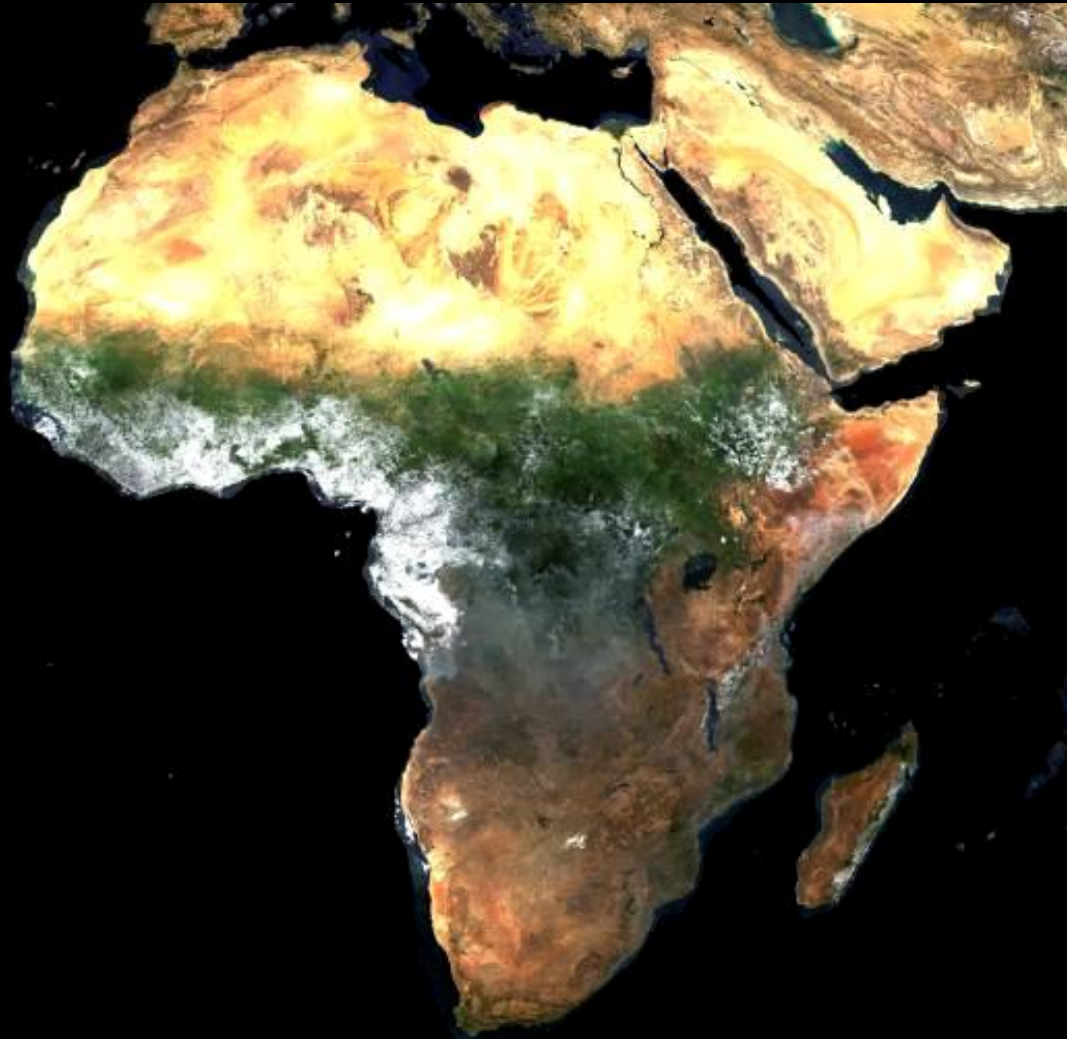
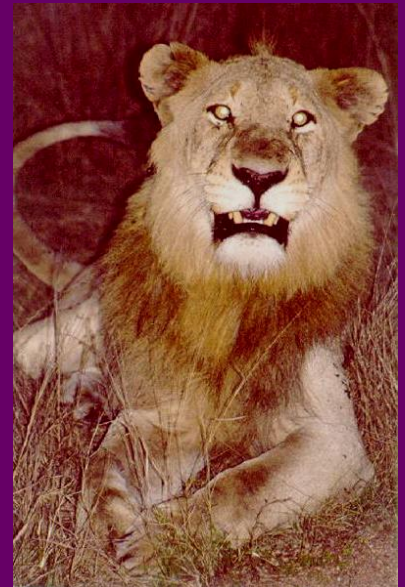


Physical Geography of Sub-Saharan Africa





African Continent

How might topography and climate limit the population of a continent?

Africa's Size

Second largest continent →
11,700,000 sq. mi.

10% of the world's population.

2 ½ times the size of the U. S.

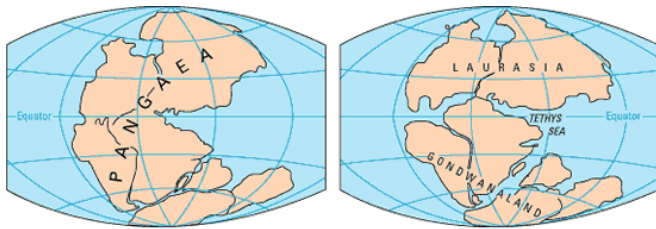


Great Rift Valley



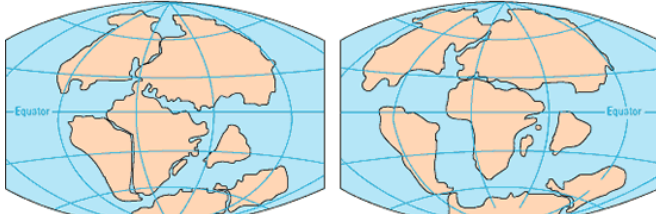
3,000 miles long

• Rift Valleys - continental plates pulled apart and topsoil sank in to create long thin valleys. East Africa is slowly pulling away from the rest of continent. Stretches from Jordan to Mozambique.



PERMIAN
225 million years ago

TRIASSIC
200 million years ago



JURASSIC
135 million years ago

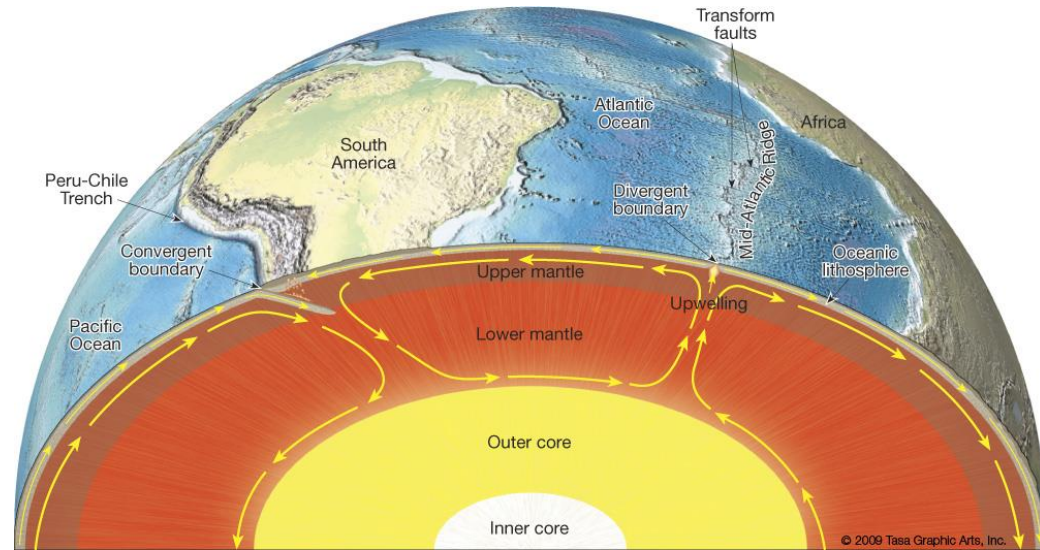
CRETACEOUS
65 million years ago



PRESENT DAY

Theories: (remember them?)

- Continental Drift (Alfred Wegner, Pangaea)
- Plate-Tectonics (Lithosphere, plates)

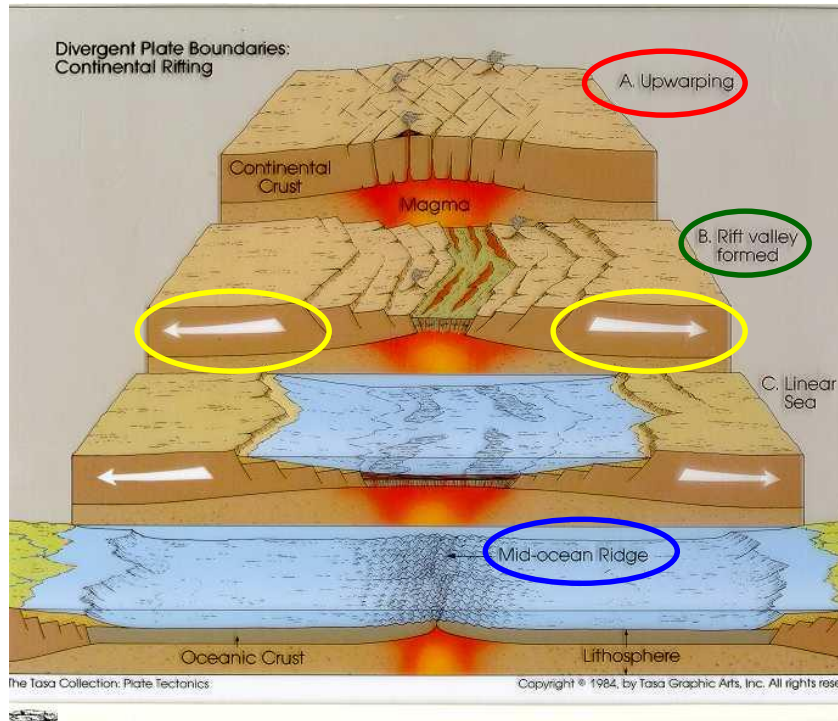
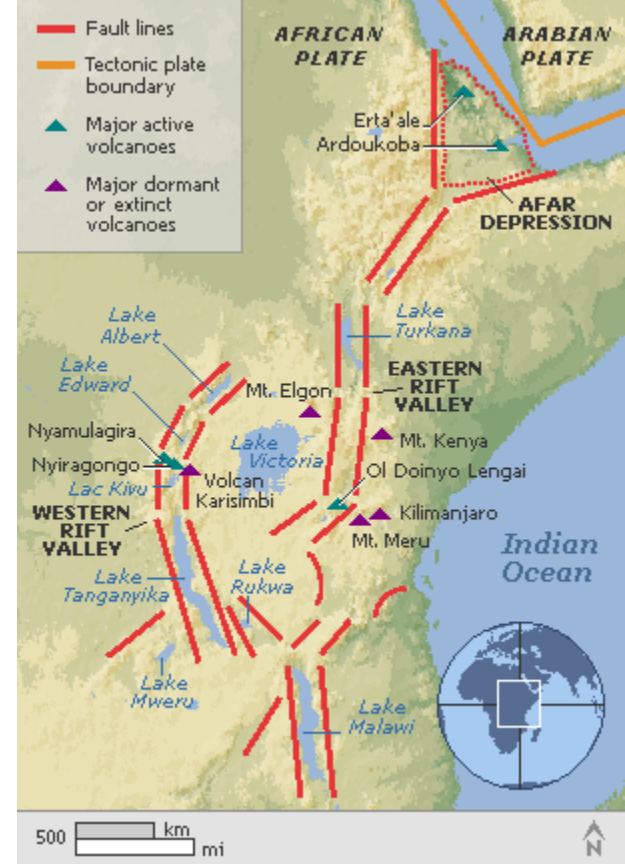


