A New 3-D Mechanical Model of Faulting for the New Madrid Seismic Zone

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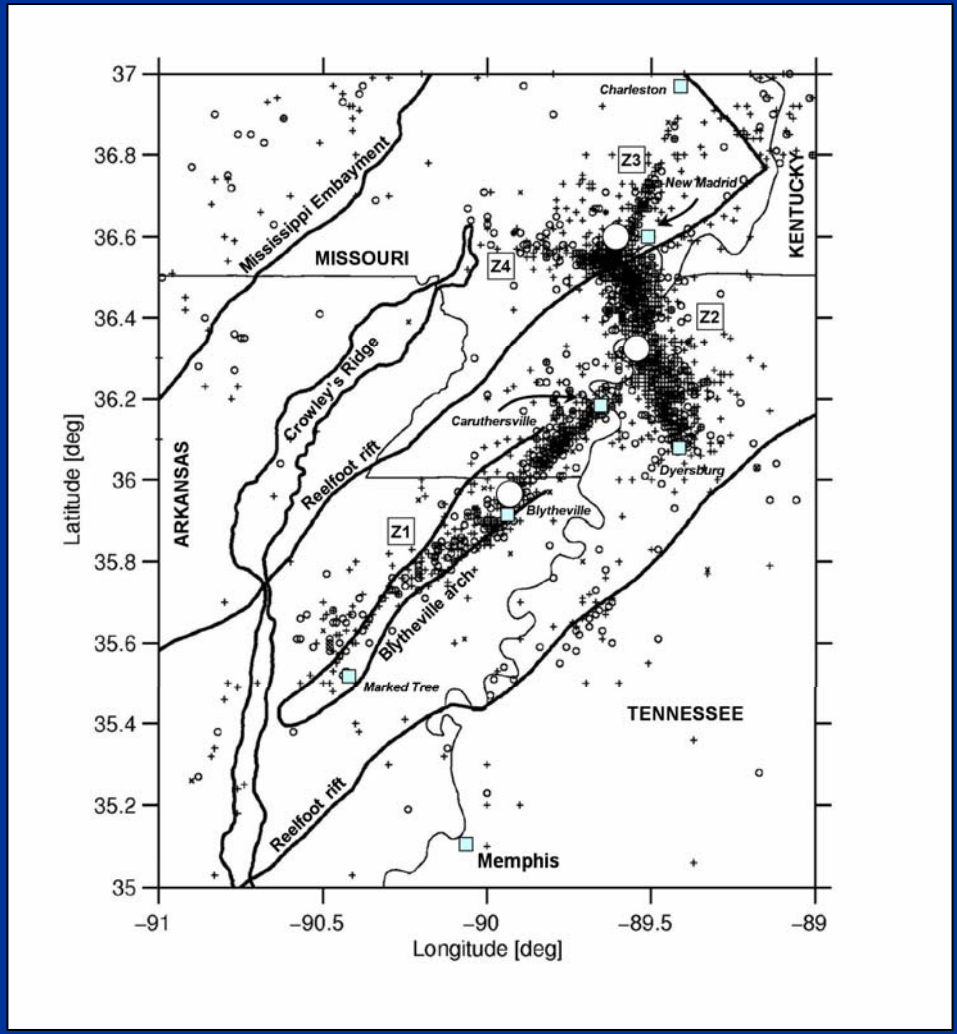
