

2012 Robert E. Sheriff Lecture Student Abstracts

[These are ten of the 27 entries for the Sheriff poster series, presented as is. The remainder will be published next month along with identification of the winners. - Ed.]

Lithologic Correlations Across the Eastern North Pamir Suggest a Regionally Extensive Thrust Nappe

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Older, widely used, geologic maps of the eastern North Pamir show a collage of Paleozoic lithologies. Recent work has documented that many of these lithologies are Triassic in age and regional similarities in lithologies and structural relationships suggest a broad continuity in the tectonic architecture across the region. We compare two regional areas: 1) the Baoziya Thrust and Tanyamas Thrust are exposed north and northwest of the Muztaghata massif, in the hanging wall of the Kongar Shan normal fault. The Baoziya/Tanyamas thrust hanging-wall consists of upper greenschist to amphibolite facies schists and quartzites with abundant Triassic igneous intrusions. Detrital zircon analyses of the hanging wall yield Permo-Triassic maximum depositional ages and Late Triassic metamorphic age signatures (Robinson et al., 2004; 2012). The footwall of the Baoziya Thrust consists of greenschist facies marbles, phyllites, and quartzites with Triassic maximum depositional ages, whereas the Tanyamas thrust footwall consists of Paleozoic sandstones, limestones, and marls. 2) The Torbashi Thrust is exposed south of the Muztaghata massif as a large folded klippe in the hanging wall of the Shen-ti fault. Its hanging wall consists of amphibolite facies schists and gneisses with abundant igneous intrusions. Like the Baoziya/Tanyamas hanging-wall, the Torbashi Thrust hanging-wall yields Permo-Triassic maximum depositional ages and a Late Triassic metamorphic signature. The northern exposure of the footwall consists of greenschist facies marbles, quartzites, phyllites, and metavolcanics with Triassic metamorphic age signatures, whereas the southern exposure consists of Permian limestones and slates. Based on structural juxtaposition and lithologic similarities we correlate the north exposure of the Torbashi Thrust with the Baoziya Thrust, and correlate the southwest exposure of the Torbashi thrust with the Tanyamas thrust. We propose the Torbashi and Baoziya/Tanyamas faults were a continuous structure which formed a regionally extensive thrust nappe in the Northern Pamir. The thrust sheet was subsequently cut by the Muztaghata gneiss dome in the Miocene. ■

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