

計畫編號：BN03-00

計畫名稱：絲路計畫：亞洲兩大造山帶－西藏 vs. 高加索－對比研究

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計畫摘要(中)：

本計畫將針對西藏-喜馬拉雅和高加索-伊朗這兩個當今地球上最重要的亞洲造山帶進行對比研究，希望能更深入探索大陸碰撞造山演化。本計畫的研究構想奠基於申請團隊過去數年在西藏和周邊地區就岩漿活動與地體構造所從事的一系列工作，因此這個新計畫可視為 CREATE 整合型研究計畫的向西延伸。此外，本計畫將與中研院地科所發起的『高加索碰撞帶之綜合研究(NSC96-2119-M-001-001-)』和即將提出的一個主題研究計畫相配合，推動整合研究。

本計畫若蒙補助，除了將繼續加強申請團隊在西藏-喜馬拉雅地區的既有工作之外，在高加索-伊朗地區的研究重點為：

- (1) 高加索-伊朗地區的第四紀乃至上新世的岩漿活動－即 post-collisional 岩漿活動，主要產地涵蓋喬治亞南部、阿美尼亞、伊朗西北部及伊朗東部等，並將與土耳其東部安納托力亞地區已有的大量資料對比。
- (2) 高加索-伊朗地區的地震和新構造活動－將針對特定地區進行地震站網及 GPS 站網佈設，首選地點為位於喬治亞中部大、小高加索山之間的構造活動帶，若條件許可，將推展至伊朗南部的 Zagros 造山帶。
- (3) 高加索-伊朗地區廣泛的始新世(?)岩漿活動－即 pre-collisional 岩漿活動或傳統上認為的新特提斯洋板塊向北隱沒的產物。
- (4) 透過上述重點研究，預期本計畫應可對大陸碰撞前、後的岩漿成因、岩石圈結構、乃至地體構造環境演化等大陸動力學的基本議題提供新的制約，並進而探討安納托力亞-高加索-伊朗地區第四紀岩漿作用與新期活動構造的關係，促進台灣團隊在國際相關研究領域的領銜地位。

計畫摘要(英)：

This is a 3-year project proposed for conducting a comparative study of the Tibet-Himalaya and Caucasus-Zagros orogens, two active and most important collision zones that occur in East and West Asia, respectively, along the Tethyan orogenic belt. This study aims at a comprehensive

understanding of the evolution of continent-continent collision, with the Tibet-Himalaya orogen representing a mature collision zone and the Caucasus-Zagros representing an intermediate-stage orogen. The results will be further combined with constraints from nascent collision zones, e.g., Taiwan, to comprehend the spectrum of geologic processes through which collisional orogeny evolves.

Based on our successful experiences from the Tibet-Himalaya orogenic belt performed under the integrated CREATE (Comprehensive Research on East Asian Tectonic Evolution) project supported by the NSC, this new project represents a westward extension of the CREATE project and will particularly focus on: (1) the most unusual occurrence of widespread Quaternary igneous activities from the Turkish Anatolia to the Caucasus (southern Georgia and Armenia) and NW Iran, a zone of active contraction owing to the Arabia-Eurasia collision, in the hope to decipher the link between active tectonism and magmatism; (2) the style and depth of active deformation, and seismogenic structures and segmentation in the Caucasus and the Bitlis-Zagros suture zone, for understanding slip rates of key geologic boundaries in the region, and (3) the petrogenesis of Eocene subduction-related volcanism/plutonism, to constrain the pre-collisional Eurasian lithospheric structure. It is emphasized that these key targets involving several fundamental problems in continental dynamics that remains under-explored and that the proposed new project presents a rare opportunity for the geosciences community in Taiwan to reach into an important area where keen international competition is yet to fully develop.