

# Meteorology case essay sample



**ASSIGN  
BUSTER**

1. Describe how the use of a tall smoke stack might improve air quality near a large industrial facility. 2. How can topography contribute to pollution in a city or region? 3. From where do hurricanes derive their energy? What factors tend to weaken hurricanes? Would you expect a hurricane to weaken more quickly if it moved over land or over cooler water? 4. Where is the Bermuda high located during the summer and fall? How might the path of a hurricane, moving toward the west from Africa, be affected by the Bermuda High as the hurricane approaches the United States? 5. How do you think pollutants are removed from the atmosphere? Does this occur quickly or slowly?

1. According to the United States Government Accountability Office, tall smokestacks of 500 feet or higher are primarily used at coal plants. In 2011, there were 589 coal-fired power plants still active in the United States. The use of a tall stack help to limit the impact of sulfur dioxide and nitrogen oxides in the local area. However, while the tall stacks limit the impact in the local region they could also increase the distance which the pollutants travel through the atmosphere harming communities which are “ downwind”. Air Quality. (2015). Retrieved 10 March 2015, from <http://www.gao.gov/assets/320/318175.pdf>

2. Topography contributes to pollution in a city or region by trapping in the pollutants. In the literature, it states how cold air can carry pollutants downhill from surrounding hillsides; this causes valleys to become prone to pollution. Valleys that are encased by mountains or hills are the most at risk, such as Los Angeles and Mexico City, since the polluted air is essentially trapped by the surrounding terrain. Ahrens, C. (2015).

Essentials of meteorology. Andover: Cengage Learning. 3. Hurricanes derive their energy from warm, tropical oceans as well as evaporating water from the surface of the ocean. The main factor which tends to weaken a hurricane is when it loses its source of warm water. A hurricane can lose its supply of warm water, by traveling over cold water, making landfall, and by wind. Warm water and landfall are similar concerning the weakening of the hurricane, the loss of its fuel supply, warm water. Wind could weaken a hurricane as it needs light winds at high levels in the atmosphere and if it runs into strong winds at high levels it could decay. I would expect a hurricane to weaken more quickly if it moved over land than water. When a hurricane travels over land it loses its supply of warm water; while if it moves over cooler water it would still have what little warmth is in the water.

Ahrens, C. (2015). Essentials of meteorology. Andover: Cengage Learning. 4. During the summer and fall the Bermuda high is in the Atlantic Ocean off the southeast coast of North America.

Tropical storms will skirt around the Bermuda High, enhancing the pattern of moving west then north (LiveScience. com, 2015). The Bermuda High could affect the path of the storm depending on how far north or south the high pressure ridge is located. LiveScience. com,. (2015). Why Do Hurricanes Curve Out to Sea?. Retrieved 13 March 2015, from <http://www.livescience.com/32799-why-do-hurricanes-often-curve-out-to-sea.html> Ahrens, C.

(2015). Essentials of meteorology. Andover: Cengage Learning. 5. Pollutants are removed from the atmosphere by rain and snow, trees, and the soil. Rain and snow remove many particles from the air through ice crystals and cloud droplets. Trees absorb carbon dioxide and convert it into oxygen. While

carbon monoxide is removed by microorganisms in the soil. Some processes are quick and some are slow, such as carbon monoxide is quickly removed by microorganisms, while other methods of pollution reduction are slower.

Ahrens, C. (2015). *Essentials of meteorology*. Andover: Cengage Learning.