



# Chapter 2: Part 3

## Climate and Weather

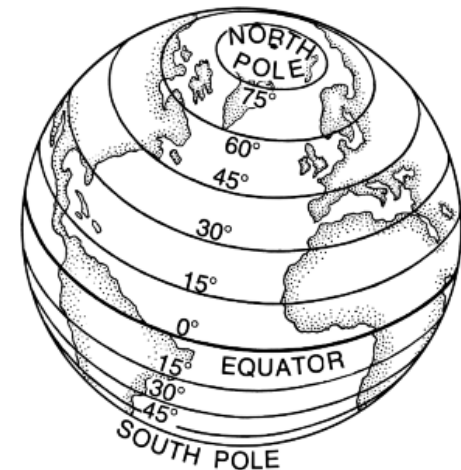
- Climate has one of the greatest impacts on Canadians' sense of identity.
- **Climate** is how we describe the patterns of weather conditions over along period of time. **Weather** is just our daily observation at a particular time.
- Without discussing the topic with anyone in the class, quickly answer the following question in your note book:
  - Describe the climate in Canada.
- Show of hands, how many wrote something about snow? 😊

# Elements of Climate (Outline)

- Global Factors
  - Latitude
  - Air Masses and Winds
  - Ocean Currents
  - Clouds and Precipitation
- Regional Factors
  - Altitude
  - Bodies of Water
  - Mountain Barriers

# Global Factors

- Latitude
  - Latitude is measured as the distance away from the equator. ( $0^\circ$  at the equator,  $90^\circ$  at the poles)
  - The closer to the equator the more direct sunlight you receive. This means that these areas receive high amounts of solar radiation (see figure 2.15)



# Air Masses and Winds

- Air masses tend to keep the characteristics of the place they originate.
- Air masses over bodies of water or areas of land have different characteristics and names.
- Using your text identify and explain the four major types of air masses.
- What is the **jet stream**?
- Why would many people in Eastern Canada be concerned with the weather in Western Canada?

# Ocean Currents

- One geographer referred to ocean currents as the “thermostat of the world”.
- They move immense amounts of heat and cold around the world impacting the climate in each region.
- Using the figure 2.17 name the currents that impact Canada.
- What kind of impact do you think the Labrador current has on Newfoundland?

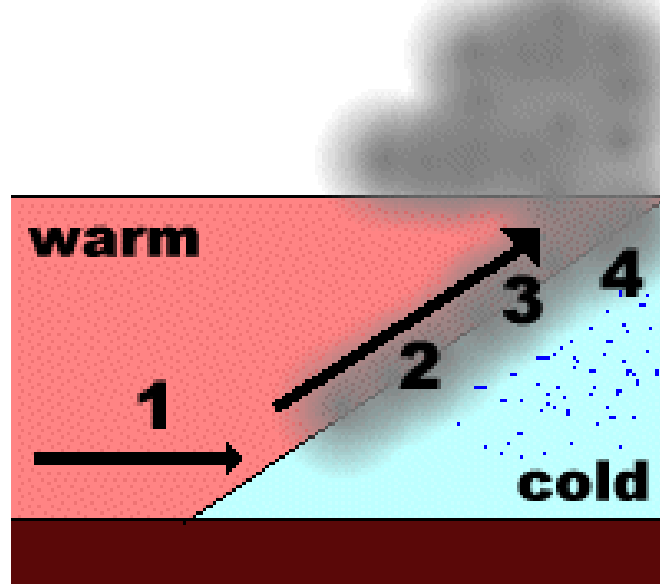
# Clouds and Precipitation

- What you really need to know from this section is that the topography of the land can impact the type of rain/precipitation patterns in an area. We have three major types of precipitation that we study:
  - Frontal
  - Convictional
  - Relief (Orographic)

# Frontal Precipitation

- **Stage 1:** An area of warm air meets and area of cold air.
- **Stage 2:** The warm air is forced over the cold air
- **Stage 3:** Where the air meets the warm air is cooled and water vapour condenses.
- **Stage 4:** Clouds form and precipitation occurs

