



LOWERN

Factors that Impact Climate



Let's Review: *Weather or Climate?*

Short term changes in
temperature and precipitation.



WEATHER

Long term pattern of
temperature and precipitation
for a region.



CLIMATE

What is an example of WEATHER?

What is an example of CLIMATE?

Let's Review: *Maritime or Continental?*

Provinces or regions that are inland.



Continental

Provinces or regions that are close to the ocean.



Maritime

What is an example of a CONTINENTAL city in Canada?

What is an example of a MARITIME city in Canada?

Factors that Affect Climate

6 factors influence the climate of a particular region.

They can be summarized with this acronym: **L.O.W.E.R.N.**

L*atitude*

O*cean Currents*

W*inds & Air Masses*

E*levation*

R*elief*

N*ear Water*

When we study climate we look at two features

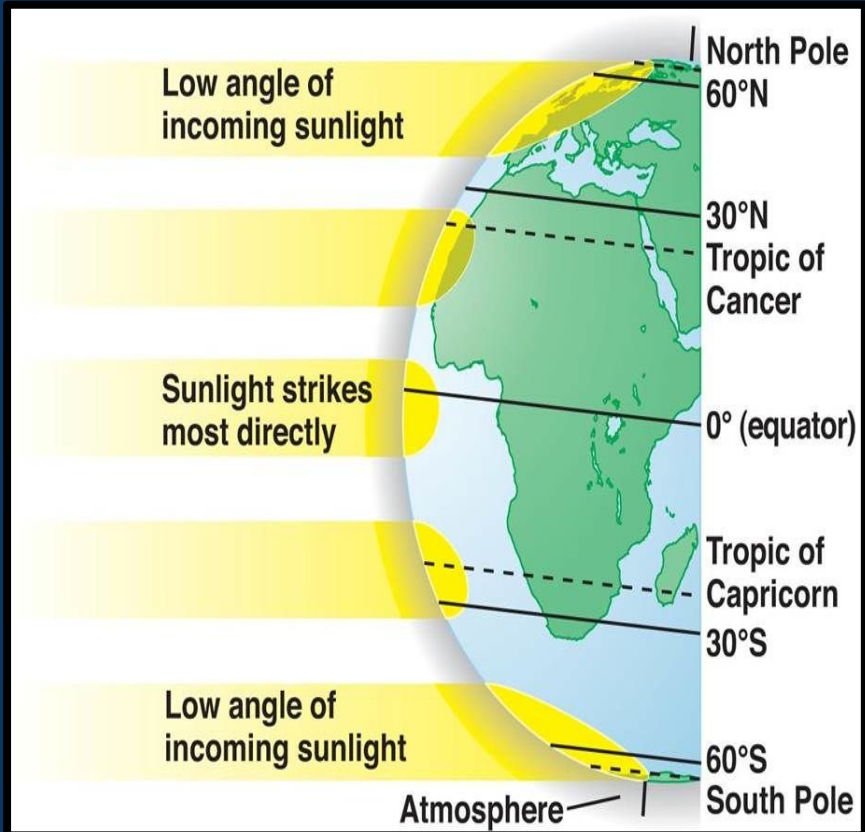
- **Temperature ($^{\circ}\text{C}$)**



- **Precipitation (mm)**

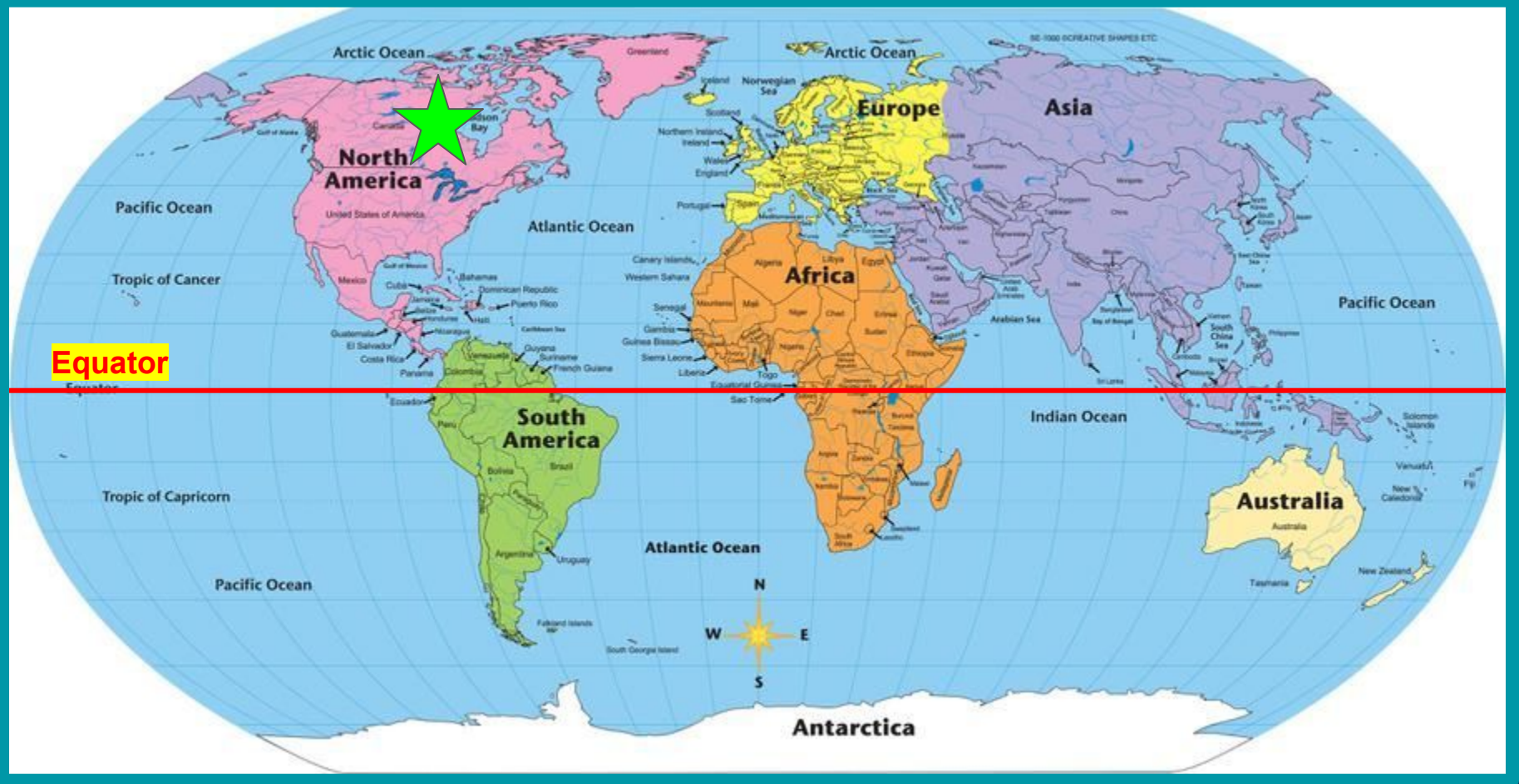


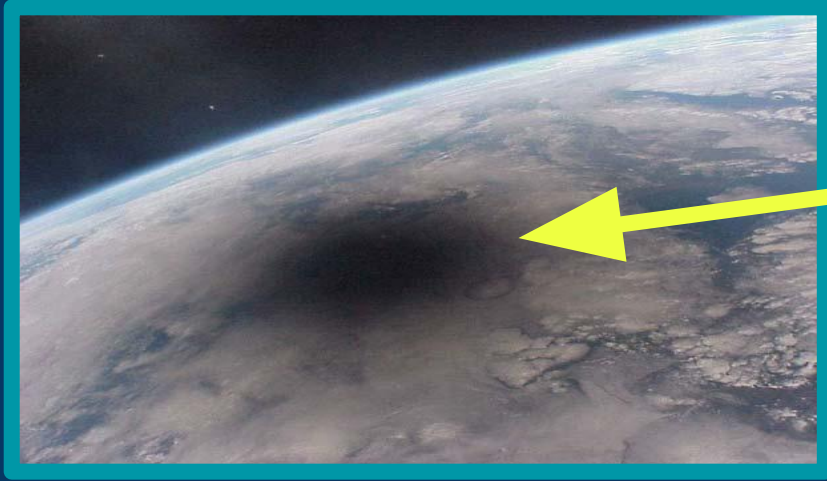
Latitude



Impact(s): temperature

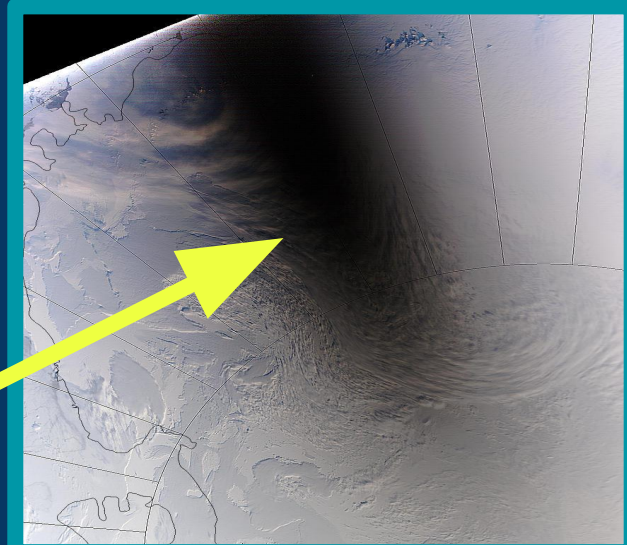
- Closer to the equator the the **warmer** it is
- This is because the centre of the Earth gets more direct **sunlight** as it is a **flatter** surface.





