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THE CENTRAL UTAH STRUCTURAL STYLE AS COMPARED WITH OTHER COMPRESSED AREAS ALONG THE CORDILLERAN OROGENIC BELT FROM CANADA TO MEXICO

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ABSTRACT

Present well control and deep seismic information in central Utah reveals some important structural data that is different from some of the other compressed areas along the Cordilleran orogenic belt. The structural style in central Utah is complicated in many areas because of the deep Jurassic rift or trough filled with Jurassic soft sediments including thousands of feet of salt.

East vergent thrusts, which originally had west dipping thrust planes, have been rotated down to the east along the Pavant Range and other areas. The structural interpretation is further complicated by local evaporite diapirism tilting some blocks to the north and south. The listric fault features are the sites of down-to-the-west movement (in most places) where previously mapped normal surface faults are now proven to be normal listric faults rotating only the upper thrust plate. The two-layered thrust style is present similar to the shortening style that can be mapped in the Wyoming and Las Vegas (southeast Nevada) thrust provinces. Post-thrust arching is evident through parts of central Utah giving an added dimension with major structures formed under the thin veneer of the thrust plates.

Along the "Ancient Ephraim Fault" deep seismic information indicates that the fault plane dips east under the Wasatch Plateau suggesting that late Eocene high-angle reverse movement moved the Wasatch Plateau to the west over the Mesozoic trough. Underthrusting of the Wasatch Plateau by the Mesozoic trough has also been considered.

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