

# Earth's Interior

What are the different parts of Earth's interior and how did we come to define their characteristics?



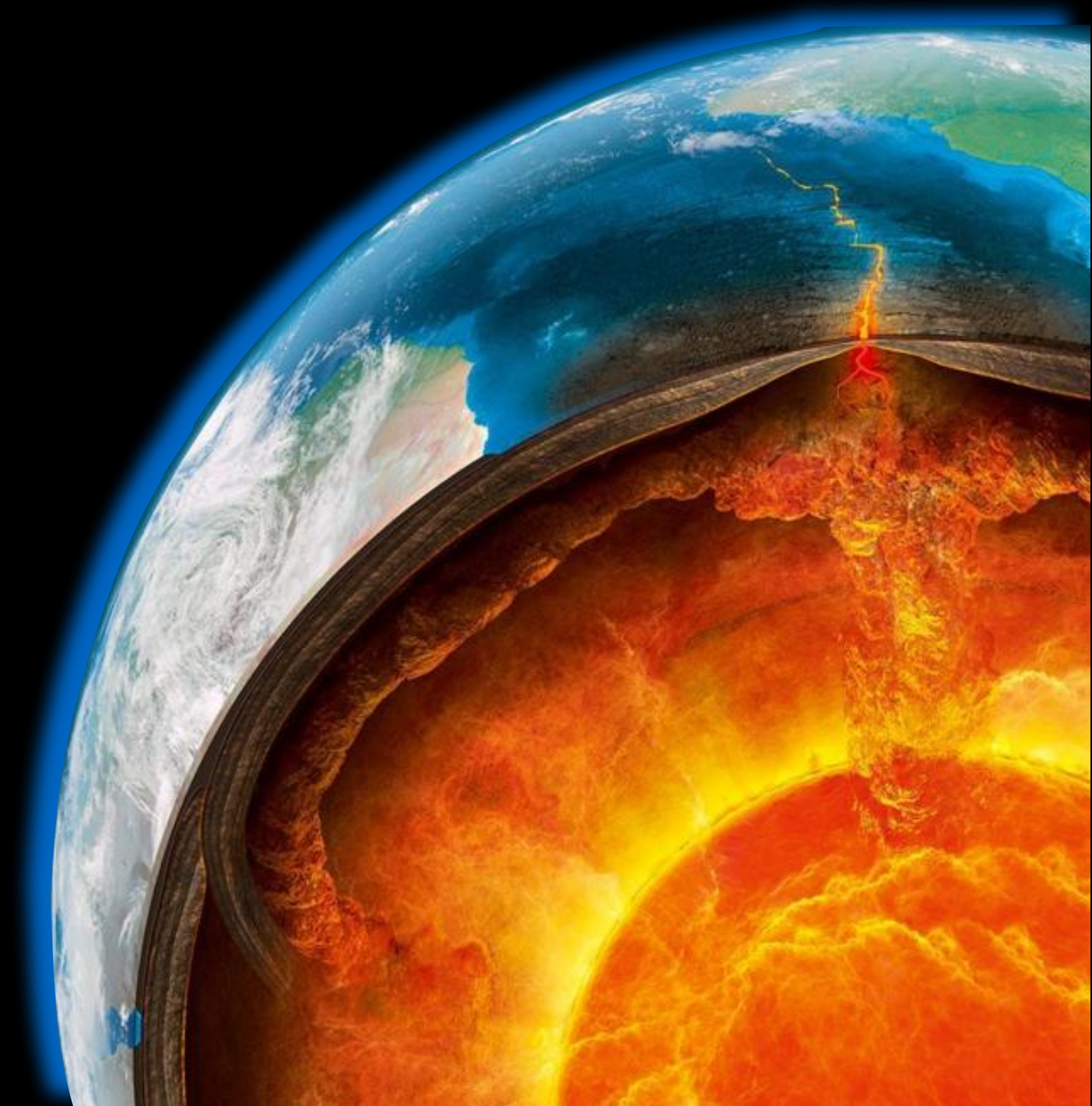
Discovery  
HD SHOWCASE





# Earth's Interior

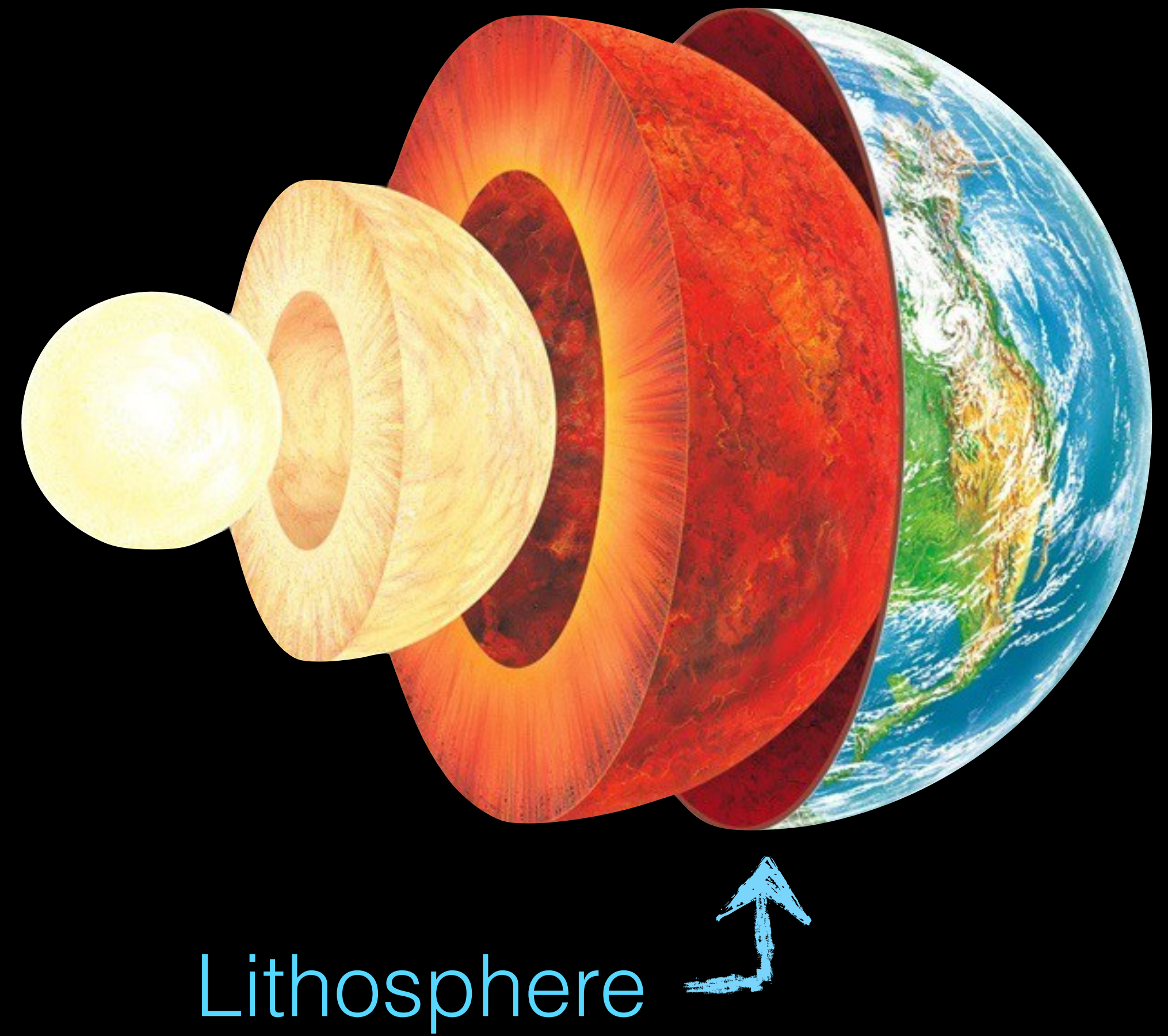
- Earth's interior structures are known through the study of seismic waves
- Seismic waves refract, reflect, change velocity and are absorbed depending on the material they are transmitted through





