

CARBON CYCLE



Geosphere

What am I?

I am all the carbon in inorganic things.

In what form do I hold carbon?

Carbon is part of limestone and dolostone (carbonate rocks including reefs), fossil fuels including kerogens (hydrocarbons with biologic origins), and oceanic sediments (carbonate shells).

Magma also contains dissolved carbon dioxide.

How does carbon get in and out of me?

Plankton use carbon to make carbonate (CO_3) shells in the ocean. The shells sink and accumulate into layers of sediments and eventually rocks. Rocks are pushed deep into the earth and melt at subduction zones, dissolving the carbon. Volcanic eruptions release carbon dioxide into the atmosphere.

How much carbon do I store?

70,000,000 Gigatons of carbon (GtC) are in rocks and kerogens.

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

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

Carbon can stay in the geosphere for millions of years, thereby acting as the ultimate sink for CO_2 . However, only 0.2 GtC/yr moves from the ocean to sediments and about 0.2 GtC/yr is released during all eruptions. Humans add 5.5 GtC/yr by burning fuel and making cement (cement uses carbonate rocks).