

## **Controls of the normal fault localization during post-orogenic extension; Eastern Balkans, Bulgaria**

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A combination of balanced cross section construction, interpretation of deep reflection seismic images, fieldwork observations in the Eastern Balkans and numerical modeling indicates that orogenic collapse-related normal faults have listric geometry and they detach along the pre-existing thrustbelt décollement, which is in accordance with collapsed thrustbelts worldwide. Their steep upper portion is usually propagated through the back-limb of the pre-existing anticline. Their propagation capitalizes on pre-existing clusters of small-scale fractures associated with failed propagation of back-limb thrust faults during unfinished fold translation. These failed translational thrust faults have geometry steeper than thrust faults controlling the growth of the main anticline because of their 1) rotation with entire back-limb associated with growth of the main anticline and 2) rotation with entire anticline associated with accretion of the new thrust sheets in front of it. As a result, the fracture cluster in the rotated back-limb is more-or-less parallel to the optimal propagation path of the orogenic collapse-related normal fault, which utilizes it for its initiation and linkage.