

Chapter 17 – Climate

Section 1

Objectives

- **Explain** the difference between weather and climate.
- **Identify** five factors that determine climates.
- **Identify** the three climate zones of the world.

Climate Vs. Weather

- **Weather** is the condition of the atmosphere at a particular time.
- **Climate** is the average weather condition in an area over a long period of time.

Latitude

- **Solar Energy and Latitude** The amount of direct solar energy a particular area receives is determined by latitude. Latitude is the distance north or south, measured in degrees, from the equator.
- **Seasons and Latitude** Seasons happen because the Earth is tilted on its axis at a 23.5° angle. This tilt affects how much solar energy an area receives as Earth moves around the sun.

Prevailing Winds

- Winds that blow mainly from one direction are **prevailing winds**.
- Prevailing winds affect the amount of precipitation that a region receives.
- The circulation of warm and cold air cause prevailing winds.

Mountains

- Mountains can influence an area's climate by affecting both temperature and precipitation.
- **Elevation** is the height of surface landforms above sea level.
- As the elevation increases, the ability of air to transfer energy from the ground to the atmosphere decreases.

Large Bodies of Water

- Large bodies of water can influence an area's climate. Water absorbs and releases heat slower than land does. Because of this quality, water helps to moderate the temperatures of the land around it.

Ocean Currents

- As surface currents move, they carry warm or cool water to different locations. The surface temperature of the water affects the temperature of the air above it.

Climates of the World

- The Earth's three major climate zones are determined by latitude.
- Climate zones are made up of different **biomes**. Biomes are characterized by certain types of plant and animal communities.