

# **OLLI SG 492**

# **Plate Tectonics**

**Session 9 - November 14, 2022**

# Today's Meeting

- Divergent Boundaries.
  - Continental Rifting.
- East African Rift Valley.
- Grand Tetons and Basin and Range.
- Failed Rifting (?).

# Divergent Boundaries

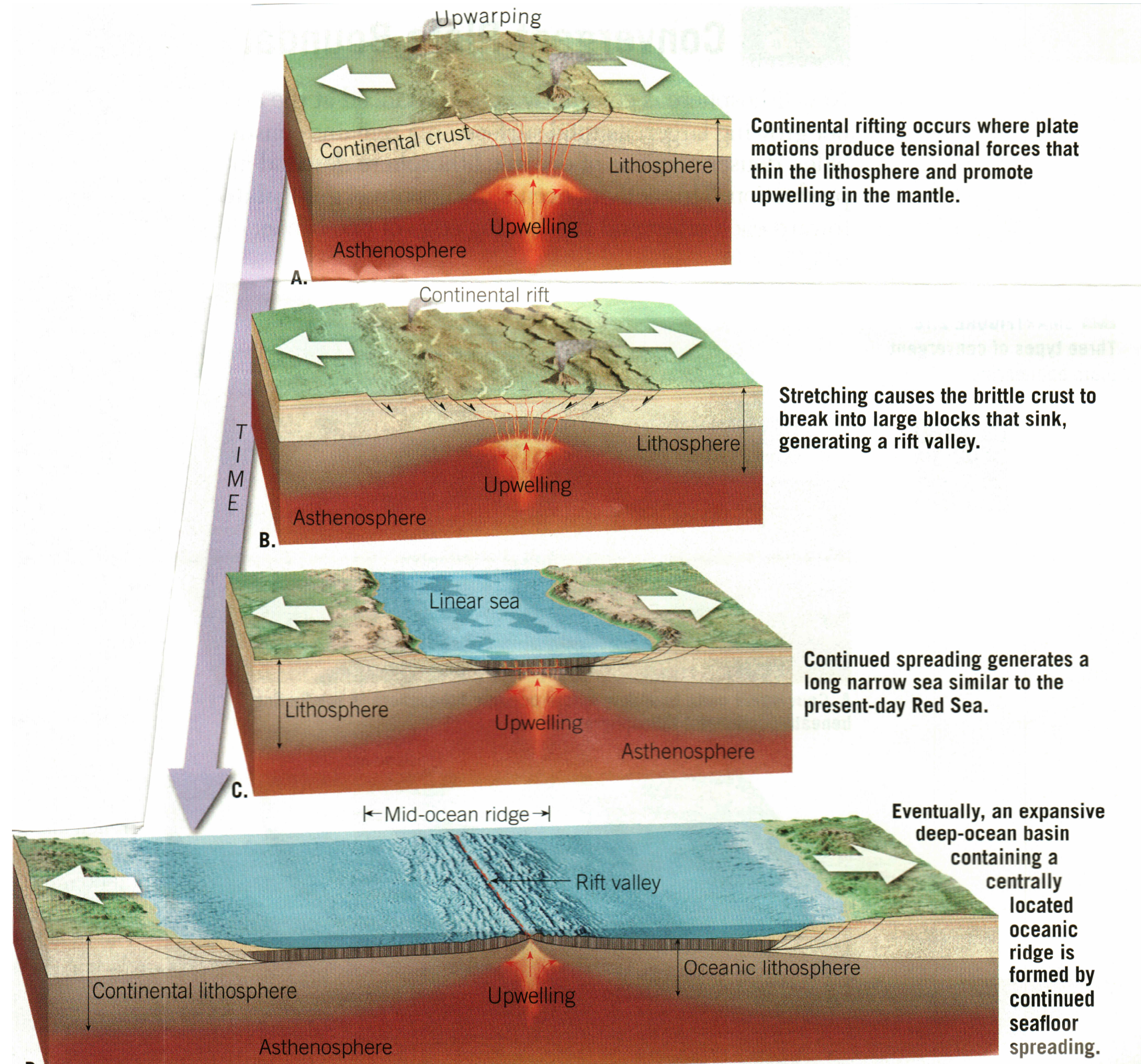
## Types of Divergent Boundaries

- Mid-Ocean Ridges.
  - Seafloor spreading and transform boundaries.
- Continental rifting.
  - Tensional spreading of continental crust.
  - Upwelling of mantle plumes.
  - Rifting.



