The 6 Factors Affecting Climate
LOWER Near Water

1) Latitude – Temperature Decreases as Latitude increases
   • Areas at the poles experience colder conditions because of the curvature of the earth (less intense and direct rays as you move further north or south of the equator).

2) Ocean Currents – Temperature of an ocean current will affect the air above it
   • eg. The cold Labrador Current cools the air along the Labrador Coast, while the Gulf Stream flowing northwards warms the areas it comes in contact with
   • The two currents meet over the Grand Banks to create an area of dense fog
3) Wind and Air Masses – An air mass is a large volume of air with almost the same temperature and moisture content throughout

- Air masses take on the characteristics of the area where it formed.
- Air masses forming over the ocean (called Maritime Air Masses) will carry moisture.
- Air masses forming over the continents (called Continental Air Masses) will be dry.

3 (Con't): Winds – Air masses move from areas of high pressure to low pressure. This movement creates wind in conjunction with the Coriolis Effect. In Canada, we have prevailing winds that move air masses from the West to the East.

- These winds are called Westerlies.
4) **Elevation** - As elevation increases temperature decreases, this is known as the “lapse rate”.
- $1^\circ$C/100m (Dry Rate)
- $0.6^\circ$C/100m (Wet Rate)

![Diagram of atmospheric temperature and lapse rates](image)

5) **Relief (Mountains)** – Physical object like mountains restrict the movement and flow of air causing it to rise.

![Diagram of orographic uplift](image)
6) Near Water Bodies – Large water bodies like oceans heat up and cool down much slower than land masses.
   - During the summer winds blowing over the water will cool the land
   - In the winter, winds coming from the water will warm the land
   - This moderates the climate
   - The air mass generally carries a great deal of moisture

<table>
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<tr>
<th>Climate</th>
<th>Typical Climate</th>
<th>Temperature Range</th>
<th>Annual Precipitation</th>
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<tbody>
<tr>
<td>Continental</td>
<td>- Warm/Hot Summer</td>
<td>- 25 to 50 ºC</td>
<td>- 200 - 1000mm Low to Moderate</td>
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<td></td>
<td>- Cold Winters</td>
<td>- Large Range</td>
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<tr>
<td>Maritime</td>
<td>- Cool/Warm Summers</td>
<td>- 10 to 30 ºC</td>
<td>- 1000 - 2500mm Moderate to High</td>
</tr>
<tr>
<td></td>
<td>- Cool Winters</td>
<td>- Small Range</td>
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