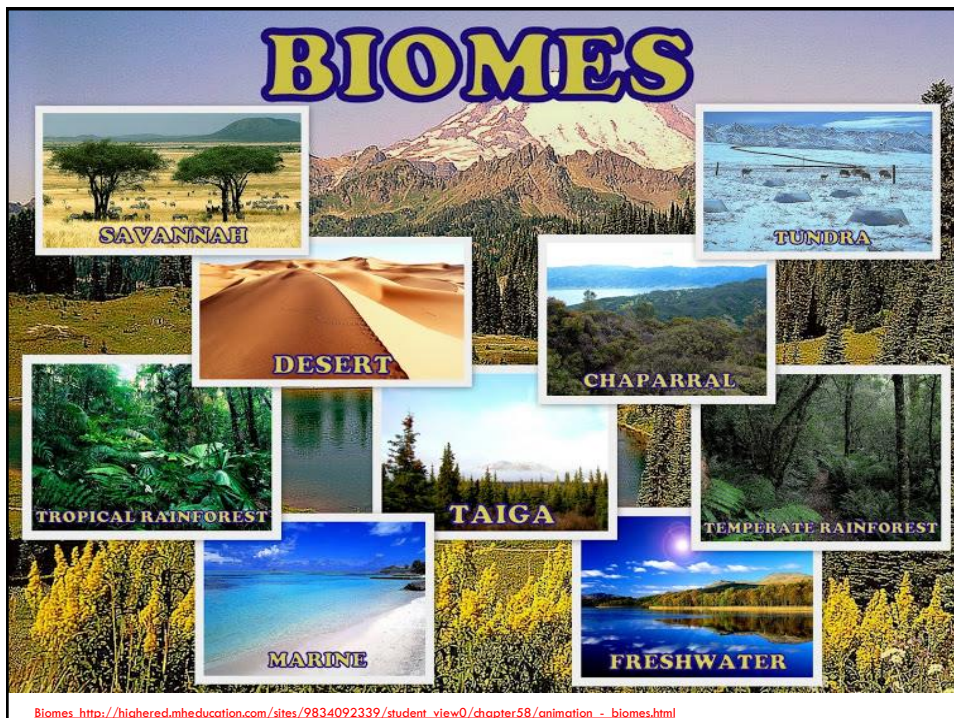
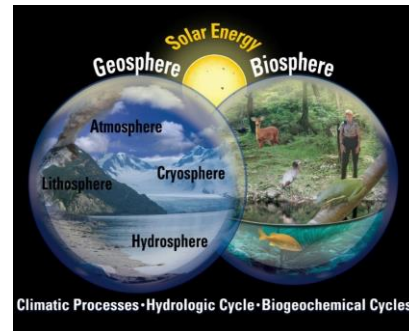


# Ecosystem Dynamics

1

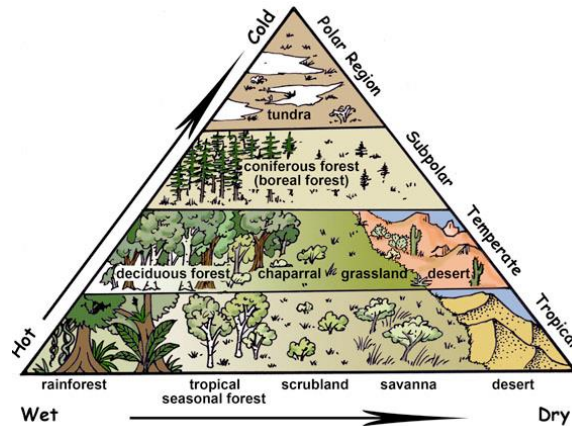
- Life on earth is the result of interactions between biotic (living) and abiotic (non-living) factors. Climate is one of the abiotic factors.



# Biomes

3

- Biomes are regions with **similar** biotic and abiotic components.
- Biomes result because of **climate**.
- It is **temperature** and **precipitation** that determine the type of biome.



