Tectonophysics

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7TIA MC: Hall D Sunday 0830h Tectonics of the India-Eurasia Collision Zone 1 Los Angeles

Presiding: P Kapp, University of California, Los Angeles

7TIA-01 0830h POSTER

Post-mid-Cretaceous Shortening Along the Bangong-Nujiang Suture and in West-Central Qingtang, Tibet

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The mechanics of Tibetan plate motion remains uncertain, largely due to the lack of field studies in central and northern Tibet. To begin characterizing Cenozoic deformation in this region, we conducted 12 new GPS monuments (Fig. 1) and identified 169 GPS data points, spaced over a distance of 906 km along the late Jurassic-Early Cretaceous Bangong-Nujiang suture (BNS), and along a 175 km long NS transect from the northwestern part of the Haicheng block to the Xigaze area in central Tibet. We also visited Qingtang, Germany, the northern part of the Qingtang, revealed a S-directed thrust system which intruded Mesozoic strata, episodic fragments and igneous rocks and places Perminian and Cretaceous strata over folded Tertiary conglomerates. Folded volcanic rocks unconformably atop the conglomerates and have been dated to be 19-20 Ma (Arenos and Vidal, 1993) to the present, for a minimum age for the timing of deformation. A preliminary cross-section constrains a minimum of 40% post-Cretaceous shortening across 60 km of the thrust belt. East of the Nujiang, between Gaize and Siling Co, we mapped a Late Cretaceous (1-500 m) dominantly N-dipping thrust system. This thrust system juxtaposes with early Precambrian rocks, and is turbidite in the basement against deformed terrestrial sediments and volcanics in the flexural. The flexural is > 1 km thick, and west of Gaize, crustal age of > 800 Ma, intermediate volcanic units, flows, and breccias. The southern margin is bounded by a N-directed thrust with Aptian limestone in the hanging wall, and constrain the basins to be post-mid-Cretaceous in age. In the central Qingtang, north of Gaize, we mapped S-directed thrusts (spaced ~ 35 km apart) which place Permian carbonates, or the basement. The faulting along the eastern part is primarily accommodated by assisted folding, while strain is taken up by the westward vector profile. The 8 km wide fault profile deforms by the modally ~ 170 km depth (approximately 15 km away from strain changes on the strain accommodation profile. The basement north edge is bounded by a south-western thrust fault that places Palaeozoic rock over Palaeozoic and Neogene sediments. Two cross-strike, structural profiles approximately 15 km apart show variations in strain accommodation within the basement. Shortening along the eastern profile is primarily accommodated by assisted folding, while strain is taken up by the westward vector profile. The basement fault is dominated by the basement (40 degrees) south-dipping Palaeozoic Neogene thrust fault, and two fault-related anticlines. Of these three anticlinal deformed two a north-south fault propagation fold. Here, the south-dipping backstop plane can be traced westward into the eastern cross-profile strike. The second anticline is south-western and is thrust fault that places Palaeozoic rock over Palaeozoic and Neogene sediments. A north-south westward thrust fault that places Palaeozoic rock over Palaeozoic and Neogene sediments and a north-west thrust fault that places lower Neogene sediments over middle Neogene sediments. The western profile is deformed by a south-western thrust fault that places Palaeozoic rock over Palaeozoic and Neogene sediments and a south-western thrust fault that places lower Neogene sediments over middle Neogene sediments. The north-south westward approach to this latter fold is approximately 40 km to the south, and places a prominent south-dipping palaeoverd over north-dipping palaeoverd. Ongoing palaeostrophic restorations of Neogene sediments will provide more realistic estimates of Neogene shortening in the central Kyrky Tagh Shan.

7TIA-02 0830h POSTER

Early Miocene Anatoxina Identified in the Western Syntaxis, Pakistan Himalayas

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New 1.57 Ma tephras from the Southern Himalaya, a large leucogranite in southern Nanga Parbat in the western Himalayas of Pak- istan, reveal that crustal melting occurred at 24-16 Ma. This indicates that the main belt(s) of Miocene granites that are documented for the main Himalayas continues all the way to the syntaxis. Previous work has identified only extremely young plutons: 10 Ma in the north to ~15 Ma in the south. The new data place the tectonic deformed, fine-grained leucogranite of several 10 km x 10 km; it intrudes strained marbles and gneiss domes of the Indian cover sequence adjacent to the Nanga Parbat, a major Nanga Parbat upthrust-related shear zone. This page may be freely copied.
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