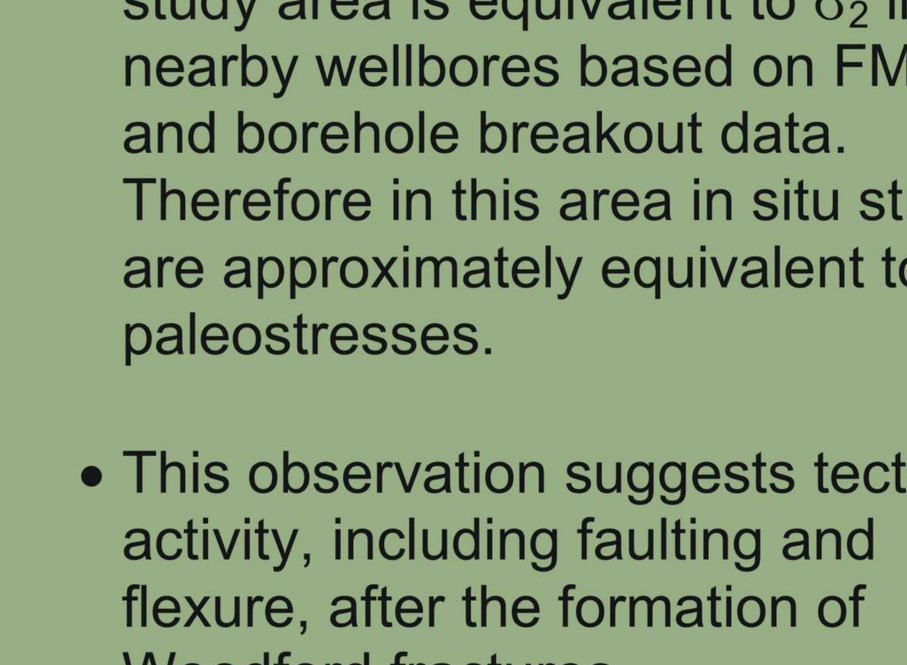
CHARACTERIZATION OF THE WOODFORD SHALE IN OUTCROP AND SUBSURFACE

Conclusions

- The general strike of the faults in the study area is equivalent to σ_2 in nearby wellbores based on FMI logs and borehole breakout data. Therefore in this area in situ stresses are approximately equivalent to paleostresses.
- This observation suggests tectonic activity, including faulting and flexure, after the formation of Woodford fractures.
- This observation suggests post-fracture tectonic activity, including faulting and flexure, would not cause a reorientation of the fractures.
- Red staining around the outcrop from Pyrite leaching demonstrates the permeable nature of the open fractures.



Data from the study area was used to create this model. The model is based on an Andersonian stress regime and highlights the three principal stresses. The strike of the fault is approximately N45E. As expected in an extensional environment the magnitude of the principal stresses is defined by the relationship $\sigma 1 > \sigma 2 > \sigma 3$. Adapted from Lacazette (2000).

