Trishear Model 在活動逆衝斷層處之斷層擴展褶皺之應用：以中國西北地區甘肅省大龍斷層為例 (16pt，間距 1.25 行，置中，字型中文標楷體、英文 Times New Roman)

Gold, R.D., Cowgill, E., Wang, X.F., Chen, X.H., 2006. Application of trishear fault-propagation folding to active reverse faults: examples from the Dalong Fault, Gansu Province, NW China. *Journal of Structural Geology*, **28**, 200-219. **(12pt，間距 1.25 行，左右對齊，英文 Times New Roman)**

報告者：周佳儀
指導教授：董家鈞 老師
報告日期：2007/05/31 **(12pt，間距 1.25 行，靠右)**

摘要(14pt，間距 1.5 行，段落前、後行距 0.5 行，置中)

過去關於斷層相關褶皺形貌描述之三角剪切模式（Trishear Model），多僅利用基盤的幾何型貌，分析斷層錯動與褶皺特性；本研究除了紀錄大龍斷層之基盤褶皺型態，同時也觀測大龍斷層兩處研究區域地表之新期構造（河階地形型態），藉由三角剪切模式（Trishear Model）、斷層轉折褶皺模式（fault-bend fold model）、斷層擴展褶皺模式（fault-propagation fold model）重建大龍斷層新期構造與區域構造之演育。根據研究結果，發現斷層轉折褶皺模式（fault-bend fold model）與斷層擴展褶皺模式（fault-propagation fold model）分別無法模擬斷層傾角較陡峭（大於 45 度）之形貌，模擬新期構造之結果也無法符合地表資料，而利用三角剪切模式（Trishear Model）之模擬，不但可充分回溯新期構造與區域構造之演化史，模擬結果也能符合地表紀錄與構造特性；另一重要結果，則是由於斷層擴展褶皺變形影響區域幾乎橫跨斷層上下盤各一公里，因此若欲由新期構造（河階地）推衍活動斷層與褶皺特性，分析河階剖面應至少需要增加至二至四公里。**(12pt，間距 1.5 行，段落前行距 0 行，段落後行距 0.5 行，左右對齊，字型中文標楷體、英文 Times New Roman)**

關鍵字: (14pt，間距 1.5 行，段落前行距 0.5 行，左右對齊) 關鍵字、關鍵字、關鍵字… **(12pt，間距 1.5 行，標楷體)**

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Application of trishear fault-propagation folding to active reverse faults: examples from the Dalong Fault, Gansu Province, NW China

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Abstract

Determining accurate fault slip rates at 1 ka to 1 Ma timescales requires well-constrained palinspastic reconstructions of dateable geomorphic and/or geologic markers. Although general kinematic models have been developed to simultaneously reconstruct both bedrock (e.g. bedding and fault attitudes) and neotectonic markers (e.g. strath terraces) along active strike-slip and thrust faults, it is not clear if these models can also account for deformation along steeply dipping (>45°) reverse faults. To address this problem, we have investigated the active, ~50° dipping, Dalong reverse fault system. This ~40-km-long fault system forms part of the Aksai restraining stepover along the active, left-slip Altyn Tagh Fault in northwestern China. Our geometric and kinematic analyses show that conventional fault-bend fold models cannot satisfy the steeply-dipping fault geometry we observe in the bedrock record. Likewise, standard fault-propagation fold models fail to match our measurements of a set of fluvial terraces. However, by expanding the trishear model of fault-propagation folding to track both bedrock and neotectonic markers, we are able to match both sets of records. In particular, we have developed trishear kinematic models for two sites (Liuchenzi and Qingyazi) using the numerical modeling program, Fault/Fold v.5.0. This work indicates that an important implication of active trishear fault-propagation folding is that terrace deformation extends for over 1 km on either side of the fault trace. Thus, to accurately measure the total magnitude of vertical separation between matching terraces in the hanging wall and footwall, terrace profiles across active reverse faults must extend 1–2 km on either side of this zone of deformation.

Keywords: Trishear; Reverse faults; Fault-propagation folds; Transect data; Neotectonics; Restraining bends