

Tectonic Patch-work: Thermochronological Resolution of the Recent Evolution of the Klamath Mountains, Western North America

G. E. BATT¹

¹Geology Department, Royal Holloway University of
London, Egham, TW20 0EX, UK, g.batt@gl.rhul.ac.uk

New (U-Th)/He ages from the footwall of the La Grange Fault in the Klamath Mountains of northern California provide direct constraint on the timing of post-Cretaceous slip. Earlier, Nevadan deformation on this structure has previously prevented resolution of its recent history.

Correlating the stratigraphically corrected apatite (U-Th)/He ages of the 8 samples dated in this study along the extension direction of the La Grange Fault produces a striking linear trend (see figure below) that is best interpreted as an exhumed partial retention zone. This limits extension on the La Grange fault to no older than 30Ma, with relatively weak constraint on the observed inflection in age towards the south of the dataset potentially allowing for deformation commencing as recently as 20Ma or less.

The reconstructed position of the Klamaths at this time suggest a potential association to early extension of the North American cordillera that would eventually give rise to the Basin and Range province.

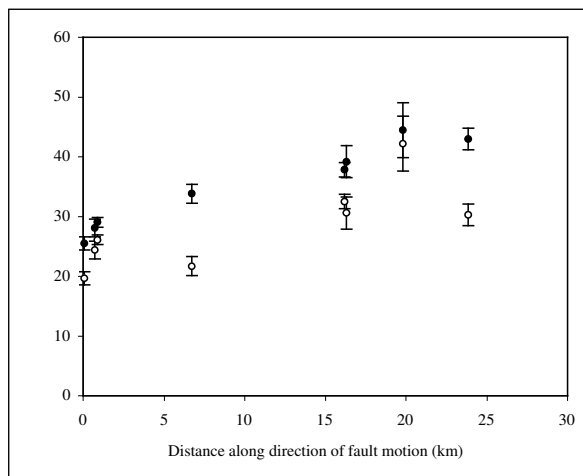


FIGURE 1: Apatite (U-Th)/He age plotted against relative distance along the extension direction of the La Grange Fault. Open symbols represent uncorrected data, filled symbols mark model ages corrected for the effects of recent erosional dissection of the exhumed footwall