# Caltech Scientists Speed Up Carbon Sequestration Process by 500 times

Source: inhabitat.com

Published: July 19, 2017

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Carbon sequestration, or removing carbon dioxide from the atmosphere and storing it long-term, could help us fight climate change. It's a complex chemical reaction, but a team of six scientists led by the California Institute of Technology (Caltech) just made a breakthrough in speeding up a slow part of the reaction. They were inspired by oceans, which naturally absorb carbon dioxide. Study co-author Jess Adkins said, "This is one of those rare moments in the arc of one's career where you just go, 'I just discovered something no one ever knew."

*Scientists figured out how to speed up part of the process of carbon sequestration.*

Right now, the oceans hold around 50 times the carbon dioxide as the atmosphere. But in seawater, carbon dioxide is an acid, and the acidified waters are gobbling away at coral reefs. The acidified water eventually makes its way to the ocean floor, where calcium carbonate shells neutralize the carbon dioxide – but that process takes tens of thousands of years to finish. It was while studying how fast the coral will dissolve in this whole process that the scientists made their breakthrough.

*They were studying coral when they made their breakthrough.*

They added an enzyme, carbonic anhydrase, during the carbon sequestration reaction. This enzyme, according to Caltech, is the same one that helps uphold the pH balance of blood in some animals and in humans. Adding the enzyme made the rate-limiting step of the chemical reaction move 500 times faster.

The team's research will be published in the journal *Proceedings of the National Academy of Sciences of the United States of America*; a paper about the work was put up online in advance of publication. Scientists from the University of Southern California and Hebrew University of Jerusalem collaborated on the paper.

Lead author Adam Subhas, a graduate student at Caltech, said, "While the new paper is about a basic chemical mechanism, the implication is that we might better mimic the natural process that stores carbon dioxide in the ocean."