

AAPG International Conference
Barcelona, Spain
September 21-24, 2003

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Late Cenozoic Structural Evolution of the Frontal Part of East Achara-Trialeti Thrust and Fold Belt, Georgia

We present of N-S balanced cross-sections based on field observation, well and seismic reflection data in order to better understand of structural evolution of the frontal part of east Achara-Trialeti thrust and fold belt. Section balancing shows that east Achara-Trialeti is thin-skinned thrust and fold belt. The structure of the east Achara-Trialeti thrust and fold belt is interpreted as due to the northward thrusting of basement wedge and includes fault-bend folds, fault-propagation folds, duplexes and triangle zone. Tectonic histories of thrust-front are evaluated on the growth strata present in overlying fault-related folds. The timing of deformation is post Sarmatian, probably Late Miocene-Pliocene. Along the frontal part of Achara-Trialeti thrust and fold belt Tertiary-Upper Cretaceous strata are deformed by fault-bend and fault-propagation folds. Seismic reflection data in the southern part of the study area near v. Norio reveal the presence of small passive-roof duplexes in "Maikopian" (Oligocene-Lower Miocene) rocks. The tops and bottoms of the duplexes are defined by back-thrust and sole thrust. In the northern part of Achara-Trialeti thrust front, above N-vergent Norio fault-bend fold (or intercutaneous wedge) are developed imbricate fan. The S-vergent imbricate fan is characterized by fault-propagation folding. Forward modeling and geometries of the fault-band and fault-propagation folds is defined by the geometry at depth of each cross-section and the depth-to-detachment.