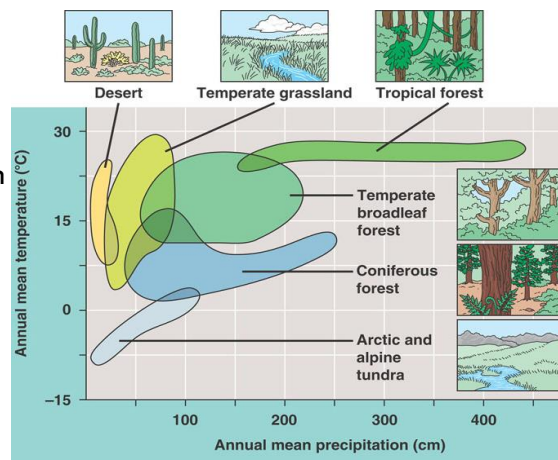
## a) Climate and Biomes

4

- In other words, it is **climate** which largely determines which types of **plants** and **animals** can live in a certain area.

➤ E.g.

- the warm temperature & lack of precipitation in a desert biome is what allows cacti to flourish



5

- Biomes are classified based on:
  - **biotic** factors such as dominant plants and animals and **abiotic** factors such as temperature, precipitation
- Eg. The Hot Desert (yes they are cold deserts!) biome is characterized by:
  - A lack of precipitation & warm temperatures
  - Vegetation such as cacti, small bushes, low grasses
  - Animals such as nocturnal reptiles, burrowing mammals

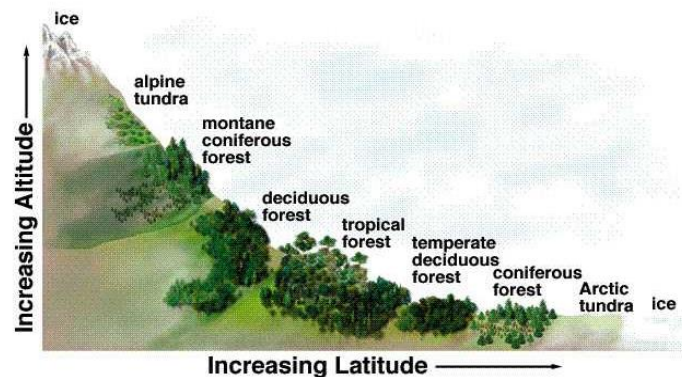


## b) Distribution of Biomes

6

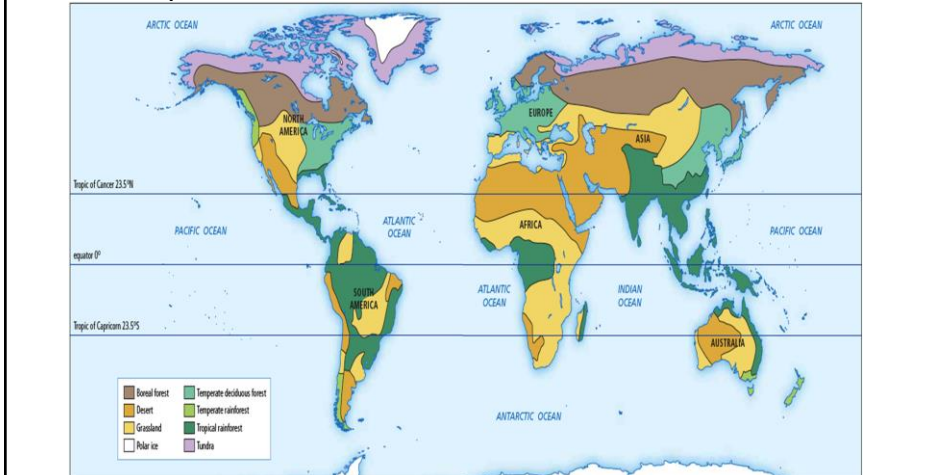
- Areas of the Earth at similar Latitudes and Altitudes have similar temperatures and precipitation  
= similar Biomes!

