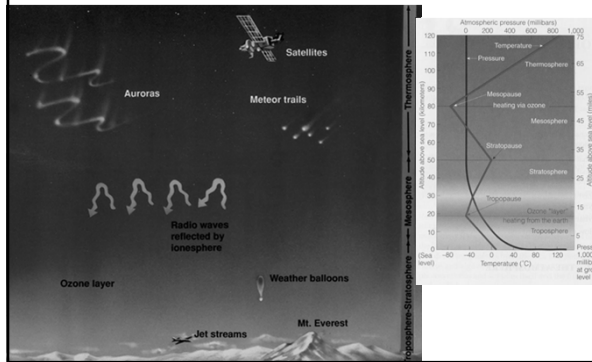


Climate

What Causes the Weather

Miller Chapter 5

Layers of the Atmosphere



History of the Atmosphere

Formed 4.4 billion years ago, consisted of

years ago photosynthesis began with cyanobacteria

Stromatolites contain cyanobacteria, formed iron bands 2.5-2.8 billion years ago



**Current Oxygen concentration of
was reached billion years ago**

O₃ formed

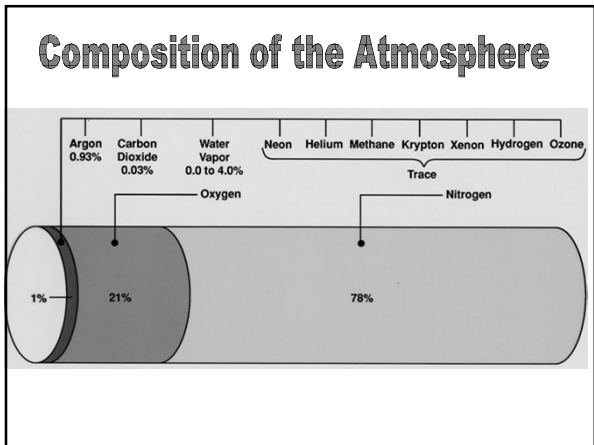
UV light in atmosphere is broken in A,B,C bands.

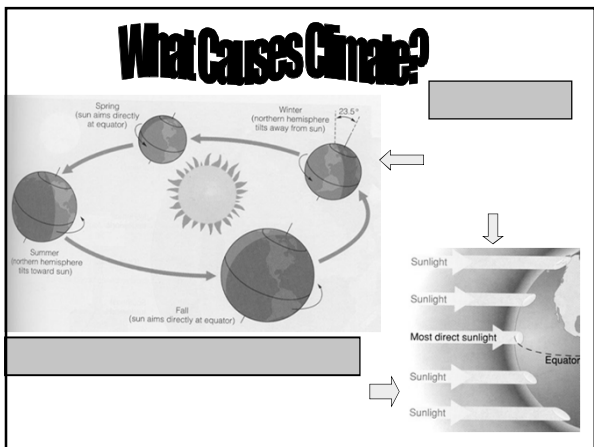
↓

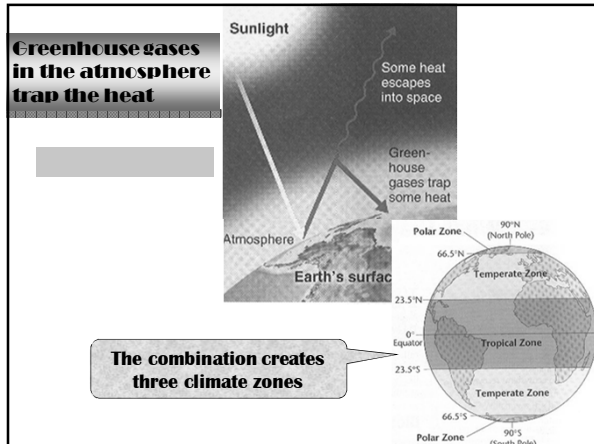
Nearly all of high energy UV-C is absorbed