# Earth's Interior

- Lithosphere - the rigid outer part of the Earth consisting of the crust and rigid mantle







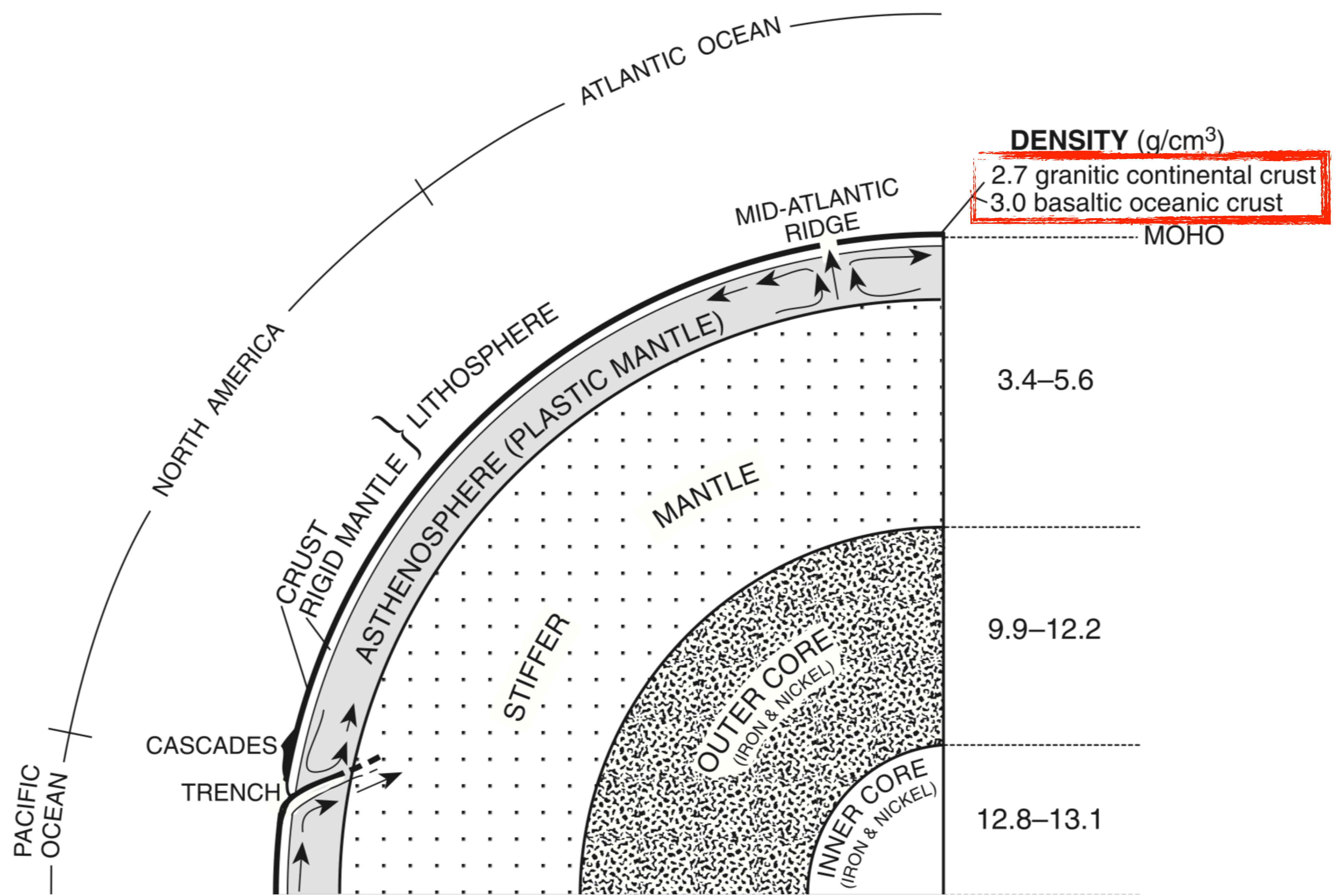
Lithosphere



# Earth's Interior

- Granitic Continental Crust - thickest part of the crust [100 km] that has a density of  $2.7 \text{ g/cm}^3$
- Basaltic Oceanic Crust - thinnest part of the crust [2-3 km] that has a density of  $3.0 \text{ g/cm}^3$