Formation of Africa

- Convection
- Converging plates
- Diverging plates
 - Forms Mid-Oceanic Ridge (water) or Rift Valley (land)



• Mid-Oceanic Ridge



• The Great Rift Valley

• Diverging Plate Boundary

Lakes

East Africa has several large lakes that formed in the bottom of rift valleys.

*Lake Victoria-where the Nile River begins

*Lake Tanganyika



Watch out!
Hippo! →



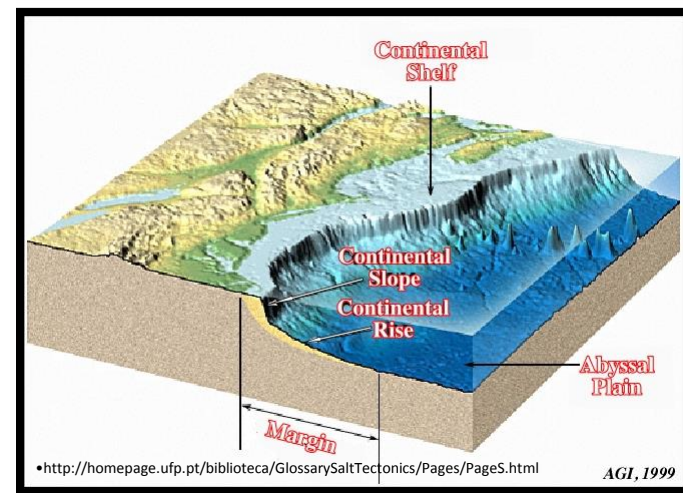
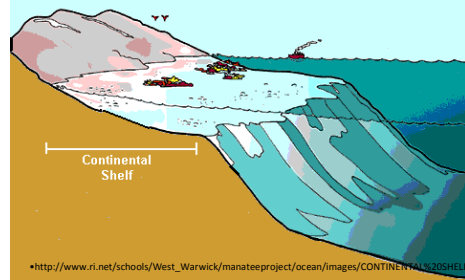
Snow on the equator?
HOW?



P. 416

- Sub-Saharan Africa does not have large mountain ranges, but there are several tall mountains that are volcanoes.
- Mt. Kilimanjaro - the tallest mountain is in Tanzania at 19,341 feet.
- The second tallest mountain is Mt. Kenya at 17,058 feet.

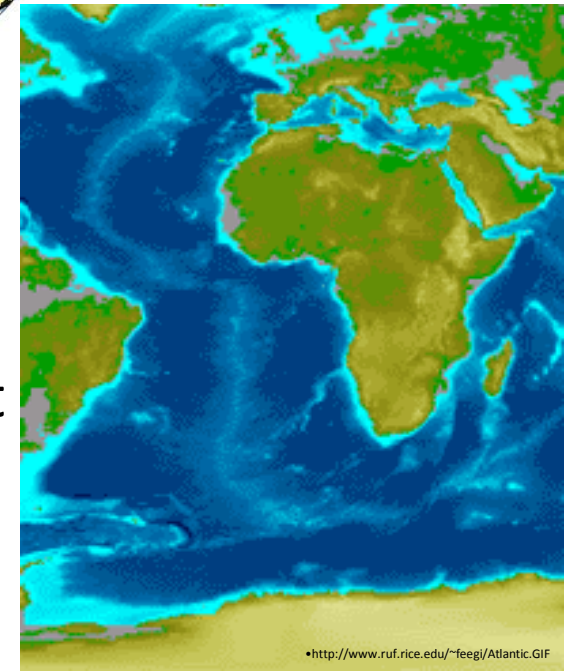
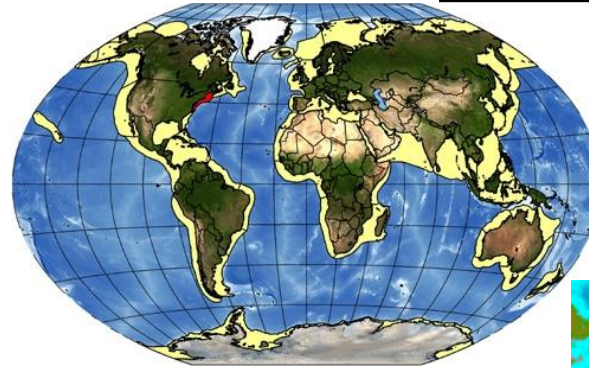
African Coast



- African Coastline

Narrow; quick steep drop

With few natural harbors



- Continental Shelf-Transition zone: Land to Ocean is Shallow

- A lot of **plant & animal life**

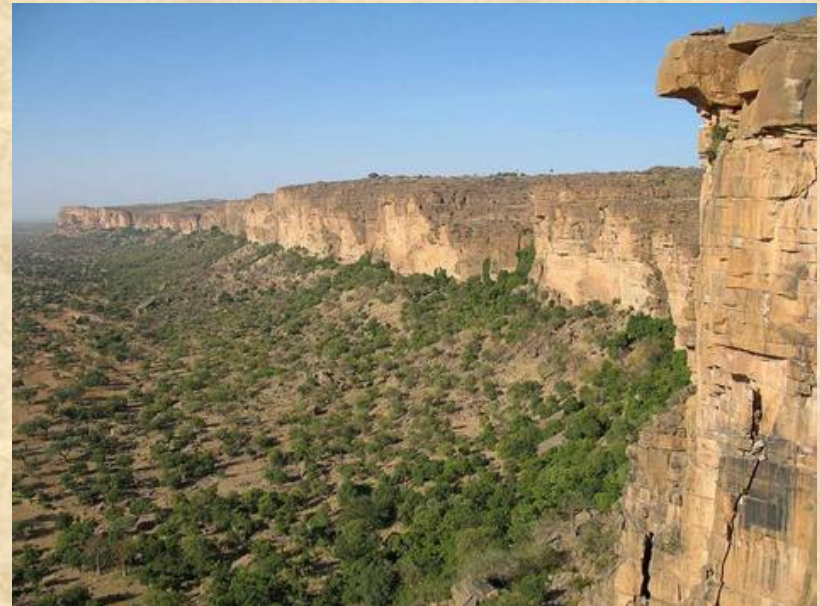
- *Hazards:* Ex. Pollution, sandbars, shoreline retreat

- *Opportunities:* Resources, tourism, food

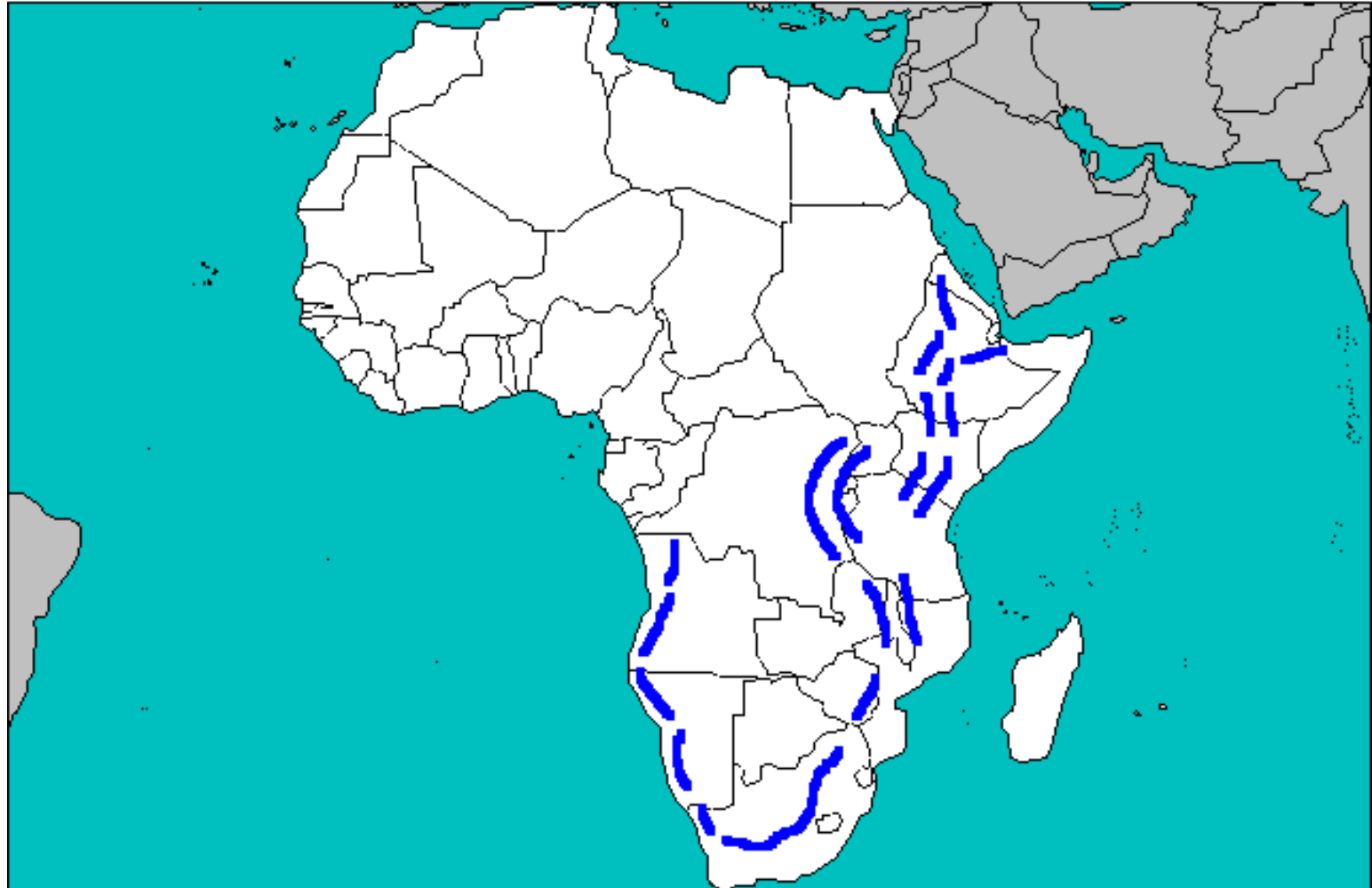
- Resources (Offshore mining & drilling)

