

The Carbon Cycle: Mineral Weathering

2023-02-13

Contents

Reading: 1

Reading:

Required Reading (everyone):

- Understanding the Forecast, Ch. 8, pp. 95–101.

Reading Notes:

- Understand the Urey reaction that converts silicate minerals to carbonate minerals and vice-versa.
- How does the Urey reaction behave differently at the surface of the earth (cool temperatures, low pressure) versus deep in the earth (hot temperatures and high pressure)?
- Understand key vocabulary:
 - **Chemical weathering**
 - **Metamorphic decarbonation**
 - **Degassing**
- What is **subduction** and why is it important to the carbon cycle?
- What is the **silicate weathering thermostat**?
 - What determines the “_set-point” of the thermostat?
 - * What kinds of changes could move the set-point to a “hot-house” earth, like dinosaurs experienced, or a frozen “snowball earth”?
 - How fast or slow is the thermostat? How many years does it take to respond to changing conditions?
 - How does the silicate-weathering thermostat help to explain why Mars is so cold and Venus is so hot?