

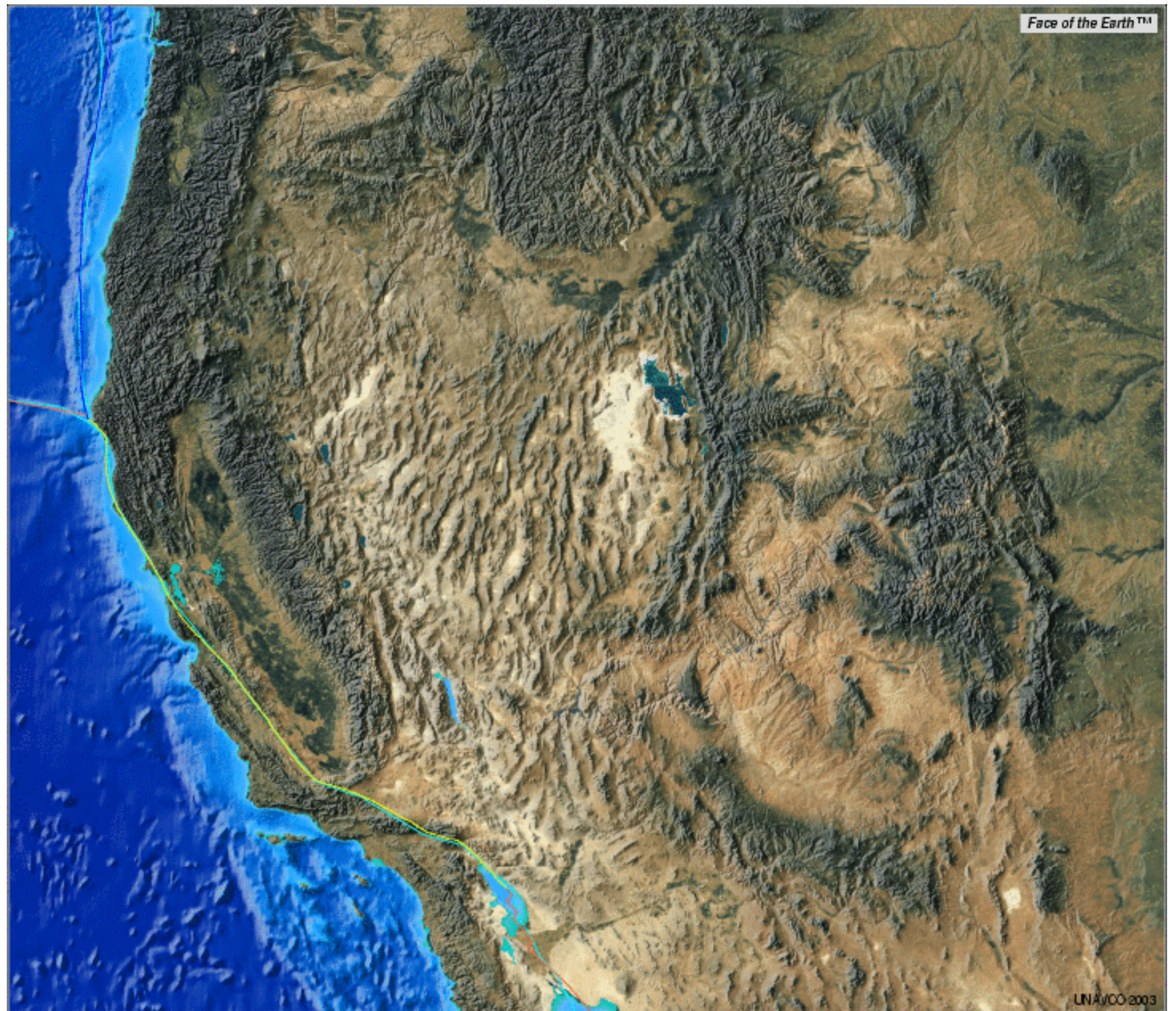
# Divergent Boundaries

## Basin and Range, and Grand Tetons

- Fault Block Mountain Formation.
  - Tensional forces stretch and thin lithosphere, leading to upwelling of hot mantle rock.
  - Thinned, hot lithosphere becomes less dense and rises.
  - Rigid upper crust becomes elongated and breaks into large crustal blocks.
  - Blocks are bound by high angle normal faults.
  - Continued stretching/rifting causes blocks to “tilt”, one edge rising, the other dropping.

