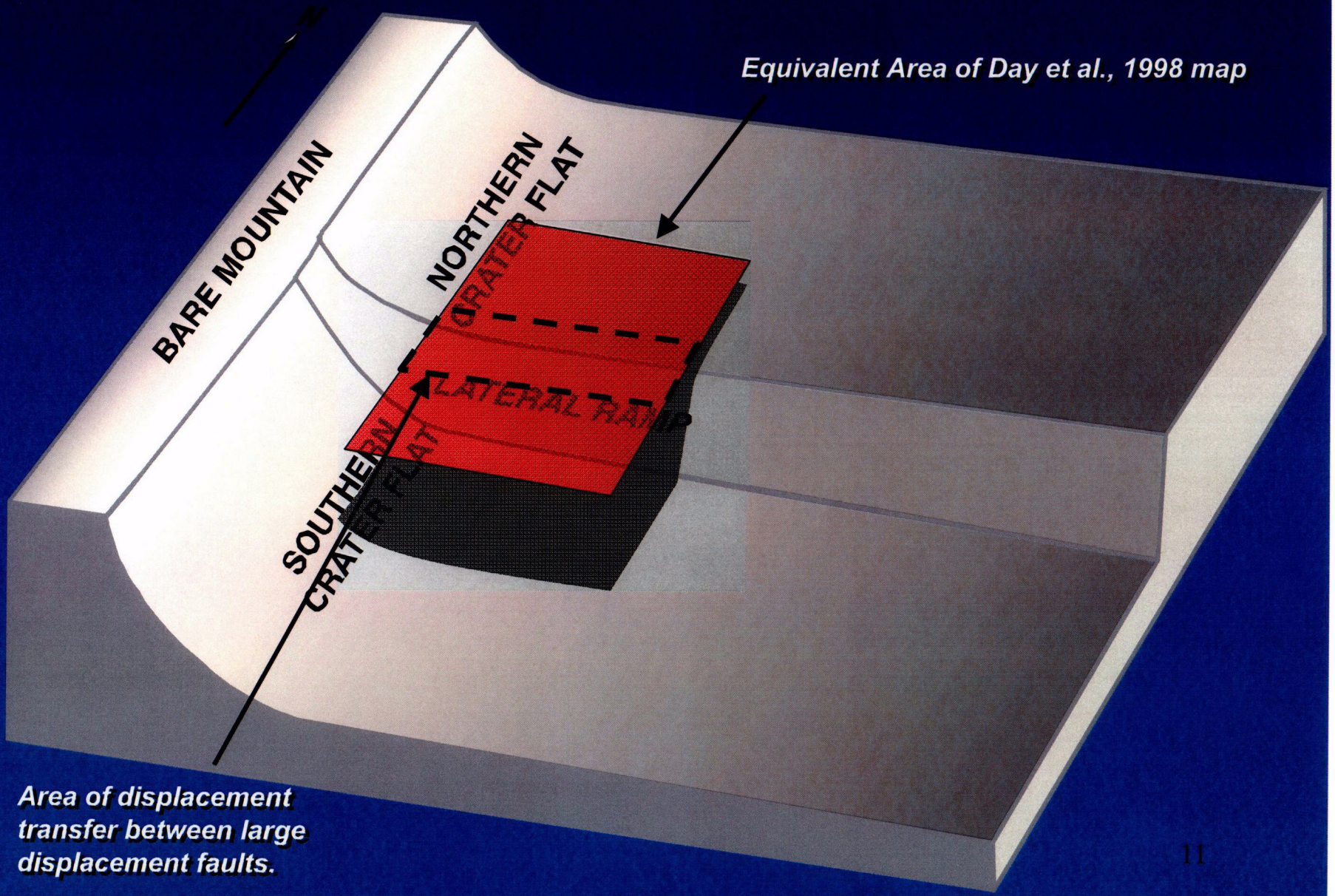
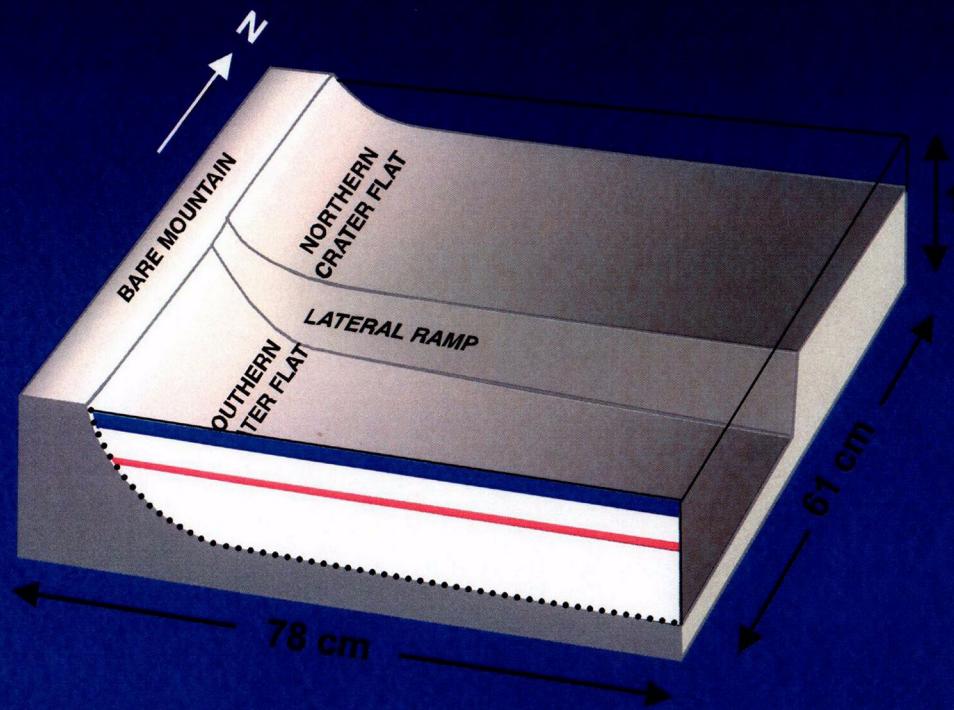
