

HEAT

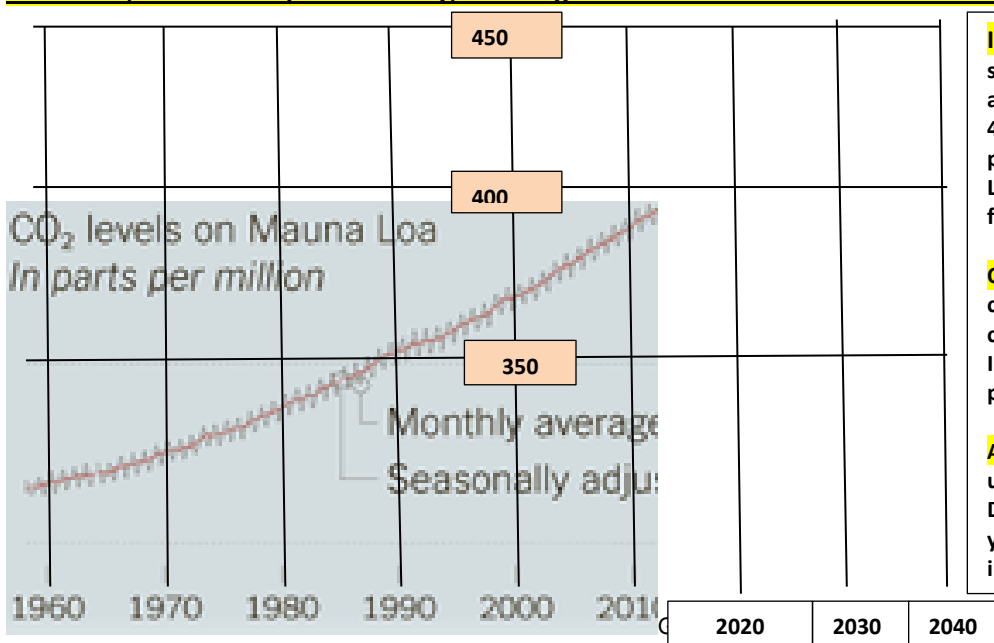
Heat-Trapping Gas Passes Milestone, Raising Fears



The average carbon dioxide reading surpassed 400 parts per million at the research facility atop the Mauna Loa volcano on the island of Hawaii for the 24 hours that ended at 8 p.m. on Thursday.

The best available evidence suggests the amount of the gas in the air has not been this high for at least three million years, before humans evolved, and scientists believe the rise portends large changes in the climate and the level of the sea. "It symbolizes that so far we have failed miserably in tackling this problem," said Pieter P. Tans, who runs the monitoring program at the National Oceanic and Atmospheric Administration that reported the new reading. Ralph Keeling, who runs another monitoring program at the Scripps Institution of Oceanography in San Diego, said a continuing rise could be catastrophic. "It means we are quickly losing the possibility of keeping the climate below what people thought were possibly tolerable thresholds," he said. From studying air bubbles trapped in Antarctic ice, scientists know that going back 800,000 years, the carbon dioxide level oscillated in a tight band, from about 180 parts per million in the depths of ice ages to about 280 during the warm periods between.

The level of the most important heat-trapping gas in the atmosphere, carbon dioxide, has passed a long-feared milestone, scientists reported Friday, reaching a concentration not seen on the earth for millions of years.



INTRODUCTION: The graph at left shows the measured CO₂ levels at Mauna Loa observatory in Hawaii. 450 ppm (parts per million of air particles) is considered the maximum Level human society could recover from (see article below).

QUESTION: Sketch an approximate continuation of this gradual upward curve. Does the curve hit 450 ppm In 25 years (2013 + 25 = 2038) as projected in the article below?

ANSWER: The continuous slow upward continuation of the curve DOES "hit" 450 ppm close to 25 yrs (2038) from the date of the article in 2013. QED (-: jc

Carbon dioxide in the atmosphere was measured at just above 400 p.p.m. on Thursday (5/9/13), the highest daily average ever recorded at the flagship Mauna Loa station. Preindustrial levels of carbon dioxide, as measured in ice bubbles, tended to oscillate between 180 and 280 p.p.m. : The evidence shows that global temperatures and CO₂ levels are tightly linked. For the entire period of human civilization, roughly 8,000 years, the carbon dioxide level was relatively stable near that upper bound. But the burning of fossil fuels has caused a 41 percent increase in the heat-trapping gas since the Industrial Revolution, a mere geological instant, and scientists say the climate is beginning to react, though they expect far larger changes in the future.

Indirect measurements suggest that the last time the carbon dioxide level was this high was at least three million years ago, during an epoch called the Pliocene. Geological research shows that the climate then was far warmer than today, the world's ice caps were smaller, and the sea level might have been as much as 60 or 80 feet higher. His analysis revealed a relentless, long-term increase superimposed on the seasonal cycle, a trend that was dubbed the Keeling Curve. Countries have adopted an official target to limit the damage from global warming, with ((450 parts per million seen as the maximum level compatible with that goal. "Unless things slow down, we'll probably get there in well under 25 years))," Ralph Keeling said.