

## Analyzing Climatic Station Data

### *Twenty Generalizations about Climate*

1. If June, July, and August are colder than December, January, and February, the place is in the southern hemisphere.
2. In the tropics, the nearer the station is to the equator, the smaller the difference between the warmest and coldest months.
3. Coastal locations suppress seasonal variation in temperature. In general, the farther a place is from the coast, the greater the temperature difference between the warmest and coldest months. Comparisons between places having about the same latitude work best. This effect increases with latitude, and so it does not work well near the equator. Tropical islands have the most even temperatures year-round of any places on earth.
4. Interior locations tend to enhance seasonal temperature variation. High to mid-latitude stations deep within a continent ("continental" stations) have the highest variation from summer to winter temperatures.
5. There are essentially no true "continental" climates in the southern hemisphere, because there are no large land masses in the mid-latitudes of the southern hemisphere.
6. Low pressure systems create precipitation, whether the air is cold or warm. Low pressure conditions tend to be windy, and wet.
7. High pressure tends to cause dryness and calm conditions, the temperature under conditions of high pressure can be blazing hot or bitterly cold.
8. Most precipitation that falls during "cool" or cold months is caused by storms associated with the polar front. A station receiving cold precipitation must be located at a latitude affected by the polar front during the season that the precipitation is occurring.
9. Most precipitation that falls during warm or hot months is caused by convectional uplift and thundershowers. In the mid-latitudes, this occurs dominantly on the east sides of continents, due to invasion of humid tropical air from warm ocean currents present along east coasts. In the equatorial regions, precipitation is caused by convection of humid air, and the Intertropical Convergence Zone. (ICZ)
10. Locations on the windward sides of mountains (facing the general circulation of moisture and storms) may receive more than the "expected" precipitation due to orographic rain and snowfall.

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11. Deserts and semiarid localities can also be caused by “rain shadowing”, being on the leeward (away from the wind direction) side of mountains that block storms. This is called the orographic effect.
12. The driest deserts on the earth tend to be located at 30 degrees north or south latitude on the west sides of continents.
13. Arid or semiarid locations that receive some rainfall during the high-sun period tend to be located on the equatorial side of the “belt” of deserts. Similar locations that receive winter precipitation are on the polar side of the deserts.
14. Places that are cool and wet all year tend to be located at about 50-60 degrees latitude on the west sides of continents.
15. Places that are warm (64°+ F) and wet all year, are located on or near the equator.
16. Places that are warm all year, wet during the warm months, and dry during the cooler months are located about 10-20 degrees from the equator.
17. Places that are warm or hot in the summer and cool or cold in the winter, with precipitation during all seasons, tend to be located on the east sides of continents in the mid to high latitudes.
18. Places with cold, dry winters tend to be located near the Polar Regions.
19. Locations with a mild wet winter and a dry summer tend to be located about 35-45 degrees north and south of the equator.
20. The climates of locations at high elevations tend to be complex, and elevation can greatly alter the “expected” climatic regime.