extensional structures in NE Asia [Wang et al.,

2011, 2012], which reflected geological features of syn-kinematic magma emplacement during collapse of thickened crust caused by the closure of Mongol-Okhotsk ocean.

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