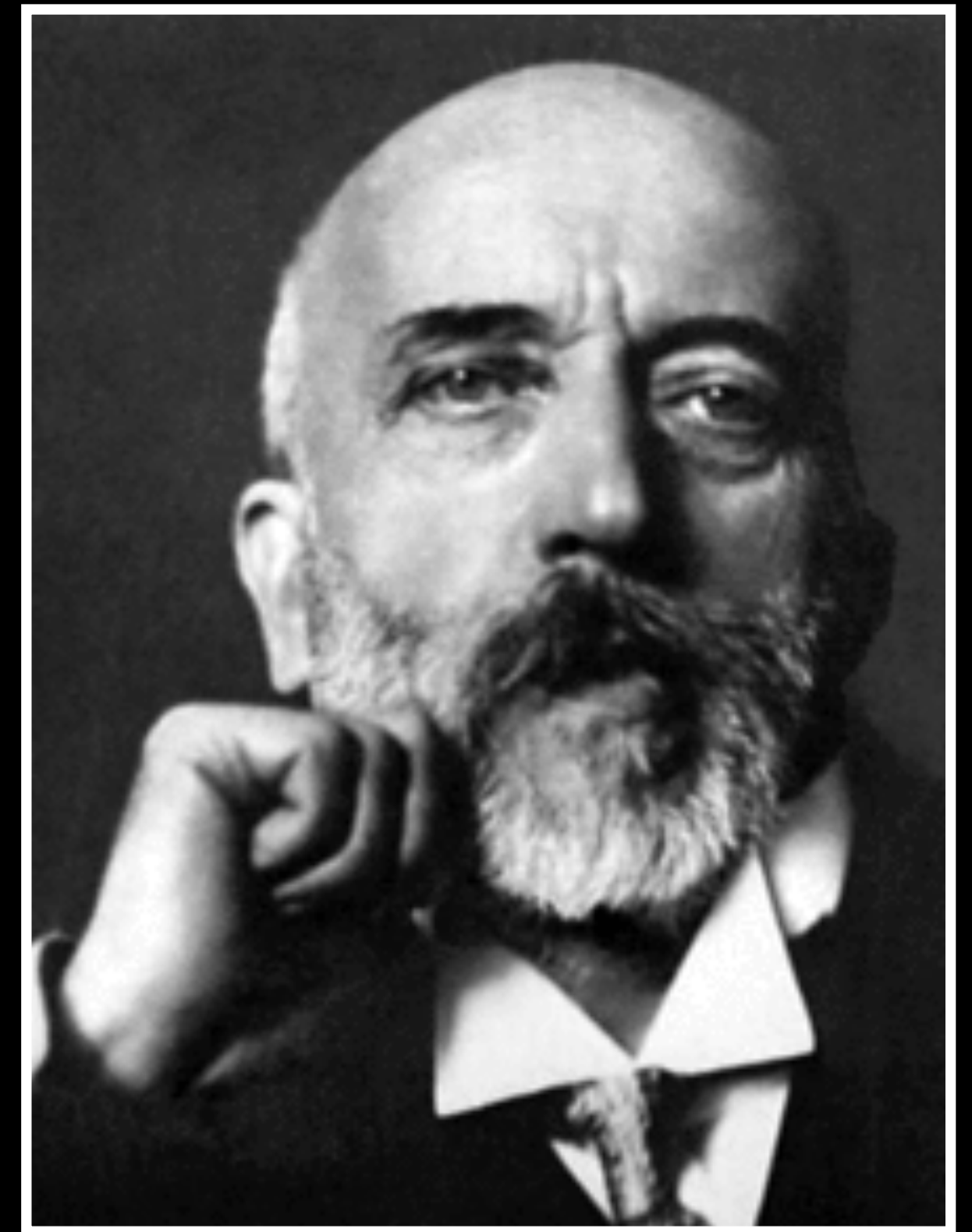




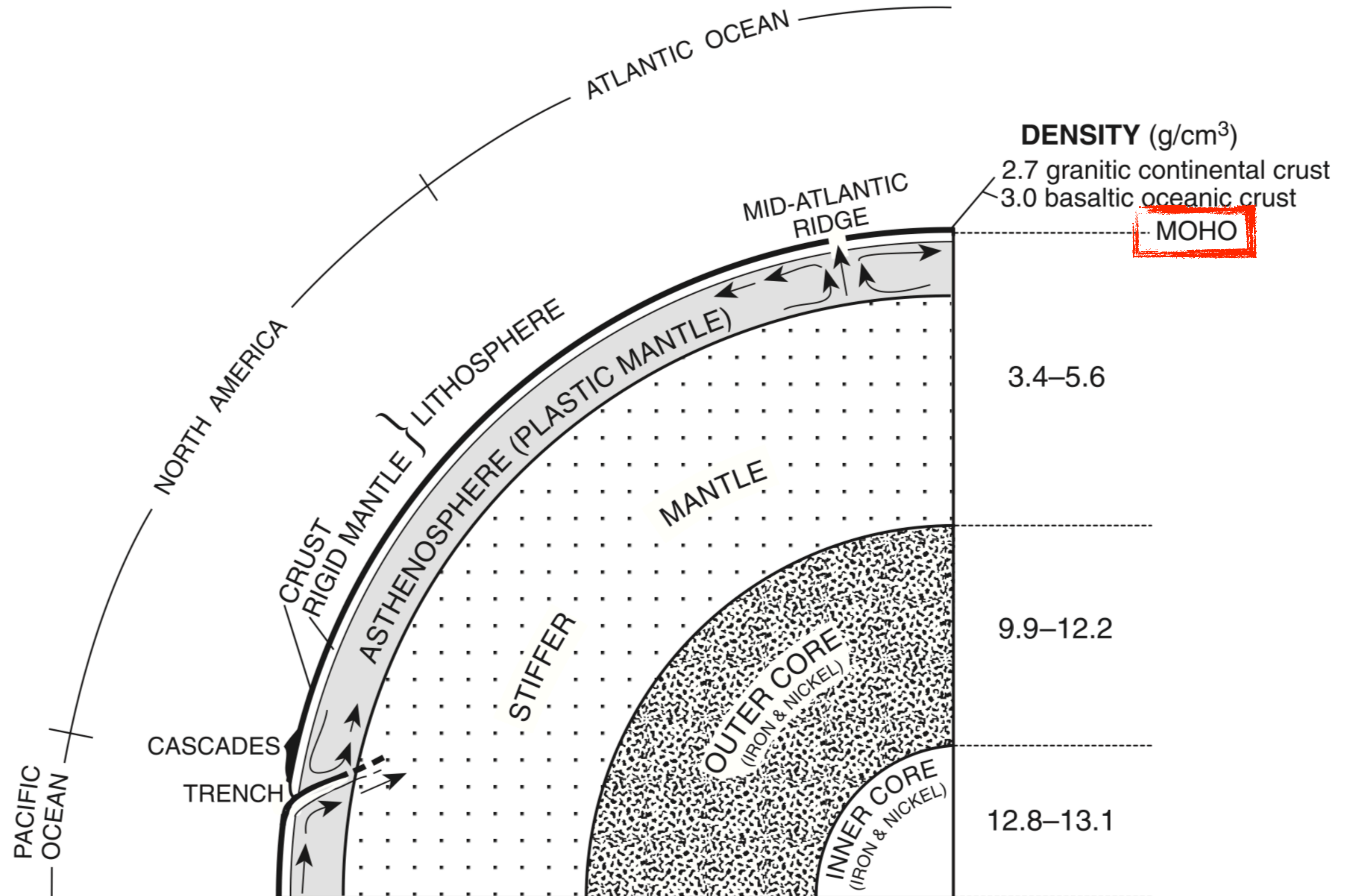


# Earth's Interior

- Moho - thin interface separating the lithosphere from the asthenosphere
  - Andrija Mohorovicic' discovered it the boundary when seismic waves changed velocity







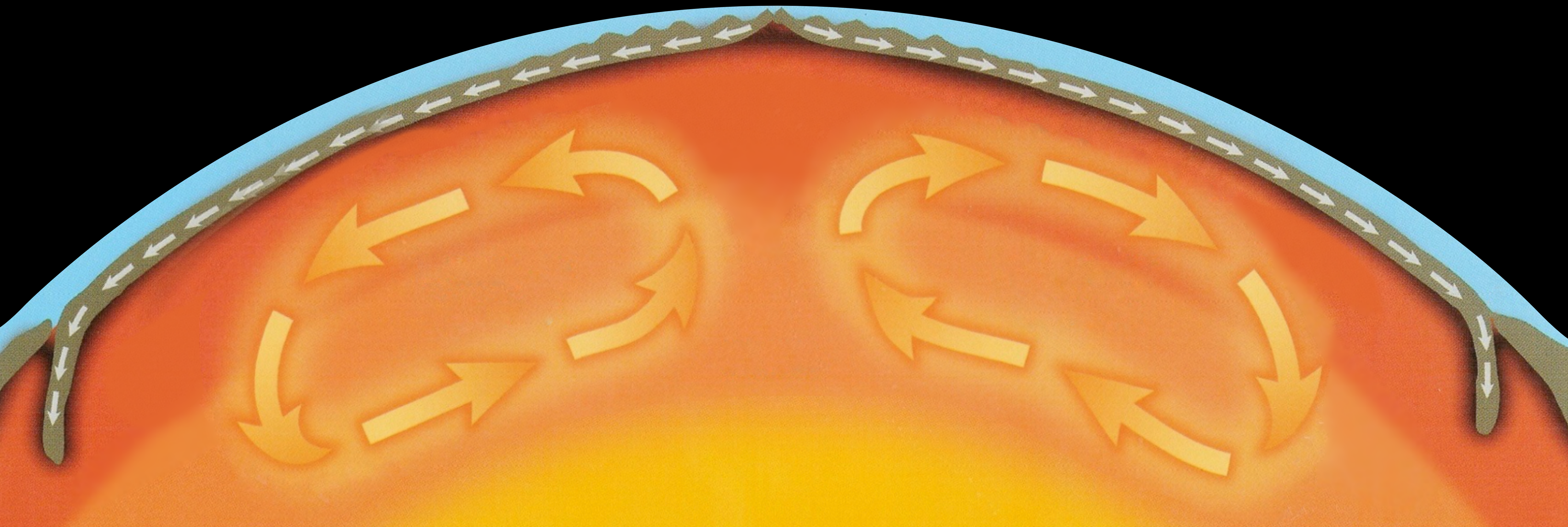


