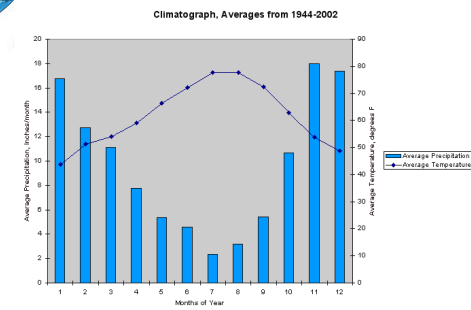
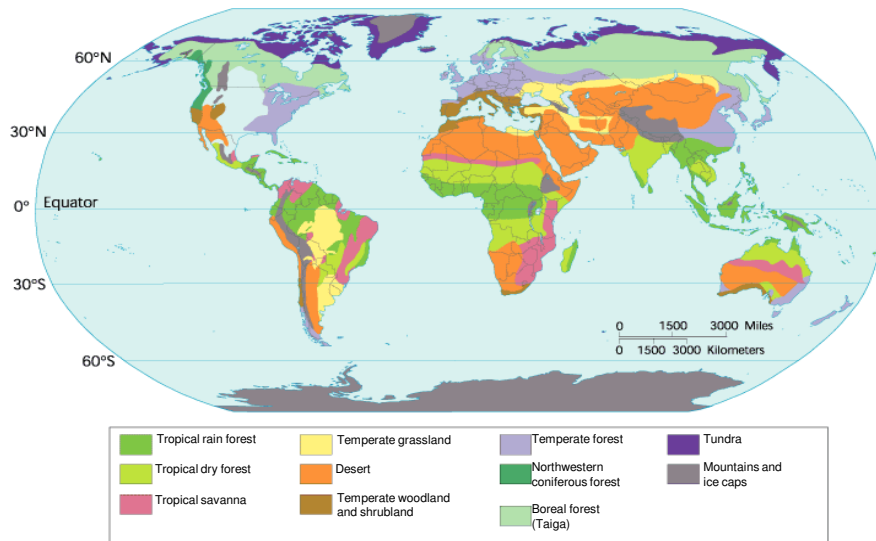


# Biomes and Climatographs



## The World's Major Land Biomes



Ten Major Terrestrial Biomes						
Biome	Precipitation	Temperature	Soil	General Diversity	Trees	Grasses
Tropical Rain Forest	high	hot	poor	high	dense	sparse
Tropical Dry Forest	high in wet season low in dry s.	mild	rich	moderate	medium	medium
Tropical Savanna	seasonal	warm	clay	moderate	sparse	dense
Desert	low	variable	poor	moderate	sparse	sparse
Temperate Grassland	moderate; seasonal	summer hot	rich	moderate	absent	dense
Temperate Woodland and Shrubland	summer low, winter moderate	summer hot winter cool	poor	low	medium	medium
Temperate Forest	moderate	summer moderate, winter cold	rich	high	dense	sparse
Coniferous Forest	high (except in summer)	summer mild, winter cold	rocky, acidic	low	dense	sparse
Boreal Forest (Taiga)	moderate	summer mild, winter cool	poor, acidic	moderate	dense	sparse
Tundra	low	summer mild, winter cold	poor	low	absent	medium

## “Other” Land Biomes

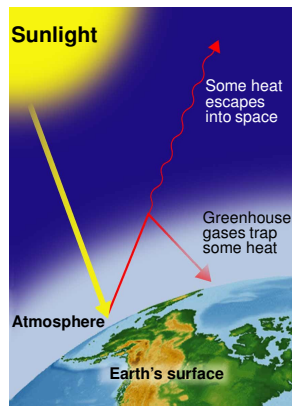


- Mountain
  - Biotic and Abiotic features vary with elevation.
  - As you move from the base to the summit:
    - temperatures become colder
    - precipitation increases
    - biotic organisms change
- Ice
  - Boarder the tundra
  - Cold temperatures all year