Landforms

- Africa is essentially a large plateau with escarpments on the edges.
- Plateau – an elevated mostly level/flat area.
- An escarpment is similar to a cliff although not as steep. They are found through out southern Africa.



ESCARPMENTS



- Map showing escarpments on the edge of the plateau
- and rift valleys in East Africa.

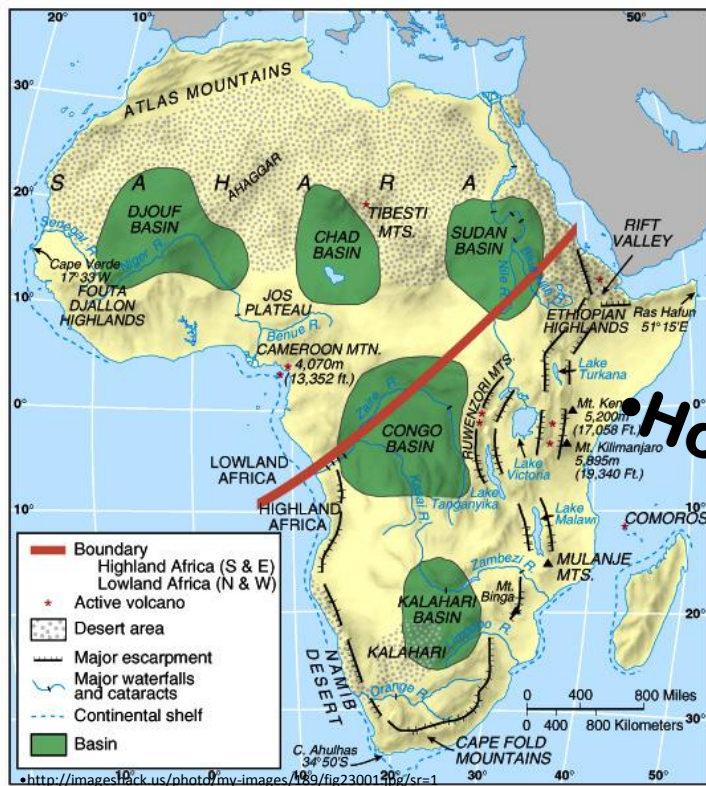
• How were the depressions made?

- Plateau forced down
- Surrounded by mountains
- Elevation and slope of land
- Drainage Basin

• Where is Highland Africa?

- Congo Basin: Narrow westward outlet; major water source; Navigable ~ 80 mi.
- Sudan Basin: internally drained

- Southern: Nile drainage basin;
- Northwest: Internally drained

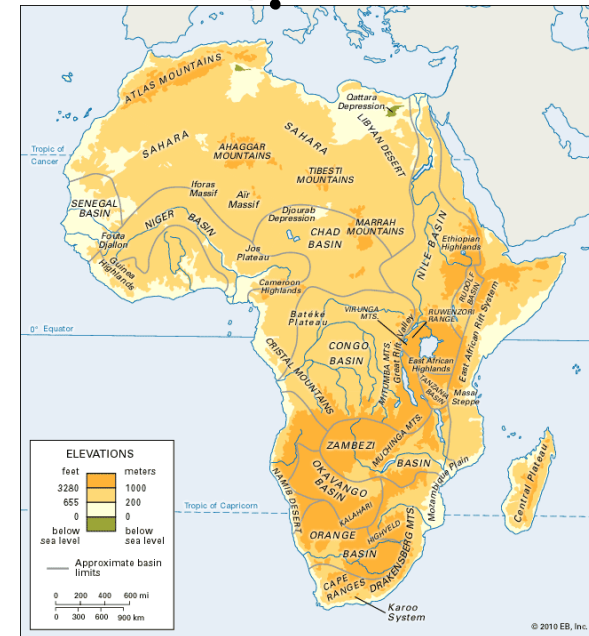


• Basins of

• Africa

• Why is elevation important?

- Internal Drainage Basins:
- Chad, Kalahari, and Djoof
- Lake Chad:
 - Drought, high evaporation rate, increased human demands
- Kalahari Basin:
 - Northern: Okavango Swamps, South Desert
- Djoof Basin: Niger River, driest basin, seasonal



Congo River- network of waterways with 32 cataracts (waterfalls).

Niger River in west Africa forms a huge deltas both in the interior and near the Gulf of Guinea.

Zambezi River in southern Africa

The rivers in Sub-Saharan Africa are difficult to navigate because they have many waterfalls and rapids.





Cataracts are another word for rapids

*Zambezi River

Rivers

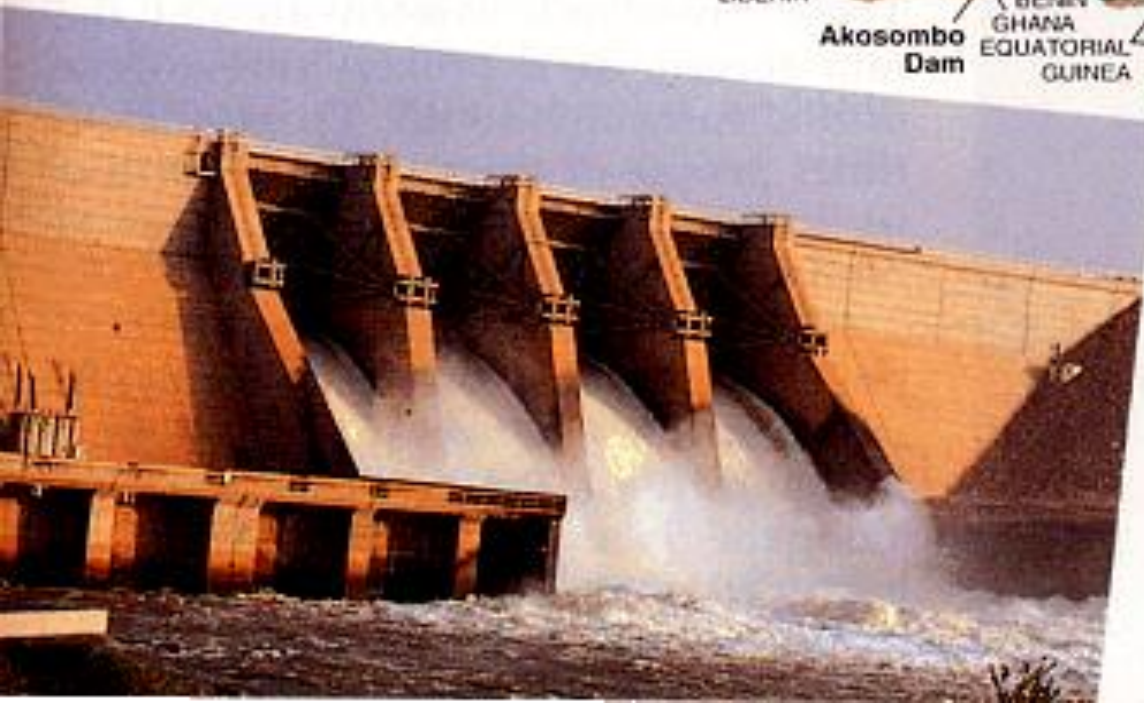
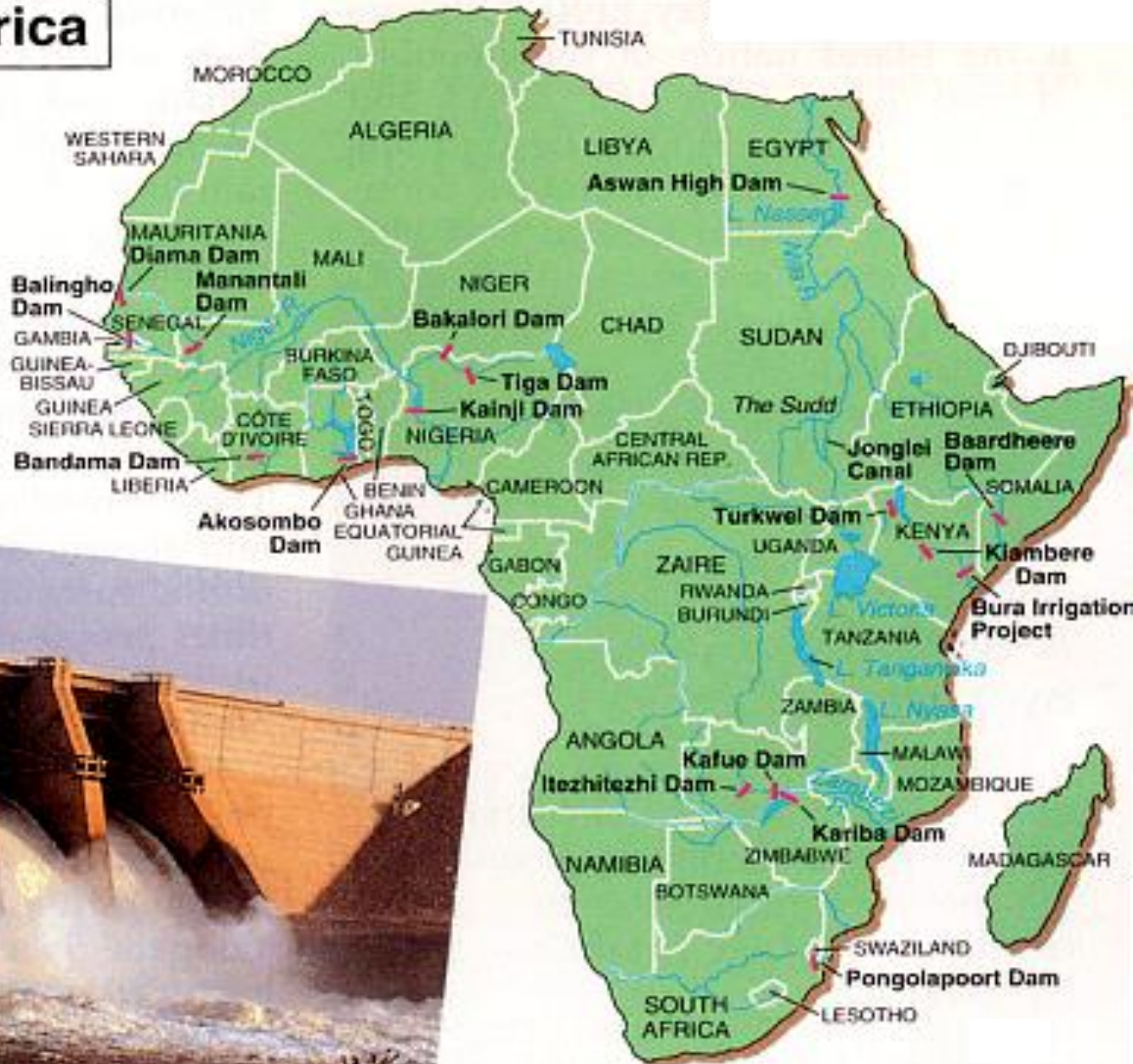
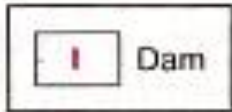