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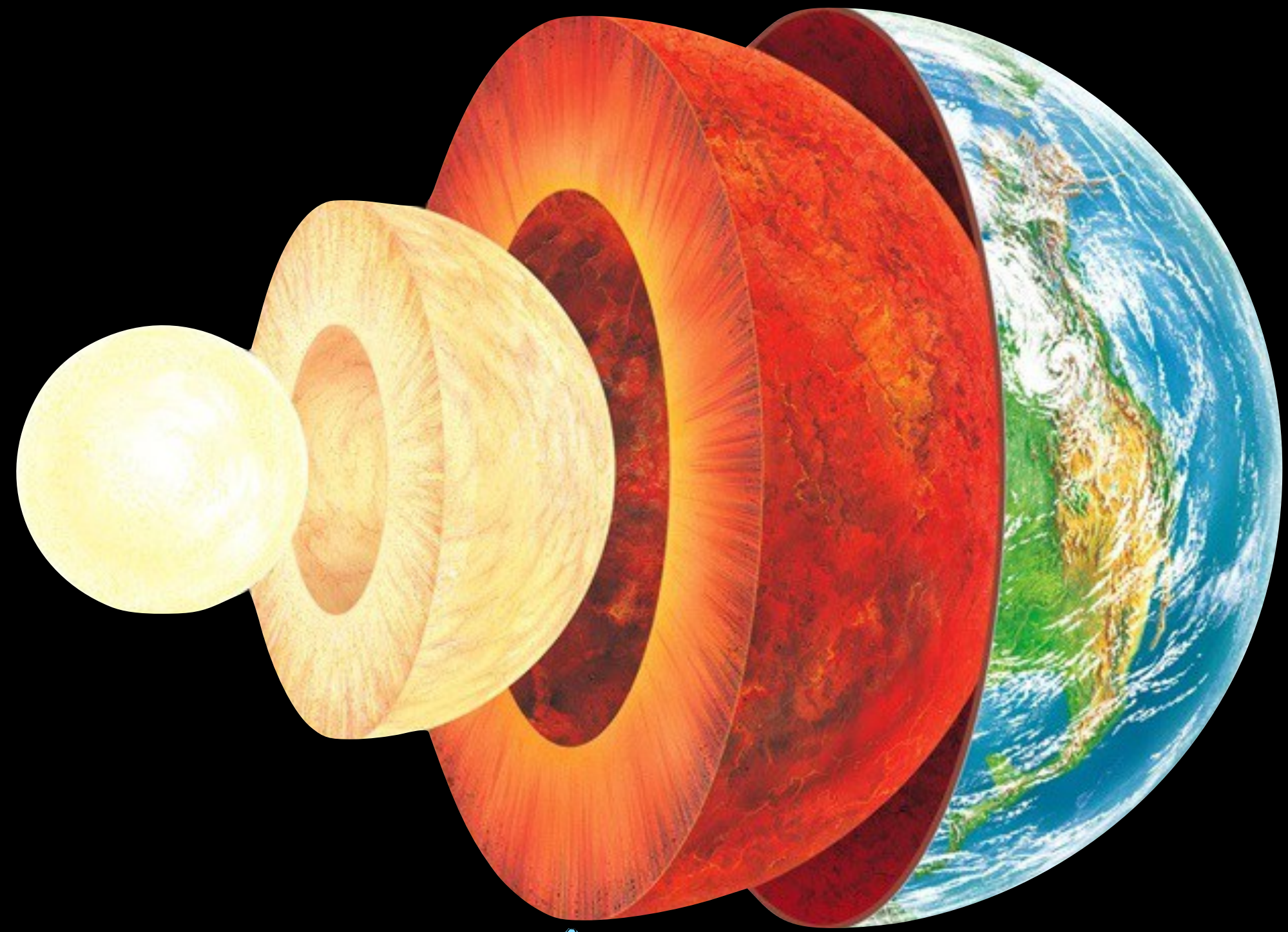
- Asthenosphere [plastic mantle] - upper portion of the mantle that is composed of partially melted rock
  - Convection currents within the asthenosphere cause the continents to move
  - Seismic waves decrease in velocity



