Lecture 11: Monday, March 3, 2008

Exam scores are available on the web; read announcement
And follow link from class home page
http://www.physics.rutgers.edu/~karin/140/

FAQ:
A curve WILL be used to compute final letter grades for the course

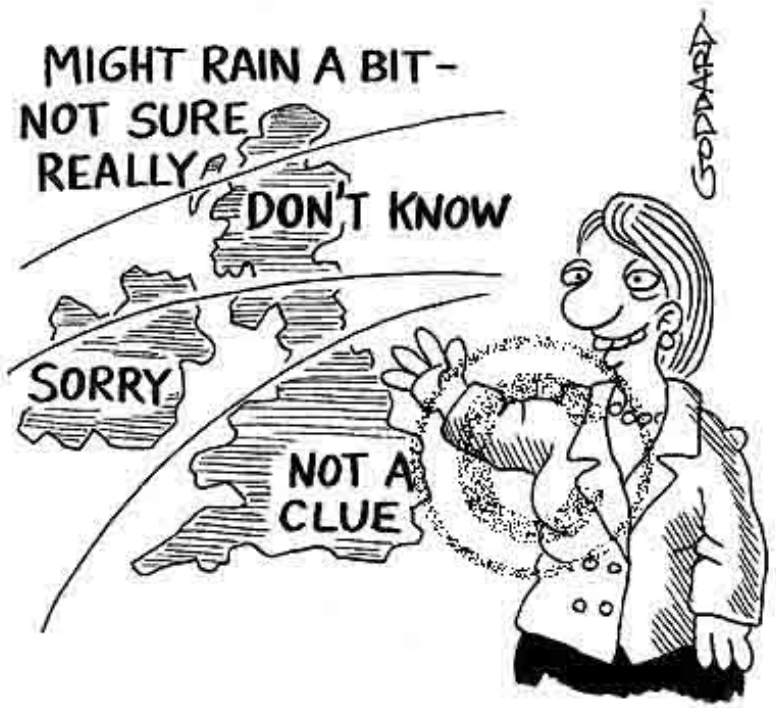
March 3, 2008, 7:42 am

Global-Warming Skeptics Convene in N.Y.

By JOHN TIERNEY

Hundreds of skeptics in the global-warming debate are convening in New York today and tomorrow. The meeting, sponsored by the Heartland Institute, is an assortment of climate scientists, economists and free-market think-tankers — some who have impressive credentials, some of whom are listed in the conference program simply as "Scientist" or "Meteorologist." Sorting out the wheat from the chaff will not be easy, but here's one way to start: Check out this report being presented at the conference today.

It's a critique of the report last year from the United Nations' Intergovernmental Panel on Climate Change. This new report, which accuses the I.P.C.C. of "errors and misstatements," is from a group of scientists calling itself the N.I.P.C.C. — the Nongovernmental International Panel on Climate Change. The report was edited by S. Fred Singer, a professor emeritus of environmental sciences at the University of Virginia. It comes with an introduction from Frederick Seitz, a physicist and past president of the National Academy of Sciences and of Rockefeller University, who writes that the report shows "we do not currently have any convincing evidence or observations of significant climate change from other than natural causes."



Honest weather forecasting.

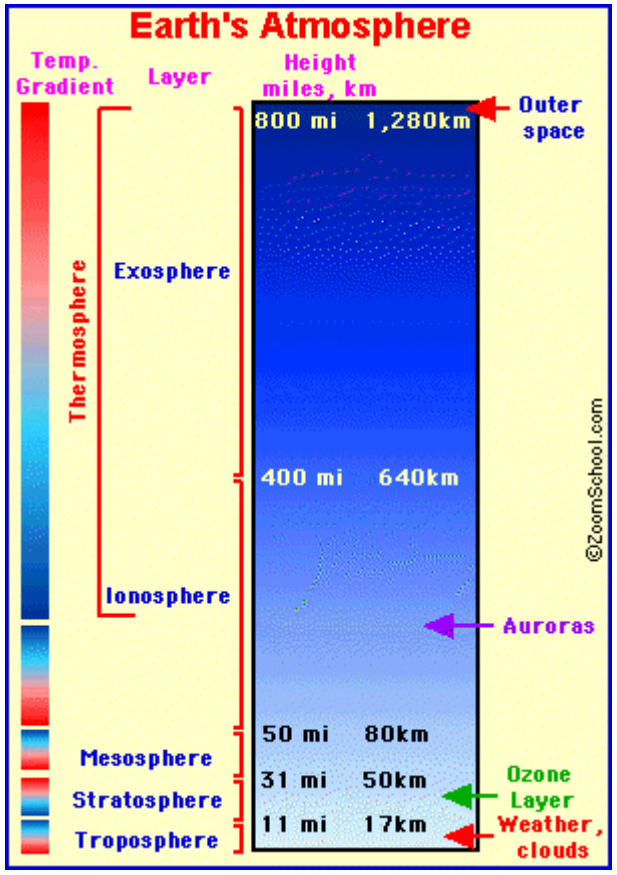


Table 2.1 *The composition of the atmosphere, the main constituents (nitrogen and oxygen) and the greenhouse gases as in 2001*

