

Biol. 221
Extra Credit Opportunity # 4

To receive 1% on the final exam, you must:

- 1) Watch the online lecture given by Ellen Mosley-Thompson as part of a meeting of the American Geophysical Union (AGU).
- 2) Answer **six** of the questions given below. Type your answers into a Word document and e-mail them as an attachment to Dr. Peterjohn before midnight on Monday March 5, 2012 in order to receive any credit. Trite, or trivial, responses to any of the questions will result in no extra credit being awarded.

1. What are advantages of using ice cores for reconstructing past climates?
2. What are 5 types of historical information about the Earth's climate and/or environment that can be obtained from ice core records?
3. Where was the longest ice core taken from and how far back in time does it go?
4. What percentage of the CO₂ added to the atmosphere by the burning of fossil fuels will remain in the atmosphere after 100 and 1,000 years? Why do you think these values are important?
5. Why did the researchers take multiple ice cores from locations all over the world? Provide one specific example of a lesson they learned by comparing the results from ice cores collected in different regions.
6. How has the data from ice cores provided evidence of human pollution of the atmosphere and the effectiveness of policies that attempt to mitigate that pollution?
7. What do the plant samples found near the retreating Quelccaya Ice Cap tell us?
8. How long has ice been present on Mount Kilimanjaro? What does this value tell us in light of what is happening on Kilimanjaro today?
9. What is the Earth's "third pole" and why is it important to humans?
10. What is the evidence for glacial "decapitation" in the Himalayas?
11. What does current evidence suggest is happening to the big ice sheets on Earth (Greenland, West Antarctica, & East Antarctica)? Given these changes what is likely to be a more realistic estimate of sea level rise by 2100?
12. Give several reasons why is ice important to the Earth system?
13. What are the 3 most interesting things you learned and why did you find them interesting?