

Lecture 8 – Introduction to Biogeochemical Cycles

READINGS FOR NEXT LECTURE:

- Krebs. Chapter 27. Ecosystem Metabolism III: Nutrient Cycles
- Ramanujan K. 2003. Ocean plant life slows down and absorbs less carbon. (H, W)
http://www.eurekalert.org/pub_releases/2003-09/nsfc-op1091603.php. accessed 9/16/03
- Rietschel M. 2003. Analysis pours cold water on flood theory. *Nature*. **425**:111. (H,W)

Outline for today:

- I. Discussion of pre-proposals
- II. Biogeochemistry
 - a. Dinosaur question
 - b. Reservoirs and residence times
 - c. Example: methane
- III. Guest speaker: Anna Mehrotra

Study questions:

- What are the major compartments that we consider when drawing biogeochemical cycles? What are some of the major sub-compartments that we also consider?
- Explain what two factors contribute to a compound having a long residence time in an ocean or in the atmosphere.
- What are some major differences between the global biogeochemical cycles for P vs C, or CO₂ vs. CH₄?
- Wetland, rice patties, termites and cows are major sources of CH₄. Why?
- More of a brain teaser than study question (Hint: think about residence times and fluxes, see water cycle Krebs Figure 28.7)