- Nile River- Longest river in the world at 4,000 mi in length. It flows north into the Mediterranean Sea.
- Aswan High Dam-Lake Nasser (man-made) good for farmers and bad at the same time- no more silt.

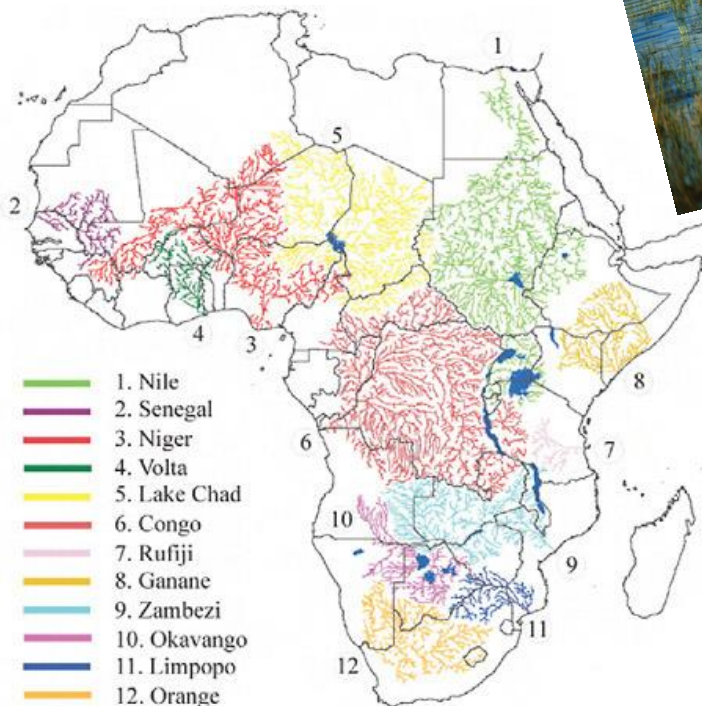
Hydroelectric Power

Major Dams of Africa

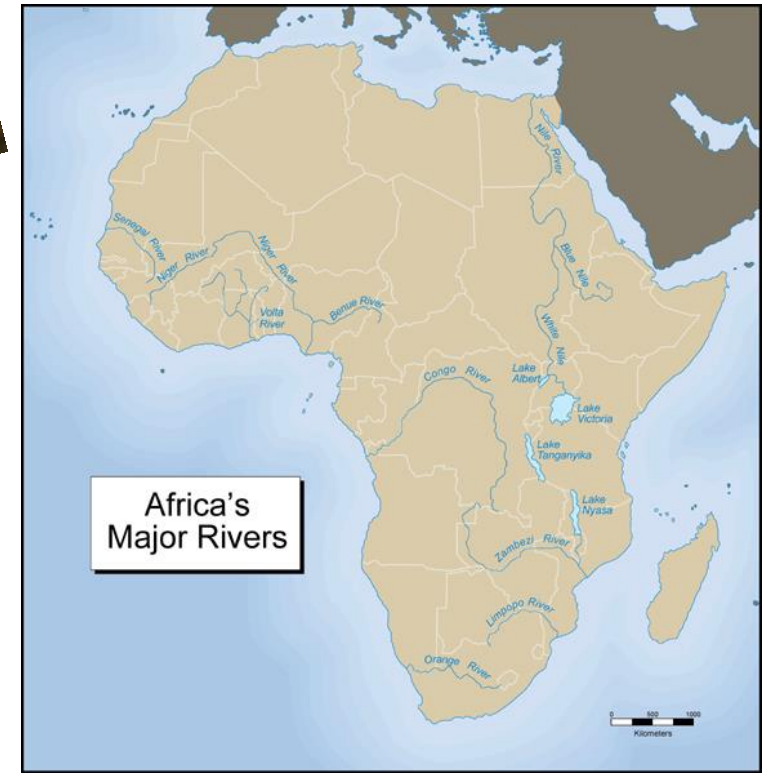
0 500 1000 Miles
0 500 1000 Kilometers



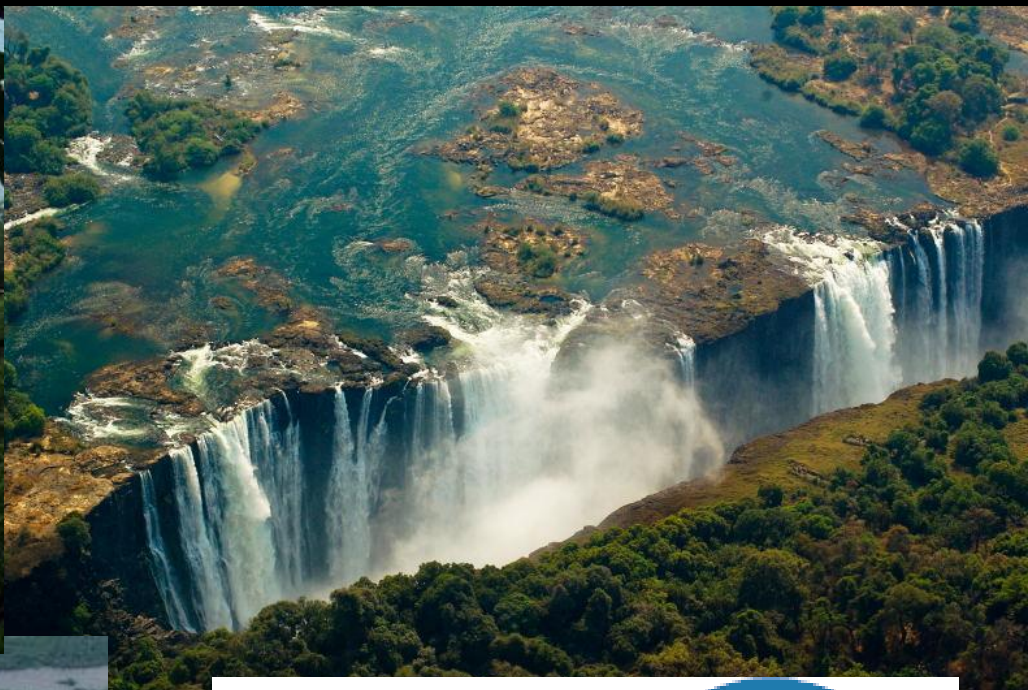
- 90% of rivers flow to Atlantic Ocean
- 10% of rivers flow to Indian Ocean
- Most rivers don't flow directly to ocean
- Limited navigability
- Cataracts
- Water volume fluctuates
- Hydroelectricity, fishing industry, agriculture