**Close to the
equator.**

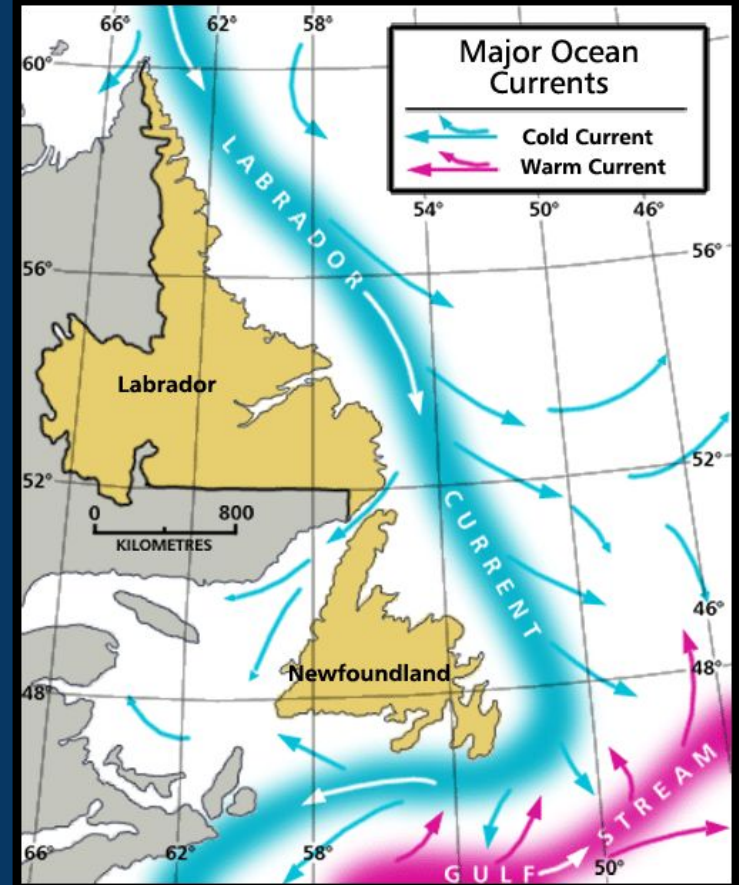
**Far from the
equator.**

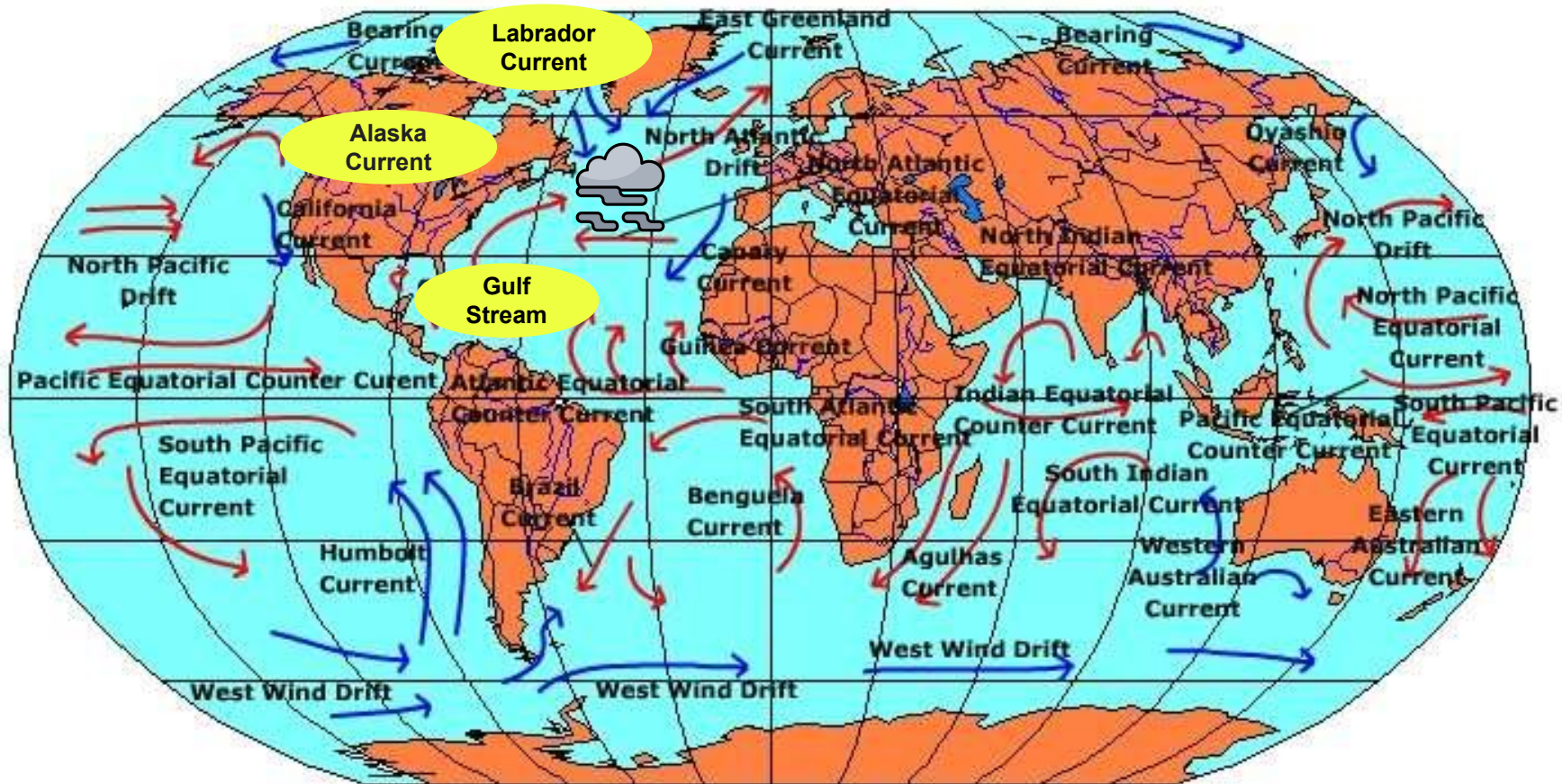


Ocean Currents

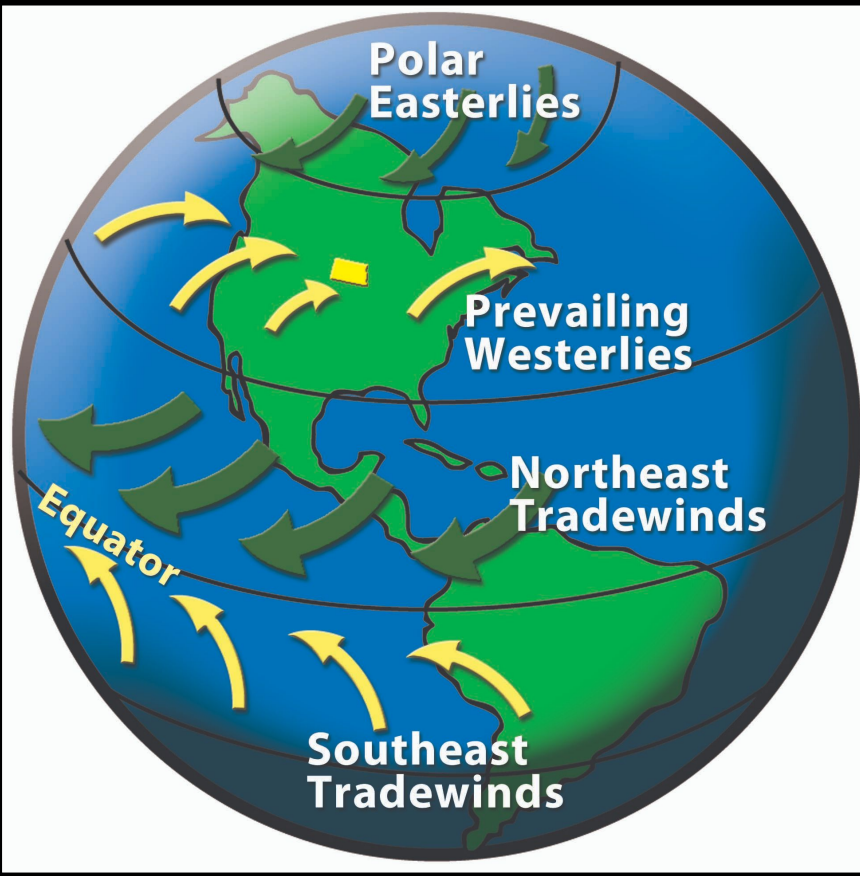
Impact(s): precipitation & temperature

- Wind carries currents on land.
Cold Currents → dry/cold climate
Warm Currents → mild/wet climate





Winds & Air Masses



Impact(s): precipitation & temperature

WINDS

- Winds carry the weather.
- Canada is impacted by the Westerlies winds in the south and Polar Easterlies in the north.