# Divergent Boundaries

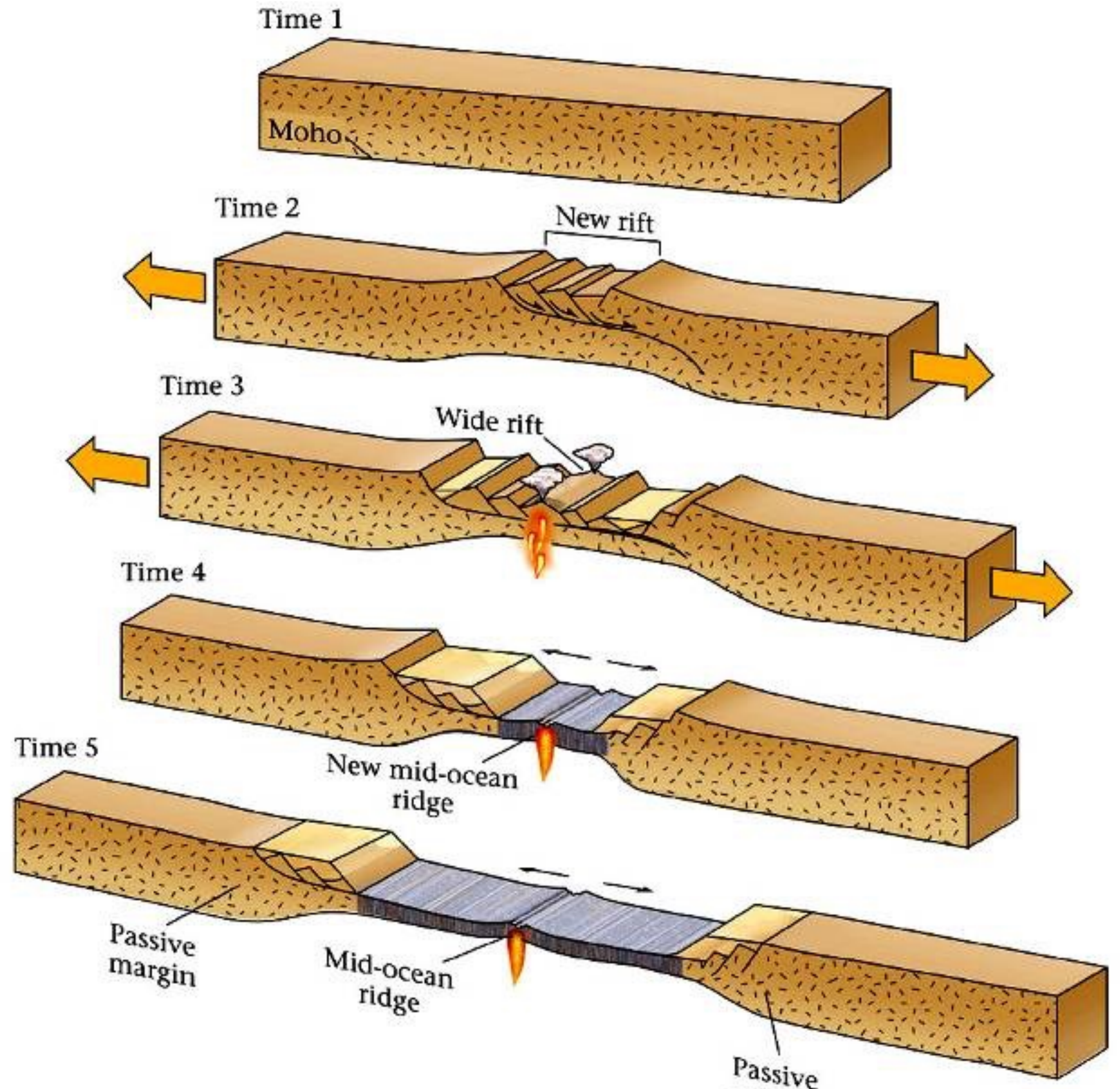
## Continental Rifting





# Divergent Boundaries

## Continental Rifting





# Divergent Boundaries

## Continental Rifting - Examples

- East African Rift Valley.
  - Lithosphere is thick, cool, and strong.
  - Narrow rift valley.
- Basin and Range/Grand Tetons.
  - Lithosphere is thin, hot, and weak.
  - 600 mile wide rift zone.