African Rivers

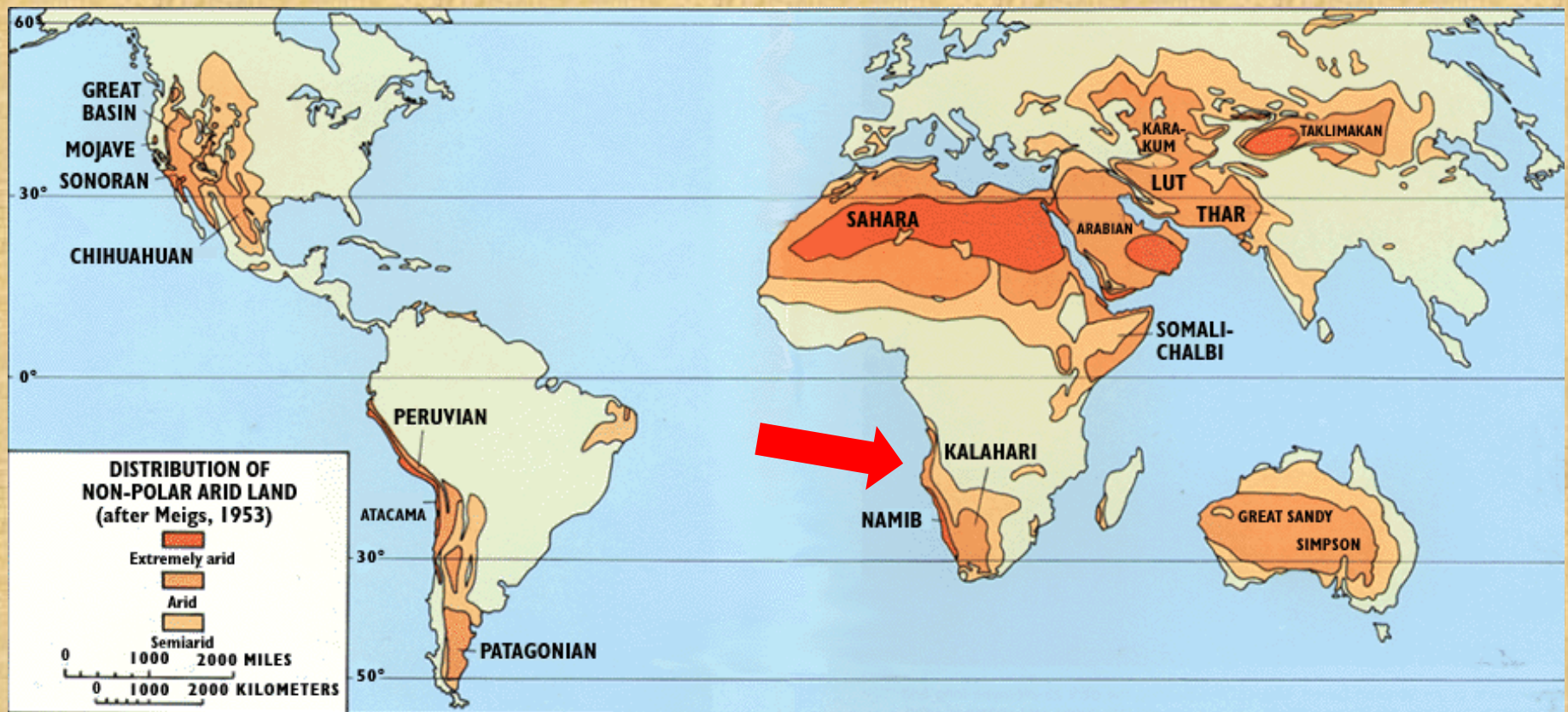


Victoria Falls – World's largest water fall

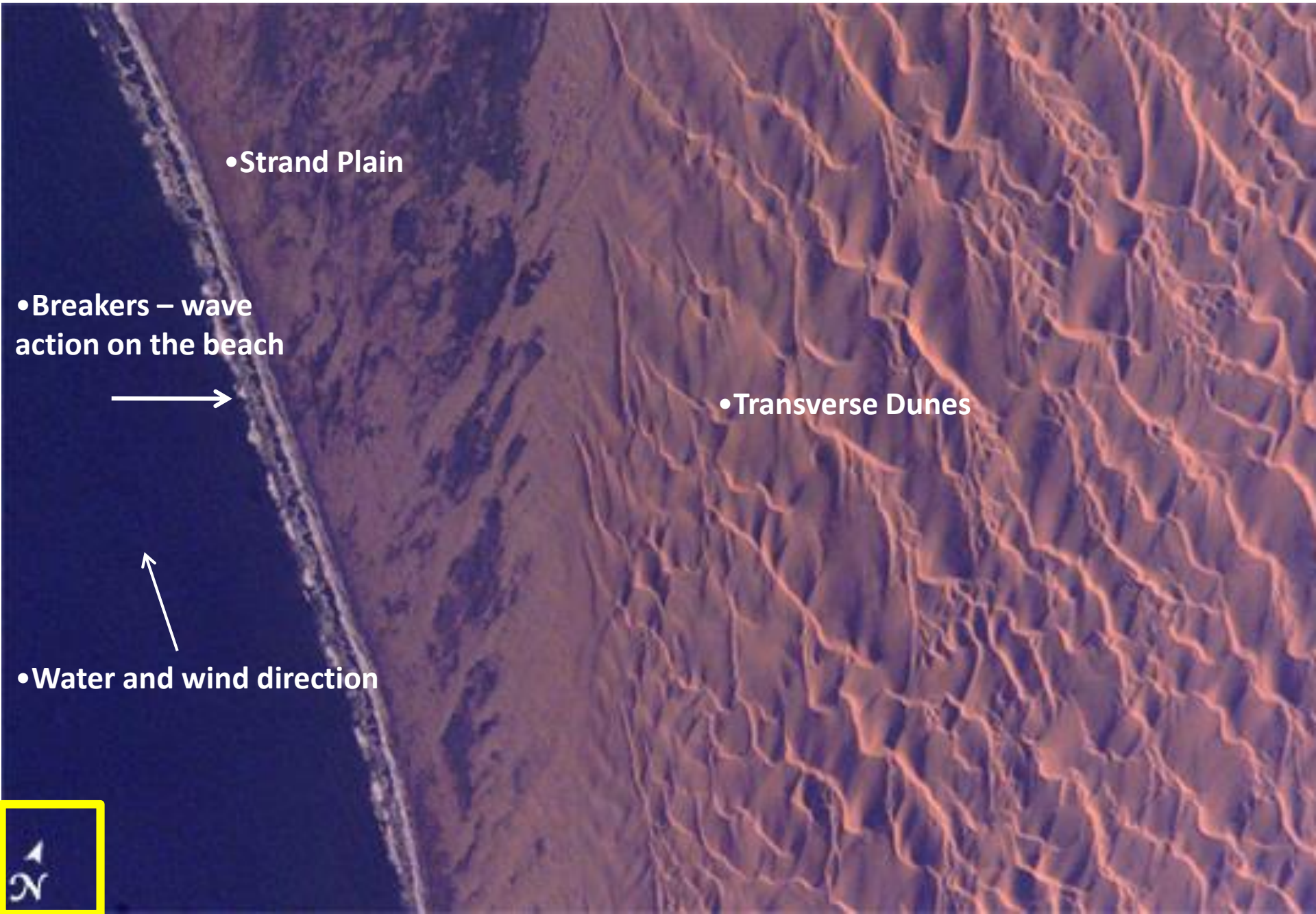


Sub-Sahara Deserts: Kalahari and Namib

Map that shows the relative location of the Namib and Kalahari Deserts. Notice how the deserts are in North and South Africa.