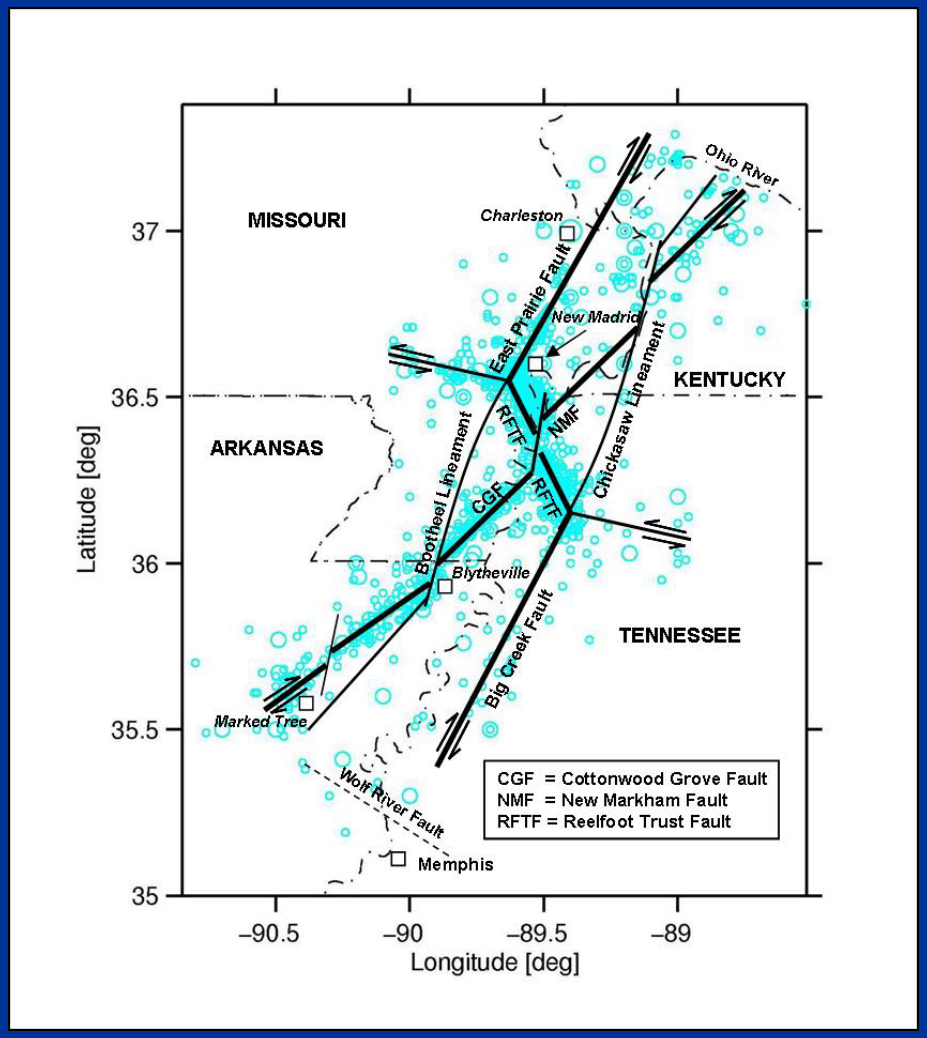
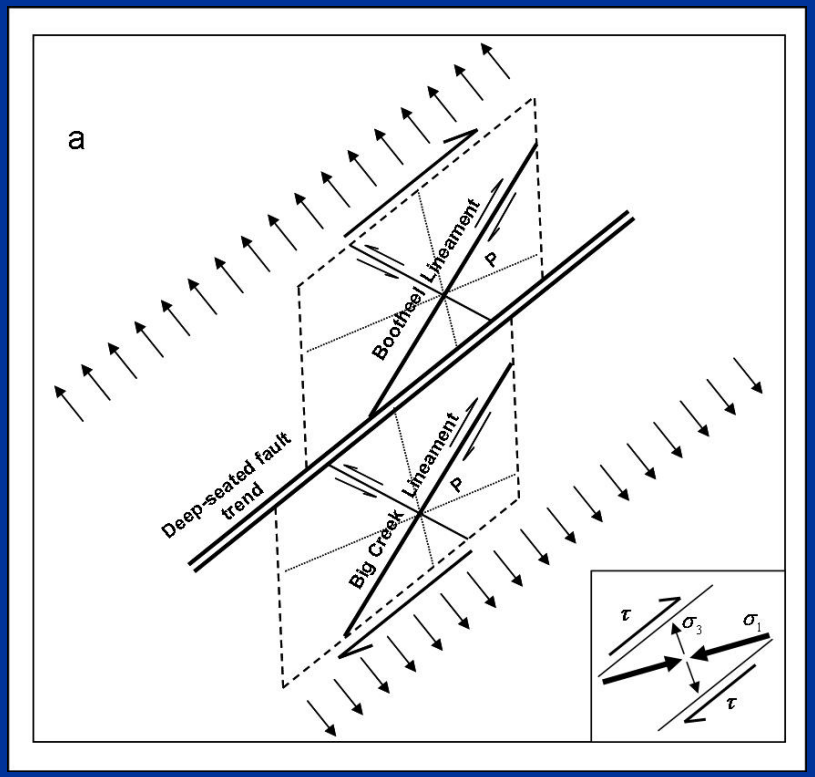
Description of the Hazard Environments for the NMSZ

