



Climate: **Causes and Classification**

What is CLIMATE?

- Long-term weather patterns for an area (*climatology*)
- Variations in temperature, precipitation, and winds throughout the year



NOT weather (short term)

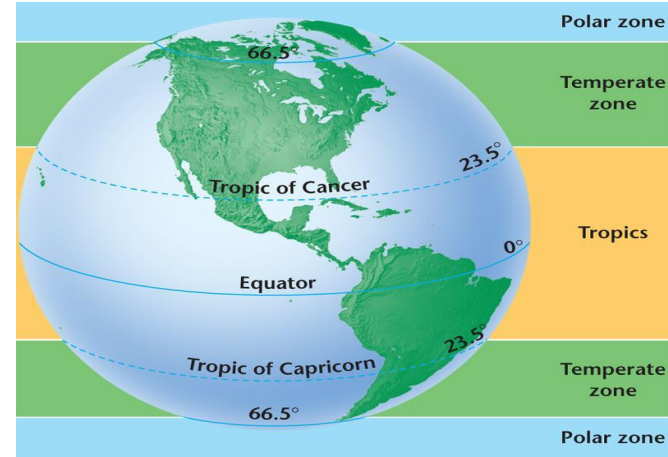


● An area's climate is caused by a combination of four factors:

- Latitude
- Topographic Effects
- Air masses
- Side of Mountain Range

1st Cause of Climate: Latitude

- Most important cause!
- The latitude (N or S of equator) determines how much solar radiation an area receives due to Earth's tilt



- Equator = if little tilt then high direct sunlight
- Poles = if high tilt then little direct sunlight

2nd Cause of Climate:

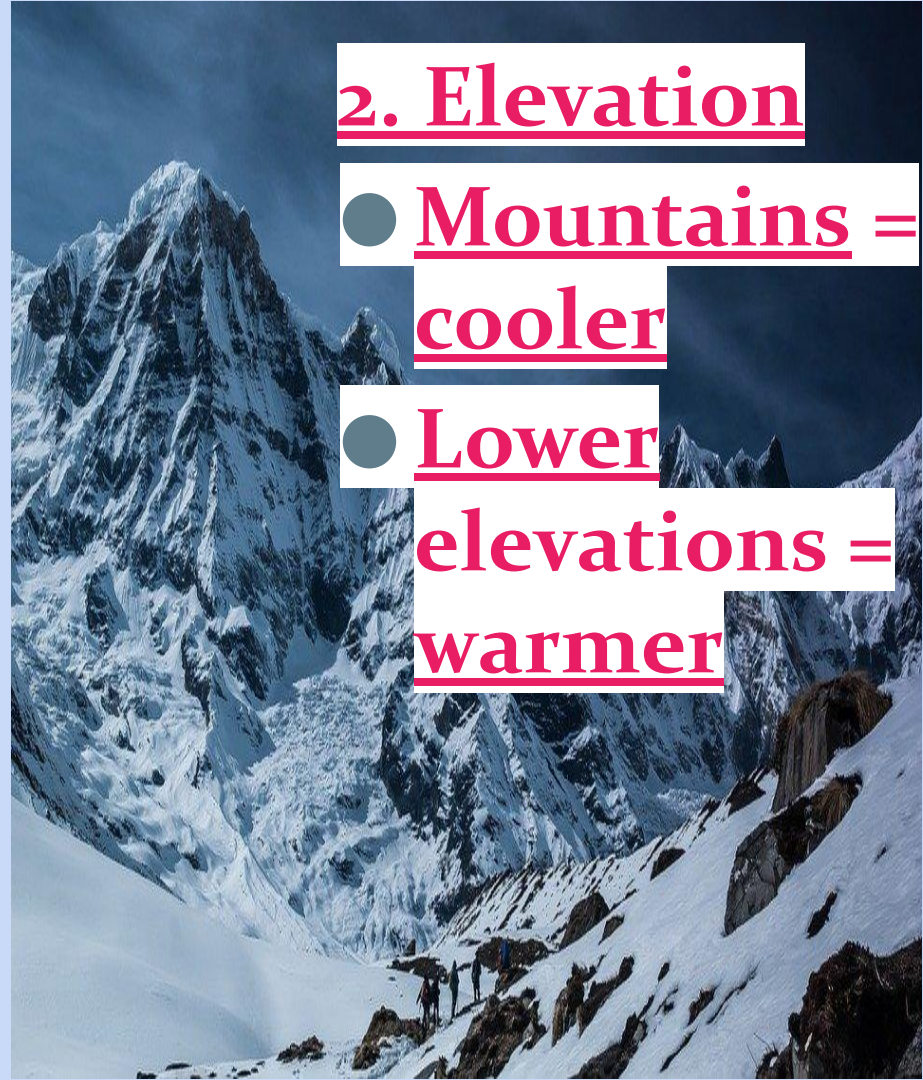
Topographic Effects

1. Land vs. Water (distance to water)

- Coastal areas = wetter and moderate temperatures
- Inland areas = drier and more extreme temperatures

2. Elevation

- Mountains = cooler
- Lower elevations = warmer



3rd Cause of Climate:

Air Masses

- Same types of air masses move into the same area at the same time each year
 - Air masses bring the characteristics of their source regions (cP, mT, etc)
 - Air masses moving in interact with the air masses present to influence climate

4th Cause of Climate:

Side of Mountain Range

- Windward Side

- Moist air rises over a mountain & cools at the top
- Wet climate forms

- Leeward Side

- Cold, dry air sinks down from the mountain & warm at the bottom
- Dry/Desert climate forms

