



News

Estimates of the carbon cycle—vital to predicting climate change—are incorrect, researchers show

Virginia Tech researchers, in collaboration with Pacific Northwest National Laboratory, have discovered that key parts of the global carbon cycle used to track movement of carbon dioxide in the environment are not correct, which could significantly alter conventional carbon cycle models. The estimate of how much carbon dioxide plants pull from the atmosphere is critical to accurately monitor and predict the amount of climate-changing gasses in the atmosphere. This finding has the potential to change predictions for climate change, though it is unclear at this juncture if the mismatch will result in more or less carbon dioxide being accounted for in the environment.

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Date: April 01, 2022

Source: phys.org

Do you toss biodegradable plastic in the compost bin? Here's why it might not break down

Over one-fifth of all plastic produced worldwide is tossed into uncontrolled dumpsites, burned in open pits or leaked into the environment. In Australia, 1.1 million tonnes of plastic is placed in the market, yet just 16% (179,000 tonnes) is recovered. To deal with this mounting issue, the Morrison government last week announced A\$60 million to fund plastic recycling technologies. The goal is to boost plastic packaging recycling from 16% to 70% by 2025. It comes after 176 countries, including Australia, last month endorsed a United Nation's resolution to establish a legally binding treaty by 2024 to end plastic pollution. This is a good start—more effective recycling and recovery of plastics will go a long way to solve the problem. But some plastics,

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Source: phys.org

Climate-warming microbes thrive in drying peatlands

Nitrous oxide (N₂O) is a dangerous greenhouse gas, warms the climate and destroys the stratospheric ozone layer. Nitrous oxide is the intermediate and by-product of several processes of the nitrogen cycle conducted by soil microbes. While undisturbed wet peatlands do not emit much N₂O, drained peatlands are substantial sources of nitrous oxide. A global study of peatlands led by geographers and microbiologists of the University of Tartu, Estonia, identified the microbes involved in nitrous oxide emissions from different peatland environments. Genetic analysis of soil samples from all major peatland regions and types of the world revealed that high nitrous oxide emissions are associated with several microbial groups. Among those, nitrifying archaea and bacteria,

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Source: phys.org

Plants that feed livestock could be key to climate change mitigation

Jacobo Arango, an environmental biologist at the Tropical Forages Program at the Alliance of Bioversity and CIAT and an author of the mitigation chapter of the Intergovernmental Panel on Climate Change (IPCC) report released on April 4, 2022, said it was encouraging to see in the report that some countries are on track to meet their commitments, but unfortunately, the world is not on track to meet the 1.5-degree warming scenario. "The agriculture and land-use sector (which includes forestry) has a really invigorating role with this IPCC report," he said. "It's not enough only to lower emissions, we also need to actively remove carbon from the atmosphere." While the popular conception of carbon capture and storage is the injection of carbon dioxide gas deep underground,

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Source: phys.org

Scientists demonstrate that some tropical plants have potential to remove toxic heavy metals from the soil

Phytoremediation is the use of plants to extract and store contaminants from soil. As a first step to determine if candidate plants had phytoremediation abilities, the team examined samples of them for levels of heavy metals and metalloids. A high concentration detected suggested an ability to absorb the pollutants. The study by the Singapore research team discovered that there are existing tropical plants which could potentially play a role in the remediation of contaminated lands. The plants examined in the study are widely available and include species that are native or naturalised to Singapore. They could thus, be introduced and removed from plots of land with minimal impact to ecosystems and could lead to the development of a sustainable and environmentally friendly way of managing contaminants in soil. The findings were published in the scientific peer-reviewed journal Environmental Pollution in February. Professor Lam Yeng Ming, Chair of NTU's School of Materials Science and Engineering, who co-led the study, said: "In a small nation like Singapore,

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