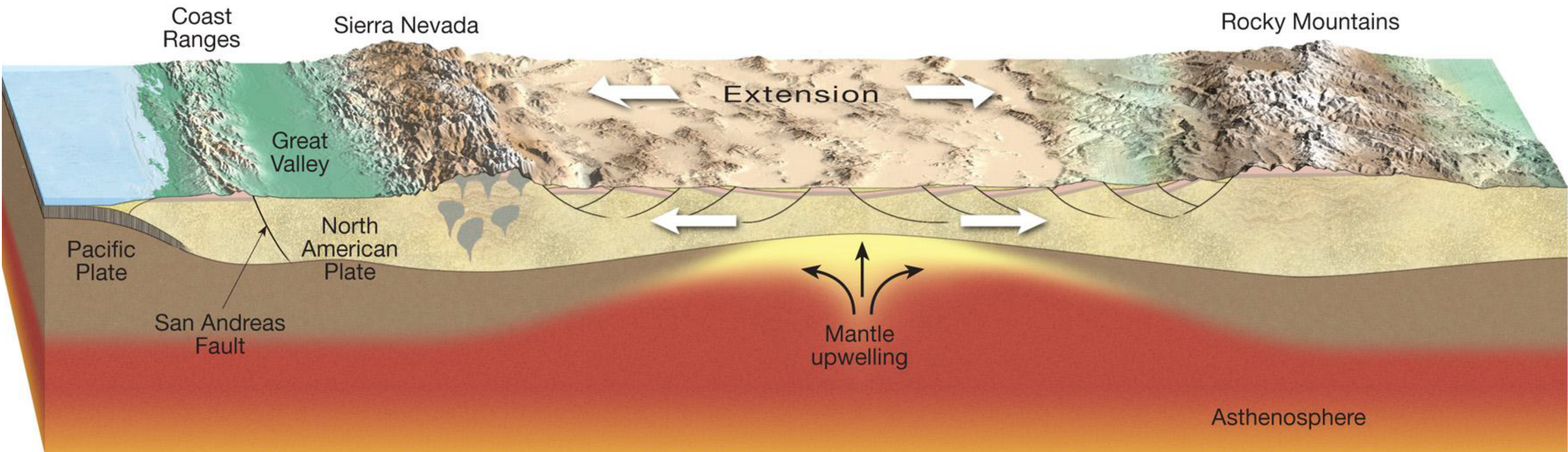
# Divergent Boundaries

Basin and Range, and Grand Tetons



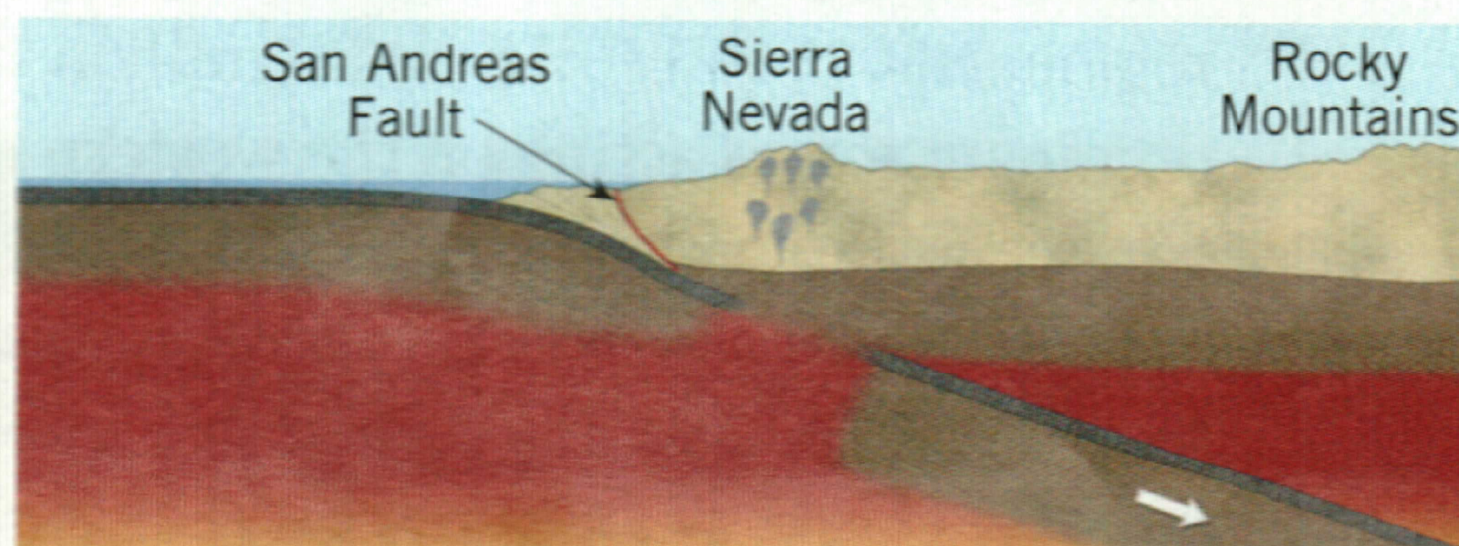