Winds & Air Masses

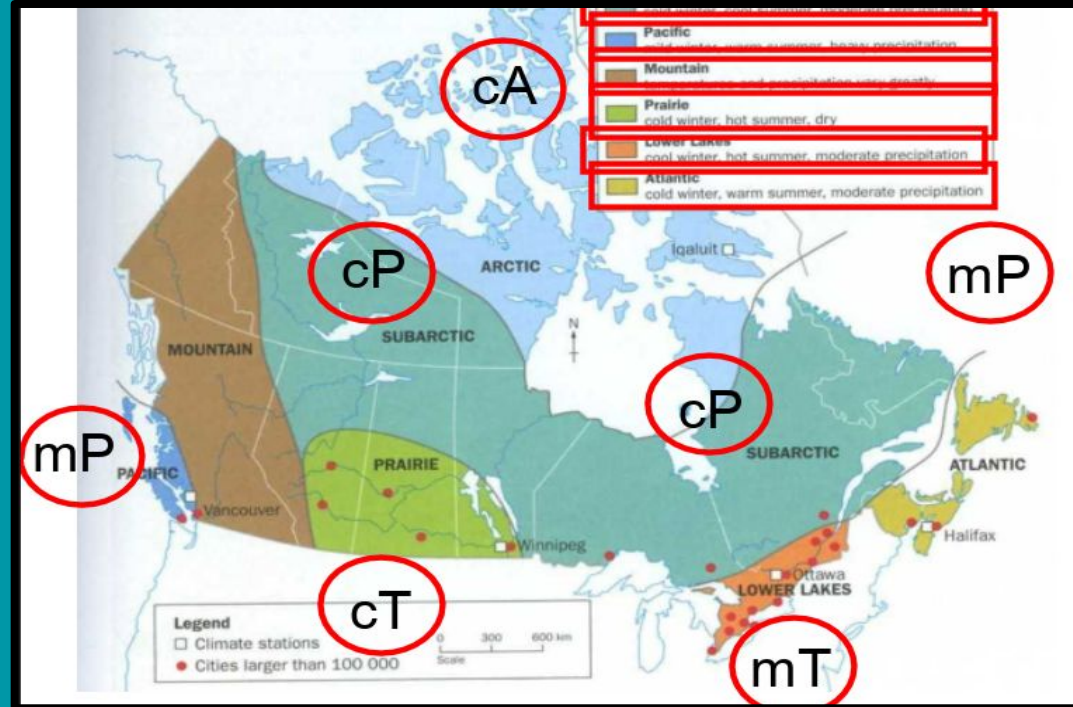
AIR MASSES

Precipitation

- continental → **dry**
- maritime → **wet**

Temperature

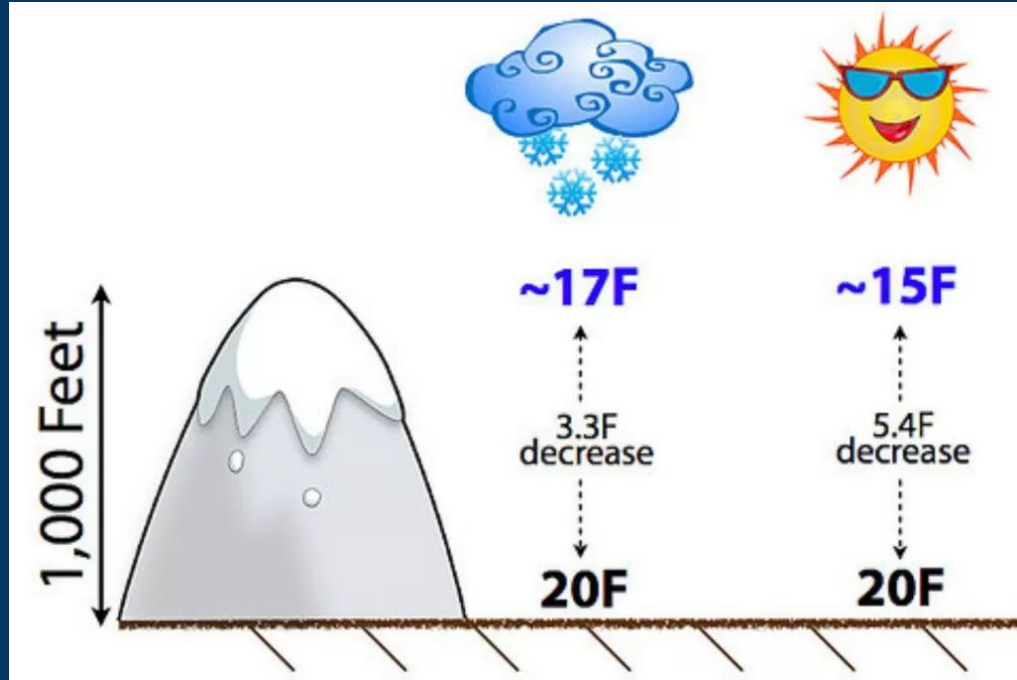
- **Arctic** → very cold
- **Polar** → cold or cool
- **Tropical** → warm or hot



Elevation

Impact(s): temperature

- Elevation → distance above **sea** level
- As elevation increases the temperature **decreases**.



Elevation



RULES

- #1 Before the point of condensation:*
For every 100m the temperature drops 1°C
- #2 After the point of condensation:*
For every 100m the temperature drops 0.6°C



Jamboard

If Heat Rises, Why Does Higher Altitude Have Lower Temperatures?

