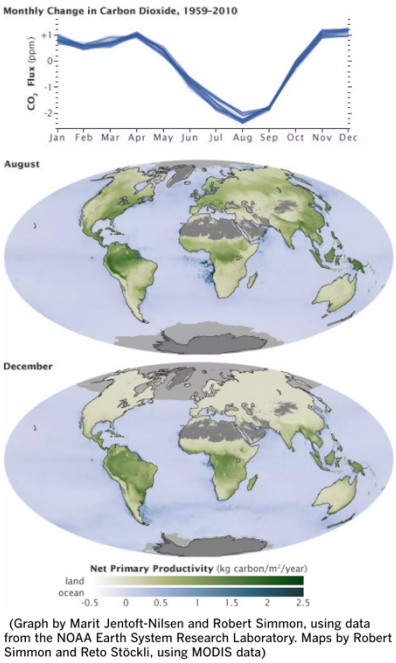
Ever since humans first walked the earth, **we** have relied on plants for our survival. **They** provide us with food, shelter, medicine and even the oxygen we breathe. Now, a team of scientists is wondering if **they** can protect us from climate change as well.

Researchers at the Salk Institute for Biological Studies in San Diego launched a new initiative to improve on the ability of plants to suck carbon dioxide out of the atmosphere and store **it** deep in the soil. **They** call it “Harnessing Plants.”

“There are a lot of geo-engineering efforts to come up with ways of pulling carbon dioxide out of the air,” said Joseph Noel, a chemical biologist at Salk who is working on the project. “Plants do **this** anyway, so why not try a biological solution as well.”

During the growing season, plants pull more than 100 gigatons of carbon out of the atmosphere through the process of photosynthesis. But much of that carbon is eventually released back into the air as C02 — either because we and other animals eat the plants or burn them, or they return to the soil where bacteria and fungi cause them to decompose.



(Graph by Marit Jentoft-Nilsen and Robert Simmon, using data from the NOAA Earth System Research Laboratory. Maps by Robert Simmon and Reto Stöckli, using MODIS data)

The effects of this yearly cycle are measurable on a global scale. The concentration of carbon dioxide in the atmosphere consistently drops during the Northern Hemisphere’s spring and summer, when plants are growing across the large land masses of North America, Europe andAsia. When winter descends and fewer plants are growing and others are decaying, the C02 concentrations rise once again.

One of the Salk team’s goals is to find a way to help plants do a better job of taking the carbon they absorb from the atmosphere and keeping it in the soil.

All plants make a substance called suberin that protects their roots. It's the same material as the cork in your wine bottle or on your corkboard. It's also the material that makes up the skin of a potato.

The unique properties of suberin help plants in many ways, said Noel. It makes them more tolerant of drought and paradoxically, more tolerant of floods. Plants that grow in salt water produce a lot of suberin because it helps regulate how much salt is absorbed by their roots. It also serves as a protection against disease.

But perhaps most importantly for the group's goals, suberin is a carbon-rich polymer that is very difficult for bacteria and fungi to break down.

Further research in the lab revealed that suberin is one of the most stable forms of carbon in the soil. That means once carbon from the atmosphere makes it into the ground in the form of suberin, it will stay there.

Armed with this information, the group plans to breed a variety of plants that can produce more suberin than they currently do today. "We want them to make bigger roots and deeper roots with more suberin. We think we can get them to make 20 times what they make now pretty easily."

Of course, for their suberin-rich plants to have an impact on the global carbon cycle, they will have to be deployed on an enormous scale. In the longer term, the group envisions partnering with governments around the world to distribute seeds to farmers.

"We have to take as much as 1 trillion tons of carbon dioxide out of the air and as of now, there are no viable and scalable ways of taking carbon out of the air,"

It's an enormous goal, and one that even Chory admits sounds a bit crazy. But she also believes that the group's work is an essential step toward creating a more sustainable planet.

Michael Strano, a chemical engineer who works with plants at MIT, noted that there are several advantages of using plants to sequester carbon. The only energy they need to do their work is harvested from the sun, plus they can regenerate themselves and are capable of self-repair.

"We need to start thinking in the direction of carbon sequestration and I think plants are going to be a big part of that," he said.

Already the Salk Institute has invested more than $7 million in the initiative, including building six high-tech climate control rooms that will allow the researchers to test seeds in a variety of climates, and future climates, from around the world.

“The only path to sustainability is going to involve plants,” he said.

Actividades

Consignas de pre lectura

1. **¿Sobre qué tema le parece que va a leer? ¿Qué sabe al respecto?**
2. **¿Qué otra información podemos obtener a partir del análisis del paratexto?**

Consignas de lectura analítica

3. **Realice una primera lectura rápida del texto. ¿Qué movimientos retóricos propios de este género textual se incluyen en este texto?**
4. **¿En qué consiste la innovación descripta en el texto?**
5. **¿Qué es la suberina? ¿Cuáles son sus propiedades?**
6. **¿Cuál es la meta de los investigadores y cómo se relaciona la suberina con ésta?**
7. **¿Cuáles son las ventajas de usar plantas para el propósito de los investigadores?**
8. **Identifique en el texto instancias de comparaciones expresadas mediante el uso de adjetivos comparativos y superlativos.**
9. **¿Cuál es el referente de cada pronombre encerrado en un recuadro?**

   Por ejemplo, el pronombre WE remite a los seres humanos.

Consignas de poslectura

10. **Realice un punteo de ideas principales que no pueden faltar en una síntesis sobre este texto.**
11. **Redacte una síntesis conceptual de este texto en un párrafo de 4 oraciones.**