# Earth's Interior







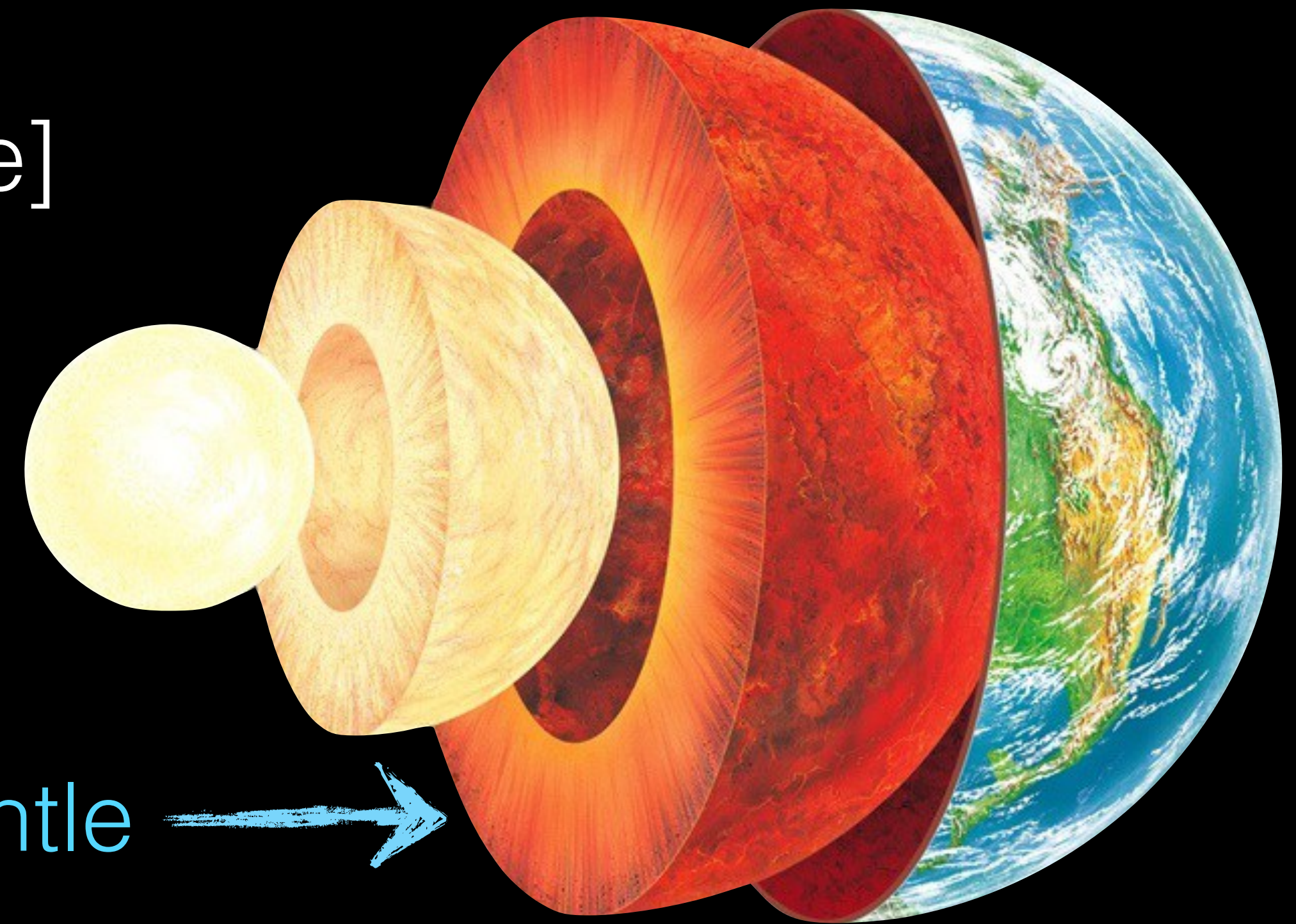
Asthenosphere





# Earth's Interior

- Stiffer Mantle - the thickest portion of Earth's interior [80% of Earth's volume] that is solid