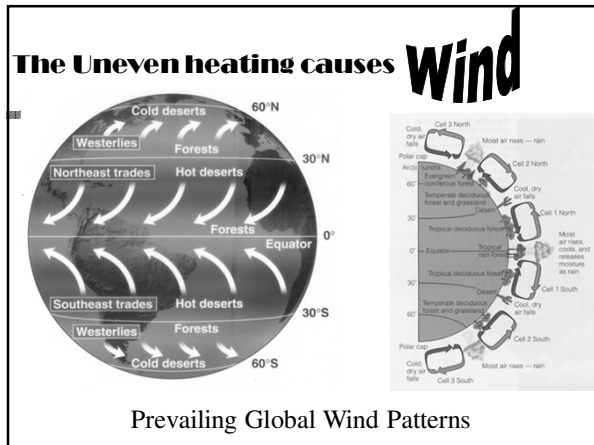
↓

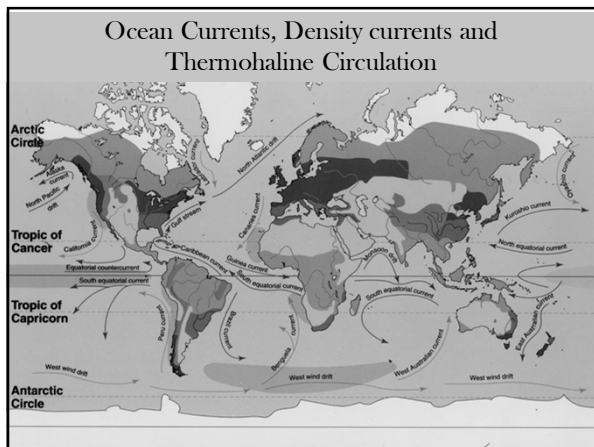
50% of UV-B and a small amount of UV-A account for 95% of the damaging UV rays that reach the earth's surface



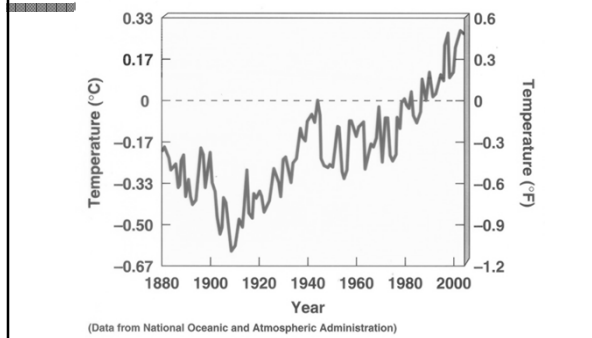




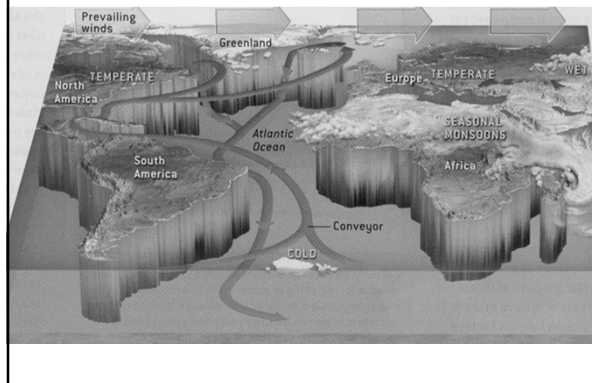




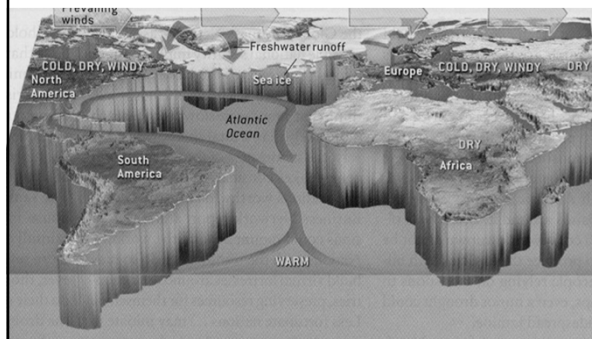
Ocean temperature change



NORMAL THERMOHALINE CIRCULATION



NO DENSITY CURRENT

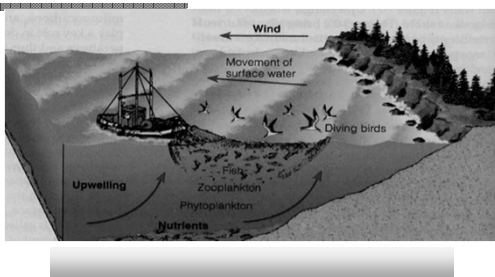


Can the “Day After Tomorrow” really happen?

Crossing the Threshold

- **Global warming alters ambient conditions little by little**
- **The steady change can push climate drivers such as ocean currents or patterns of rainfall to a critical point where they lurch abruptly into a new and different state**
(Scientific American) Nov 2004

Upwellings



Climate Effects of El Niño

