21.3 Climate Changes

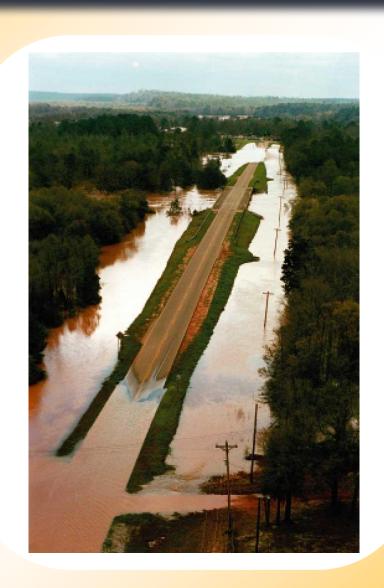
Natural Processes That Change Climates

- Volcanic Eruptions
 - The presence of volcanic aerosols (ash, dust, and sulfur-based aerosols) in the air increases the amount of solar radiation that is reflected back into space. This causes Earth's lower atmosphere to cool.
- Ocean Circulation
 - Changes in ocean circulation also can result in short-term climate fluctuations.

Eruption of Mount Pinatubo



Effect of El Niño



21.3 Climate Changes

Natural Processes That Change Climates

- Solar Activity
 - When the sun is most active, it contains dark blemishes called sunspots. The formation of sunspots appears to correspond with warm periods in Europe and North America.
- Earth Motions
 - Geographic changes in Earth's land and water bodies cause changes in climate.
 - Changes in the shape of Earth's orbit and the tilt of Earth on its axis are other Earth motions that affect global climates.

21.3 Climate Changes

Human Impact on Climate Changes

- The Greenhouse Effect
 - The greenhouse effect is a natural warming of both Earth's lower atmosphere and Earth's surface from solar radiation being absorbed and emitted by the atmosphere.
- Global Warming
 - As a result of increased levels of carbon dioxide and other greenhouse gases, global temperatures have increased. This increase is called global warming.