# Divergent Boundaries

## East African Rift Valley

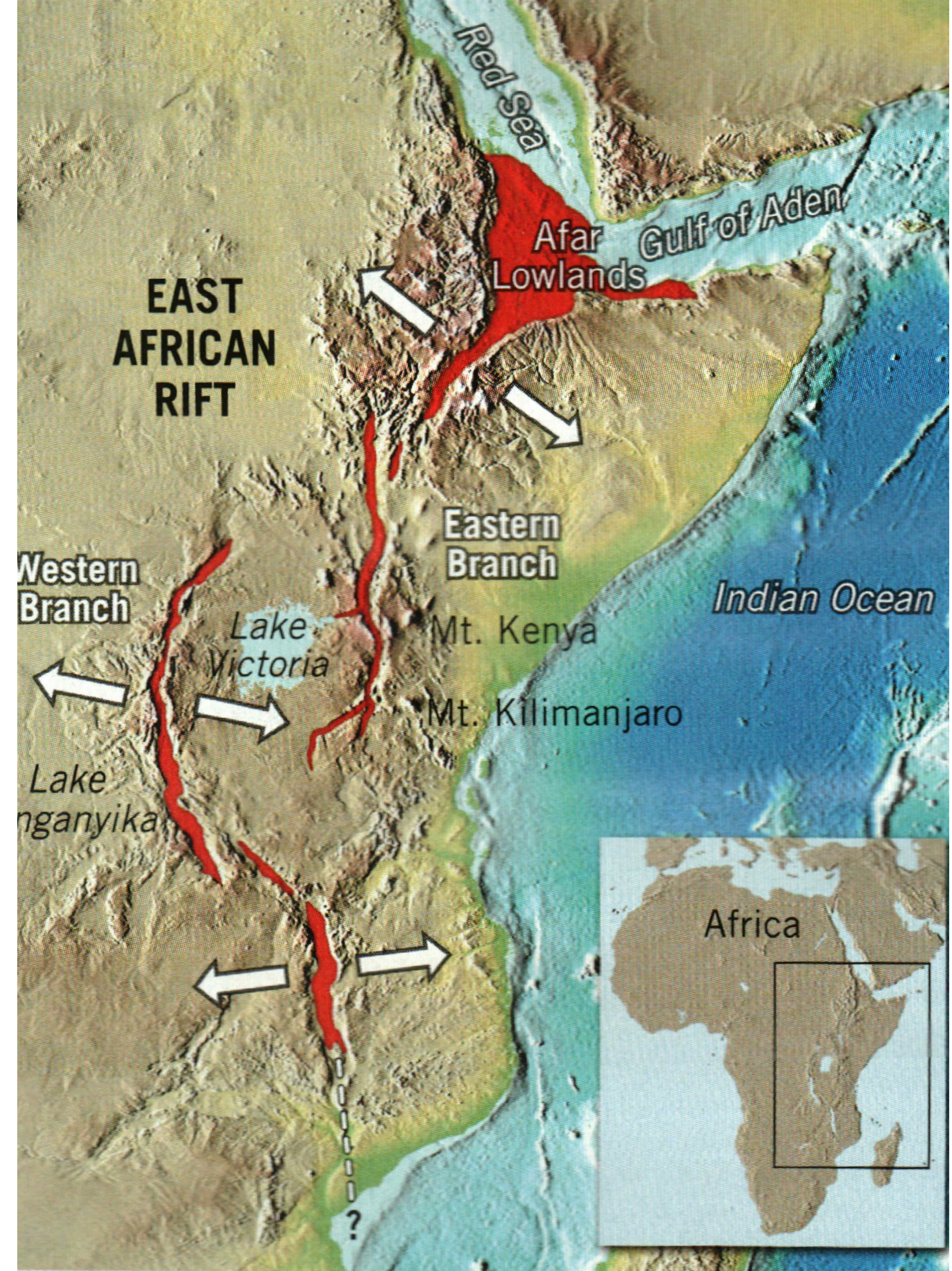


FIGURE 13.21 East African Rift Valley



# Divergent Boundaries

East African Rift  
Valley