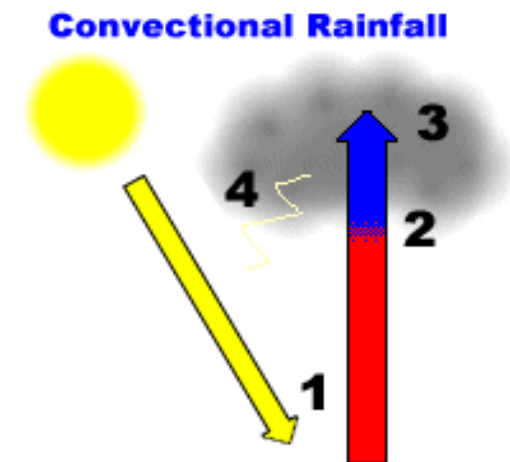
## frontal rainfall





# Convictional Precipitation

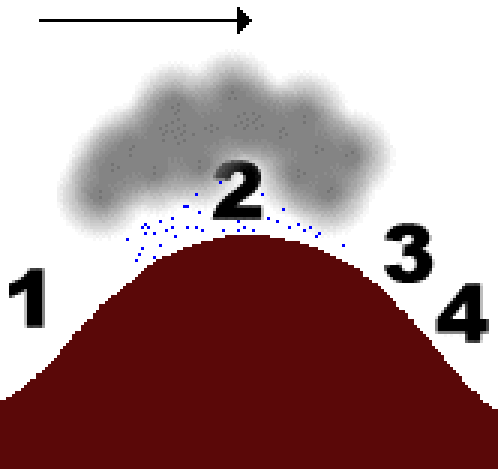
- **Stage 1:** The sun heats the ground and warm air rises.
- **Stage 2:** As the air rises it cools and water vapour condenses to form clouds.
- **Stage 3:** When the condensation point is reached large cumulonimbus clouds are formed.
- **Stage 4:** Heavy rain storms occur. These usually include thunder and lightening due to the electrical charge created by unstable conditions.



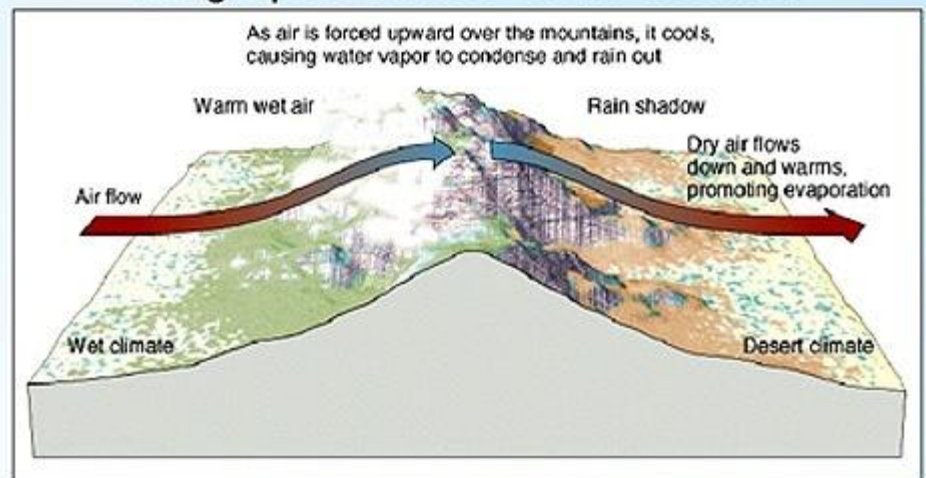
# Relief (Orographic) Precipitation

- **Stage 1:** Warm wet air is forced to rise over high land.
- **Stage 2:** As the air rises it cools and condenses. Clouds form and precipitation occurs.
- **Stage 3:** The drier air descends and warms.
- **Stage 4:** Any moisture in the air (e.g. cloud) evaporates.

## Relief Rainfall



## Orographic effect - Rain Shadow



- Arid region behind coastal mountain range

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- Complete Review and Reflect question.
- Complete Apply and Extend part b.