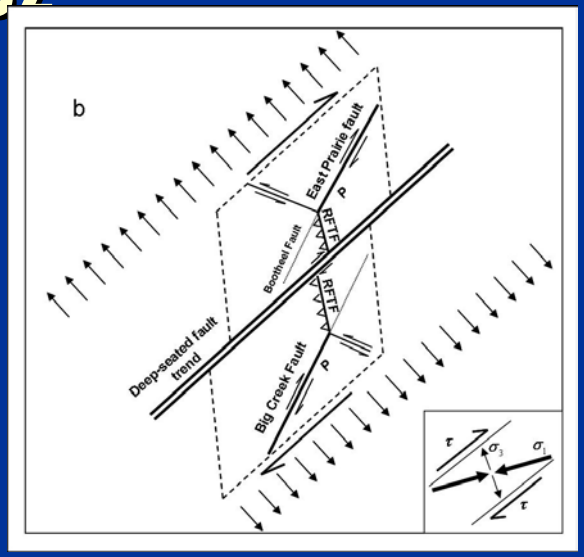


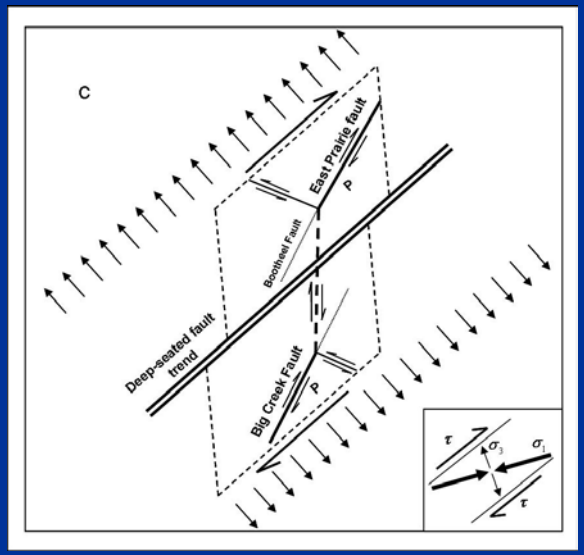
Description of a New Fault-Hazard Model for the NMSZ



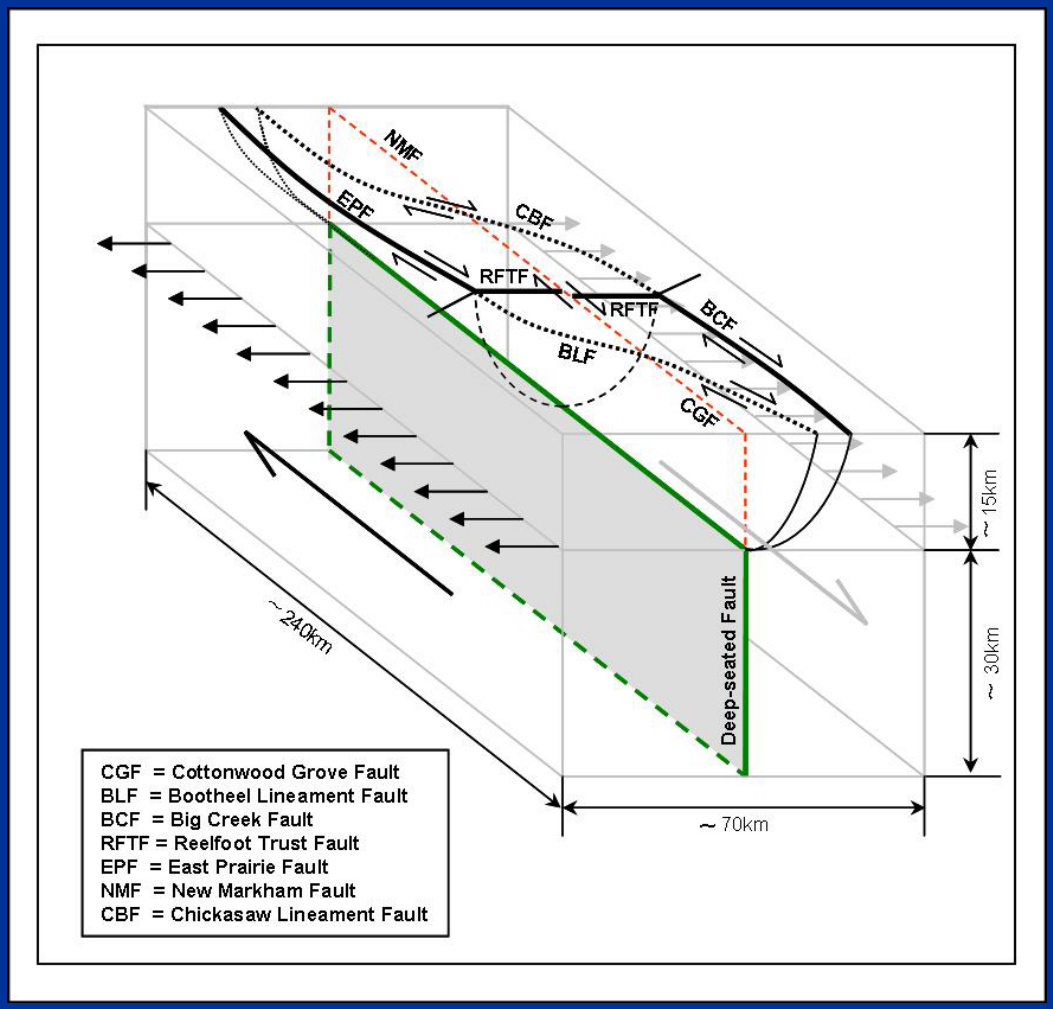
A New Mechanical Model of Faulting in the NMSZ