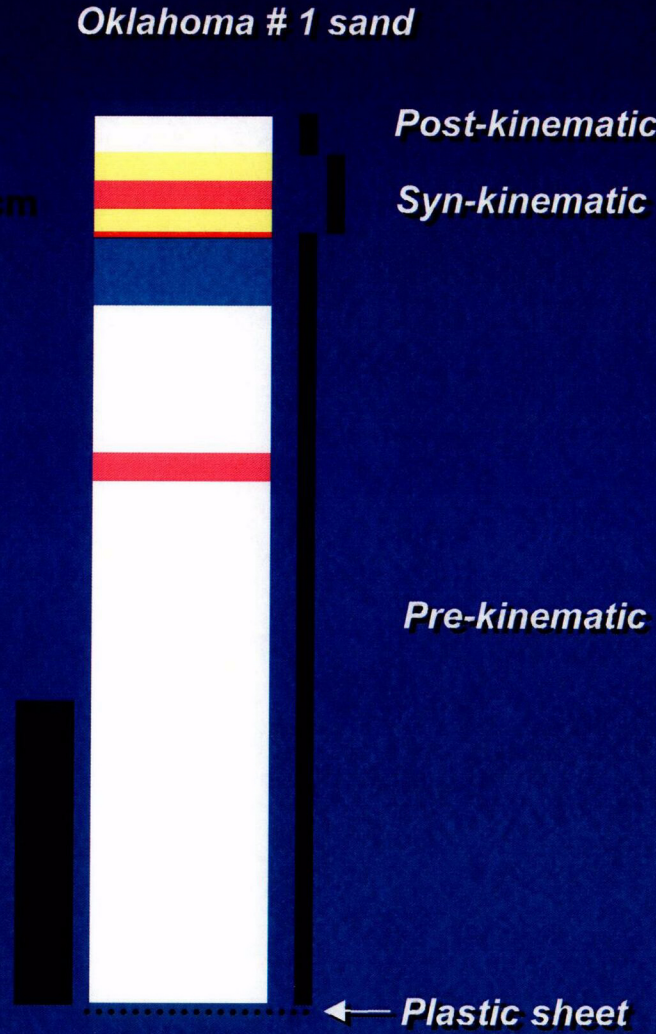
Bare Mountain Fault Shape