•ISS011-E-9756 Dune Patterns, Namib Desert, Namibia June 2005



•Strand Plain

•Breakers – wave
action on the beach



•Transverse Dunes

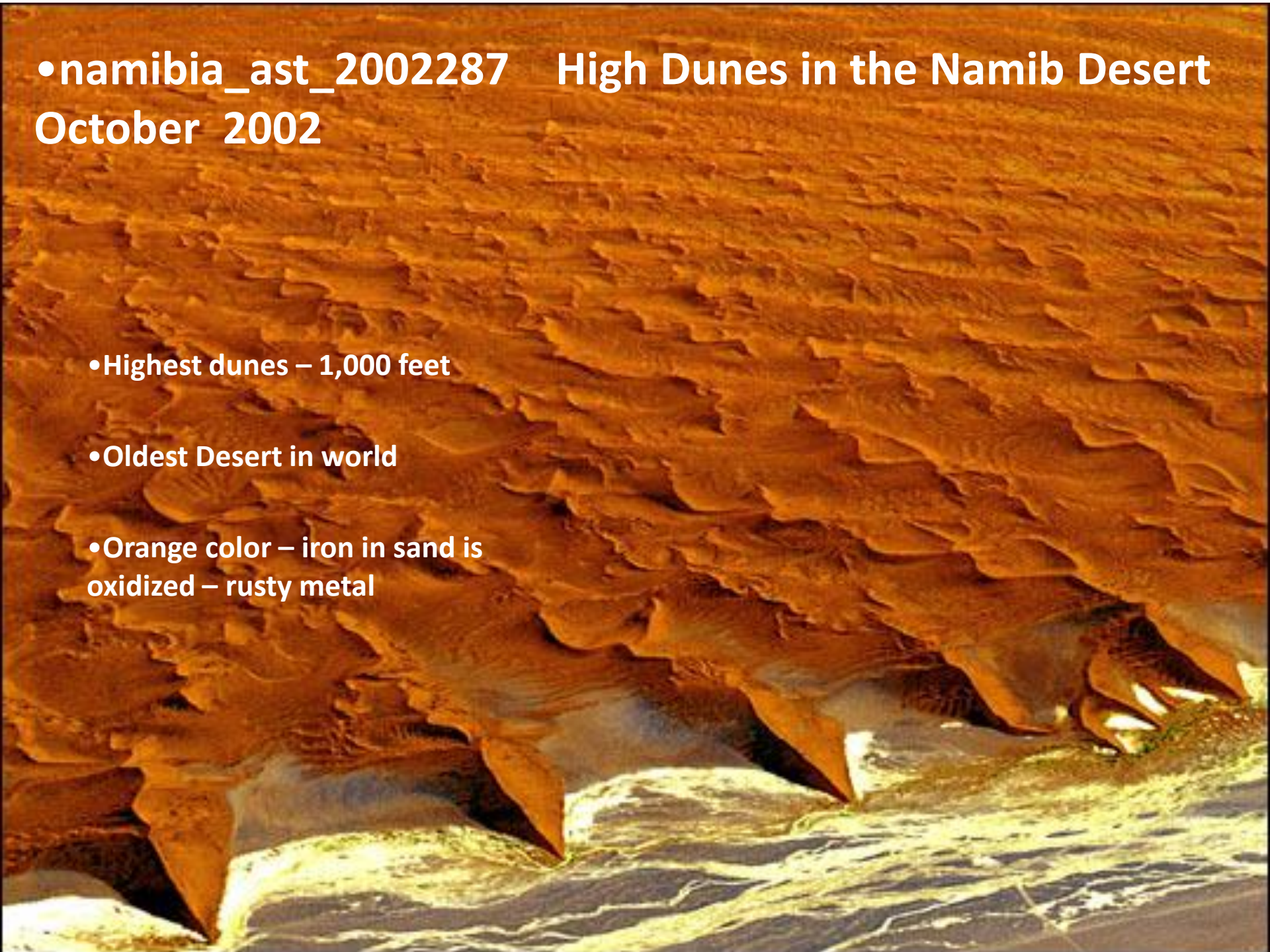


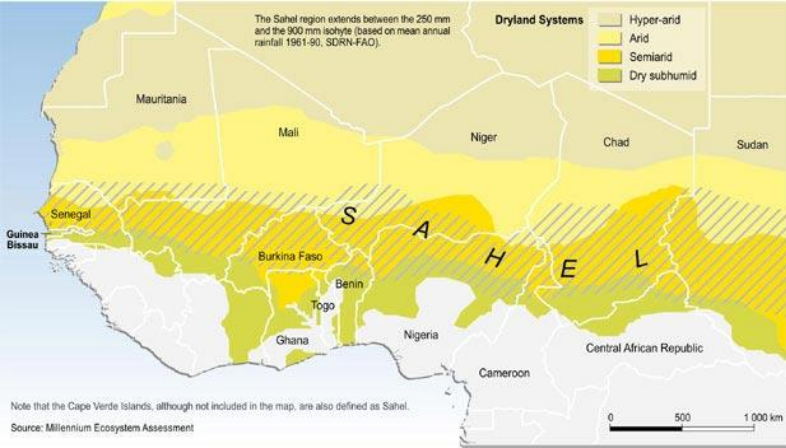
•Water and wind direction



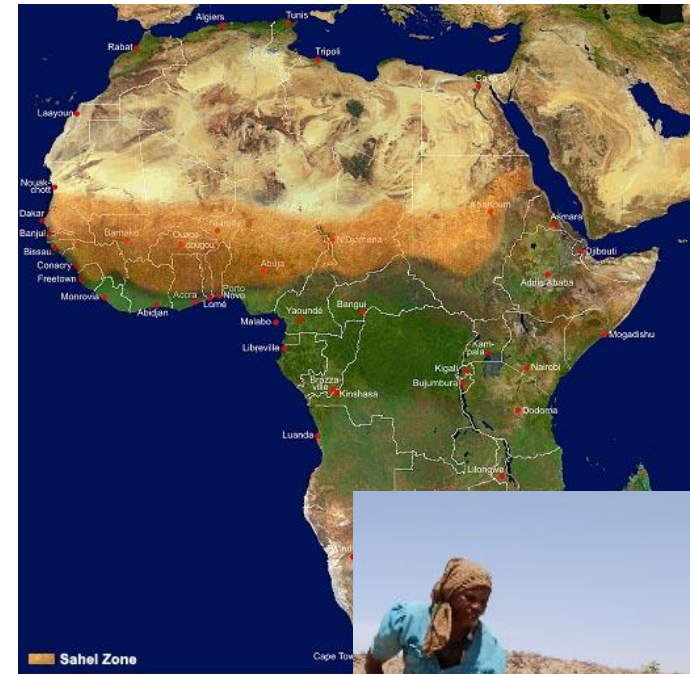
•namibia_ast_2002287 High Dunes in the Namib Desert
October 2002

- Highest dunes – 1,000 feet
- Oldest Desert in world
- Orange color – iron in sand is oxidized – rusty metal





Sahel



- **Semi-arid transition region**
 - Marginal land
 - High *variability of rainfall*
- **Location:**
 - From the Atlantic in the west to the Indian ocean in the east.
 - Between the Sahara (north) & wetter regions of equatorial Africa (south).
- **Issues:** Overgrazing, overcultivation
- **Sahel -narrow strip of grassland on southern end of Sahara.**
- **Desertification—areas changing to deserts**
- **One of the poorest, most *environmentally degraded areas in the world!***

The African Savanna: 13 million sq. mi.



- Savanna is a type of grassland located in tropical wet and dry climates. Most of the savannas in Africa are located in east Africa in Kenya or Tanzania.
- Steppe is a dry grassland located on the edges of the deserts.



- Serengeti Plain- in Tanzania is a nature reserve for animals. Important for Ecotourism!

Africa: The "Tropical" Continent

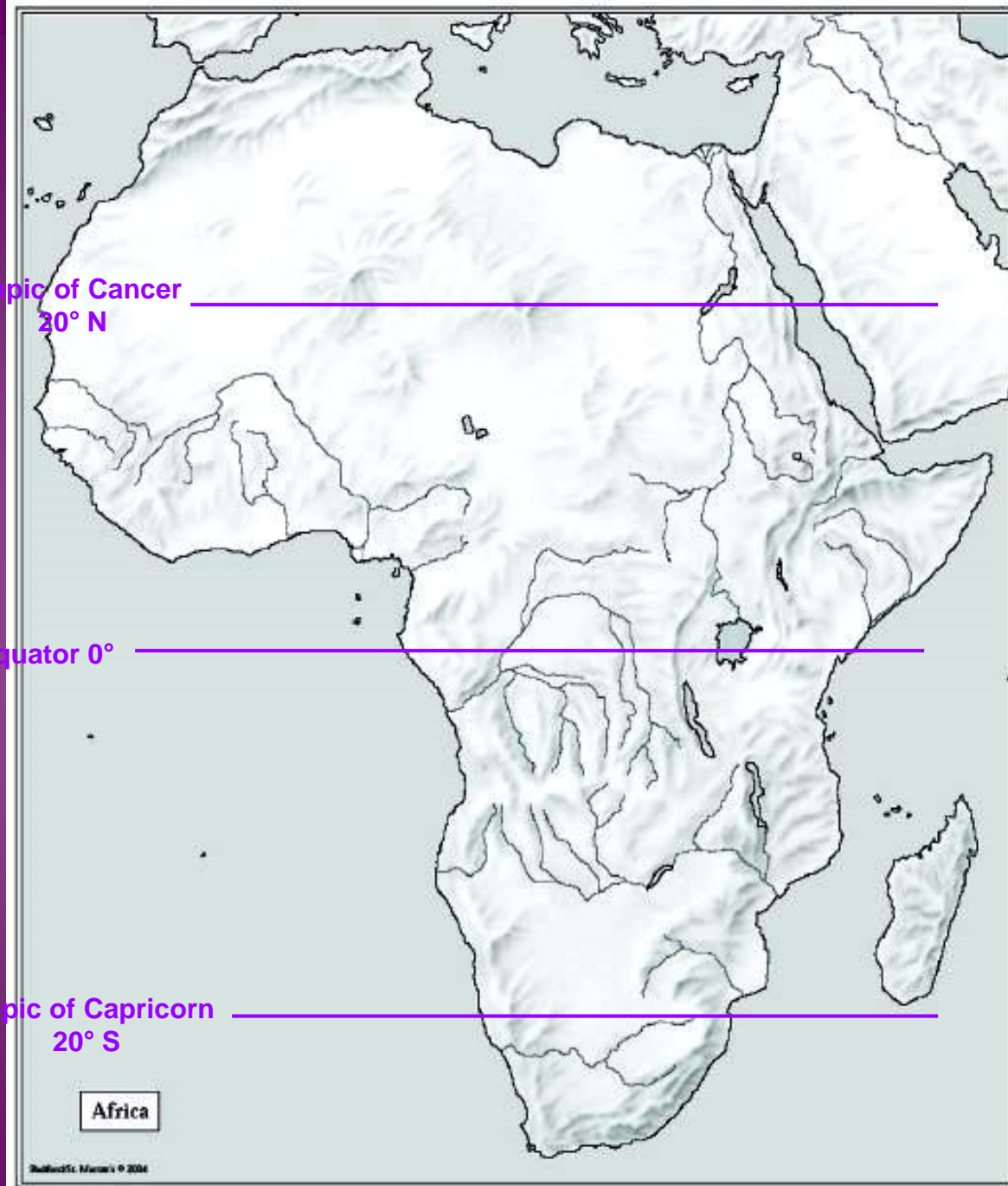
Tropic of Cancer
20° N

Equator 0°

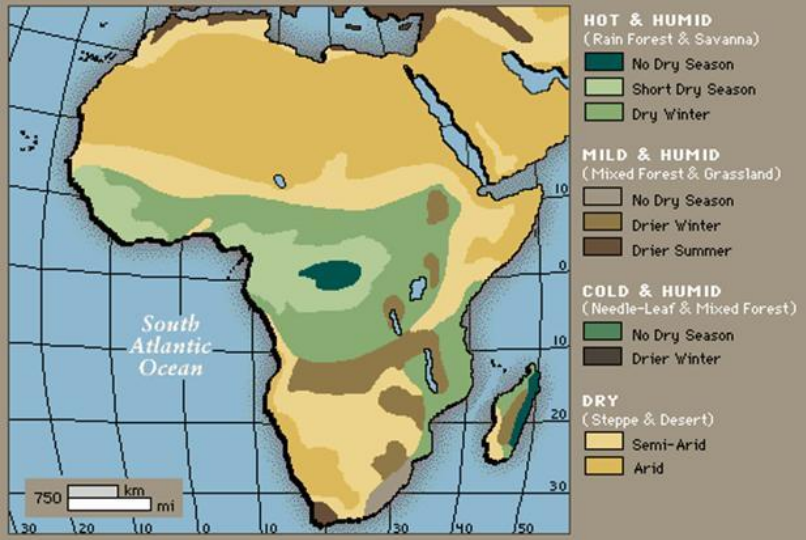
Tropic of Capricorn
20° S

Africa

Ballard's Maps © 2004



Climate



• Most of Africa is in the low latitudes=tropical!

• The equator divides Africa in half so the continent has similar climates north and south of the equator.

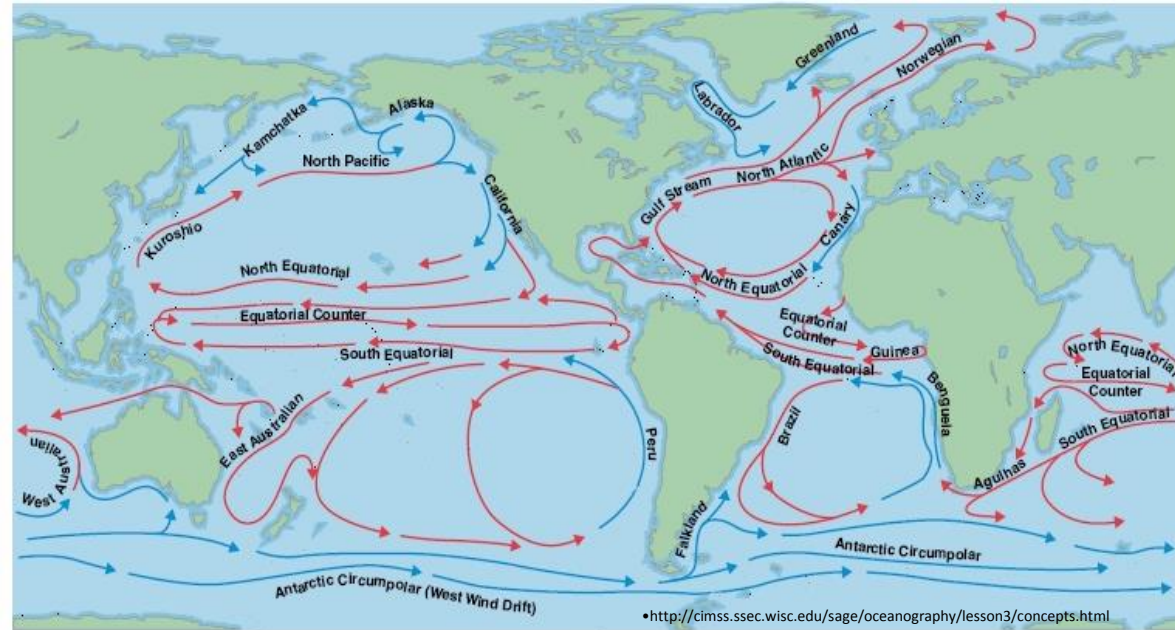
• Africa has tropical wet and tropical wet and dry climates near the equator.



