Monday 10 April 2006, 35th class meeting
(Miller Chapter 12, Red Sky Chapter 3, NG excerpts; Miller Chapter 9 [water])

Environmental Biology (ECOL 206)
U. Arizona, spring 2006
Kevin Bonine, Ph.D.
Alice Boyle, Kristen Potter, Graduate TAs

1. TODAY: Global Climate Change, Water
2. Lecture schedule updates on your website
3. 206 Lab Website for handouts and assignments
   No lab this week

   - next installment of Group Project: Oral Presentations (26 April-01 May), sign up in lab
   - Thanks to guest speakers (Potter, Boyle, Mangin, etc.)!
   - Exam III on Wednesday 19 April

Evolution Lecture Series

Tuesday, February 21
Biological Evolution: What It Is and What It Isn’t
   Joanna Moss, Assistant Professor, Ecology and Evolutionary Biology

Tuesday, March 7
Cosmic Evolution: From Big Bang to Biology
   Chris Impey, Distinguished Professor, Astronomy

Tuesday, March 21
Earth Evolution: The Formation of Our Planet
   Joaquín Ruiz, Dean of the College of Science and Professor of Geosciences

Tuesday, March 28
Social Evolution: Cooperation and Conflict from Molecules to Society
   Rick Michod, Professor, Ecology and Evolutionary Biology

Tuesday, April 11
Animal Evolution: Recycling Ancient Genes for New Uses
   Lisa Nagy, Associate Professor, Molecular and Cellular Biology

Tuesday, April 18
Human Evolution: Tracing Our Origins with DNA
   Michael Hammer, Research Scientist, Division of Biotechnology and Department of Ecology and Evolutionary Biology

Tuesday, April 25
Disease Evolution: The Example of HIV
   Michael Worobey, Assistant Professor, Ecology and Evolutionary Biology

Global Warming hits on NYTimes:

Climate Expert Says NASA Tried to Silence Him
Published: January 29, 2006

James E. Hansen, top NASA climate scientist, at the Goddard Institute in Upper Manhattan.
Global Climate Change

1. Implications

2. Solutions

Arizona Daily Star

Global warming's sea-level rise would doom cities, 2 studies say

By Anne Wilyard

FAR THE AVERA-ALO
Climate change is not just an issue for L.A. and other coastal cities. It's also a pressing concern for many countries around the world. A new study published in the journal Nature Climate Change found that global warming could lead to widespread sea-level rise, which would devastate coastal cities and result in significant economic losses. The study, conducted by researchers from the University of California, Los Angeles, used a combination of models and data to predict how sea levels would rise by the end of the century. The results suggest that sea levels will rise by 0.3 to 1.0 meters, depending on the scenario considered.

FRIGIDAIRE

"Probability, not estimated."

Fryday 20-906
Global Climate Change

**GeoSigns, EcoSigns, Time Signs**
National Geographic September 2004

We are changing our planet’s climate and the evidence is to be found in the geological, biological, and climatological records available for study.

- Carbon Dioxide, Methane, Nitrous Oxide
- Deforestation, etc.

**GeoSigns**

Glaciers
(disappearing; water and electricity for humans)

Sea Level
(>100 million people live within 3’ mean sea level)
(1” sea level → 8’ beach loss)

Permafrost
(melting and causing subsidence; drunken forests)

Rate of Change
Hottest Years on Record
1. 1998
2. 2002
3. 2003
4. 2001
5. 1997

Albedo Feedback
(poles changing more rapidly [7-9 F]; 1 F globally)

North Atlantic Thermohaline Circulation
(transfers heat around planet, keeps Europe warm)

EcoSigns

Adelie Penguins, Polar Bears
(ice shelves for nesting and foraging on krill)
(thinner bears b/c feeding season shortened)

Timing of Migration, Reproduction (incl. TSD)

Shifting Ranges
(sky islands, invasives, decoupled food webs)

Anthropogenic Barriers
(restrict movements)

Coral Bleaching
(1998, 16% corals killed or bleached)
TimeSigns

Stalagmites, Coral Rings
(evidence of cave flooding; annual variability)

Tree Rings
(sophisticated recorders of environmental fluctuations)

Ice Cores
(data going back >100,000 years)
(ice cores as conservation tools?)

Sediment Cores
(mud, pollen)

Pack Rat Middens
(hoarders, urinaters, climate fluctuation)

http://fightglobalwarming.com/index.cfm (CLICK HERE)