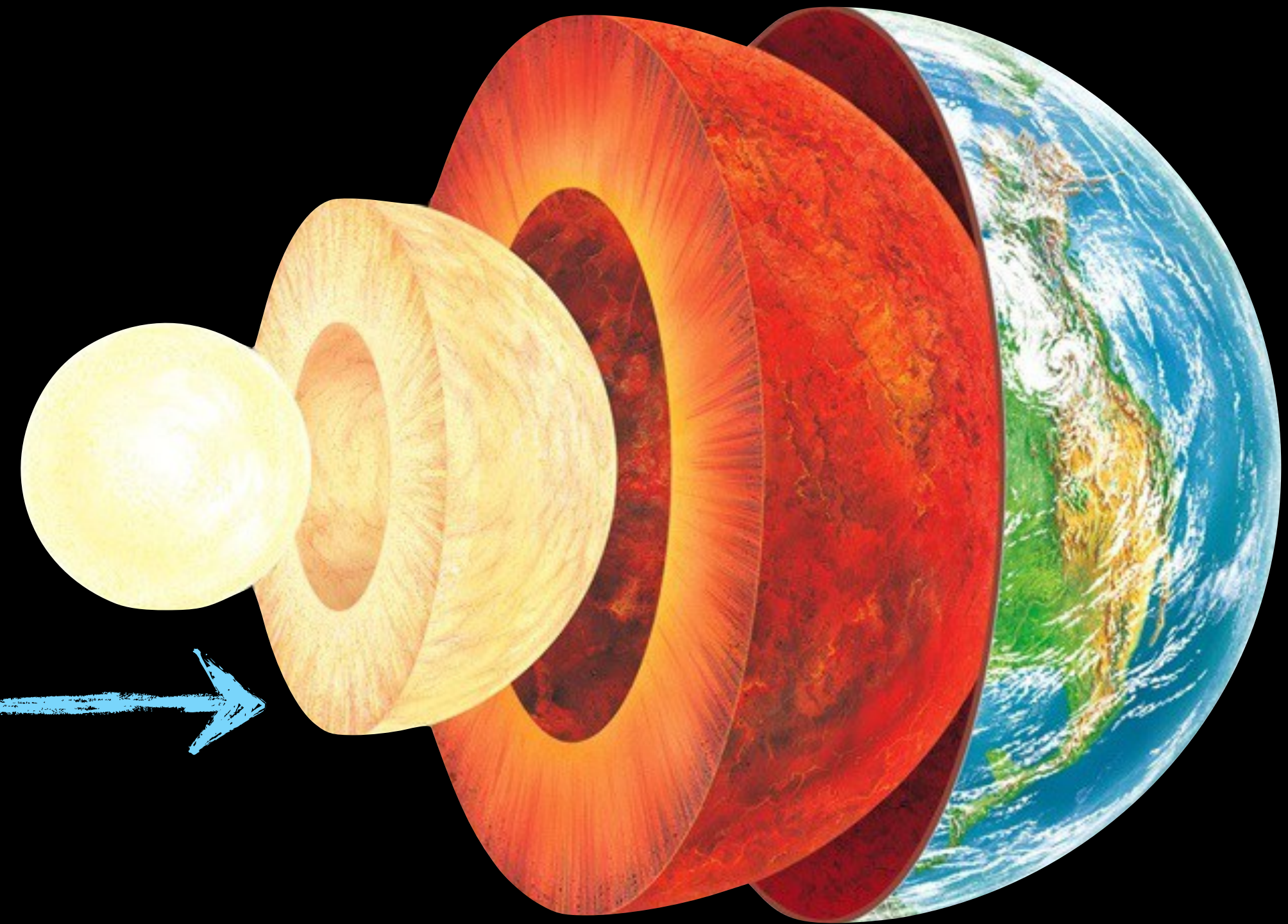




# Earth's Interior

- Outer Core - liquid layer of Earth's interior composed of iron and nickel
  - Seismic waves are absorbed or refracted

