Assignment:

Calculate the number of vibrational modes of water, CO2 and NO2 and discuss why these molecules are greenhouse gases. State which ones are more important greenhouse gases and then use the simple equation given in class to estimate the amount of CO2 needed to lead to a several degree temperature change. Note: You can do the vibrational analysis only with normal modes but be aware that this is an underestimate.

The sensitivities of climate models are often compared to average equilibrium temperature change from doubling CO2.

ΔT = ΔT2x x ln(*new* *p*CO2/*orig. p*CO2)/ln(2)