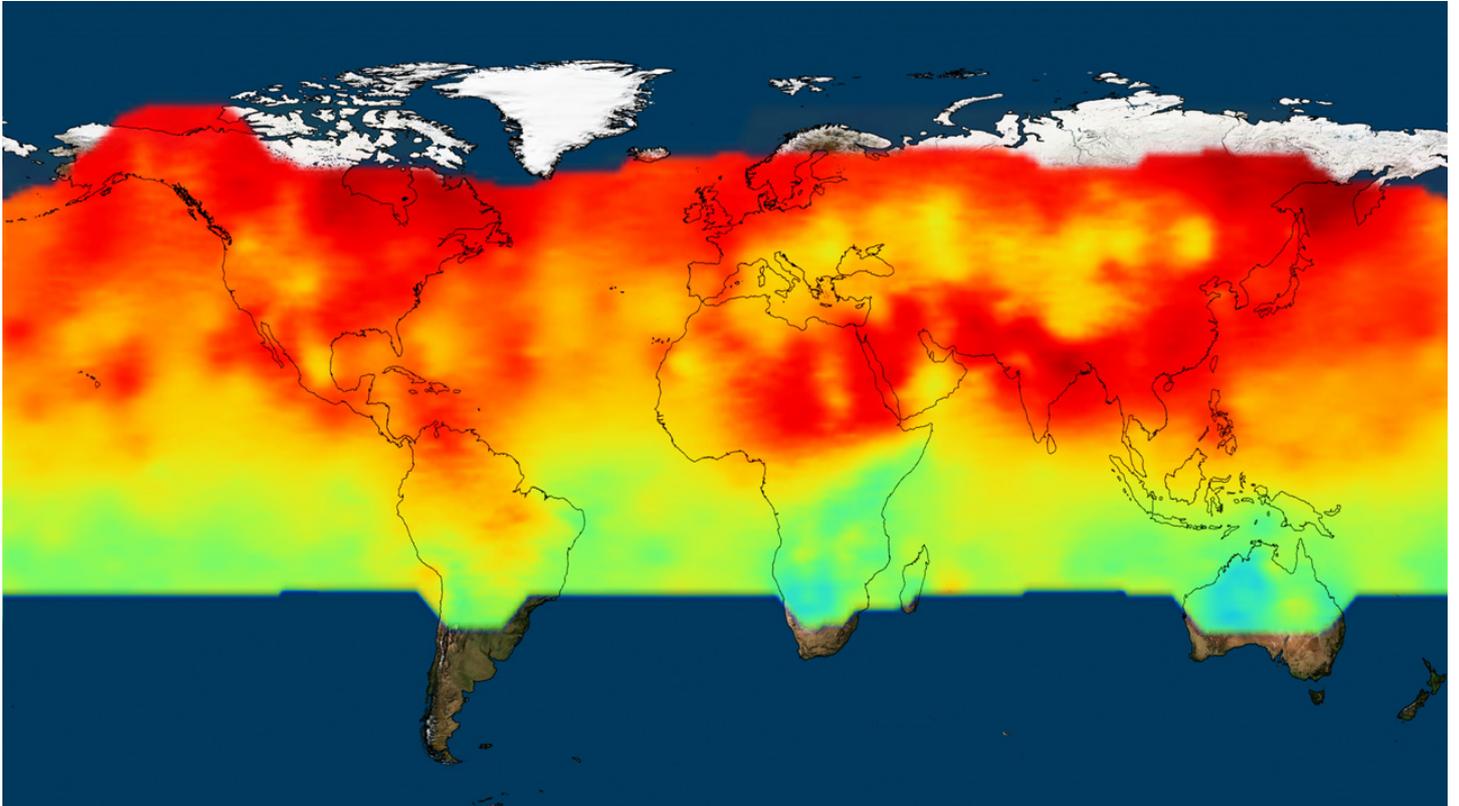

My NASA Data - Mini Lesson

Carbon Dioxide: Production and Sequestration



Mini Lesson

The concentration of carbon dioxide in the atmosphere is a balance between processes that produce it such as burning fossil fuels, human respiration and forest fires, and processes that remove it (called sequestration) such as burying dead leaves and plant respiration.

- The picture shows a plot of landscape measuring 1 kilometer on a side.
- The green trees sequester carbon dioxide at a rate of 1 ton per acre per year. The bare land sequesters it at a rate of 0.2 tons per acre per year.



1. Estimate the size of the forested (dark green) area of the picture in square kilometers. If 1 acre is equal to 0.004 square kilometers. How many acres are forested in this picture?
2. Estimate the size of the deforested, bare area of the picture in square kilometers. How many acres have been deforested in this picture?
3. What is the total rate of carbon dioxide sequestration in this particular area in terms of tons per year?
4. A typical American home produces about 10 tons of carbon dioxide per year. What is the net production of carbon dioxide from the area shown in this photograph including the impact of the one house?
5. The homeowner who owns the above property, and the single house shown in the photograph, decides to sell the de-forested area to a developer who builds 50 houses. What is the net carbon dioxide rate?

Sources:

1. Nasa Visualization Explorer: NASA's Goddard Space Flight Center, OCO-2 satellite and

satellite data images courtesy of NASA/JPL

2. Space Math: <http://spacemath.gsfc.nasa.gov>

Teachers who are interested in receiving the answer key, please contact MND from your school email address at larc-mynasadata@mail.nasa.gov.