Outer Core





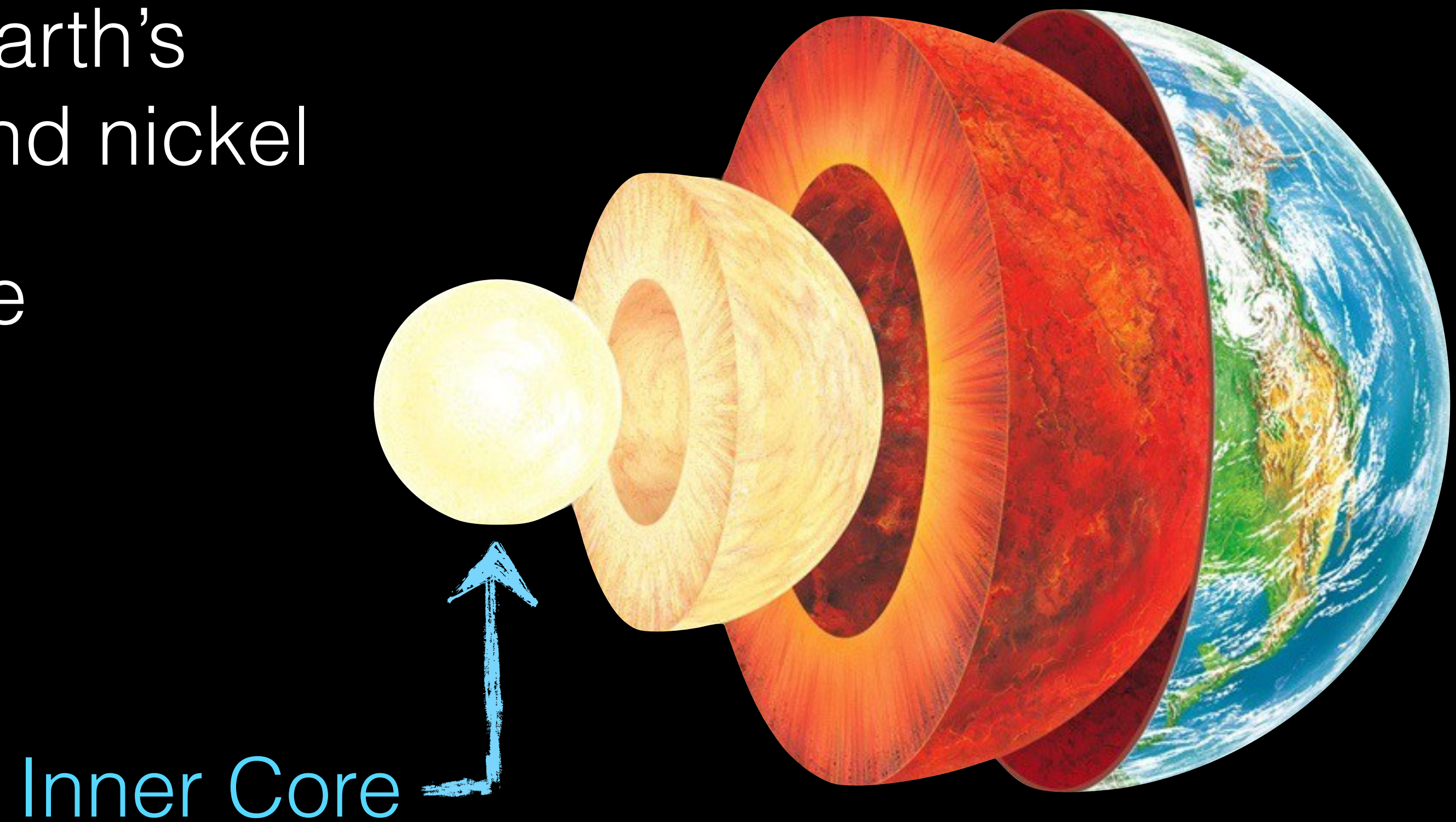
Refraction



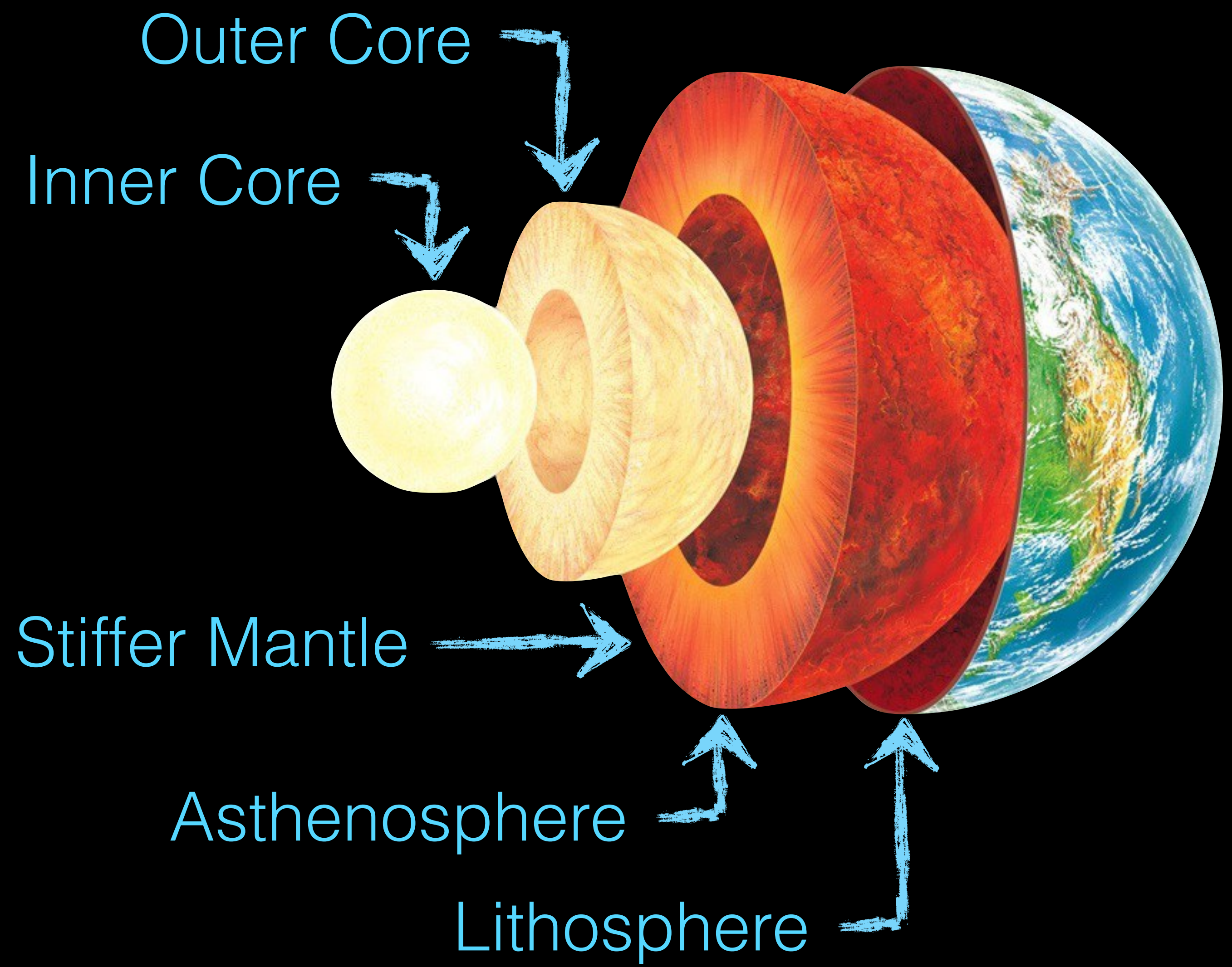


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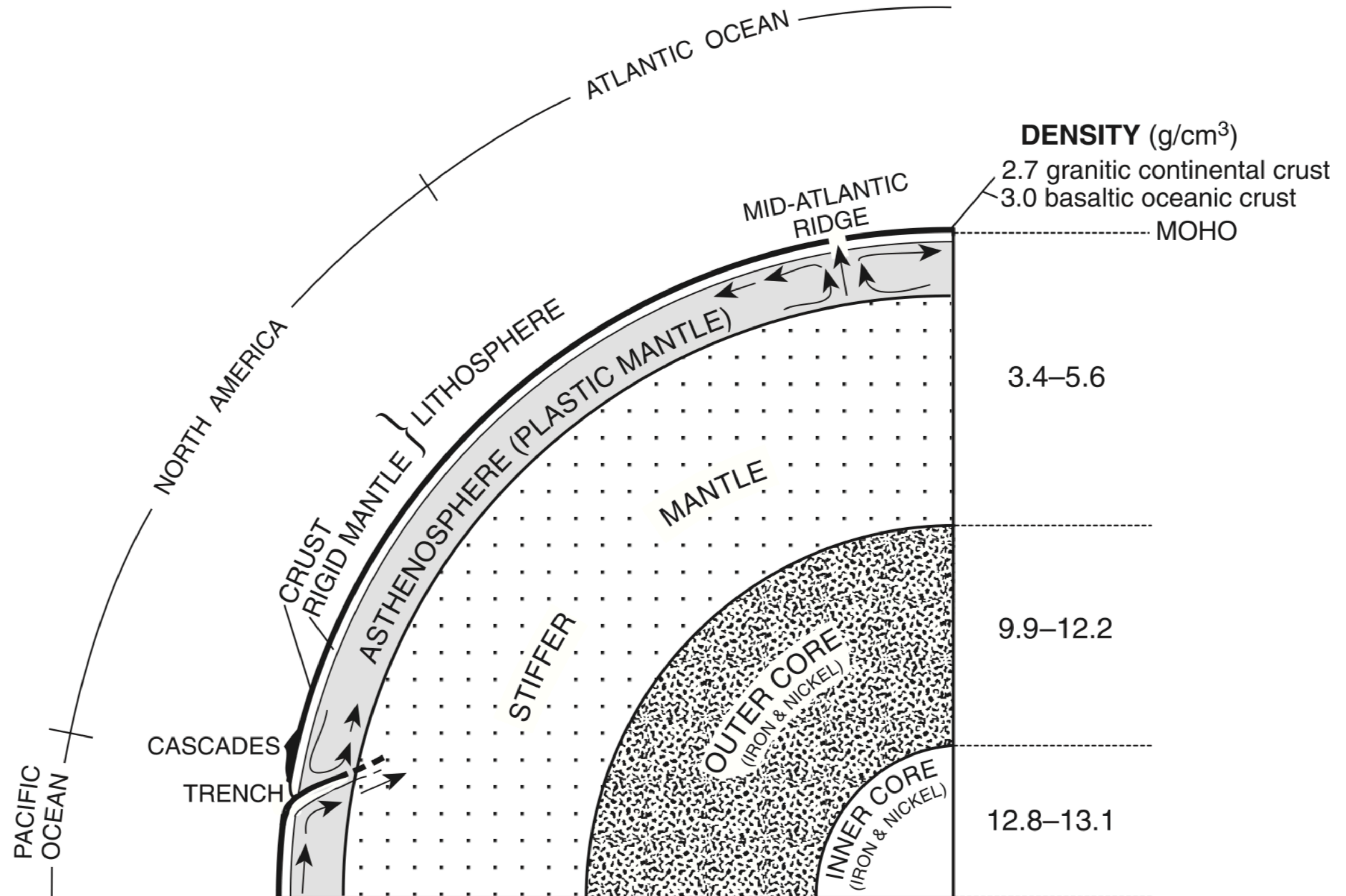
- Inner Core - solid layer of Earth's interior composed of iron and nickel
  - Seismic waves increase in velocity