### Climate and biomes



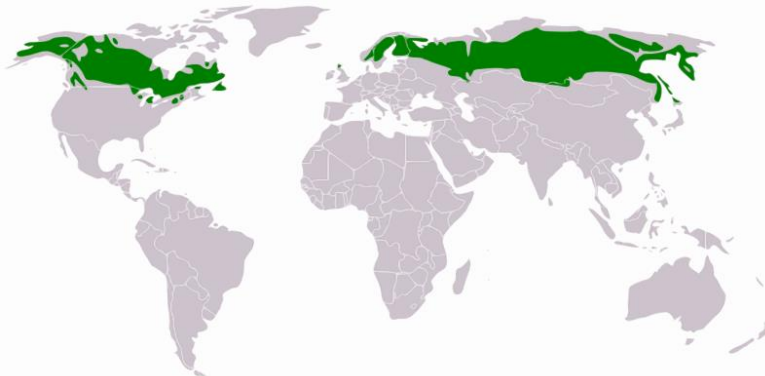
7

- If biotic and abiotic conditions are similar, the same biome can occur in different parts of the world



8

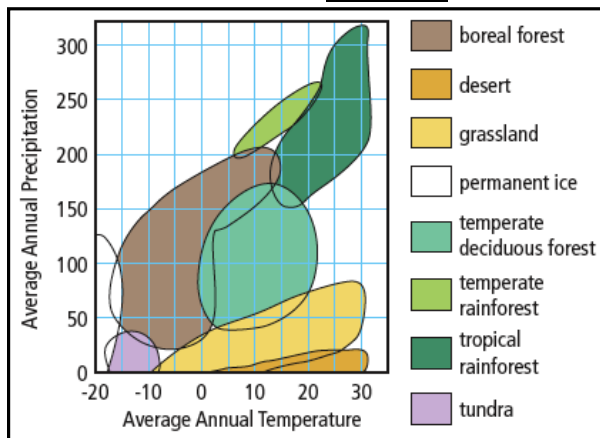
- Eg.
  - Saskatchewan & parts of Russia have the boreal forest (taiga) biome because they are similar distance from the equator and have similar vegetation and wildlife



## c) Representing Biomes

9

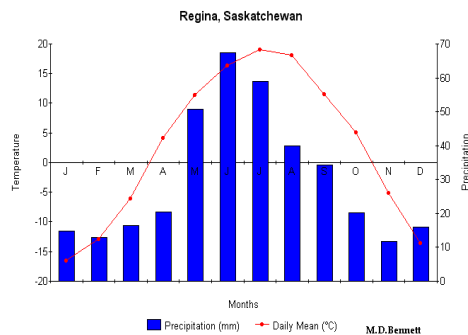
- The interaction of temperature and precipitation is best reflected in the climate of an area.



## Climatographs

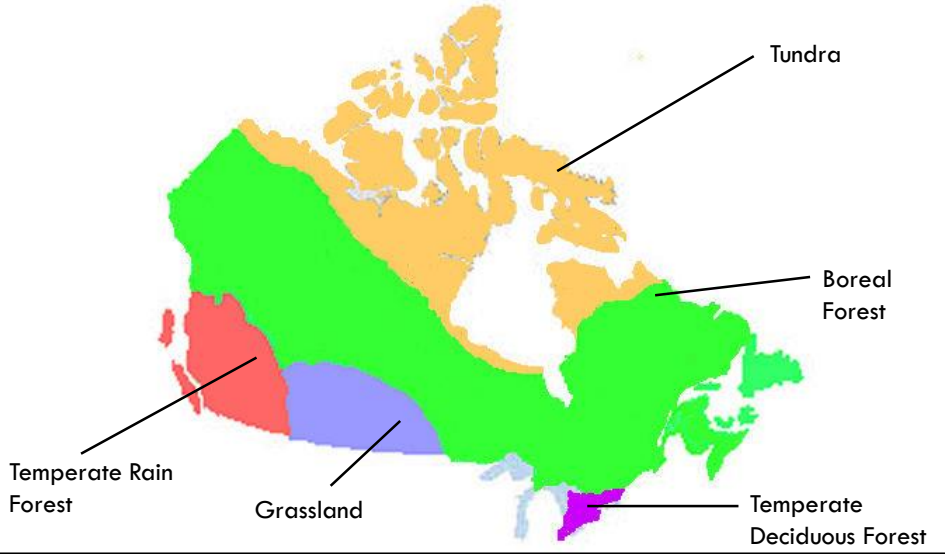
10

- Biomes are often defined using information from climatographs.
- A climatograph shows the average temperature & precipitation for a location over many years.
- Climatographs show temperature on the left y-axis, precipitation on the right y-axis, and time in months along the x-axis