# Divergent Boundaries

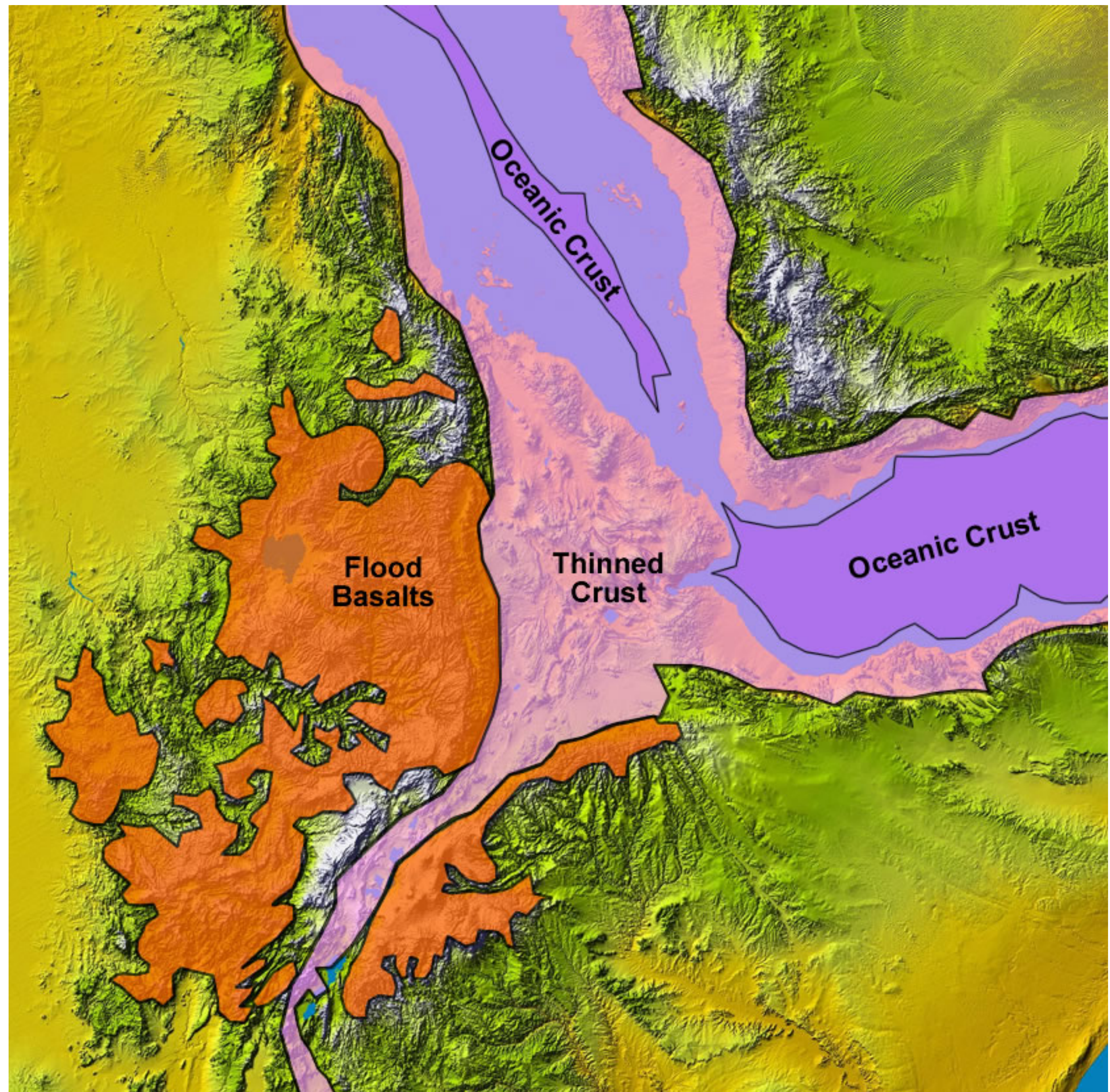
## East African Rift Valley

- Rift! - Video on [East African Rift](#)
  - Clip 1 - 3:45 to 6:00
  - Clip 2 - 7:06 to 11:05
  - Clip 3 - 10:40 to 12:33