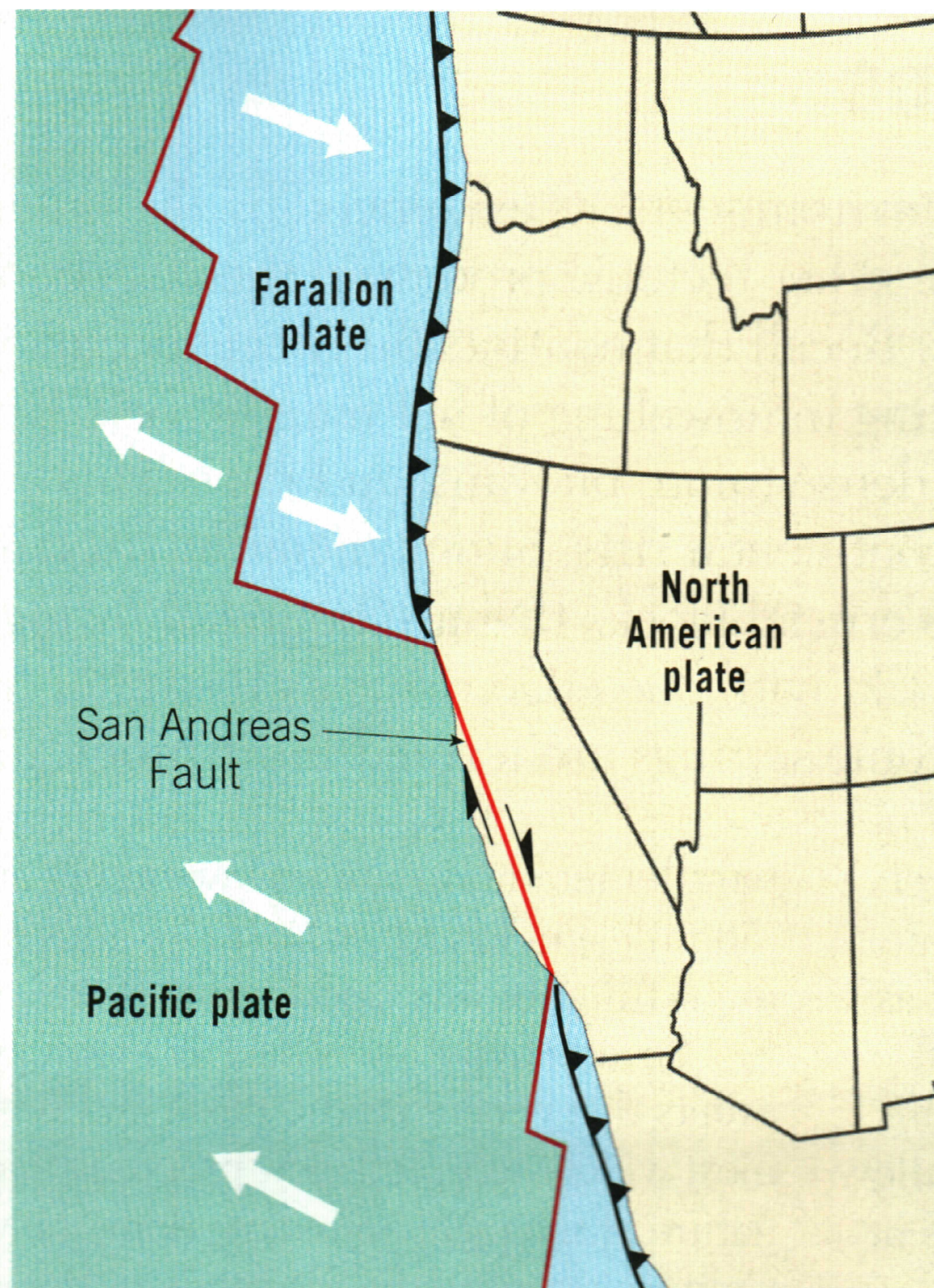
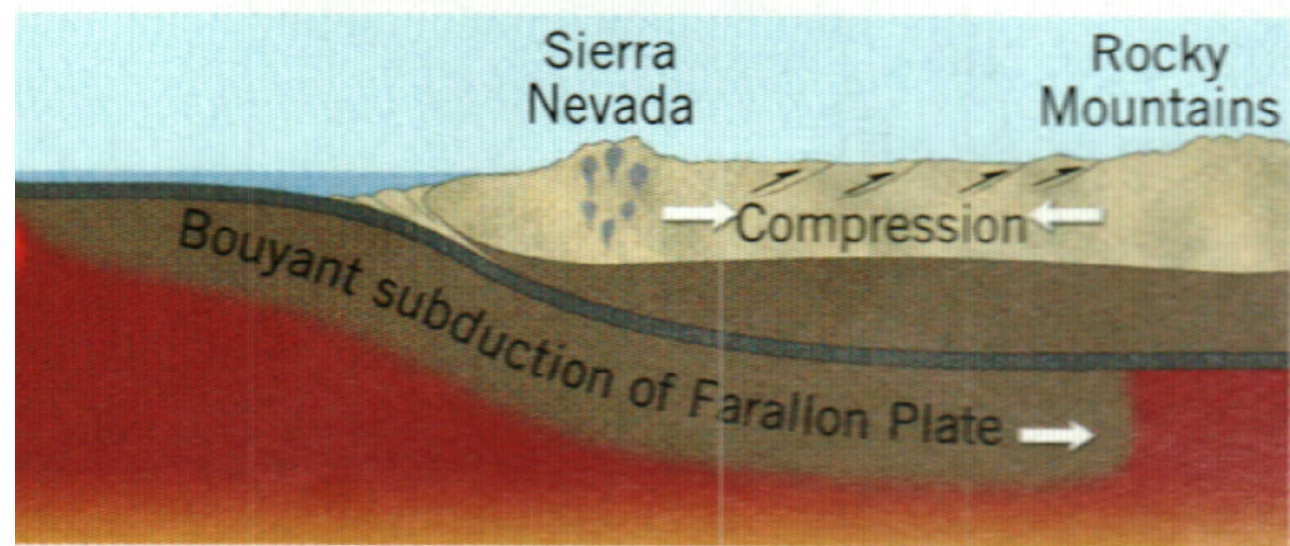
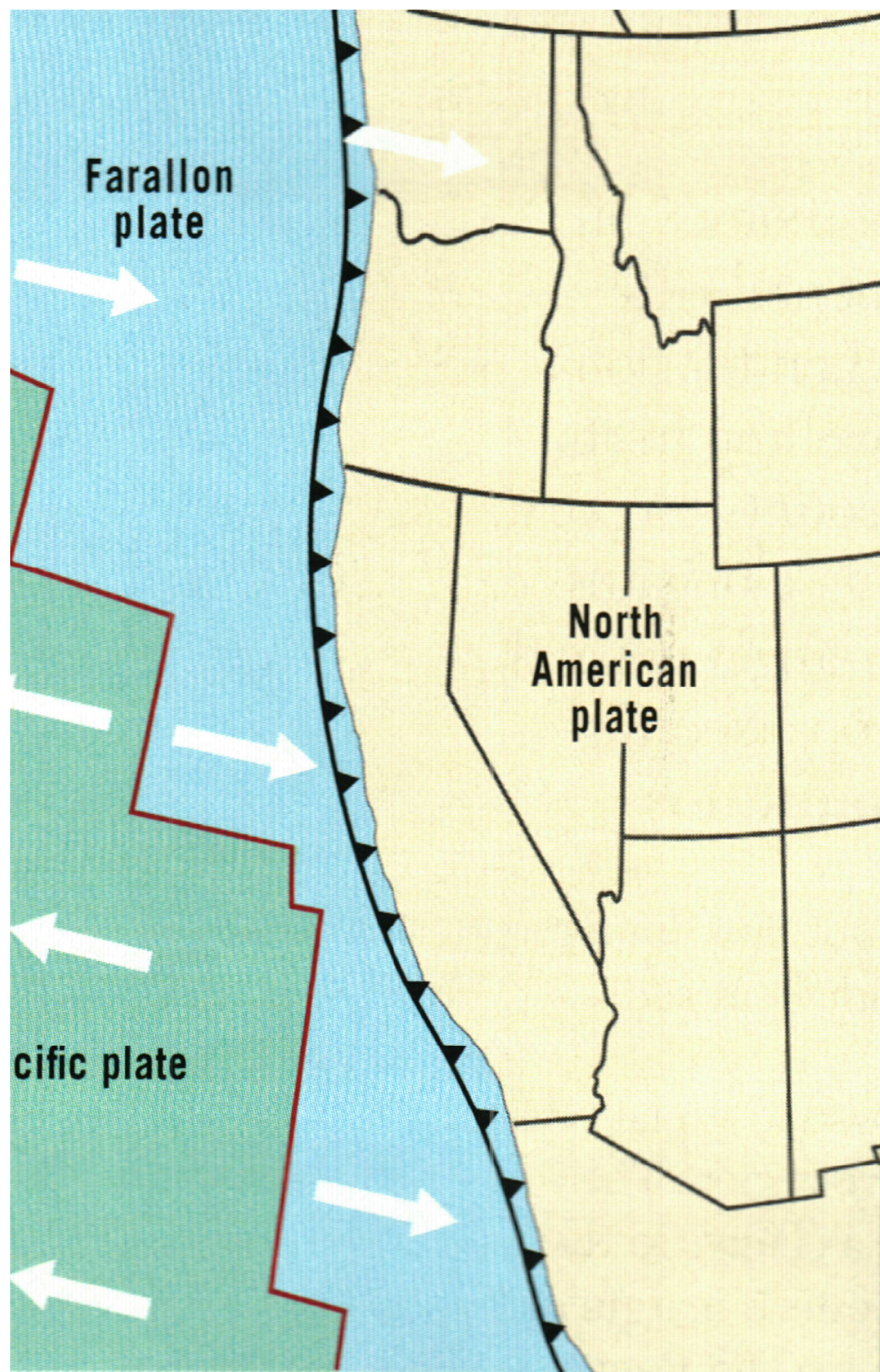
# Divergent Boundaries

