Name:_____ Date:_____

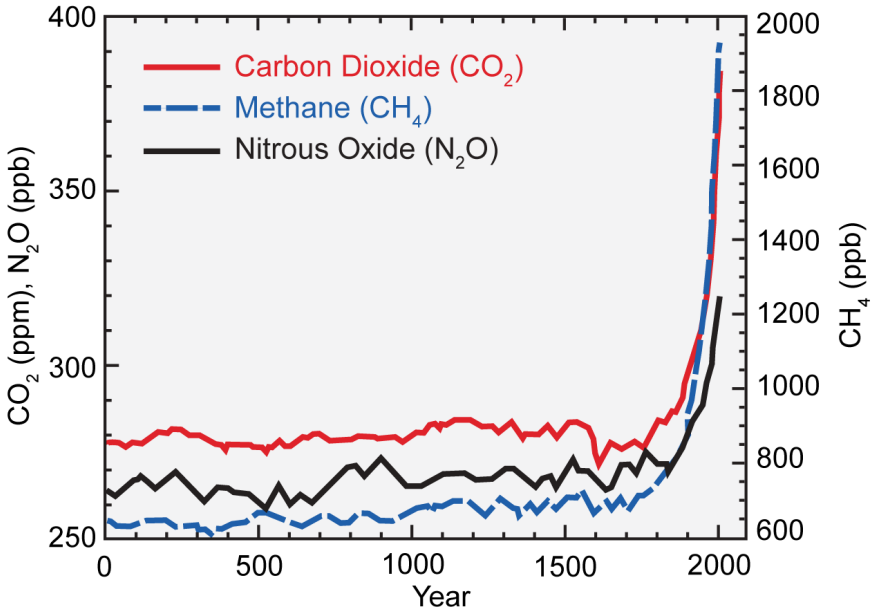
Healthy Oceans: Coral Reefs and Climate Change

Math and Computational Challenges

How has the amount of carbon dioxide in the atmosphere changed over time? Why do we attribute the most recent (since the 19th century) increase in CO_2 to human activities?

1. Look at the graph[1] below from the 2014 U.S. National Climate Assessment. Calculate the average rate of change of carbon dioxide (CO_2) in the atmosphere between the following time periods:

(a) 1000-1650
(b) 1650-1750
(c) 1750-1800
(d) 1800-1900
(e) 1900-2000



2. Compare the rates between the different time periods—are they similar or different? Why do you think this is? What kinds of things have happened in the world during these different time periods that could explain any differences?

1 Forster, P., V. Ramaswamy, P. Artaxo, T. Berntsen, R. Betts, D. W. Fahey, J. Haywood, J. Lean, D. C. Lowe, G. Myhre, J. Nganga, R. Prinn, G. Raga, M. Schulz, and R. Van Dorland, 2007: Ch. 2: Changes in atmospheric constituents and in radiative forcing. Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report (AR4) of the Intergovernmental Panel on Climate Change, S. Solomon, D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor, and H.L. Miller, Eds., Cambridge University Press.