C09

Model Dimensions and Stratigraphy

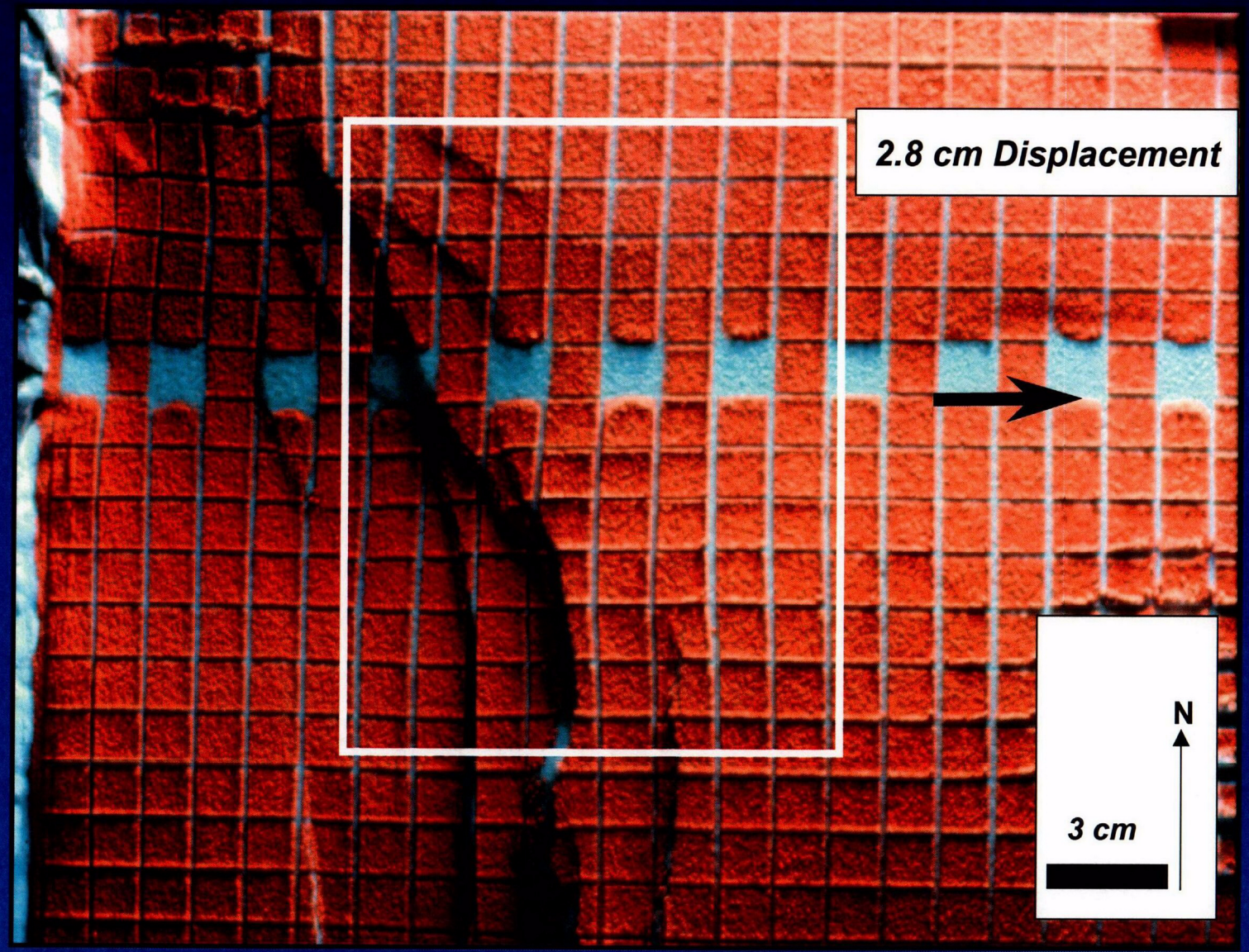




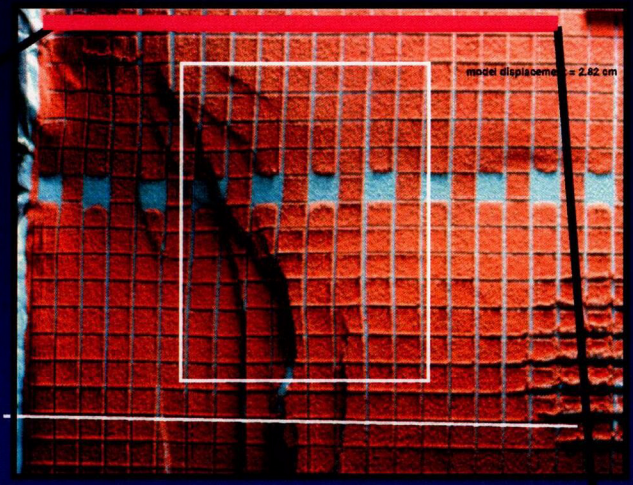
Model length scale: 1 cm = 1 km

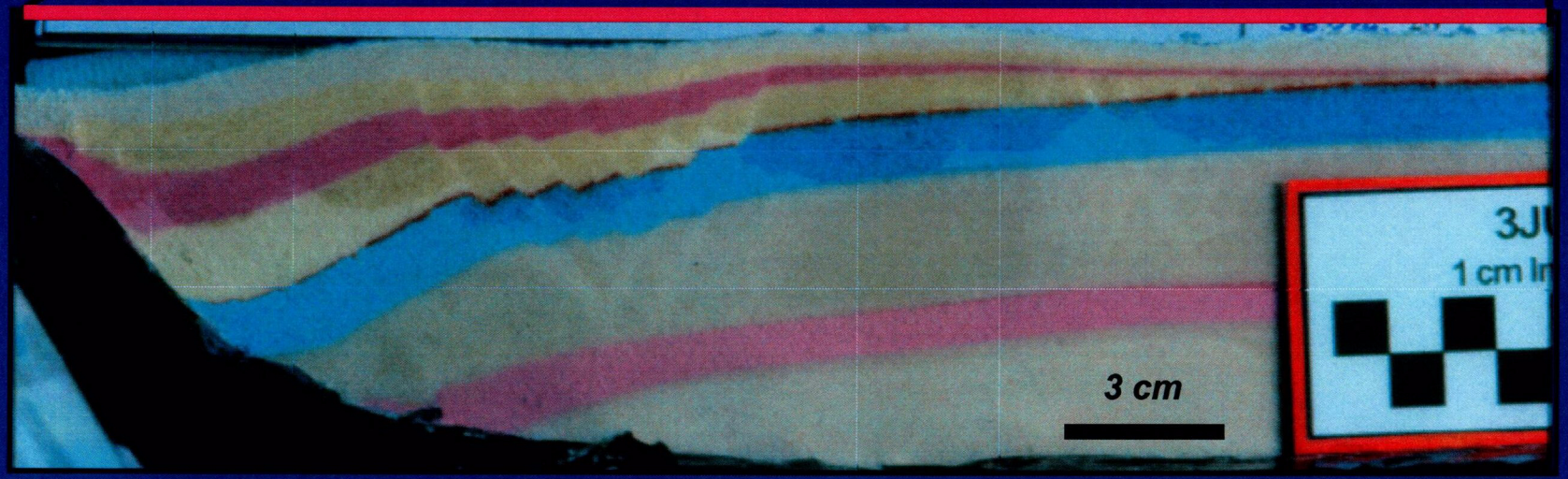
C10

Model Results: Map View



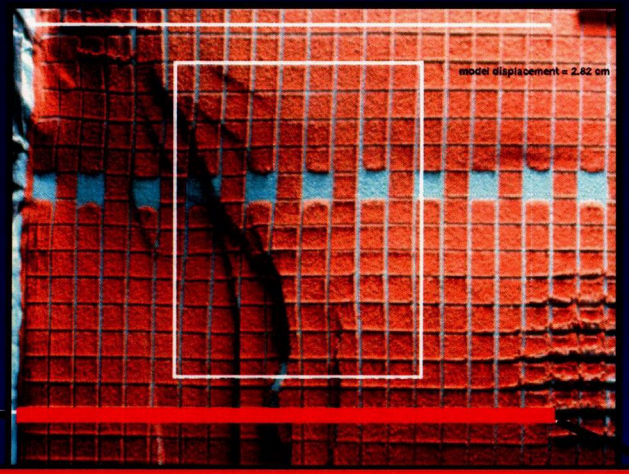
Model Results: Northern Cross Section





C12

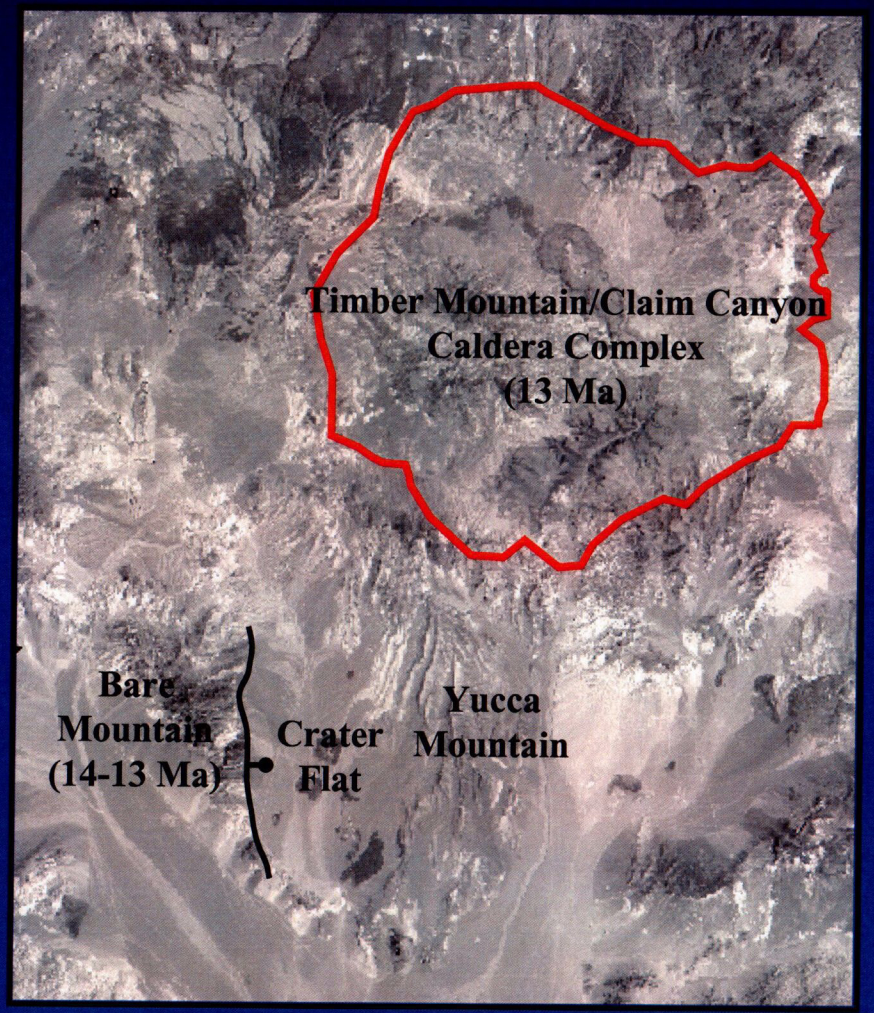
Model Results:
Southern Cross Section



C13

Why is the Horizontal Portion of the Listric Bare Mountain Fault Shallower to the North?

- Heating effect of Claim Canyon and Timber Mountain calderas.
- Possible pre-Tertiary structures in Paleozoic rocks.



