

THE KEELLING CURVE

The rise of carbon dioxide gas in our atmosphere has been measured continuously since 1958 and follows an oscillating line known as the "Keeling Curve," named after Dr. Charles David Keeling, professor at Scripps Institution of Oceanography. A renowned expert on the way carbon moves through our planet's environment, Keeling was the first to measure carbon dioxide in the atmosphere on a continuous basis. He discovered its annual fluctuations (the little squiggles in the curve) and was the first to report that global atmospheric concentrations of carbon dioxide were rising. The next problem was to figure out why the carbon dioxide varied the way it did during the year (i.e. the little squiggles). Was it processes on land, having to do with plant growth? Or did it come from the ocean? There are ways to distinguish between the two possibilities, and the answer is that the little squiggles in the Keeling curve are actually due to land plants. Since most of the land is in the northern hemisphere, the fluctuations are greatest there. (If the ocean were to blame, we should see a larger effect in the southern hemisphere.) Every spring, when trees leaf out and grasslands and farmlands green, the carbon dioxide in the air decreases, reflecting the uptake from photosynthesis. Conversely, in fall, when leaves and wilted plants are returned to the soil and decay, the carbon dioxide rises again. Thus, one can envision the Earth breathing on an annual cycle, and we can measure how deeply.

http://earthguide.ucsd.edu/globalchange/keeling_curve/01.html

