

Assignment 2

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Question 1: *Because air temperature is directly proportional to the mean kinetic energy of molecules, would you expect the speed of the wind to affect air temperature? Explain your response.*

Question 2: *All factors being equal, why are clear nights colder than cloudy nights?*

In the clear night, there are no clouds to keep the heat of the Earth on Earth, so it is colder.

Question 3: *Vast portions of the Canadian Prairies have been converted from grasslands to plowed fields. Comment on whether this would have affected the surface temperature.*

The grass absorb more heat from the Sun to realize the photosynthesis, than the plowed field. So the surface temperature is higher in a plowed field than in grasslands.

Question 4: *Assume that an additional trace gas was introduced into our atmosphere and it strongly absorbed radiation at a wavelength of 5 microns. Comment on its probable impact on the 'greenhouse effect'.*

If we assume from the reading of a diagram that water vapor already absorbs a hundred percent of 5-microns radiations, this gas will have no impact on the greenhouse effect. On the contrary, if this gas can absorb this radiation, because the water doesn't absorb all of them, then the gas will increase the greenhouse effect.

Question 5: *The average temperature of the Earth's surface is approximately 15°C but, according to the World Meteorological Organization, its actual value has warmed by 0.6°C since 1900. Assuming only that the Earth is a blackbody, determine the fraction by which the amount of terrestrial radiation increased as a consequence ?*