Gas	Mixing ratio or mole fraction[a] expressed as fraction* or parts per million (ppm)
Nitrogen (N_2)	0.78*
Oxygen (O_2)	0.21*
Water vapour (H_2O)	Variable (0–0.02*)
Carbon dioxide (CO_2)	370
Methane (CH_4)	1.8
Nitrous oxide (N_2O)	0.3
Chlorofluorocarbons	0.001
Ozone (O_3)	Variable (0–1000)

[a] For definition see Glossary.

The Earth's atmosphere is about 300 miles (480 km) thick,
but most of the atmosphere (about 80%) is within 10 miles (16 km) of
the surface of the Earth. There is no exact place where the atmosphere ends;
it just gets thinner and thinner, until it merges with outer space.
(from www.enchantedlearning.com)

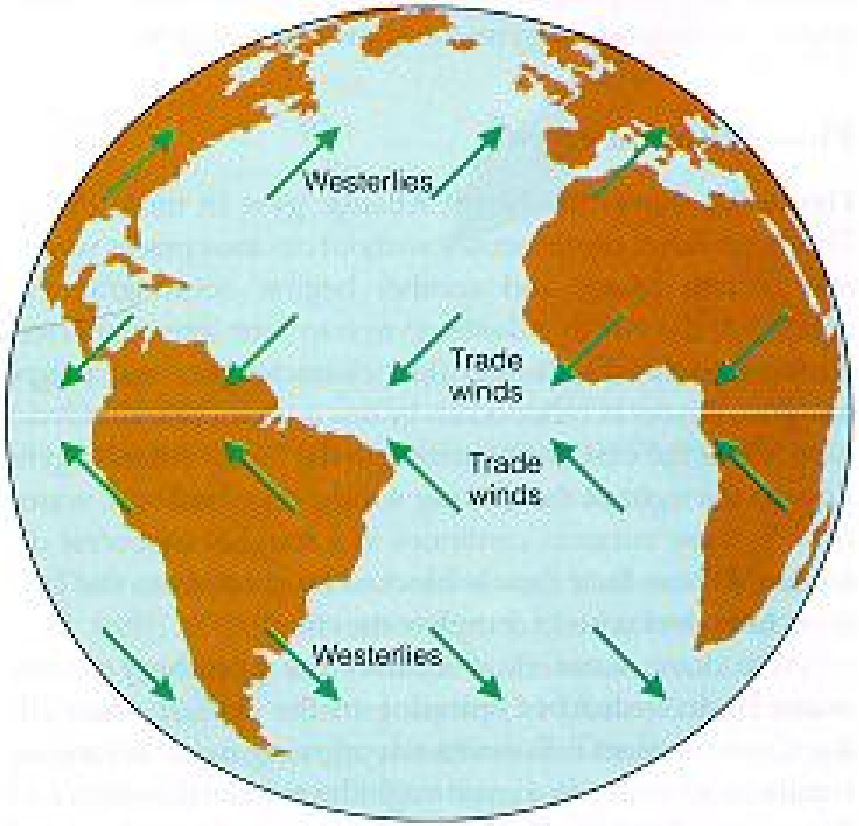
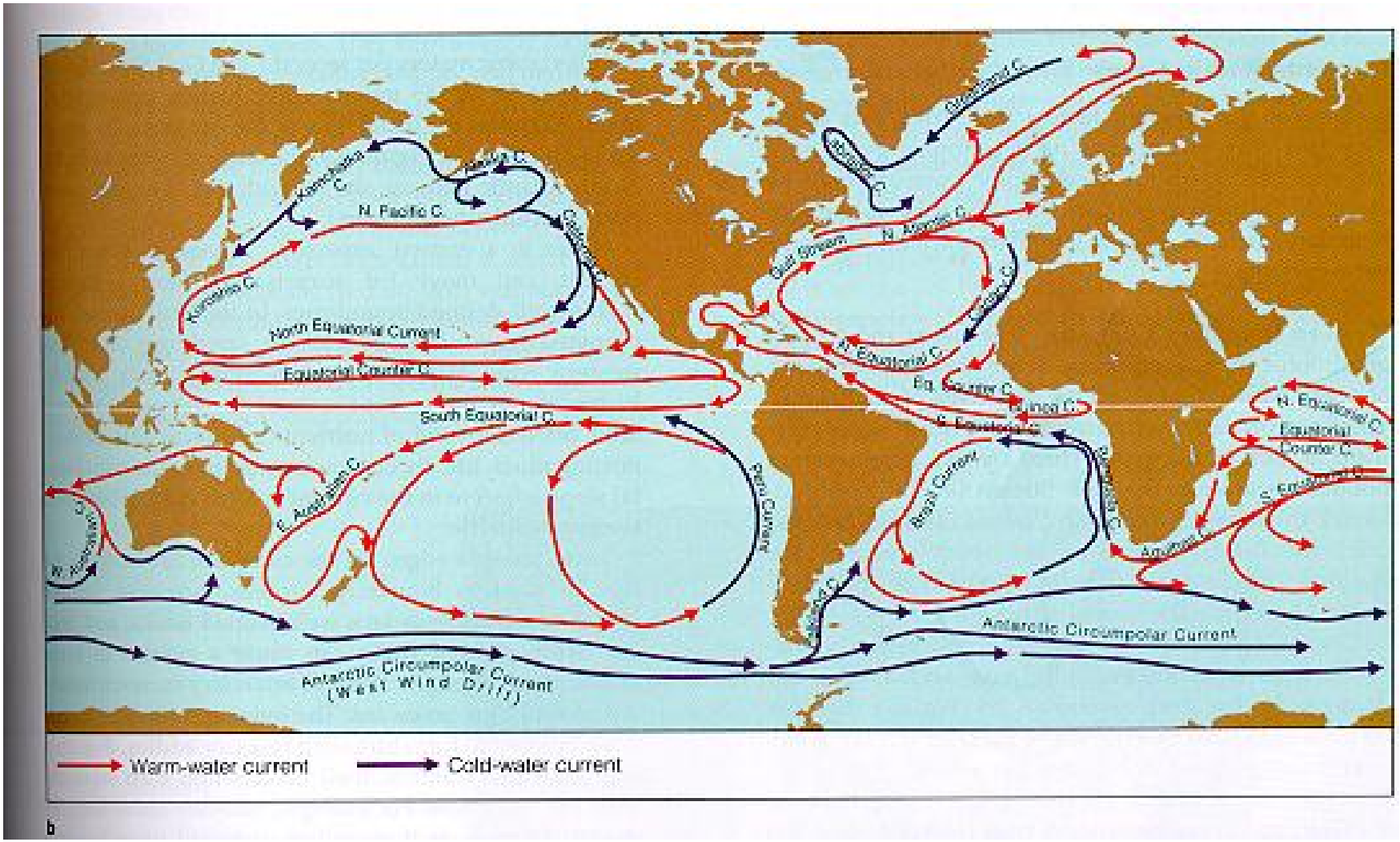
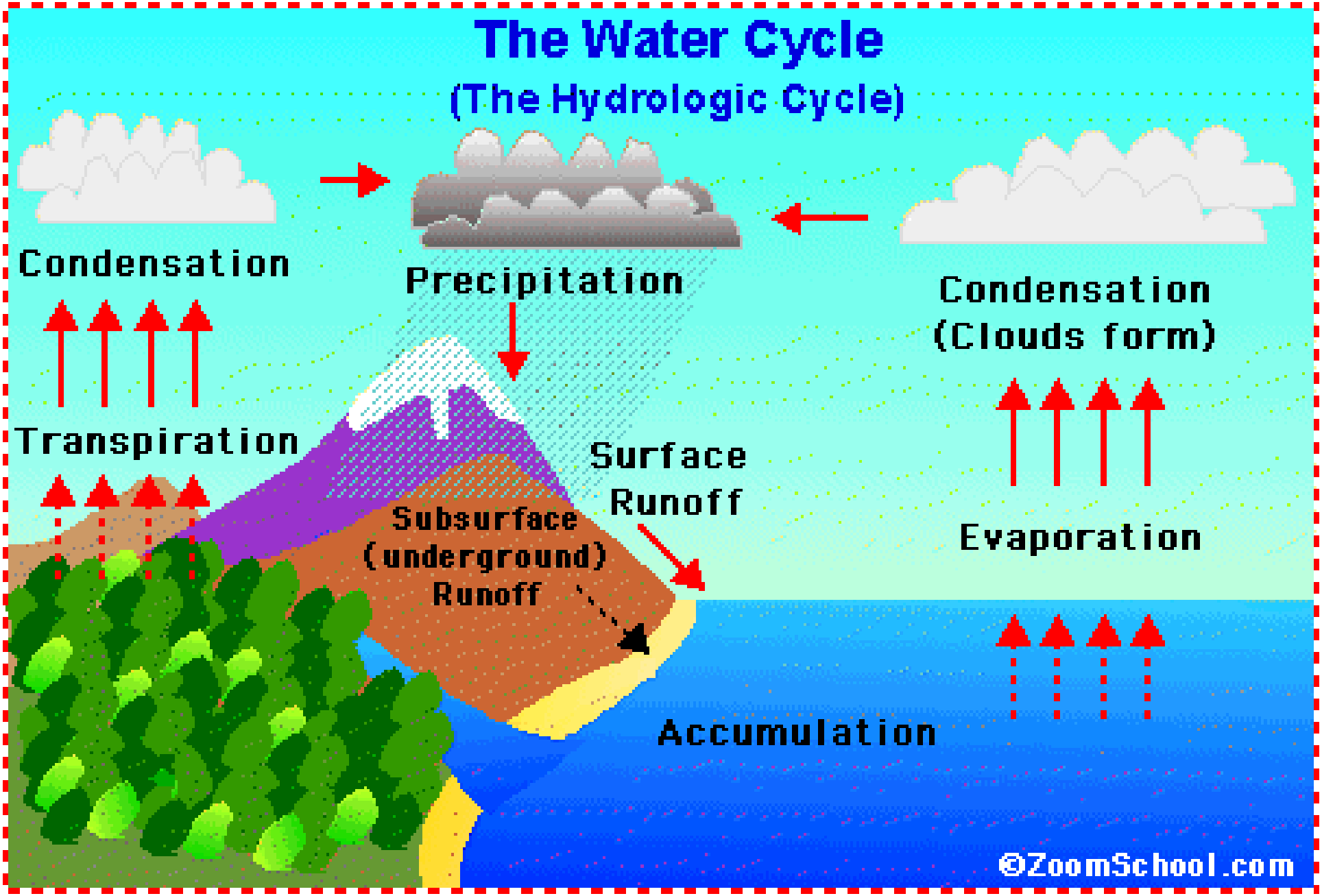