## Basin and Range, and Grand Tetons

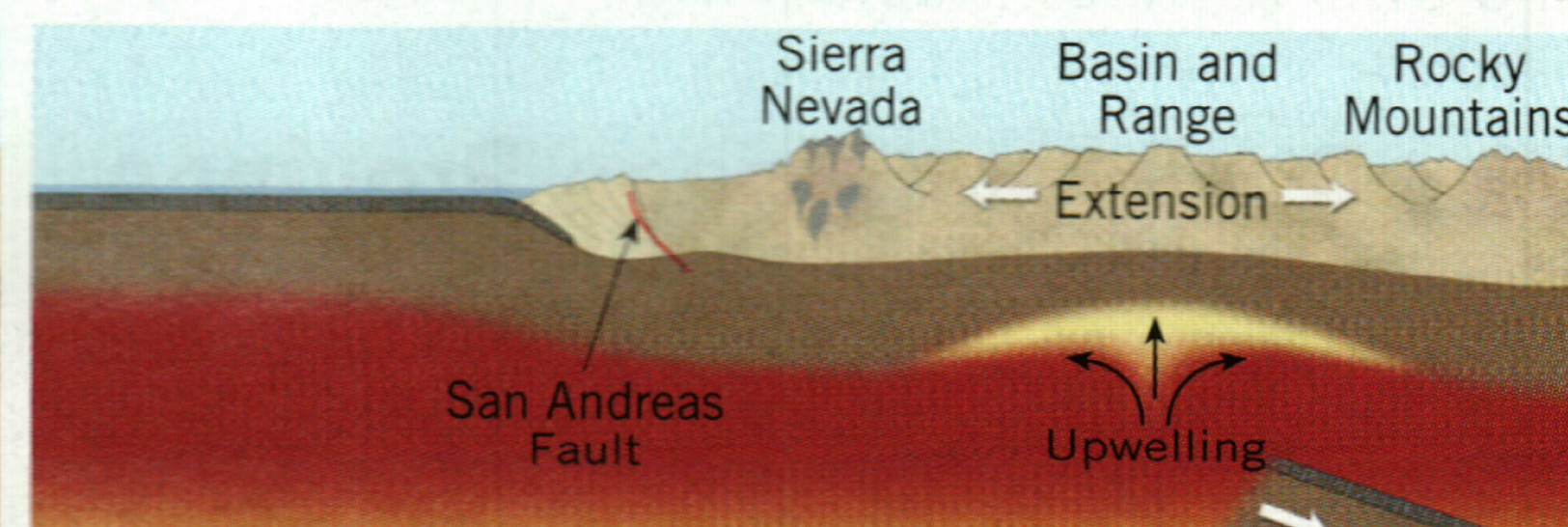
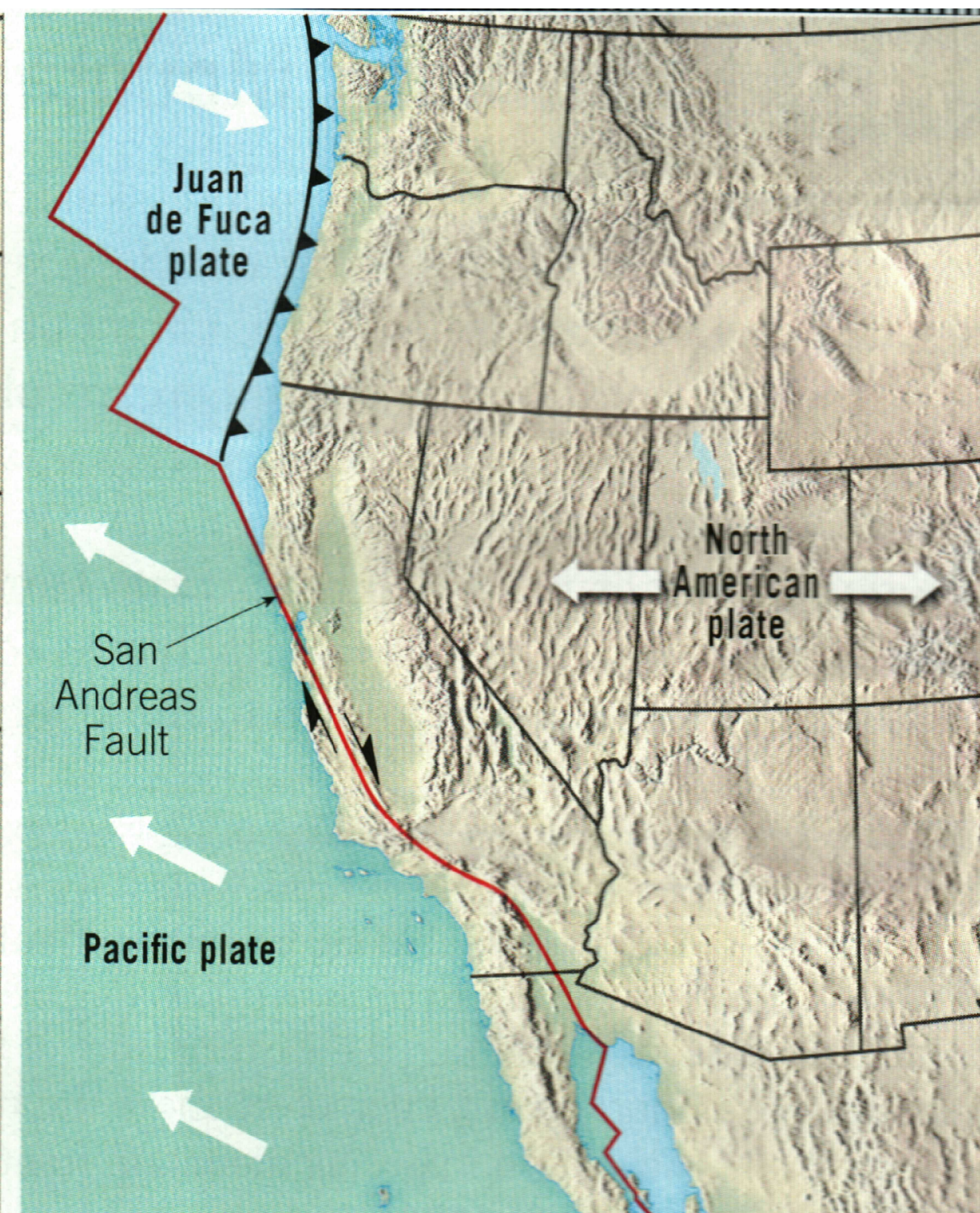


# Divergent Boundaries

Basin and Range, and Grand Tetons



B.