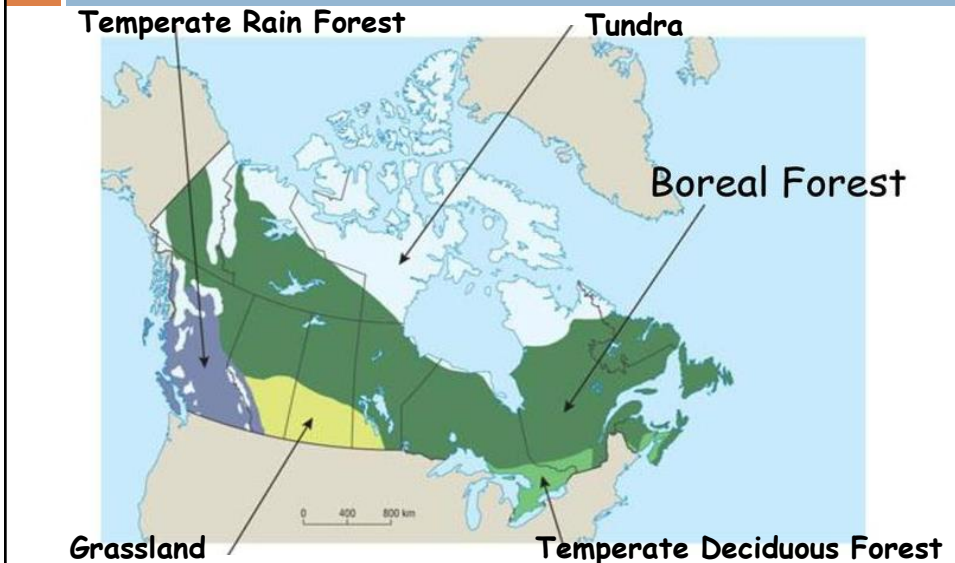
# Canadian Biomes

11



# Canadian Biomes

12



## How to Construct a Climatograph

How to make a Climatograph <https://www.youtube.com/watch?app=desktop&v=t8vAe4HcbAA>

13

### Step 1

Look at the data to the right. See two sets of data: average monthly rainfall in millimetres (mm) and average monthly temperature in degrees Celsius ( $^{\circ}\text{C}$ ) for each month?

Climate data for Sydney, Australia

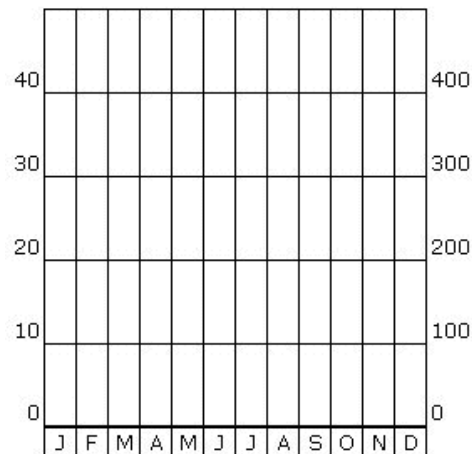
| Month                                    | J   | F   | M   | A   | M   | J   | J   | A  | S  | O  | N  | D  |
|--|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|
| Av. monthly rainfall (mm)                | 100 | 115 | 131 | 125 | 123 | 133 | 104 | 81 | 69 | 76 | 78 | 79 |
| Av. monthly temp. ( $^{\circ}\text{C}$ ) | 22  | 22  | 21  | 18  | 15  | 13  | 12  | 13 | 15 | 18 | 19 | 21 |

## How to Construct a Climatograph

14

### Step 2

Draw up a set of axes to fit the data above. Label the months on the horizontal axis between the divisions, the temperature on the left vertical axis and the rainfall on the right vertical axis.