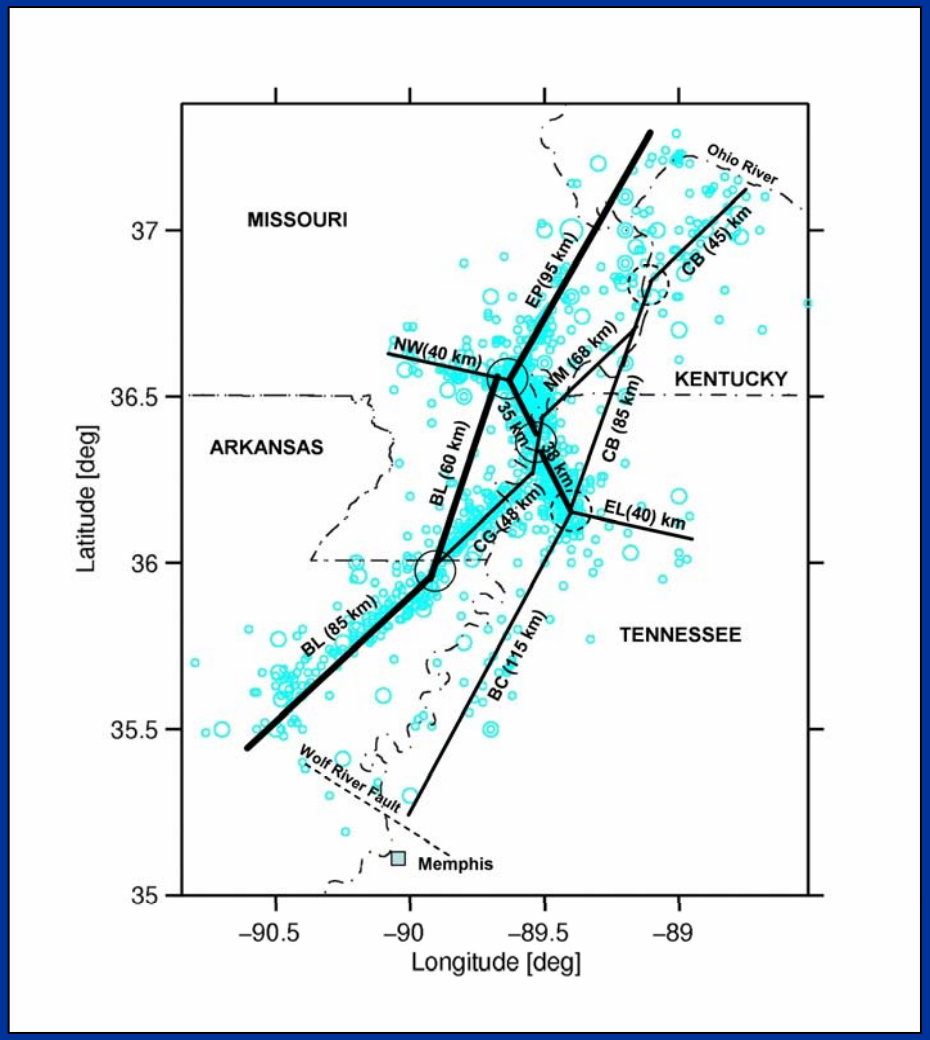




Surface Expressions of Deep-seated New Madrid Faults



Potential Rupture Scenario and Fault-Hazard Evaluation



Discussion and Conclusions

- Assuming a stress drop of 60 bars for large earthquakes in the NMSZ, the maximum magnitude (Mmax) would be equivalent to 7.6-7.8 earthquake.
- The large earthquakes in the NMSZ can be presented by a single deep-seated fault.
- The predominant hazard in the NMSZ comes from this single fault.
- The 3-D mechanical model of faulting for the NMSZ reflects a new interpretation of seismicity, and the proper inclusion of hazard uncertainties requires the consideration of different parameters for model.
- We will develop a fault-hazard methodology for involving our model to evaluate ground-shaking at or near the ground surface.