C.

# Divergent Boundaries - Grand Tetons

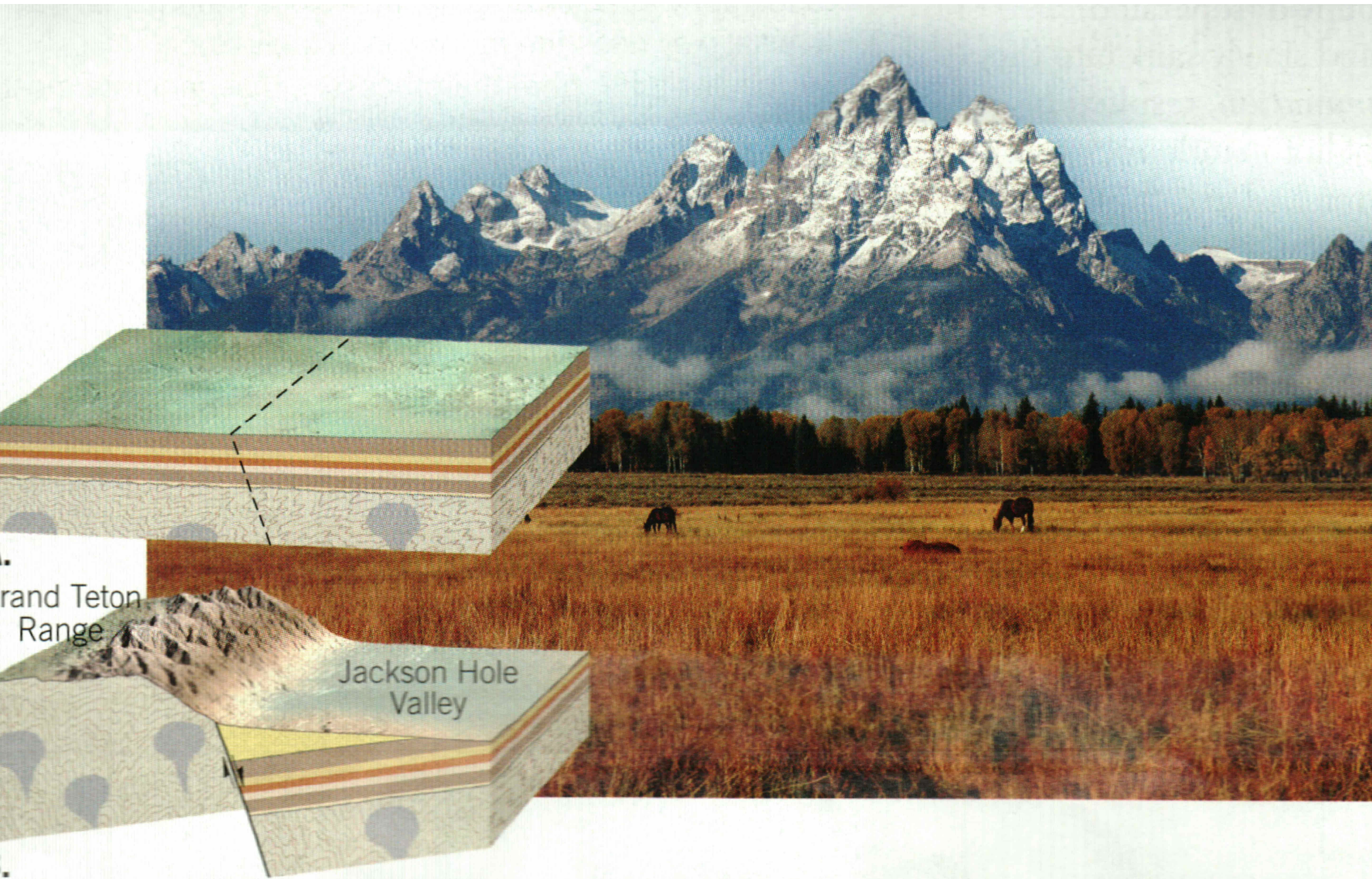


FIGURE 14.16 Wyoming's Teton Range, an example of fault-block mountains

(Photo by Rob Marmion/Shutterstock)