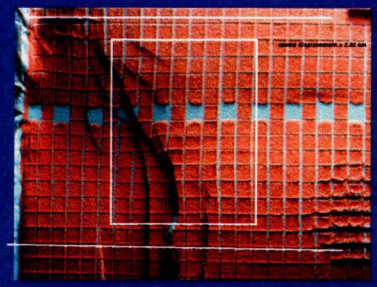
C14

Summary

- Results from cross-section modeling indicate depth to the horizontal portion of the listric Bare Mountain fault:
  - 6 km beneath northern Crater Flat and Yucca Mountain
  - 12 km beneath southern Crater Flat and Yucca Mountain.
- The lateral ramp required by these interpretations:
  - lies beneath a zone of NW trending strike-slip and oblique slip faults within Yucca Mountain.
  - lies beneath the major displacement transfer from the Solitario Canyon normal fault in the east to the Fatigue Wash and Northern Windy Wash faults in the west.
- Results from physical analog model compare favorably with fault patterns observed at Yucca Mountain

Conclusions

- Crater Flat and Yucca Mountain are the deformed hanging wall of the east-dipping Bare Mountain Fault.
- Depth to the horizontal portion of the listric Bare Mountain fault increases southward to form a lateral ramp.
- Displacement of Crater Flat and Yucca Mountain along the lateral ramp produced:
  - the zone of NW trending strike-slip and oblique slip faults within Yucca Mountain.
  - the major displacement transfer from the Solitario Canyon normal fault in the east and south to the Fatigue Wash and Northern Windy Wash faults in the west and north.



