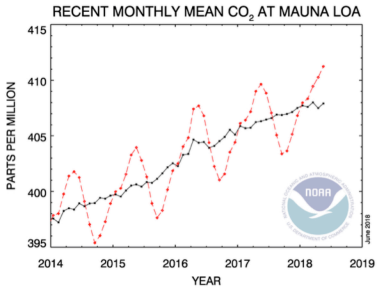
7) The figure shows monthly mean CO2 levels (ppm) at the NOAA Mauna Loa laboratory over the period Jan 2014 to May 2018 (4 years, 5 months). The red line gives monthly values that include seasonal variations; the black curve gives the long-term trend with the seasonal cycle removed. Dots are the mean for the month. Click the figure caption to see a larger readable version of the graph, and use the larger figure to answer the following questions.



CO2 levels at the top of Mauna Loa HI.
Units are in parts per million (ppm).
Click link to get most recent graph.

a) What was the average annual rate of increase in CO2 in ppm per year for the period 1 Jan 2014 to 1 Jan 2018?

b) How large is the seasonal increase in CO2 (to the nearest whole ppm) at its peak value from its value 6 months earlier? How large is the seasonal decrease from its value 7 months earlier? Your answers must be consistent with your answer in part a).

c) In which month is the average CO2 concentration the highest? In which month is it the lowest?

d) What is the physical cause for a seasonal cycle of CO2? Explain. (Research the answer yourself.)