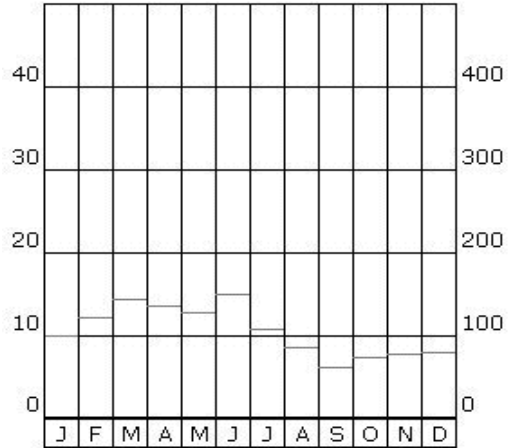


## How to Construct a Climatograph

15

### Step 3

Using a pencil, construct a bar graph showing the average monthly rainfall for Sydney. Make sure you use the right vertical scale to plot your data.

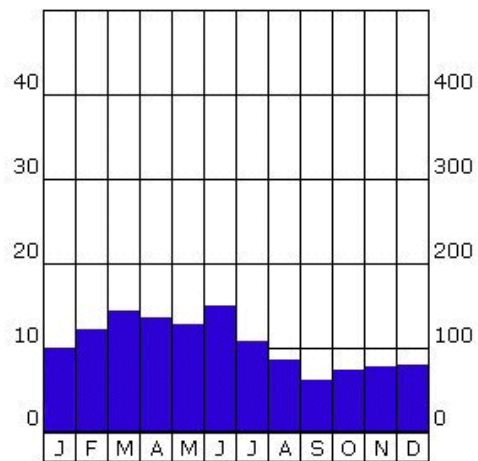


## How to Construct a Climatograph

16

### Step 4

Neatly colour the bars using blue pencil.



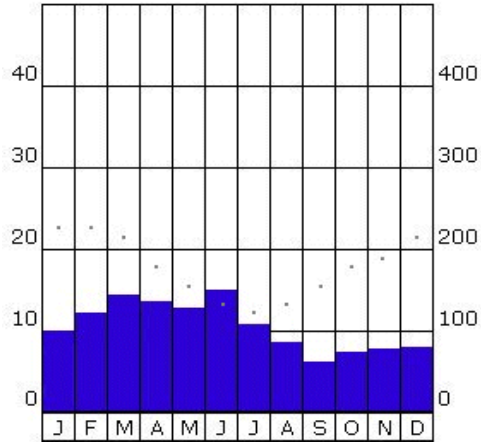


## How to Construct a Climatograph

17

### Step 5

Using a pencil, plot points showing Sydney's average monthly temperature. Make sure you use the left vertical scale and, most importantly, that you put the small dot for each month in the middle of each column.

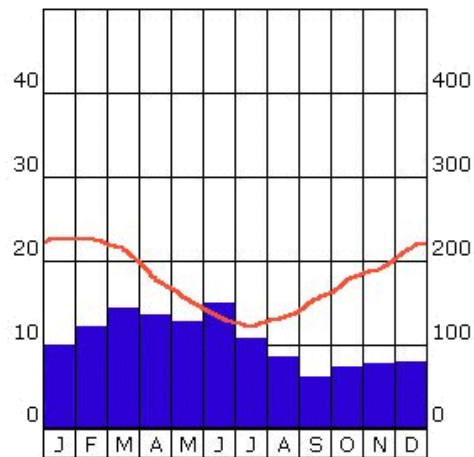


## How to Construct a Climatograph

18

### Step 6

Join up the dots with a smooth curve using a red pencil to make a line graph. Do not use a ruler. Continue both ends of the line to the edge of the graph by continuing the trend shown by the graph.



## How to Construct a Climatograph

19

### Step 7

Complete the climate graph by labelling each axis and adding a suitable title. Finish it off by including the following:

- The name of the place that the graph is for.
- The total rainfall for the year (add all the bars together)
- The temperature range (the difference between the highest temperature and the lowest one).

