

Comparing Carbon and CO₂

Climate scientists refer to the natural uptake or engineered capture and storage of solid carbon (C). In the context of greenhouse gas and global warming, though, carbon is usually referred to in its gaseous form of carbon dioxide (CO₂). How do you compare the two?

*To convert carbon dioxide to solid carbon,
use this formula:*

$$1 \text{ metric ton (Mt) of C} = 3.67 \text{ Mt of CO}_2$$

Large amounts of carbon are measured in gigatons of carbon (Gt C) and stores of carbon are measured in tons of carbon per square meter (tC/m²).

1 gigaton equals 10⁹ grams (1,000,000,000, or a thousand million, grams).

A SATELLITE PHOTOGRAPH of the northeastern Pacific Ocean shows an extensive phytoplankton bloom along the Washington-Oregon coast. The oceans absorb about 1/3 of carbon dioxide from the atmosphere. CO₂ dissolving in seawater initiates a chain of simple chemical reactions that make seawater more acidic, endangering shell-bearing animals and corals; and aids the growth of phytoplankton blooms. Blooms can consume oxygen dissolved in seawater, leading to the formation of dead zones (hypoxia).

Photo courtesy of the U.S. National Aeronautics and Space Administration