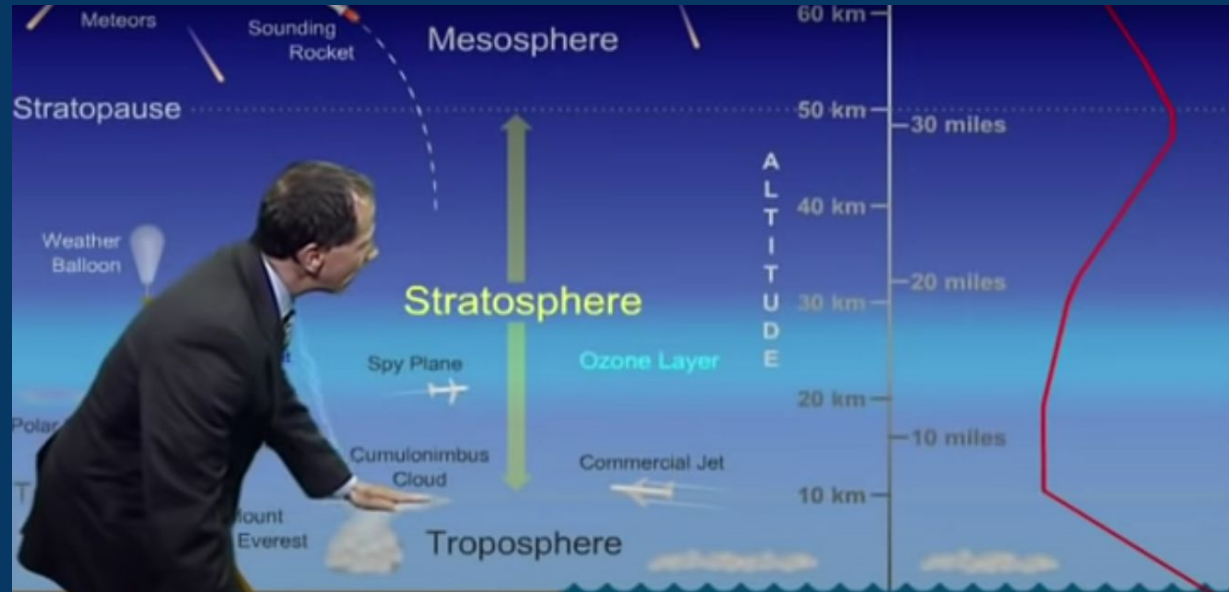


If Heat Rises, Why Does Higher Altitude Have Lower Temperatures?

Adiabatic Lapse Rate:

The **rate** at which the **temperature** air changes in response to **gravity** pull at different **elevations** within the **troposphere**.

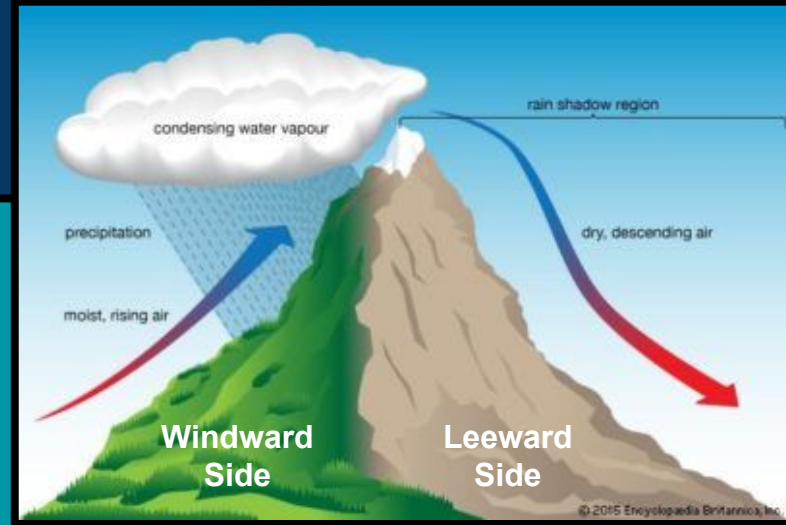
To learn more click [here](#).



Relief

Impact(s): precipitation

- **Windward** side of the mountain
→ more precipitation
- **Leeward** side of mountain
→ less precipitation



Relief



