

THE DAILY CALLER

Studies: Increased CO₂ emissions are greening the planet

By Michael Bastasch

March 14, 2014

Will emitting more carbon dioxide into the atmosphere cause tornadoes in Los Angeles and massive floods in the Himalayas? A growing body of research suggests it may just spur plant growth and green planet Earth.

For the past few years, scientific studies have found links between increasing carbon emissions and increased foliage and plant growth — called the CO₂ fertilization. The idea is that since plants thrive on CO₂ absorbed through photosynthesis, increasing atmospheric CO₂ levels will actually green the planet and expand foliage. Scientists have been hard pressed to find evidence of such a phenomenon until recently.

“Well documented evidence shows that concurrently with the increased CO₂ levels, extensive, large, and continuing increase in biomass is taking place globally — reducing deserts, turning grasslands to savannas, savannas to forests, and expanding existing forests,” according to a study by the libertarian Cato Institute from earlier this year.

This greening trend goes against what many climate scientists expected, in particularly the United Nations Intergovernmental Panel on Climate Change. In fact, many climate scientists have been warning about atmospheric carbon levels passing 400 parts per million — which happened last year.

“Nevertheless, in nearly all regions and globally, the overall effect in recent decades is decidedly toward greening,” Cato notes. “This result is also the opposite of what the IPCC expected.”

Cato is not the only place to report that CO₂ fertilization is making the world a greener place. Last year, Australia’s Commonwealth Scientific and Industrial Research Organisation (CSIRO) released findings that “CO₂ fertilisation correlated with an 11 per cent increase in foliage cover from 1982-2010 across parts of the arid areas studied in Australia, North America, the Middle East and Africa.” This means that arid regions across the world would have not greened if CO₂ levels had not increased.

According to CSIRO, some areas of the world did see some browning instead of greening, but many of the regions studied saw huge gains in greenery. This is because plants in arid regions already use water more judiciously than in other areas, but increasing CO₂ levels also drives them to use scarce water resources more efficiently as well.

“In Australia, our native vegetation is superbly adapted to surviving in arid environments and it consequently uses water very efficiently,” said Dr. Randall Donohue, a CSIRO research scientist. “Australian vegetation seems quite sensitive to CO₂ fertilisation.”

Another study by U.S. scientists published in the journal *Nature* last year found a “substantial increase in water-use efficiency in temperate and boreal forests of the Northern Hemisphere over the past two decades.” the increase in water efficiency, the study said, is consistent with a CO₂ fertilization effect.

“The observed increase in forest water-use efficiency is larger than that predicted by existing theory and 13 terrestrial biosphere models,” the study added. “The increase is associated with trends of increasing ecosystem-level photosynthesis and net carbon uptake, and decreasing evapotranspiration.”

While CO₂ fertilization is boosting foliage expansion, however, scientists warn that the other effects of global warming like higher temperatures, water scarcity and severe weather could offset the gains in greenery.

“On the face of it, elevated CO₂ boosting the foliage in dry country is good news and could assist forestry and agriculture in such areas; however there will be secondary effects that are likely to influence water availability, the carbon cycle, fire regimes and biodiversity, for example,” Donahue cautioned.