Amount of Greenhouse Gases in the Global Atmosphere

Objective

The objective is to feel the changes of the amounts of greenhouse gases in the global atmosphere.

Materials

Each group of students will need the following:

- Graph paper
- Pencil and pen
- Ruler

Important Points to Understand

Scientists have used many different computer models to imply that rising carbon dioxide levels in the atmosphere lead to temperature increases. The amounts of greenhouse gases in the global atmosphere are clearly changing.Some evidences of these changes for carbon dioxide and CFC-11 in recent years are given in the following table. The values are the mean for June each year at Cape Grim (Tasmania, Australia). Carbon dioxide is measured in parts per million (ppm) and CFC-11 is measured in parts per trillion (ppt).

Year	Carbon Dioxide (ppm)	CFC-11 (ppt)
1979	333.68	154.5
1980	335.55	166.3
1981	337.14	174.8
1982	338.38	182.9
1983	340.25	191.1
1984	341.82	199.9
1985	343.18	209.3
1986	344.26	220.6
1987	345.99	230.5
1988	347.96	244.5

Procedure

1. Carefully study the data given in the above table to realize the increase of greenhouse gases in the atmosphere since they are not a dununy data set, they are real data.
2. Plot the data on graph paper, time on the horizontal axis and gas concentration on the vertical axis.
3. You may use two separate graph papers for carbon dioxide and CFC-11 or plot both on one graph with different colors.

Questions

1. Is the rate of increase in carbon dioxide (and CFC-11) steady or accelerating during that ten years period?
2. Estimate from your graph what the values of carbon dioxide (and CFC-11) might be in 10 years time (i.e., now)?
3. Are your estimates reasonably in agreement with the recent values?

4. What can you infer from your answer to the previous question?