Other Forms of Precipitation



Frontal Precipitation

Convective Precipitation



Near Water

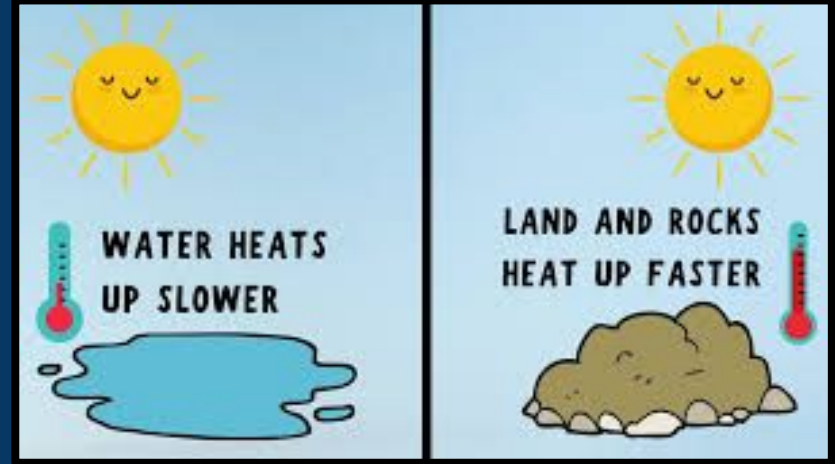
Impacts(s): temperature & precipitation

- Continental Climate: Large temperature range but low precipitation
- Maritime Climate: Small temperature range, but high precipitation



Near Water

- Water can have a **moderating** effect on land temperatures
- WHY?
Water takes much **longer** to heat up AND **cool** than land



Cooler → Summers
Warmer → Winters

Near Water

Large Bodies of Water