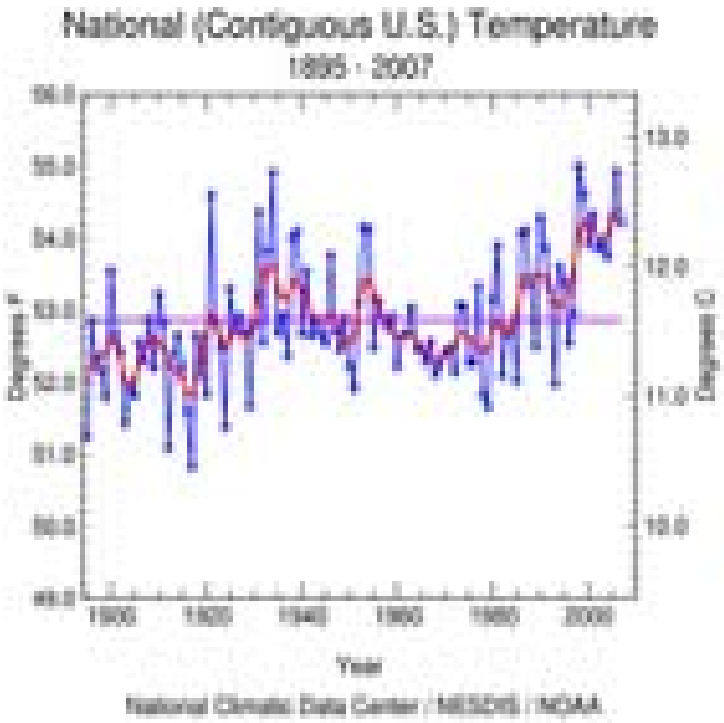
Figure 9.1 Winds, driven by uneven solar heating and Earth's spin, drive the movement of the ocean's surface currents. The prime movers are the powerful westerlies and the persistent trade winds (easterlies).



A current is like a vast river within the ocean, flowing from one place to another. These currents are caused by differences in temperature, differences in salinity, and by wind.


The Water Cycle
(The Hydrologic Cycle)
Condensation
Precipitation
Condensation
(Clouds form)
Transpiration
Surface
Runoff
Subsurface
(underground)
Runoff
Evaporation
Accumulation
©ZoomSchool.com

NOAA: 2007 a Top Ten Warm Year for U.S. and Globe



U.S. Temperatures
The average U.S. temperature for 2007 was 54.2°F; 1.4°F warmer than the 20th century mean of 52.8°F

The year 2007 was the 10th warmest year for the contiguous U.S. since national records began in 1895, according to preliminary data from NOAA's National Climatic Data Center in Asheville, N.C. The year was marked by exceptional drought in the U.S. Southeast and the West, which helped fuel another extremely active wildfire season. The year also brought outbreaks of cold air, and killer heat waves and floods. Meanwhile, the global surface temperature for 2007 was the fifth warmest since records began in 1880.

http://www.ncdc.noaa.gov/oa/climate/research/2007/ann/ann07.html