C15

METHODOLOGY FOR ANALYSIS OF FRACTURE REACTIVATION IN RESPONSE TO THERMALLY INDUCED STRESSES AT THE PROPOSED YUCCA MOUNTAIN REPOSITORY

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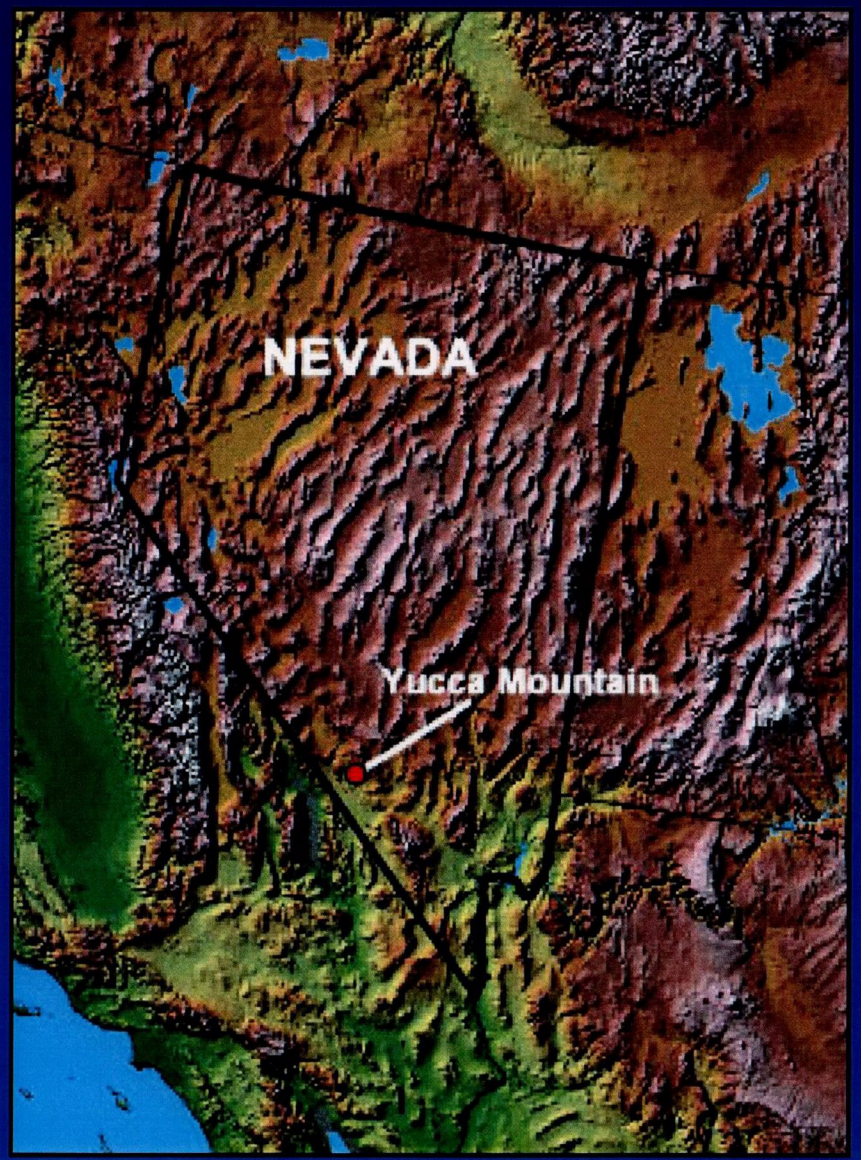
OVERVIEW

- Overview of Yucca Mountain
- Yucca Mountain case study
  - — Synthetic fracture models
  - — Modeled stresses
  - — Fracture analysis
- Other possible investigations
- Summary



C16

YUCCA MOUNTAIN, NEVADA

- Fractures affect:
  - Drift degradation
  - Saturated and unsaturated flow
- Fractures subjected to
  - Regional tectonic stress
  - Lithostatic load
  - Excavation-related stresses
  - Perturbations from nearby fault slip
  - Thermally induced stresses
- Drift Degradation
  - Dynamic rock-block impact on engineered barrier components
  - Rockfall and rubble accumulation alter drift profile