Name:

Student ID:

ATOC 1060: Our changing environment

Homework assignment 3
Climate data and graphing

Due: 1:45 pm, Thursday 8 October 2009

The annual cycle of maximum (daytime) temperature, minimum (nighttime) temperature and precipitation can be used to contrast the climate of different locations and provide understanding of what aspects of the atmospheric circulation cause the seasonal patterns.

1a) Using the data given below, graph the maximum and minimum temperature data on the two scales provided. Plot the data as points ("dots") connected by straight lines. Make it clear which curve is which, and show this in the key. (Perhaps use red for the maximum and blue for the minimum to distinguish them).
Label your axes (give a title and units).

1b) In how many months is the maximum temperature in Denver higher the minimum temperature in Honolulu?

_____ months

1c) Which month is warmest in each city?

Denver: _____ Honolulu _____

1d) What is a typical (i.e., approximate) difference between the maximum (daytime) and minimum (nighttime) temperature in:

Denver: _____ Honolulu _____

1e) What is the typical annual range of maximum temperature in:

Denver: _____ Honolulu _____

1f) What two ways does proximity to the ocean explain these results?

1) _____

2) _____

2) Construct a graph of precipitation from Denver, Seattle and Miami all on the same axis. Use different colors to indicate the different cities, and note this is a key. Label your axes (give a title and units).

2b) Which city has the least precipitation? _____

2c) Which month has the most precipitation in:

Denver: _____ Seattle _____ Miami _____

2d) What characteristics of the seasonal variation in precipitation would be associated with monsoon conditions?

2e) Which place has a precipitation most likely monsoonal _____

2f) What characteristics of the seasonal variation in precipitation would be associated with frontal precipitation?

2g) Which place has precipitation most likely frontal? _____

Data

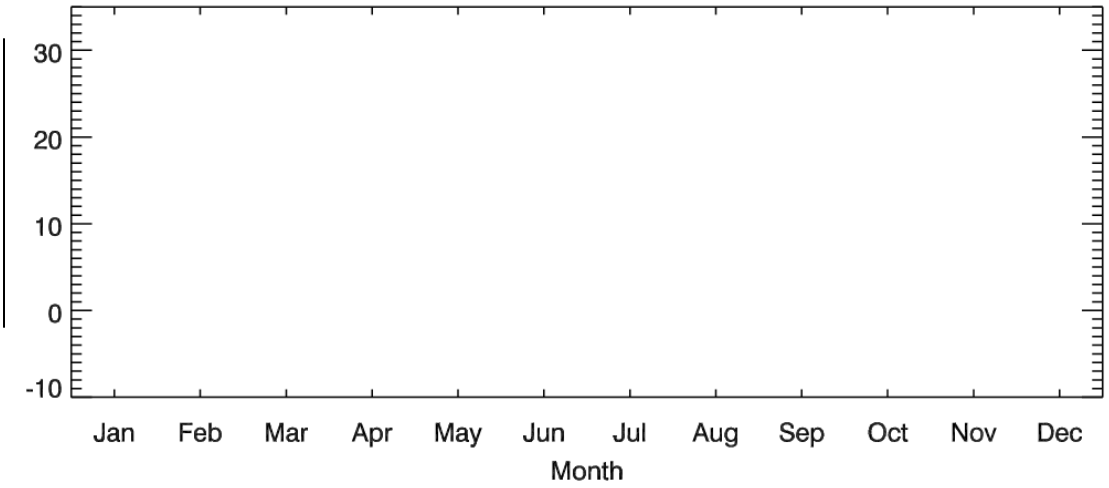
Table 1) Temperature in Celsius

Month	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*
Denver												
Temperature (max.)	7.5	9.0	12.2	17.1	22.1	27.7	30.9	29.8	25.4	19.5	11.9	8.4
Temperature (min.)	-6.3	-4.7	-2.2	2.1	6.9	11.6	14.8	14.1	9.4	3.9	-1.9	-5.0
Honolulu												
Temperature (max.)	26.9	27.1	27.6	28.4	29.2	30.3	30.9	31.4	31.4	30.5	29.1	27.6
Temperature (min.)	18.6	18.7	19.4	20.3	21.2	22.4	23.1	23.4	23.1	22.4	21.3	19.7

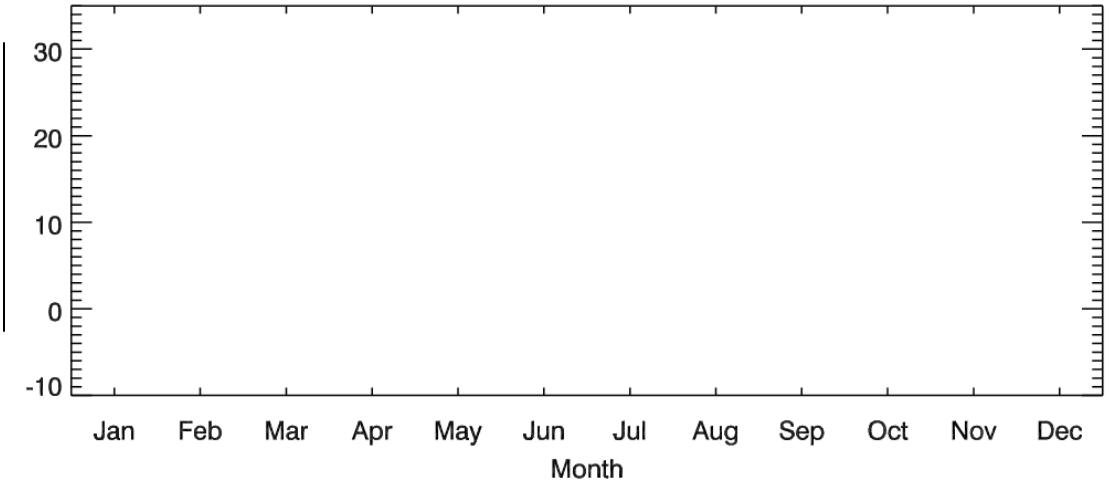
Table 2) Precipitation in mm/month

Month	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*
Denver	13	12	32	48	58	39	54	46	29	25	25	16
Seattle	134	101	94	63	46	40	21	31	49	81	141	150
Miami	50	52	60	71	155	233	143	190	191	141	67	46

1a) Denver maximum and minimum temperature



Honolulu temperature maximum and minimum temperature



2a) Precipitation from three cities