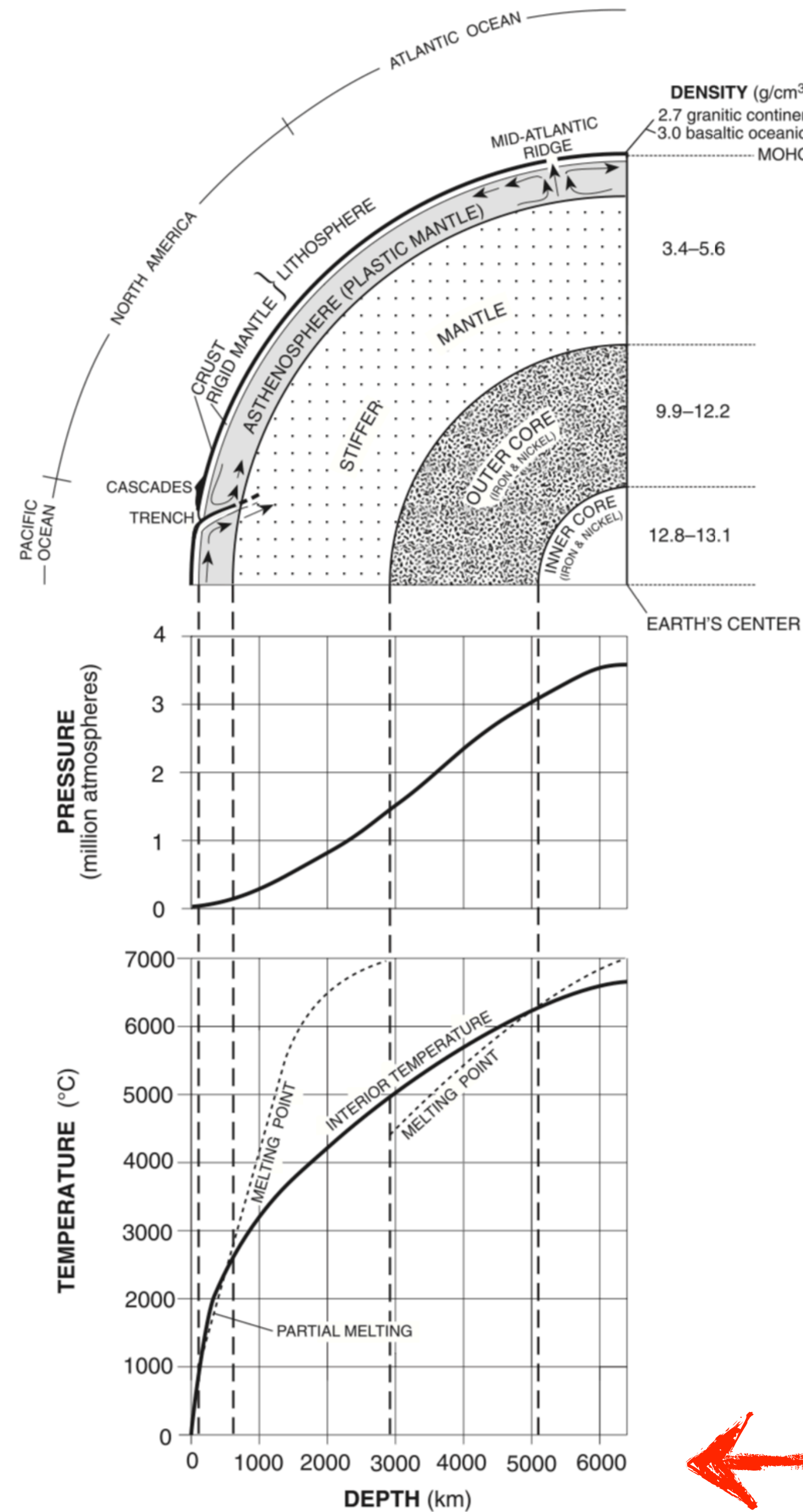












**DENSITY (g/cm<sup>3</sup>)**

- 2.7 granitic continental crust
- 3.0 basaltic oceanic crust
- MOHO
- 3.4-5.6
- 9.9-12.2
- 12.8-13.1

**Density**

Pressure



Temperature



**Depth**





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