



Clues to Earlier Climates

Ice and sediment cores

Pollen is very resistant to decay and tends to accumulate in lake and swamp sediments

Figure 23-8: Earth's Portion of a Plant Site
© 2008 W. H. Freeman & Co. Learning Technology

Great Lakes

Spruce forest 12,000 B.C.E.

Spruce forest Today

Clues to Earlier Climates

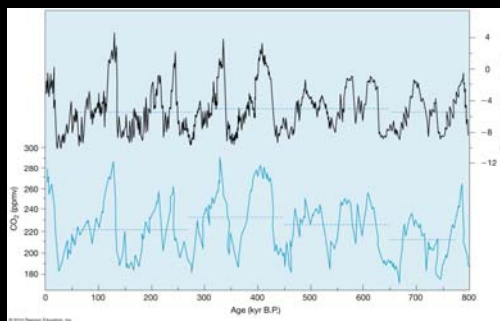
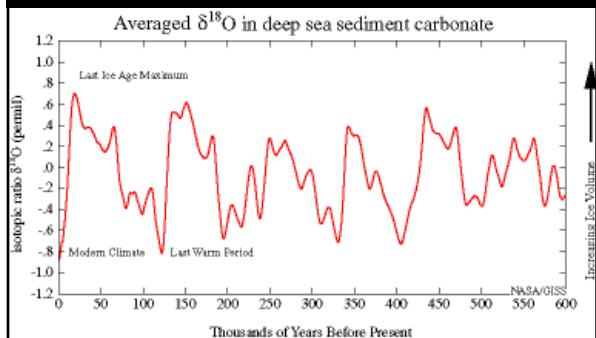
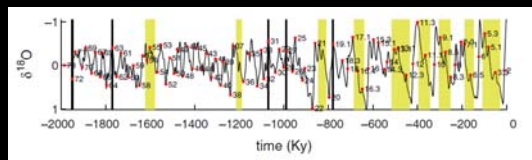
When trees flower (and which ones are present)

Ambrosia (ragweed)

