

Structure of a Sub-Surface Lateral Ramp in the Southern Canadian Rockies (Crownsnest Pass Area, S.W. Alberta): 3-D Seismic Interpretation and Analog Modelling

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This study is part of the Fold-Fault Research Project's on-going investigation of tear-faults and lateral ramps. Lateral ramps have been found in fold and thrust belts worldwide and are common to the Canadian Rocky Mountain Foothills. A 3D seismic volume containing a lateral ramp has been made available to the FRP by one of our sponsor firms. Seismic interpretation of the data set has uncovered a complex duplex structure associated with a lateral ramp on a thrust fault located within the footwall panel of the Livingston thrust. The duplex is internally deformed and conforms to the lateral ramp as a hanging-wall monocline. Current work is concentrated on replicating the interpreted structures with analog centrifuge modelling. Once the analog modelling program has yielded models that reproduce the general structural style of the prototype system, the GOCAD 2.0 software package will be used to create digital renderings of the models as well as the seismic interpretation. This will facilitate comparison between the two and improve our understanding of the kinematics of the structures.