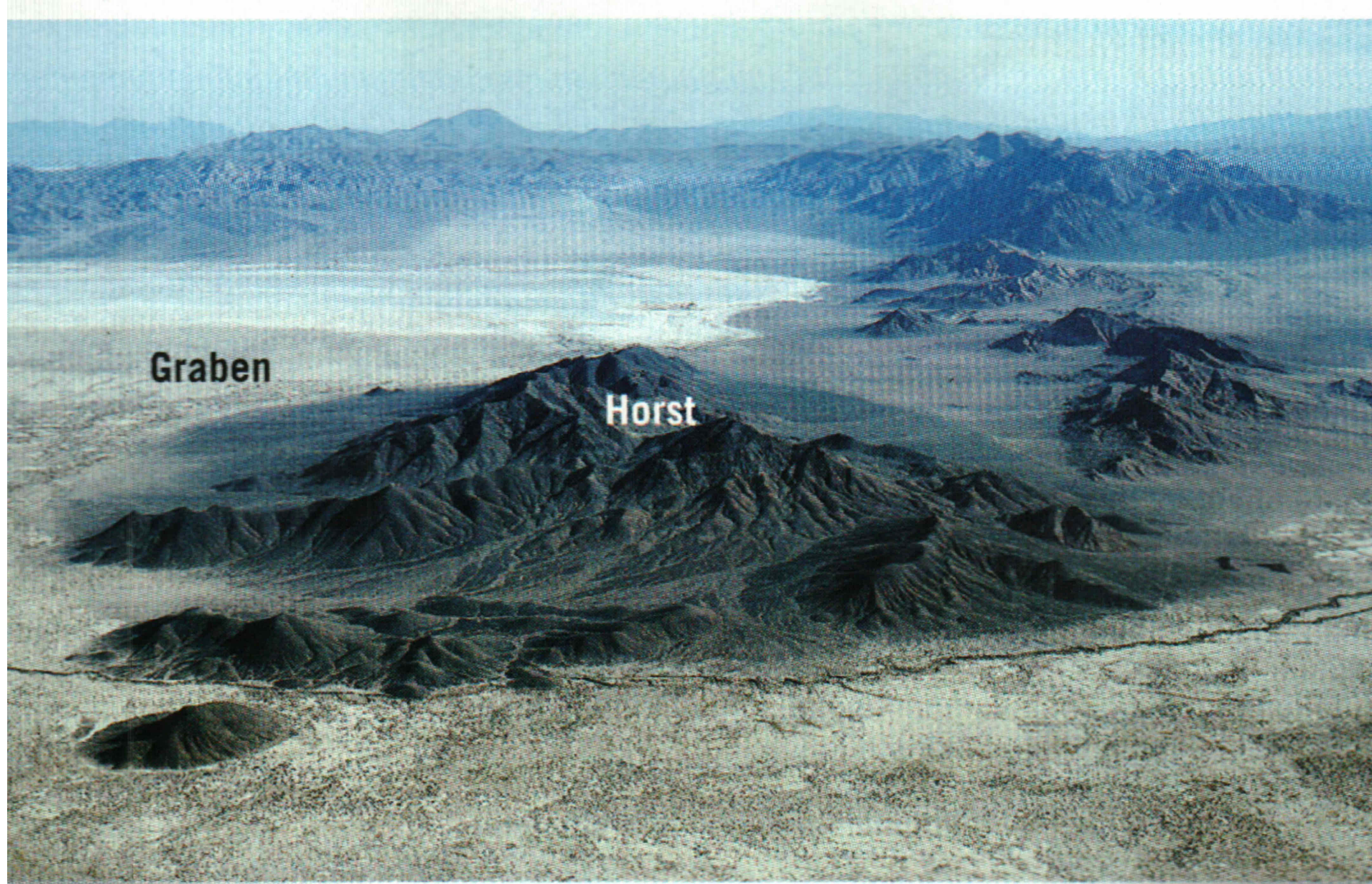
# Divergent Boundaries

## Grand Tetons

- Grand Tetons National Park:
  - Clip 1: 0:45 to 2:51.
  - Clip 2: 4:00 to 4:15.
  - Clip 3: 7:04 to 11:31.
  - Clip 4: 12:21 to 14:07.
  - Clip 5: 15:12 to 17:50.
  - Clip 6: 28:05 to 29:36.

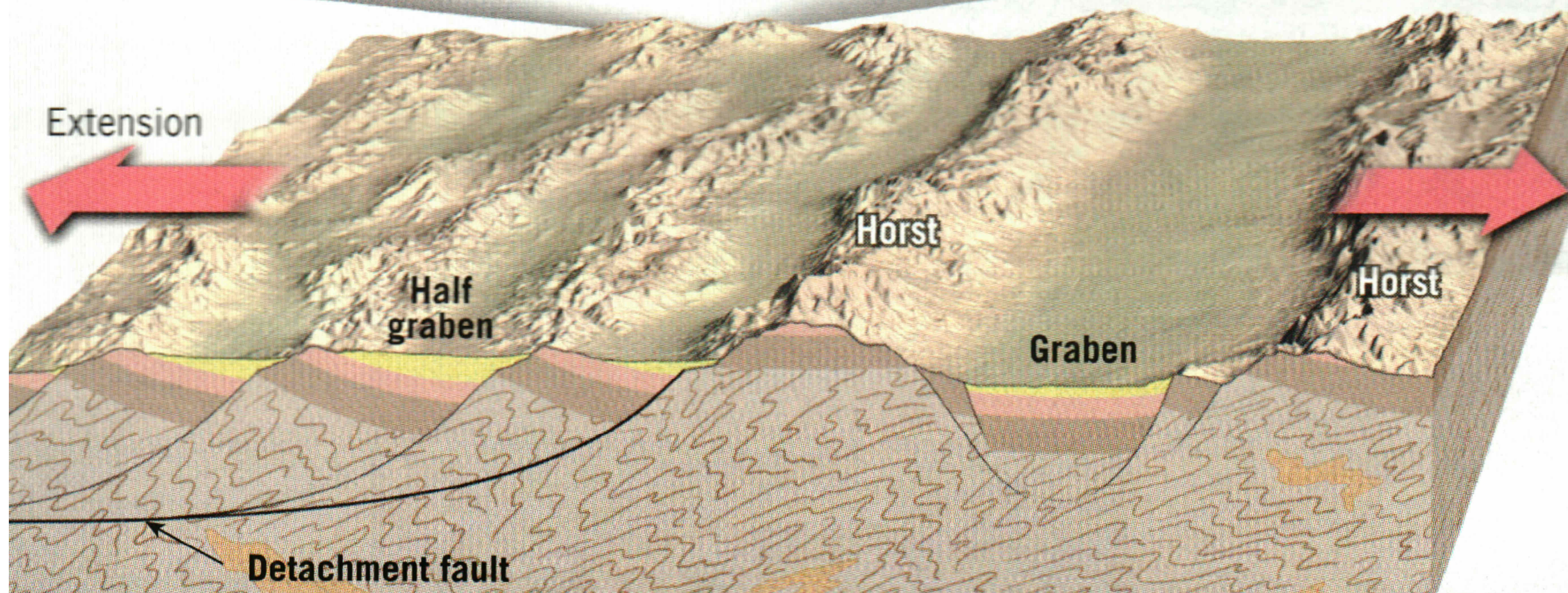
**Divergent  
Boundaries  
Basin and Range**





**FIGURE 10.23 Normal faulting in the Basin and Range province**

Here, tensional stresses have elongated and fractured the crust into numerous blocks. Movement along these faults has tilted the blocks, producing parallel mountain ranges called *fault-block mountains*. The down-faulted blocks (*grabens*) form basins, whereas the upfaulted blocks (*horsts*) erode to form rugged mountainous topography. In addition, numerous tilted blocks (*half-grabens*) form both basins and mountains. (Photo by Michael Collier)