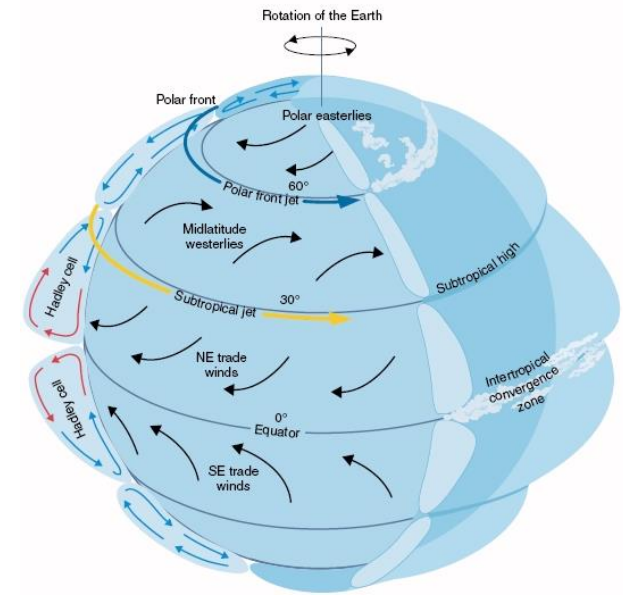
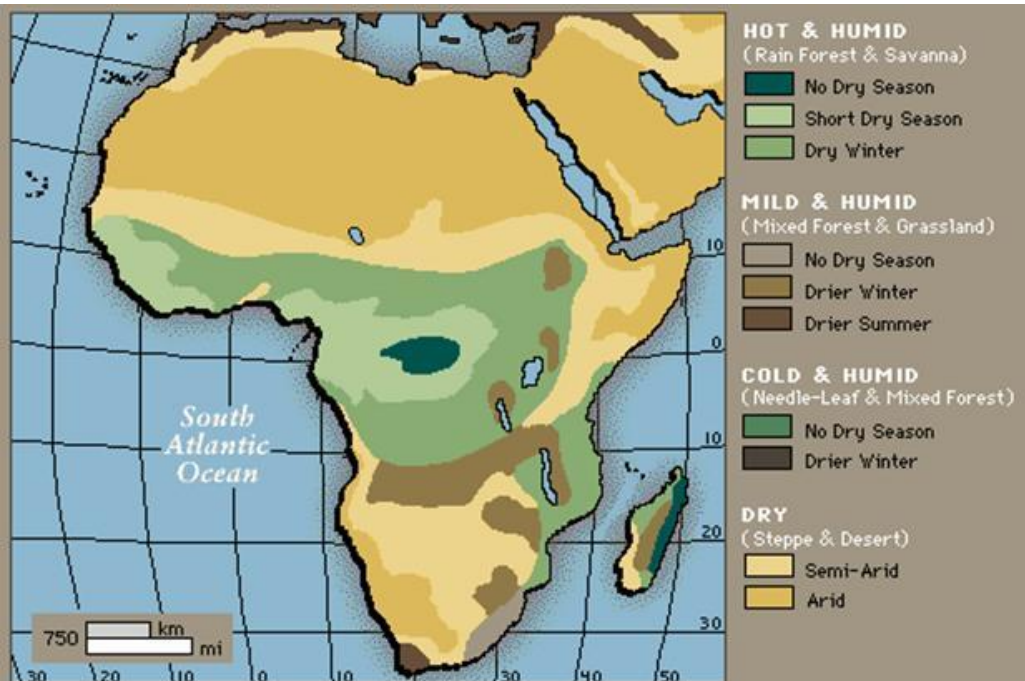
•Climate

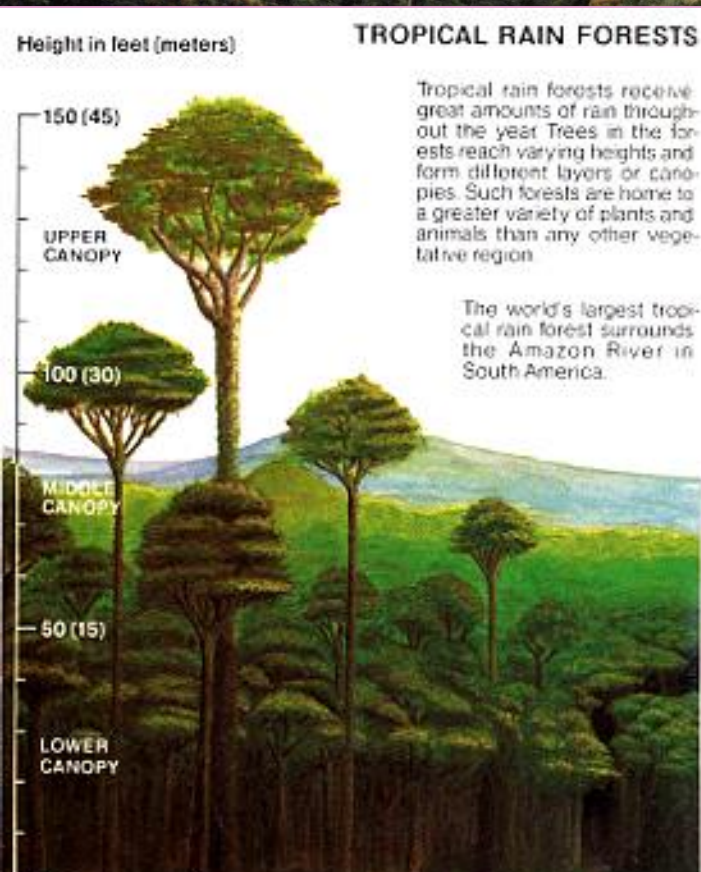
•5 Factors Affect Climate:

- Pressure Systems & Winds
- Ocean Currents
- Latitude
- Maritime & Continental Influences
- Altitude



→ Warm-water current → Cold-water current





- Congo Rain Forest- is the 2nd largest rain forest in the world. It is along the equator in the Congo Basin. Trees form a Canopy, the upper layers of branches.
- Problem- Slash and Burn.

African Rain Forest



- # Annual rainfall of up to 17 ft.
- # Rapid decomposition (very humid).
- # Covers 37 countries.
- # 15% of the land surface of Africa.

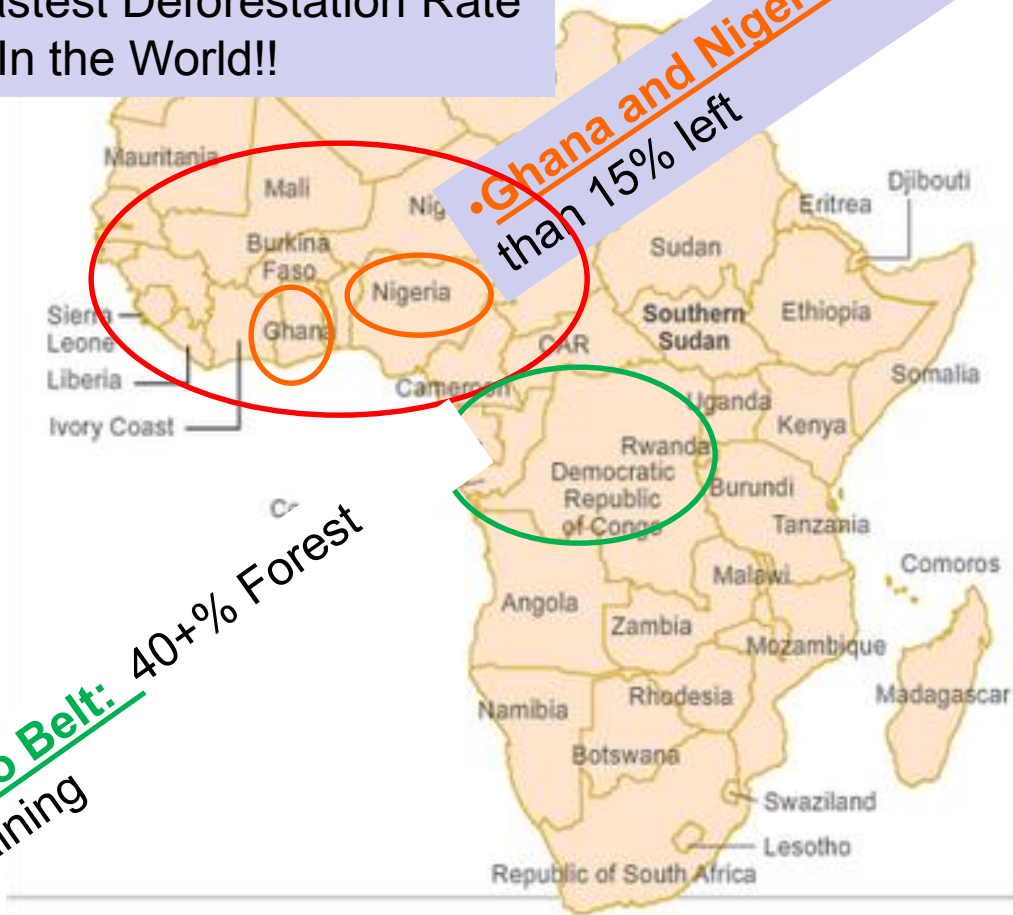
Deforestation



• West Africa:

- Fastest Deforestation Rate ... In the World!!