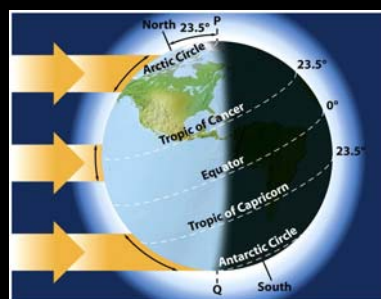
Clues to Earlier Climates



Pleistocene glaciations



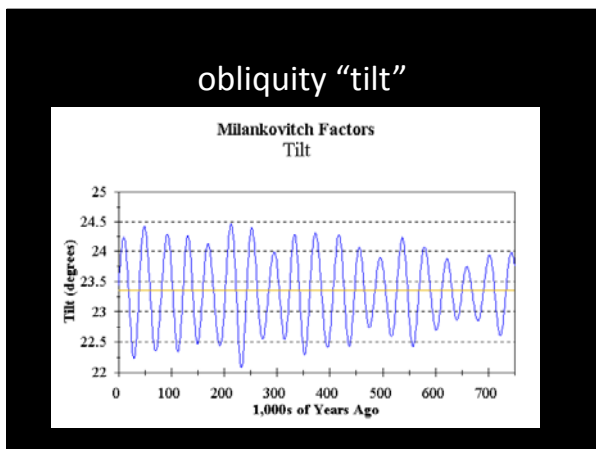
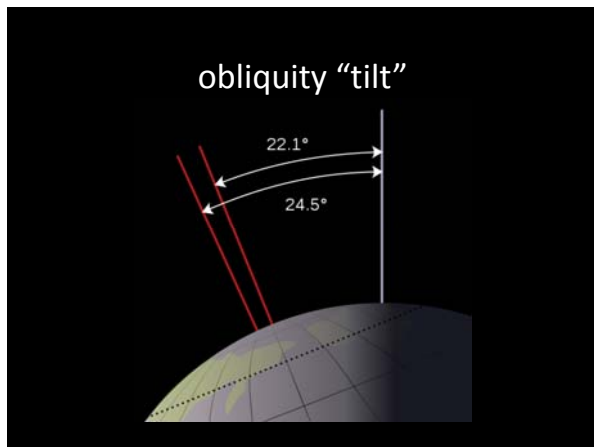
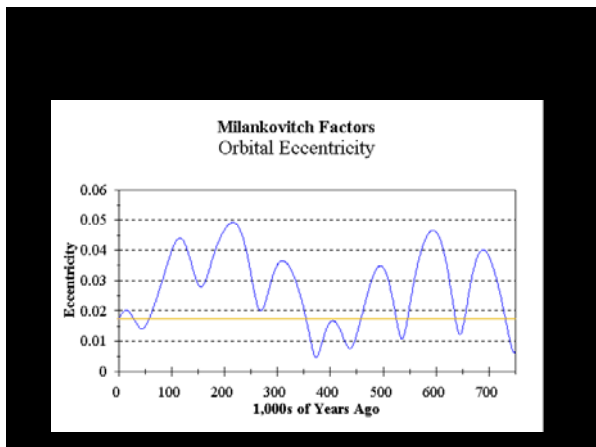
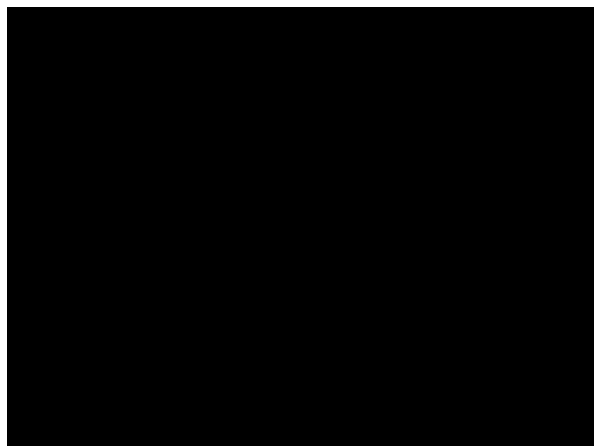
convection driven by differential heating



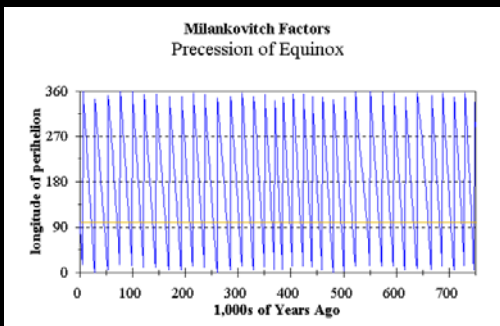
Milankovitch cycles



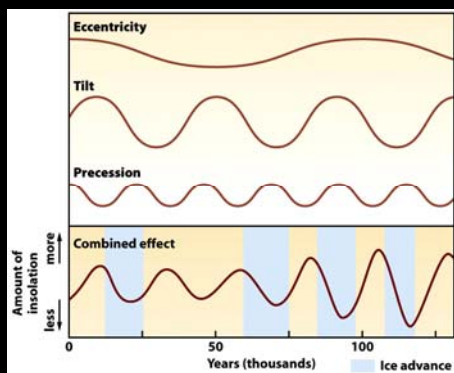
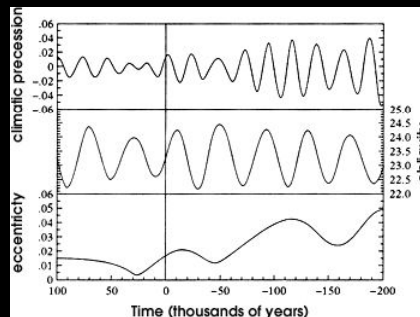

Milutin
Milanković
(1879-1958)



net precession "wobble"



orbital forcing



GEOLOGIC RECORDS OF CO₂ LEVELS

Estimates of atmospheric CO₂ levels, based on various proxies, show that levels have fallen over the last 50 million years.

