

Earth's Layered Structure

Chapter 8.4

I. Layers Defined by Composition

1. Crust: thin, rocky outer layer

Ocean Crust

- ~7km thick
- Mostly basalt
- More dense
(3.0 g/cm³)
- Younger rocks

Continental Crust

- 8-75 km thick
- Mostly granodiorite
- High in silicate minerals
- Lower density
(2.7 g/cm³)
- Older rocks

2. Mantle

- Solid and rocky
- 82% of Earth's volume
- Major rock is peridotite (ultramafic) which has a density of 3.4 g/cm^3

3. Core

- Sphere at the center
- Iron-nickel alloy
- Density = 13 g/cm^3

II. Layers Defined by Physical Properties

1. Lithosphere

- outermost layer
- Relatively cool and rigid rocks
- ~100 km thick

2. Asthenosphere

- Soft and relatively weak rocks
- temperature and pressure close to melting point

