

## Analyzing and Creating Climatograms

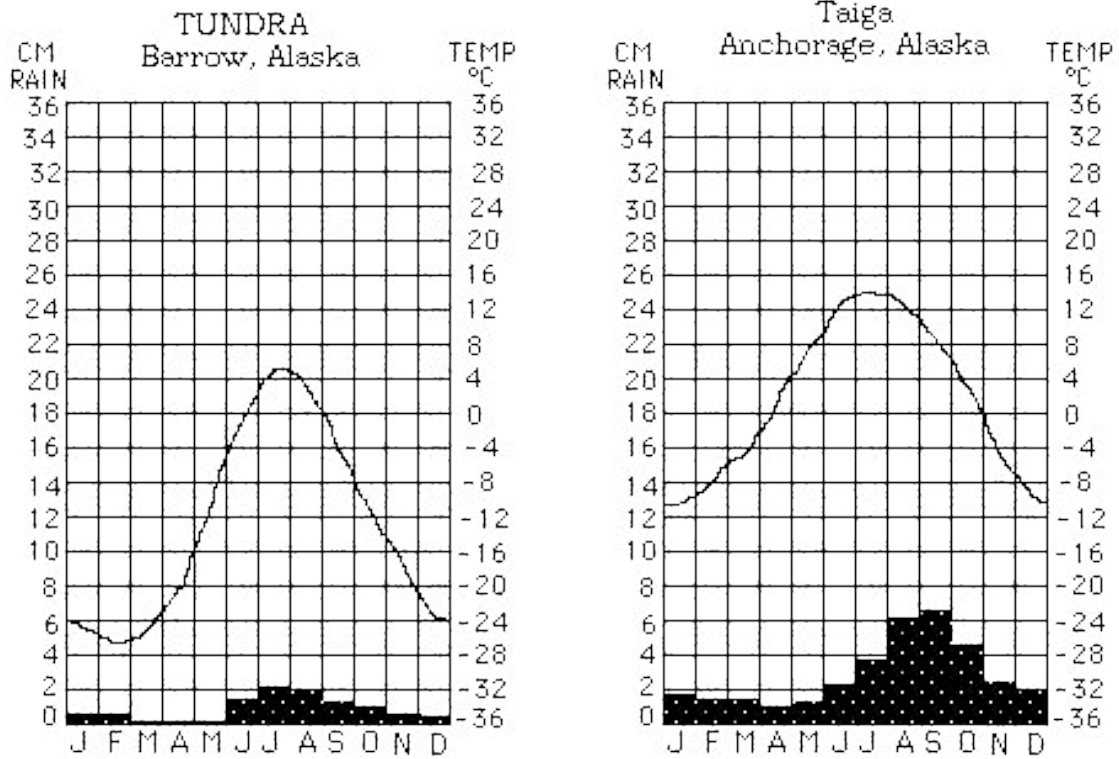
Since climate is such an important property of a biome, scientists have developed what they call climatograms (climatographs) as a simple way of describing climate. *A climatogram summarizes, in a graph, the monthly average variation in temperature and precipitation.* Other factors can also affect climate, but with experience you can get enough information from a climatogram to make generalizations about the distribution and adaptations of many organisms in an area.

In this activity, you will construct multiple climatograms based on average temperature and average precipitation data. The climatograms can then be used to compare different climates from around the world.