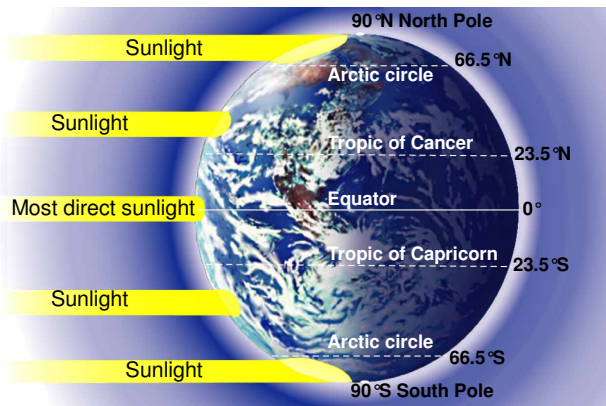


## Heating of the Earth's Surface ... and Some Factors That Affect Climate

### Greenhouse Effect



### Different Latitudes



## Aquatic Ecosystems

- Determined by:
  - Depth
  - Water flow
  - Temperature
  - Chemistry of the water
- Types:
  - Freshwater Ecosystems
    - Flowing-Water Ecosystems
    - Standing-Water Ecosystems
    - Freshwater Wetlands
  - Estuaries
  - Marine Ecosystems
    - Intertidal Zone
    - Coastal Ocean
    - Coral Reefs
    - Open Ocean
    - Benthic Zone



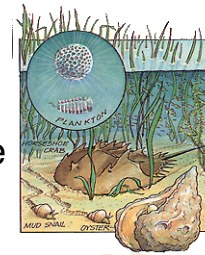
## Freshwater Ecosystems

- Flowing water ecosystems
  - Rivers, Streams, Creeks, Brooks
- Standing
  - Lakes, Ponds
- Wetlands
  - Water covers the soil or is present at or near the surface of the soil for at least part of the year.
  - Bog:
    - Depressions where water collects
    - Sphagnum moss, very acidic
  - Marsh:
    - Shallow wetlands along rivers, underwater all or part of the year
    - Cattails and tall grasses
  - Swamp
    - Look like flooded forests
    - Water flows, but slowly
    - Has trees and shrubs



## Estuaries

- Wetlands formed where rivers meet the sea.
- Affected by the tides.
- Much of the plant life is not eaten, but enters the food chain as detritus.
- Support extreme amounts of biomass.
- Spawning grounds and nurseries
- Salt Marshes: Temperate-Zone Estuaries
  - Salt tolerant grasses (above low tide) and seagrasses (underwater)
- Mangrove Swamps: Coastal Wetlands
  - Mangrove trees (salt tolerant trees) and seagrasses



# Marine Ecosystems

- Types

- **Intertidal Zone:**

- Once or twice daily covered in seawater
    - remainder of time exposed to air, sunlight, temperature changes
    - organisms battered by waves and currents
    - extreme zonation: horizontal banding patterns of organisms

- **Coastal Ocean:**

- Low tide mark to the outer edge of the continental shelf

- **Coral Reefs:**

- Warm shallow water of tropical coastal oceans
    - (brightly lit areas w/i 40 m of surface)
    - Named for Coral (the most prominent population)

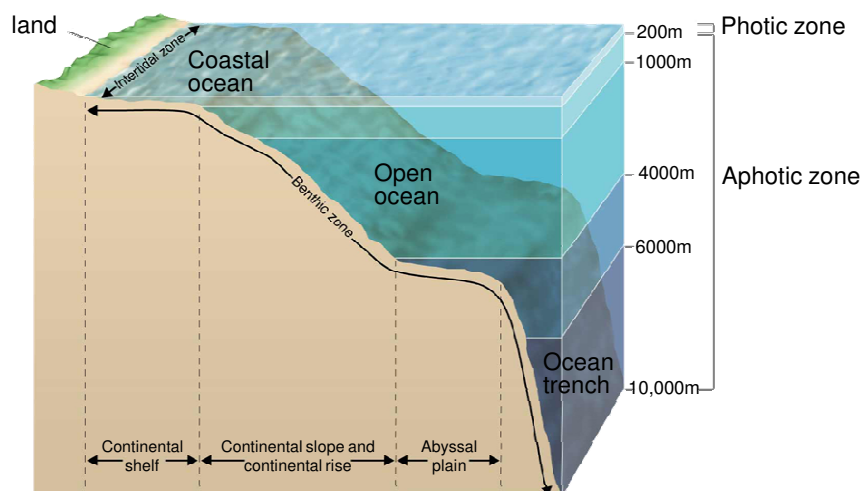
- **Open Ocean:**

- Edge of continental shelf and outward
    - Largest marine zone
    - Most organisms must stay close to the surface to breathe and obtain energy
    - 500 m – 11,000 m deep; high pressure, frigid temperatures, total darkness

- **Benthic Zone:**

- Covers the ocean floor
    - Organisms don't move around much
    - Chemosynthetic organisms are the only producers

## Zones of a Marine Ecosystem



## What is a climatograph?

- A climograph is a tool for displaying the average temperature and average precipitation of locations around the world.
- It combines a line graph showing temperature fluctuations over the course of a year and 12 bars representing the monthly rainfall.