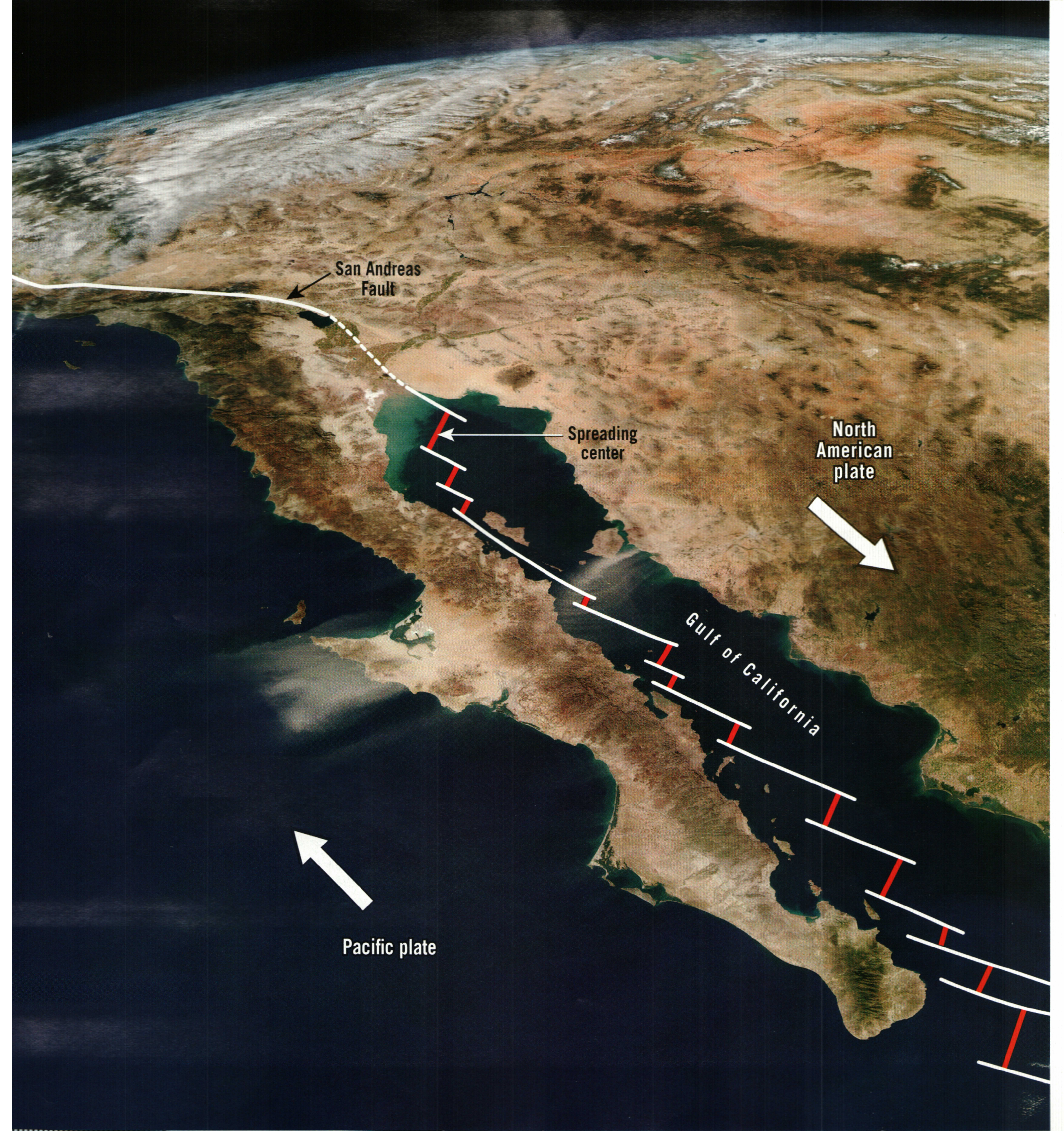
# Divergent Boundaries

## Basin and Range

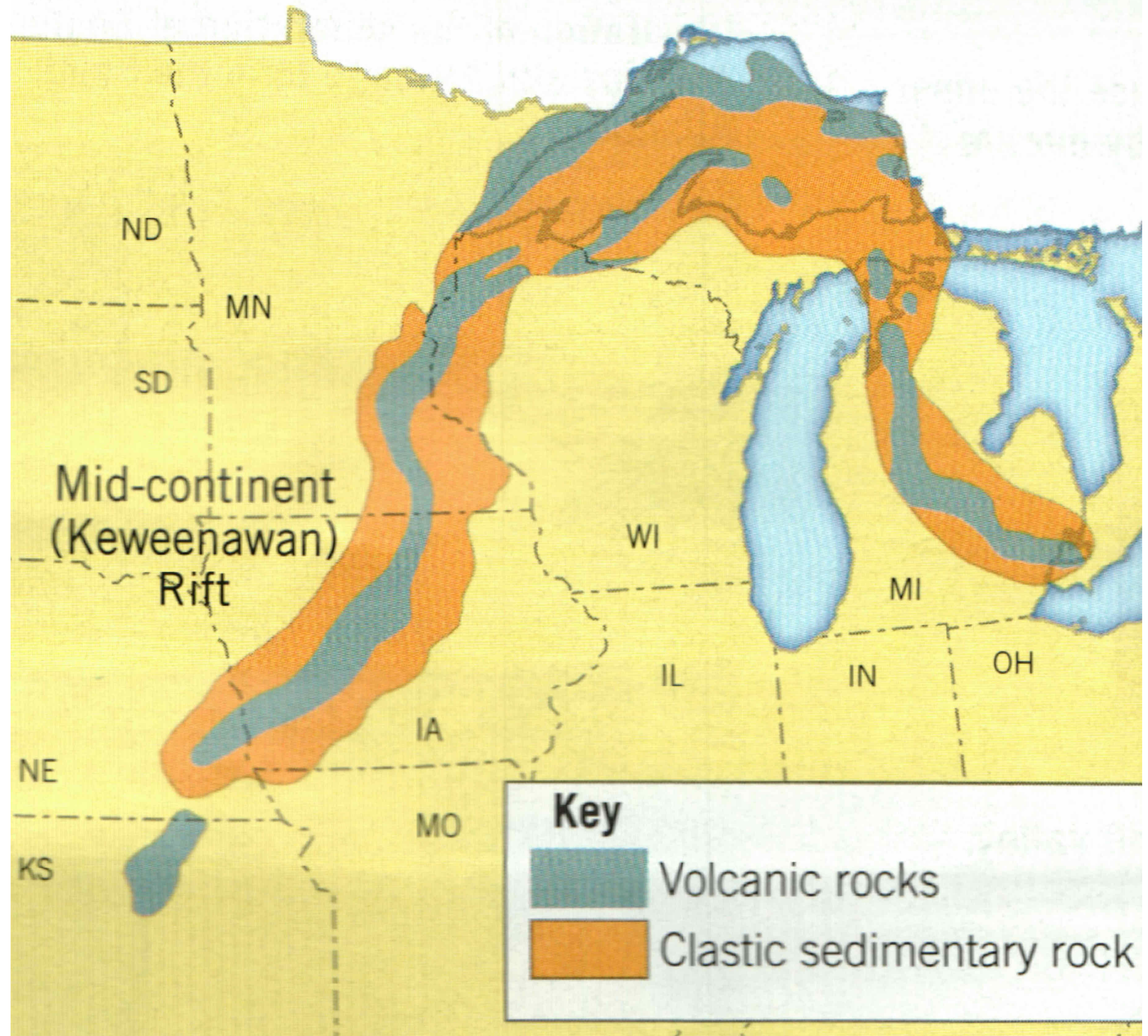
- Basin and Range/Death Valley National Park.
  - Clip 1: 1:30 to 7:14.
  - Clip 2: 11:51 to 14:15.
  - Clip 3: 19:35 to 21:30.
  - Clip 4: 23:07 to 24:21.
  - Clip 5: 29:10 to 29:50.