### PROCEDURES:

1. Study the sample climatograms (tundra and boreal forest) on the next page. The months of the year are along the bottom. *The bar graph indicates average monthly precipitation (typically in cm)* and uses the scale along the left side. *The line graph indicates average monthly temperature (typically in °C)* and uses the scale along the right side. *Some climatograms may include both average high and low temperatures.*
2. Draw a climatogram for each of the four sets of data in Table 1. These four climatograms, plus the two on the next page, represent the major terrestrial biomes around the world. *(You are given space to construct 6 climatograms. You will have the 4 in this step plus the one from number 3 below. The 6<sup>th</sup> one is an extra in case you make a mistake).*
3. Construct a climatogram for the Durham-Chapel Hill area based on the data in Table II.
4. Compare the climatogram from Chapel Hill to the Biomes A through D and the two samples. Which one does Chapel Hill most closely resemble? \_\_\_\_\_
  - a. In what ways is the Chapel Hill climatogram *different* from the other Biomes?
  - b. Which Biome is located in the *southern hemisphere*? How are you able to tell?
  - c. Which Biome consistently has *little precipitation* throughout the year?
  - d. Which Biome received the *largest amount of precipitation* throughout the year?
  - e. Which Biome reached the *highest temperature*?
  - f. Which Biome experienced a *temperature range of 1 to 25°C*?

**SAMPLE CLIMATOGRAMS:** Compare the following two climatograms below with the other five climatograms.



**TABLE I - Biomes A-D**

| T = temperature in °C                    |      | P = precipitation in cm |      |      |      |      |      |      |      |      |      |      |  |
|--|------|-------------------------|------|------|------|------|------|------|------|------|------|------|--|
|  | J    | F                       | M    | A    | M    | J    | J    | A    | S    | O    | N    | D    |  |
| <b>Biome A - Iquitos, Peru</b>           |      |                         |      |      |      |      |      |      |      |      |      |      |  |
| T  | 25.5 | 25.6                    | 24.4 | 25.0 | 24.4 | 23.3 | 23.3 | 24.4 | 24.4 | 25.0 | 25.6 | 25.6 |  |
| P  | 25.8 | 24.9                    | 31.0 | 16.5 | 25.4 | 18.8 | 16.8 | 11.7 | 22.1 | 18.3 | 21.3 | 29.2 |  |
| <b>Biome B - Washington, DC</b>          |      |                         |      |      |      |      |      |      |      |      |      |      |  |
| T  | 1.1  | 1.7                     | 6.1  | 12.2 | 17.8 | 22.2 | 25.0 | 23.3 | 20.0 | 13.9 | 7.8  | 2.2  |  |
| P  | 8.1  | 7.6                     | 8.9  | 8.4  | 9.2  | 9.9  | 11.2 | 10.2 | 7.9  | 7.9  | 6.4  | 7.9  |  |
| <b>Biome C - Yuma, Arizona</b>           |      |                         |      |      |      |      |      |      |      |      |      |      |  |
| T  | 12.8 | 15.0                    | 18.3 | 21.1 | 25.0 | 29.4 | 32.8 | 32.2 | 28.9 | 22.2 | 16.1 | 13.3 |  |
| P  | 1.0  | 1.3                     | 1.0  | 0.3  | 0.0  | 0.0  | .03  | 1.3  | 0.5  | 0.5  | 0.8  | 1.0  |  |
| <b>Biome D - Bahia Blanca, Argentina</b> |      |                         |      |      |      |      |      |      |      |      |      |      |  |
| T  | 23.3 | 22.2                    | 19.4 | 15.6 | 11.7 | 8.3  | 8.3  | 9.4  | 12.2 | 15.1 | 18.9 | 21.7 |  |
| P  | 5.1  | 5.6                     | 6.6  | 5.6  | 2.8  | 0.9  | 2.5  | 4.1  | 5.8  | 5.8  | 5.1  | 5.3  |  |

**TABLE II - Durham/Chapel Hill**

| <b>Biome Chapel Hill/Durham</b> |   |    |    |    |    |    |    |    |    |    |   |   |
|---------------------------------|---|----|----|----|----|----|----|----|----|----|---|---|
|                                 | J | F  | M  | A  | M  | J  | J  | A  | S  | O  | N | D |
| T                               | 4 | 5  | 9  | 15 | 19 | 23 | 25 | 23 | 21 | 15 | 8 | 5 |
| P                               | 9 | 10 | 11 | 9  | 10 | 10 | 11 | 12 | 9  | 8  | 8 | 9 |