Physiography, Geography and Climate of Latin America (Lecture 3)
Natural Landmarks in Latin America

- World's longest and second highest mountain range, and the world's highest active volcanoes.
- Biggest river in the world.
- World's driest desert.
- World's largest rainforest, and is the world's greatest storehouse of species
- World's greatest reserve of potential agricultural land.
- It is a great storehouse of minerals, with enormous potential production.
Landscape of Contrast:

- Patagonia: lakes, penguins, continental ice
Andes, Macchu Pichu
**Pico de Orizaba** (Volcano Citlaltépetl), México's highest peak and North America's highest volcano.
World’s Driest Desert:
Atacama, Chile
Rainforest canopy, and Amazon River
Climate

- Most of Latin America is located in the tropics
  - Land located between the Tropic of Cancer (23.5º N) and the Tropic of Capricorn (23.5º S)
  - In the tropics there is not much seasonal variation in temperature; seasonal differences are manifested in rainfall variations.
The Tropical Climate: Little variation in annual temperature
Air temperature – yearly changes

Data: NCEP/NCAR Reanalysis Project, 1958-1997 Climatologies
Analysis by: Department of Geography, University of Oregon, March 2000
Precipitation annual variation

Data: NCEP/NCAR Reanalysis Project: 1858-1997 Climatologies
Animation: Department of Geography, University of Oregon, March 2000
Altitudinal Zonation

Much of the temperature variation in the **tropics** is seen with changes in elevation rather than changes in latitude.

- As elevation increases, temperature decreases at an average rate of 3.5°F/1,000 ft.
- Five climate zones: Caliente (hot), Templada (warm), Fria (cold), Helada (frozen), and Paramos.
Tierra Caliente

“Hot Land” below 900 meters - 3,000’ in elevation, coastal plains and foothills

- Hot days, warm nights
- Tropical agricultural products - sugar cane, tropical fruits (bananas), & lowland tubers
Tierra Templada

Temperate Land 900 m (3,000’)—1800m (6,000”) in elevation, intermediate mountain slopes
- Mild days and cool nights
- Most populous zone
- Agricultural products include—Coffee, maize, vegetables, cut flowers.

Cloud Forest Nicaragua, coffee plantation
“Cold Land” 1800m (6,000’) – 3600m (12,000’) in elevation, mountainous areas
More common in South America
Warm days and cold nights
Wheat, barley, maize, tubers (Peruvian Andes), sheep, guinea pigs, Llama, Alpaca (hardier or highland crops and animals

Potato harvest, Bolivia
“Frozen Land” Above 3600m (12,000’) in elevation, highest mountain peaks

- Cool days and cold nights
- Highland grains and tubers, sheep, guinea pigs, Llama, Alpaca
Paramos

- Above 4600 m (15,000’) in elevation, highest mountain peaks
  - Just below snow line
  - characterized by tussock grasses, shrubs and cushion plants
Glaciers and the Snowline:
LA has glaciers near the equator
Physical Geography

Latin America and the Caribbean can be divided in three topographic zones:

- **Lowlands** (less than 500 meters)
- **Highlands** (500-2000 meters)
  - Plateaus: flat top highland regions
- **Mountain** (greater than 2000 meters)
The Mighty Andes

- **Northern, Central and Southern Andes**
  - Run from northwestern Venezuela to the southern tip of Tierra del Fuego. Mountain chain formed by the subduction of the Pacific plate beneath South America.
  - Approximately 30 peaks that are over 20,000 feet high
  - The Andes are divided into three sub-regions
    - Northern – Venezuela, Columbia, and Ecuador
    - Central – Ecuador, Peru and Bolivia – high altitude plateaus (Altiplano)
    - Southern – defines the border between Chile & Argentina – South of Santiago the mountains are lower.
Topographic Profiles
Relief of S. America
Highlands of Mexico and Central America

- Mexican plateau and the Central American volcanic arc
- This area is home to the major cities of Mexico and Central America
- **Mexican Plateau**
  - lower (4,000’) in the north (near Juarez) and higher (8,000’) in the south (near Mexico City)
  - This region is home to rich deposits of silver, copper & zinc
- **Central American Highlands**
  - Volcanic chain runs from Tehuantepec Isthmus, southern Guatemala, Costa Rica to Panama
  - The volcanic eruptions has resulted in rich volcanic soil throughout much of Central America
Physiography of Mexico
Middle America Physiography

- **Mexico to Tehuantepec**
  Cordilleran system of North America continues in Mexico with Sierra Madre Oriental and Occidental forming an intermontane plateau of 4,000 to 8,000 feet.

- **Tehuantepec to Panama**
  Highlands of volcanic origin containing high plateaus.
  Narrow coastal lowlands.
  The intermontane basins may contain lakes as Lake Nicaragua.
Andes Mountains Flyover Video

This computer animation simulates a high-altitude flight along the Andes.
South America Flyover the Andes

http://www.jpl.nasa.gov/srtm/images/movies/AndesFlt_3201.MPG
Plateaus of South America

- **Brazilian Plateau**
  - Largest and more important in terms of natural resources and settlement
  - Runs from the southern edge of the Amazon Basin to the Rio de la Plata
  - Major population centers of Brazil are located along the coastal fringe of the Brazilian plateau.

**Patagonian Plateau**
- Much of this area is steppe (dry grasslands)

**Guiana Plateau**
- A sparsely settled region
Fig. 4.—Structure of South America.

Fig. 6.—Relief of South America.
River Basins and Lowlands

- Within the major river basins there are vast interior lowlands.
- Most of these lowlands are sparsely settled and offer little agricultural activity, with the exception of grazing livestock.
Amazon lowlands

Rio de la Plata lowlands
Rivers of Latin America: All of the Major Rivers are in South America
Continental Divide in S. America is close to the Pacific

The Continental divide North America in a more central position
Run off / Water Surplus
3 Major Rivers in S. America

1. **Amazon**
   - Drains an area of approx. 2.4 million sq. miles – the largest river in the world

2. **Rio de La Plata**
   - S. America’s second largest watershed

3. **Orinoco River**
   - Third largest river basin in South America
Natural Resources

- Because of its tropical location, there is a high degree of biodiversity in the region
  - Many varieties of plants and animals found nowhere else on earth
  - The region is home to the world’s largest rain forest
- There are also massive reserves of natural resources
  - natural gas and oil (South America as well as Mexico)
  - copper (Chile), silver (Mexico and Peru), Iron (Brazil).