• Ghana and Nigeria: Less than 15% left



• Congo Belt: 40+% Forest remaining

- Definition: The action or process of clearing of forests.

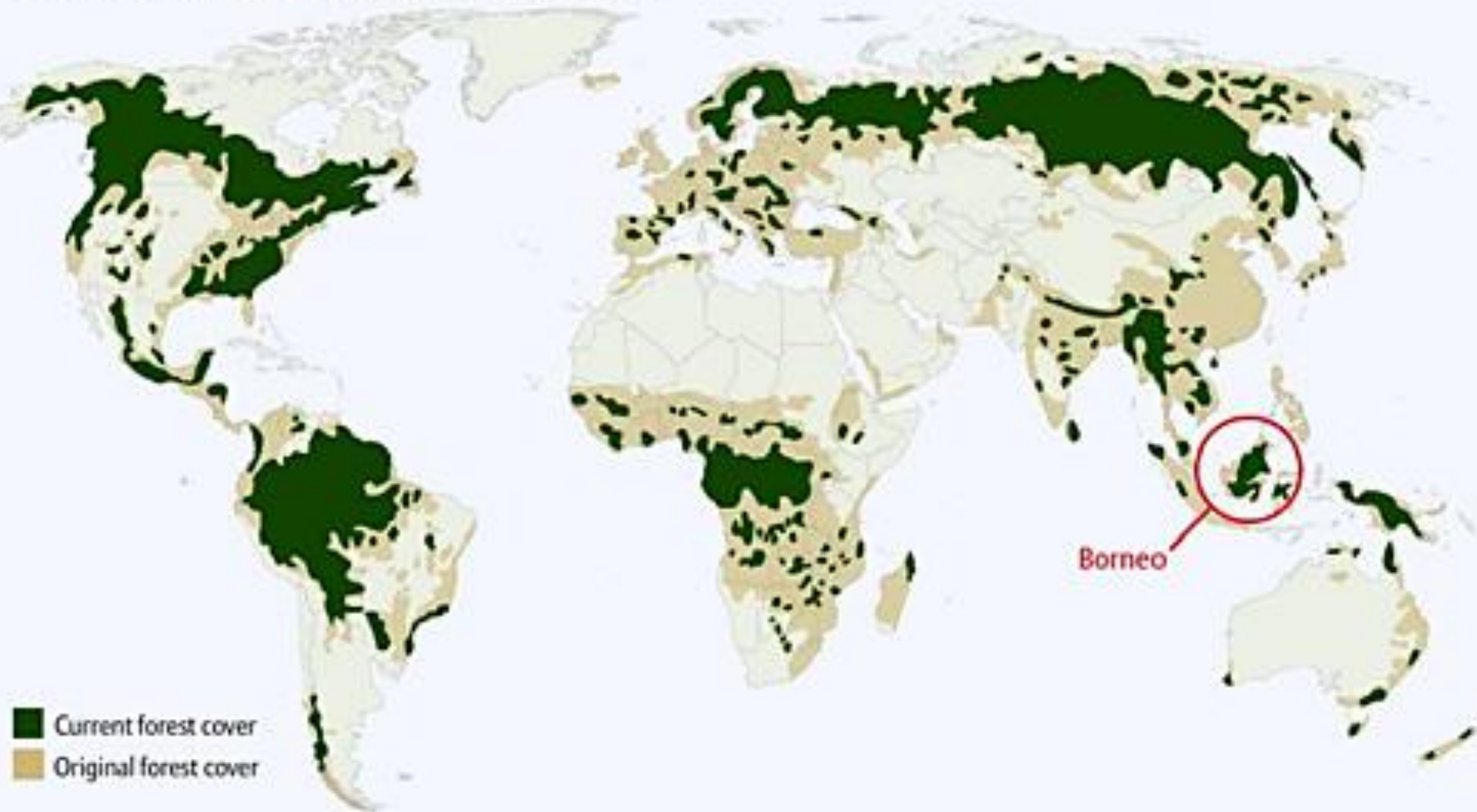
• Some Causes:

- Fuel
- Conflict
- Timber/Lumber

Deforestation Worldwide



See what remains of the world's virgin forests. Click on the island of Borneo to see an animated example of deforestation since 1950.



Deforestation Driving Factors

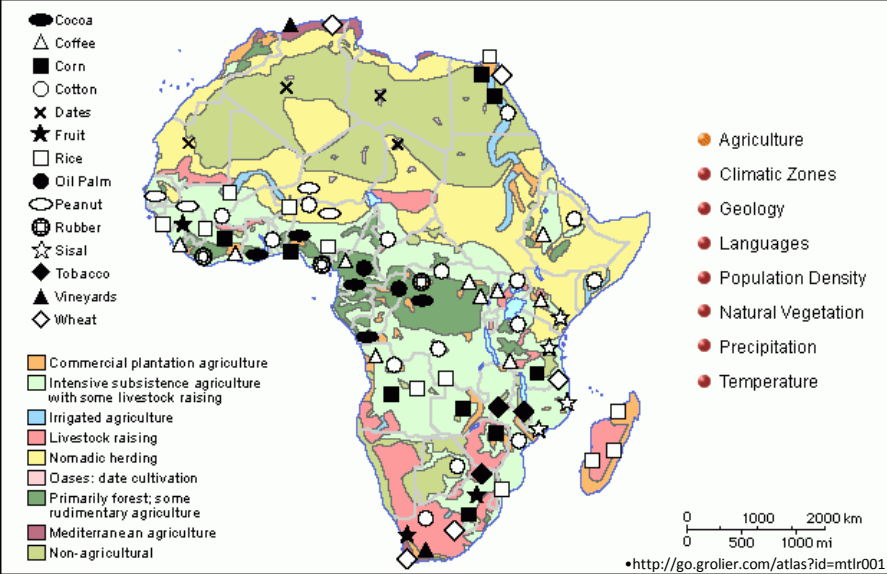


Photo One: Farmer Plowing Dry Soil with Oxen, Senegal
(Photo from Africa Focus, University of Wisconsin)

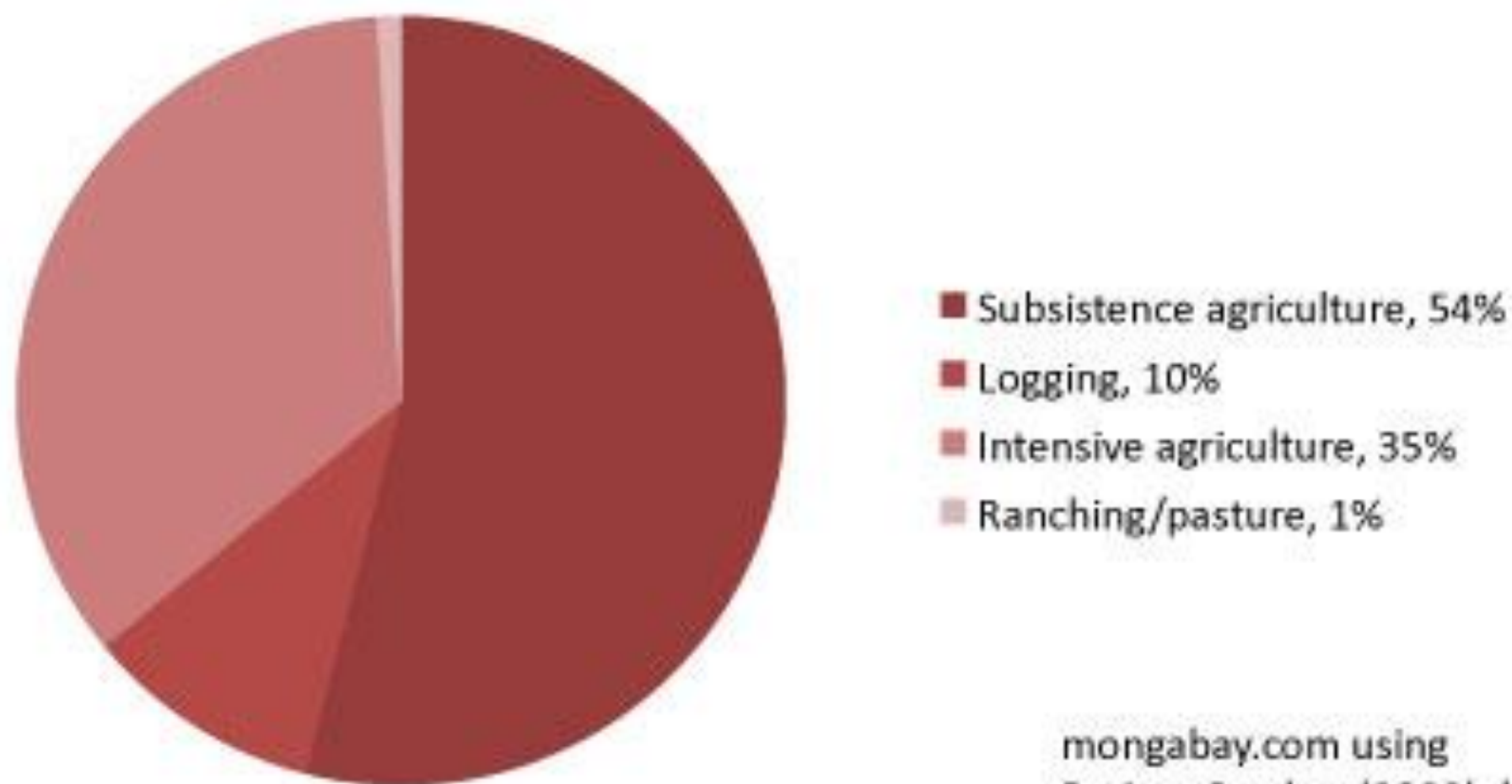
Agriculture

- Demand: Fresh land
 - Best land: Commercial (plantation) farming
 - Poorer land: Subsistence farmers
- Increasing population pressure
- Population mostly rural, agrarian
- Lack of technology and education
- Overcultivation, overgrazing, & soil degradation
- *Improvement Challenges:*
 - Land consolidation, buyouts, skills development, fair market practices, politics, multinational corporations



© Bruce G. Marcot

Deforestation Drivers in Africa



mongabay.com using
Project Catalyst (2008) data