The Carbon Cycle: Mineral Weathering

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Contents

Reading:

Required Reading (everyone):

- Understanding the Forecast, 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**
- Whatr is **subduction** and why is it important to the carbon cycle?
- What is the **silicate weathering thermostat**?
  - What determines the "_set-point" of the thermostate?
    - 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?