Geophysical Research Abstracts
Vol. 17, EGU2015-4421, 2015
EGU General Assembly 2015

Active uplift and normal faulting in the eastern flank of Taiwan Central Range

Chung-Pai Chang (1), Yi-Chun Hsu (2), and Chu-Chun Kang (2)

(1) National Central University, Ctr. Space & Remote Sensing, Jungli, Taoyuan, Taiwan (cpchang@csrsr.ncu.edu.tw), (2) Institute of Geophysics, National Central University, Jungli, Taoyuan, Taiwan

As the backbone range of Taiwan orogen, the highest peaks of the Central Range have been uplifted to nearly 4 km above sea level. A rapid exhumation rate of about 6 mm/yr over the past several million years has been determined by many previous thermochronological studies in the eastern flank of the Central Range. However, the uplift mechanism of the Central Range is still in debate. Especially, the most important structural component, the Central Range Fault in the eastern boundary of the Central Range, has never been clearly observed in the previous studies. An east-vergent "backthrusting" or "backfolding" was firstly proposed by Ernst in 1977. However, normal faulting and oblique faulting with a normal component were also proposed by the following field workers (e.g., Crespi et al., 1996; Fisher, 1999). In this study, we use the geomorphic, stratigraphic, and structural analyses to figure out the near surface geometry of the Central Range Fault, and as well use the recent earthquake data to understand the deeper structures beneath the Central Range. By combining these results, we propose a doubly vergent model with a roll-back Central Range fault to explain the local structure and the rapid uplift of the eastern flank of the Central Range. The normal faults along the eastern flank of Central Range can also be separated into three segments form the north to the south. This late-stage structure suggests that the rotation-accommodating structure is extensional in nature.