# Divergent Boundaries

## Baja California



# Divergent Boundaries Failed Rifting?



# Divergent Boundaries

## Failed Rifting?

- Superior Hiking Trail [Video](#).

# Divergent Boundaries

Failed Rifting? - Victoria Falls



# Divergent Boundaries

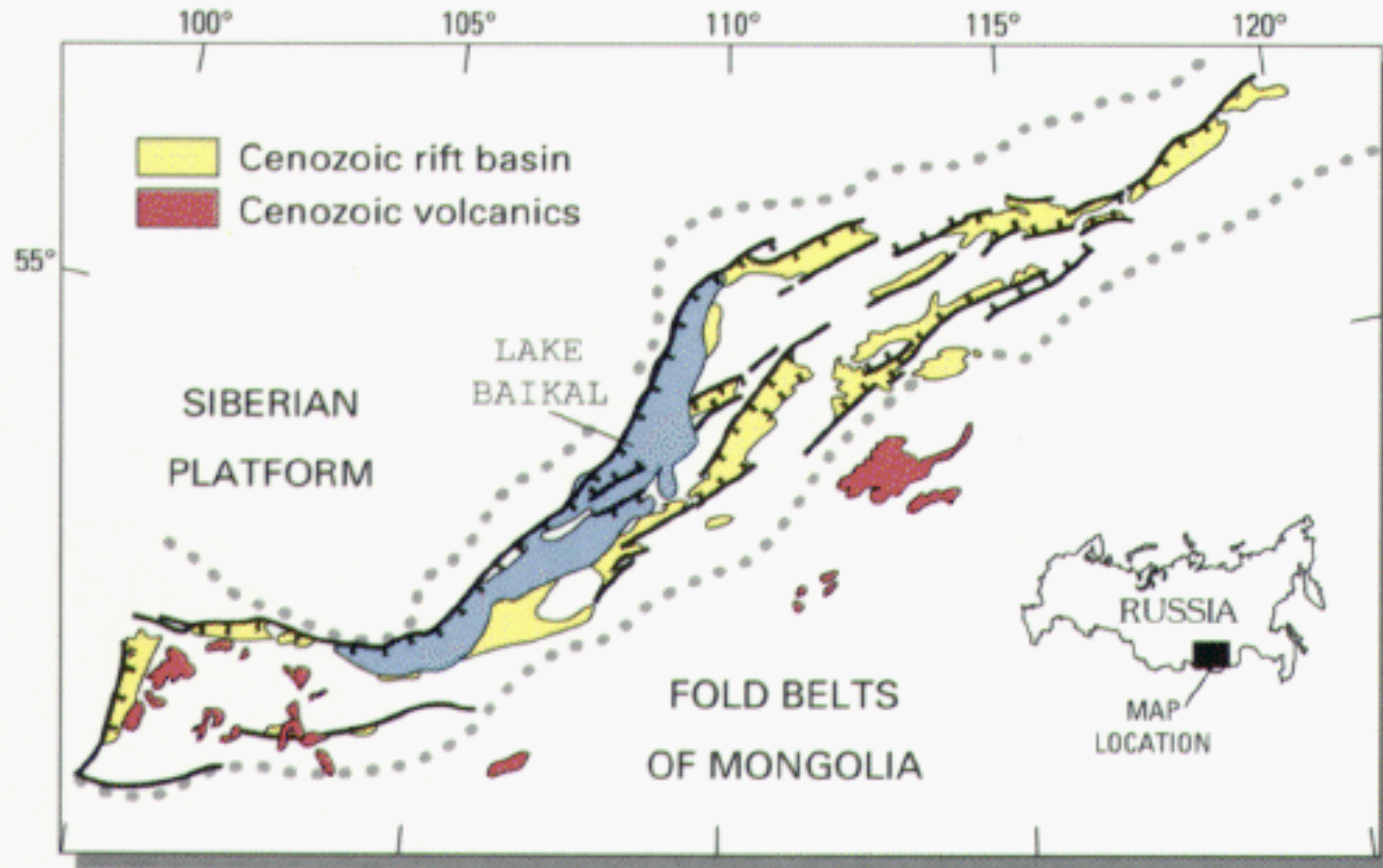
Failed Rifting? -  
Victoria Falls



© Alex Mazunga

# Divergent Boundaries

Failed Rifting? Baikal Rift



Map showing location of Lake Baikal and associated rift basins.

# Next Up

- Transform Boundaries.
- Review and Summary.
- Fun Things.