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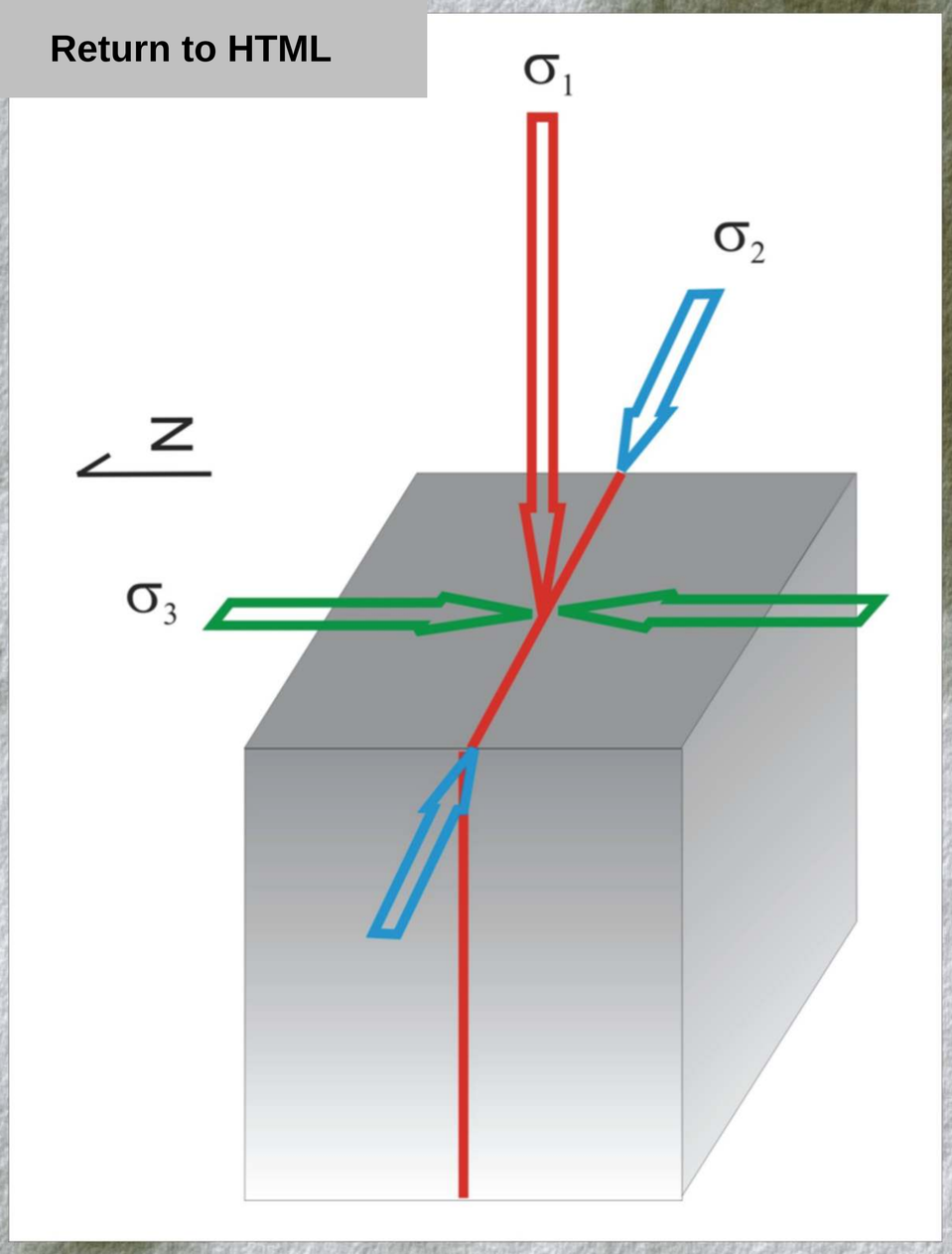
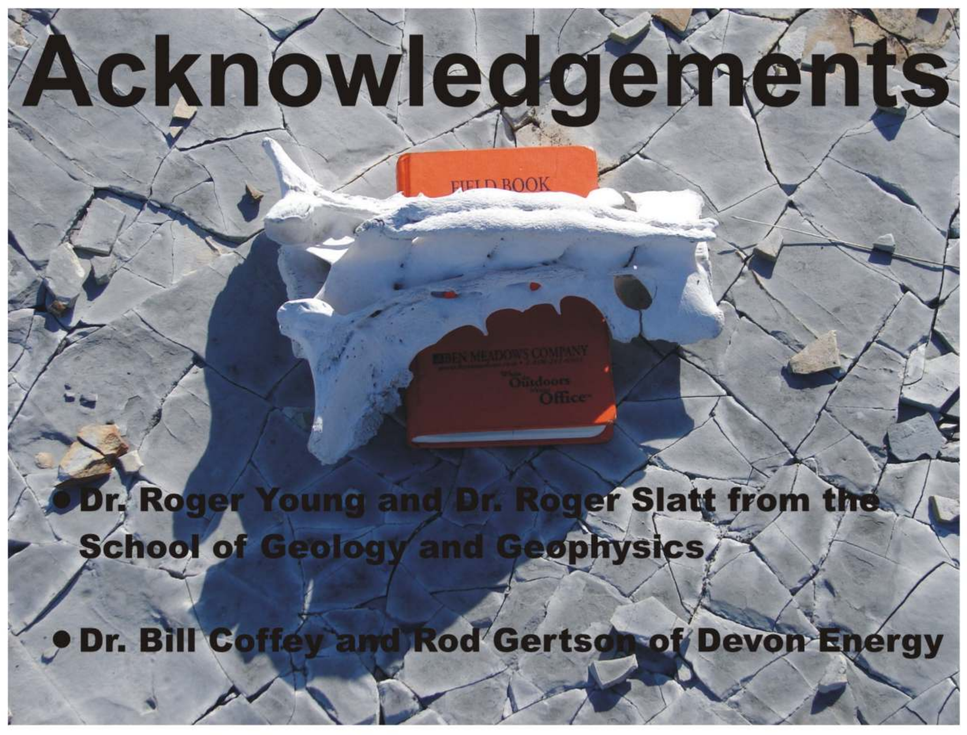


This simplified model of a typical Woodford fracture was developed from well data and outcrop observations. The red line represents a S90E striking fracture with a near vertical dip component. The maximum horizontal stress, σ_2, stress was determined from the orientation of drilling induced fractures. The minimum stress component, σ_3, is based on borehole breakout data.

Acknowledgements



- Dr. Roger Young and Dr. Roger Slatt from the School of Geology and Geophysics
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