# Divergent Boundaries

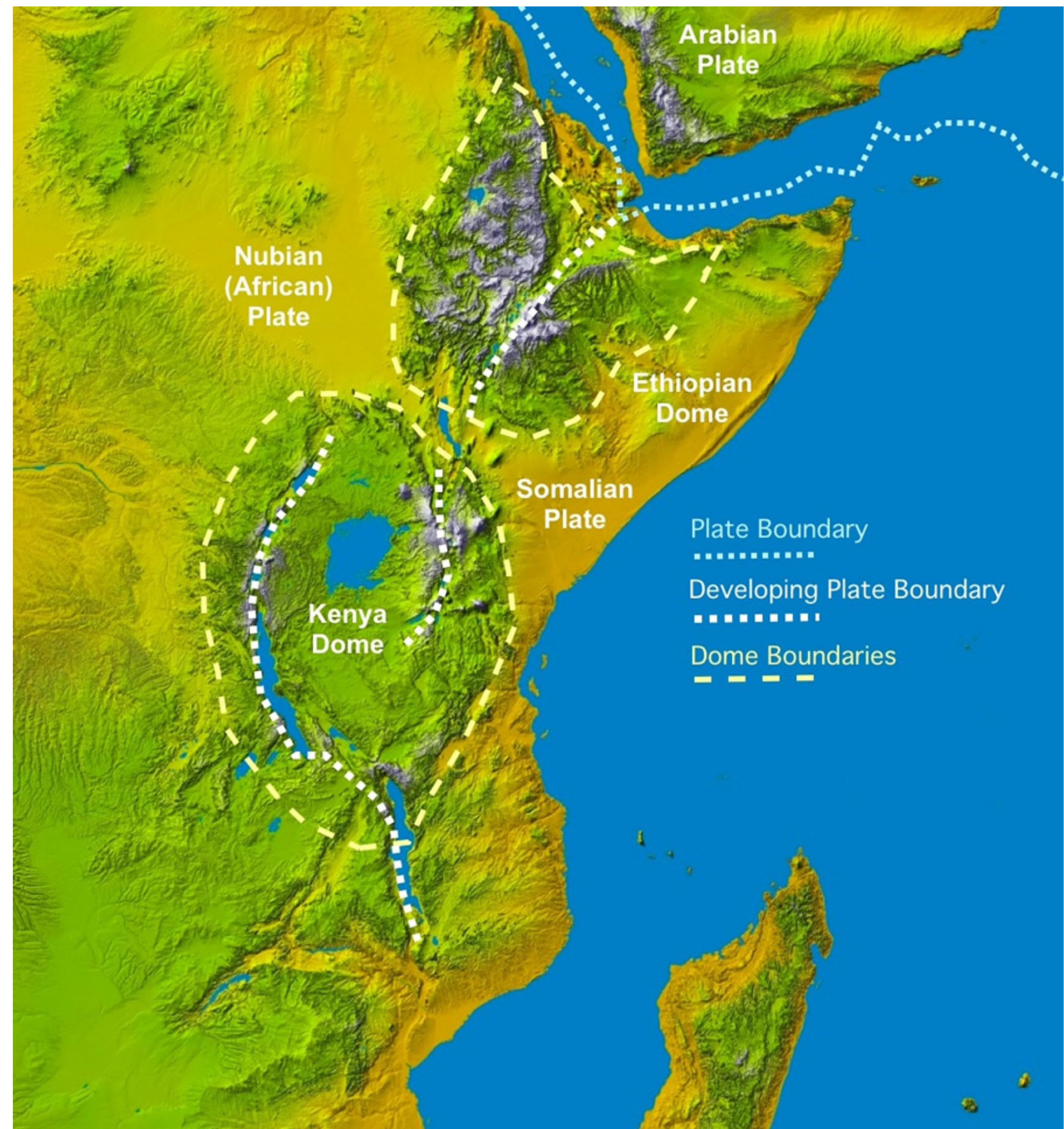
East African Rift Valley - Crust Thinning and  
Oceanic Crust





# Divergent Boundaries

## East African Rift Valley - Domes





# Divergent Boundaries

## East African Rift Valley - Volcanoes and Lakes

- East African Rift Valley Volcanoes:
  - Eritrea - 8.
  - Ethiopia - 77.
  - Kenya - 31.
  - Tanzania - 23.
  - Uganda - 9.

