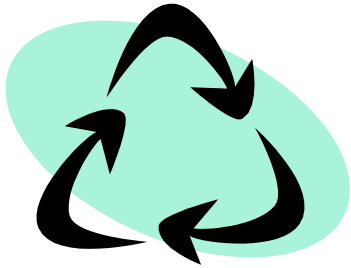


# CARBON CYCLE



## *Biosphere*

What am I?

I am all the carbon in living things.

In what form do I hold carbon?

Carbon is part of the organic building blocks of plants and animals. Some organisms also use carbon to make shells.

How does carbon get in and out of me?

Plant photosynthesis, respiration, and decomposition move  $\text{CO}_2$  between the biosphere, soil, and the atmosphere. Marine biota exchange carbon with the surface ocean. Fossil fuels (ancient plants and animals) release  $\text{CO}_2$  during burning. Methane ( $\text{CH}_4$ ) is released from bacterial fermentation in rice paddies and cow intestines. Plankton use carbon to make carbonate shells in the ocean.

How much carbon do I store?

610 Gigatons of carbon (GtC) are held in forests.

3 Gigatons of carbon (GtC) are found in marine biota.

5,000 Gigatons of carbon (GtC) are stored in fossil fuels.

How much carbon moves in or out of me (flux)?

The original balance between photosynthesis and decomposition is changing because forests are both re-growing (storage of 0.5 GtC) and being deforested (releasing 1.6 GtC).

Human Perturbations to the Global Carbon Budget	
CO <sub>2</sub> sources	Flux (GtC/yr)
Fossil fuel combustion and cement production	5.5 ± 0.5
Tropical deforestation	1.6 ± 1.0
Total anthropogenic emissions	7.1 ± 1.1
CO <sub>2</sub> sinks	
Storage in the atmosphere	3.3 ± 0.2
Uptake by the ocean	2.0 ± 0.8
Northern hemisphere forest re-growth	0.5 ± 0.5
Other terrestrial sinks (CO <sub>2</sub> fertilization, nitrogen fertilization, climatic effects)	1.3 ± 1.5
Source: <i>Climate Change 1995</i> , published by the IPCC	