

Half-Day Thrust Tectonics Symposium

The North American Explorationists usual dinner meeting will be replaced by a half-day symposium on thrust tectonics.

The forum will be at the Westchase Hilton. Five noteworthy speakers will present topics related to worldwide thrust tectonic research and exploration. The meeting cost is \$35, which includes a catered lunch, posters and demonstrations during the afternoon social break, and a book of abstracts

THRUSTFEST '98 SPEAKER ABSTRACTS

Symposium Introductory Comments by James G. Buchanan, Conoco Inc., Houston, TX

Predicting Structural Trap Geometries in Overthrust Belts

by Shankar Mitra, ARCO Exploration and Production Technology, Plano, TX

Trap-forming structures in overthrust belts are commonly characterized by structural complexity and poor seismic data quality. Therefore, seismic data is usually insufficient to constrain the location and size



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of potential structural traps. Geologic and geophysical data, when combined with structural modeling and balanced cross section techniques can improve structural interpretations and thereby reduce trap risk for prospective structures.

Predictive models for interpreting structural styles must incorporate key geometric and kinematic characteristics observed in well-constrained surface and subsurface structures. Mechanical contrasts of key lithotectonic units play an important role in determining the type and geometry of fold-fault relationships, such as fault-bend,

fault-propagation, and detachment folds. Lithotectonic packages with strong competency contrasts, such as thick carbonate units encased within thin shale units, result in fault-bend folds and duplexes. Examples of this structural style are found in the Sawtooth Range in Montana, the Canadian Foothills and the Southern Appalachians. Moderate to low competency contrasts, such as interlayered, thin-bedded sandstones characterized by high flexural slip efficiency, result in fault-propagation folds. Examples of these styles are found in the Polish and Romanian Carpathians. Overthrust belts characterized by relatively competent packages overlying weak shales or salt typically result in disharmonic, detachment folds with related accommodation faults. Examples of this style are found in the Dinaride, Zagros, and Jura fold belts.

Delineation of deep anticlinal traps typically involves the extrapolation of surface and near-surface geometries to deeper horizons. Trap risks are related to changes in the geometry, location, and size of structures with depth. The relationship between the geometries of deep targets and near-surface horizons are dependent on the structural model, structural discontinuities or changes in structural style. Therefore, a good understanding of the mechanical stratigraphy and its influence on structural geometry is critical in delineating poorly-imaged traps.