**Part 1**:

**Introduction**

The natural balance that occurs between global atmospheric cooling and warming processes provides an important contribution to the Earth’s varied climates.

**Troposphere gases**

Planetary albedo from clouds low in the troposphere, sulfur dioxide (SO2) from active volcanoes, snow, and ice all reflect incoming solar radiation back into space. This causes a *cooling* effect on climates within a geographical area.

Clouds *high* in the troposphere and greenhouse gases such as water vapor(H2O), carbon dioxide (CO2) , methane (CH4) , and nitrous oxide (N2O) have a *warming* effect.

Along with the solar activity, these cooling and warming processes help ensure that the planet’s average surface temperature is a net value that is above freezing, helping to ensure that life is possible.

**Theory on CO2 Emissions**

It has been hypothesized that anthropogenic effects (conditions caused by human activity) that are associated with industry, agriculture, and fossil fuel use have enhanced these warming processes by contributing greenhouse gases such as N2O, CH4,and CO2 into the troposphere. As a result, CO2is believed to contribute the most to the atmospheric warming process.

**Pollution**

*Pollution* is a substance that produces a detrimental change in the environment because of its composition and abundance. Anthropogenic sources of CO2 fit this description because of the perception that there is evidence of a positive correlation between the increases in anthropogenic CO2and increases in temperature. In turn, as temperatures increase, climates can change worldwide, unbalancing ecosystems across the globe.

**Strategies**

Strategies and prediction models can be used to decrease or eliminate the effects that are associated with a particular pollutant. First, the cause of the pollution must be identified. Then, scientists can create innovate ways to reduce or eliminate its production.

**Part 2:**

**Earth System Research Laboratory**

Click on the [National Oceanic and Atmospheric Administration Earth System Research Laboratory, Global Monitoring Division Website.](http://www.esrl.noaa.gov/gmd/obop/) http://www.esrl.noaa.gov/gmd/obop/  (Earth System Research Laboratory, n.d.). Here you will identify important sources of CO2 emission to help you complete your lab assignment.

**Reference**

*Earth system research laboratory: Global monitoring division*. (n.d.). Retrieved from the U.S. Department of Commerce, National Oceanic and Atmospheric Administration Research Web site: http://www.esrl.noaa.gov/gmd/obop//

**End of Activity**



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