Go to Third Poster

7

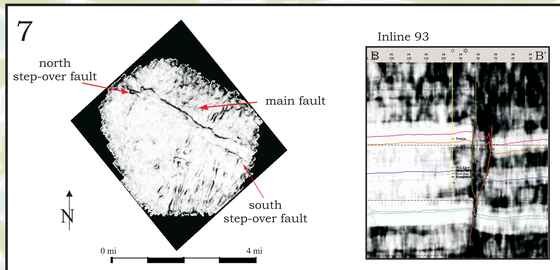
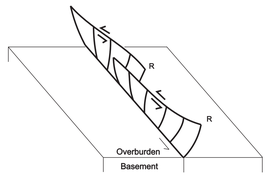


Figure 7: a) Stratal slice through the coherency volume 18ms above the Top Basement horizon, with highly coherent reflections shown in white and less coherent in black. The sinuous nature of the basement fault can be seen, along with the step-over faults to the north and south. b) Inline 93 is a transect through one of the positive flower structures that was mapped.

8

a)



b)

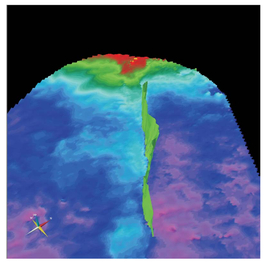


Figure 8: a) A simplified block diagram of helicoidal deformation above a single basement fault (after Mandl, 1988). b) The main Riedel shear shown with the Top Basement structure map, it's helicoidal nature is apparent.

9

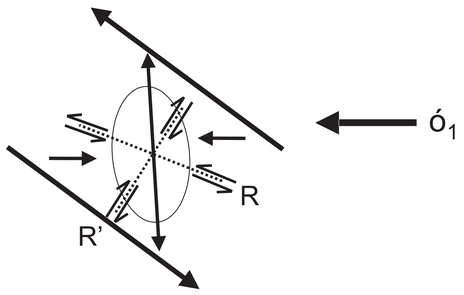


Figure 9: The strain ellipse for Saybrook, using the general strike-slip criteria that the primary stress is oriented at 45 degrees to the direction of movement.

10

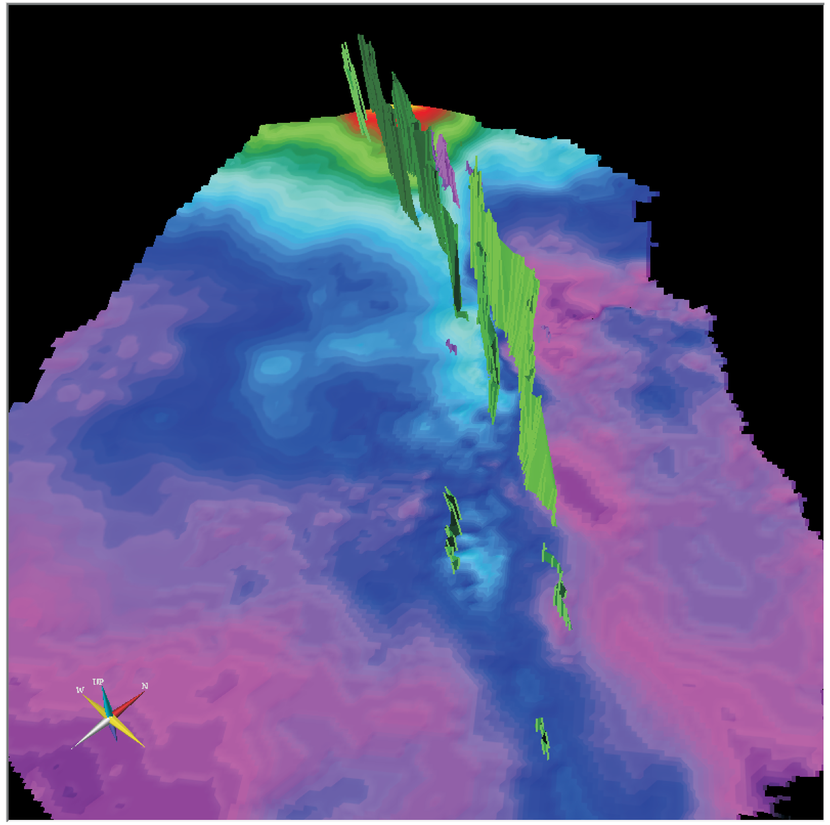
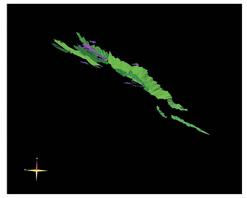


Figure 10: Looking down the fault system at Saybrook, at the Trempealeau level and above (Trempealeau time structure is shown). The main synthetic Riedel shear is light green, and the less developed Riedel shears are in darker greens. The en echelon nature of these faults is apparent from this angle, which appears to be consistent with the generalized shear model presented in Figure 13. The inset to the right shows the correct orientation of the entire fault zone in 3-D.



11

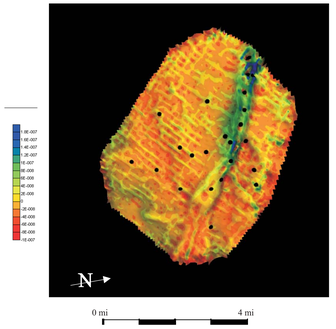


Figure 11: : Maximum curvature extracted from the prestack Trenton horizon, draped over the 3D surface. Negative curvature is seen in red and orange, while positive curvature is in blue and green. The main fault ridge is clearly a positive anomaly (convex-up), while well locations (black dots) are located in small negative curvature anomalies (concave-up) along the ridge.

12

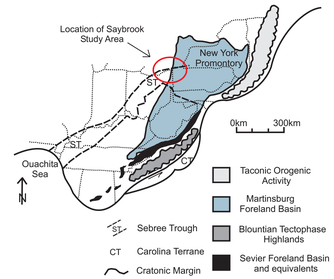


Figure 12: Paleogeographic reconstruction from the Mid to Late Ordovician of southeast Laurentia, showing the location of Taconic activity on the northeast edge of the New York Promontory (after Ettensohn, 2002).

13

a)

b)

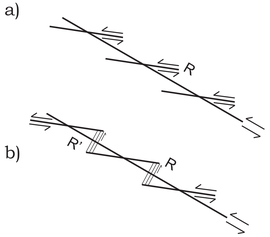


Figure 13: A generallized left-lateral Riedel shear model (rotated to have the same orientation as Saybrook), in two stages of development, a) initially with only synthetic Riedels (R) and b) later with antithetic (R') (adapted from Mandl, 1988 and Ahlgren, 2001). The regularly spaced extension along sub-seismic antithetic faults combined with minor dip-slip movement may have helped to develop fluid migration pathways.