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Scientists to study effect of climate change on rainforests

Experiment will take place in El Yunque National Forest



El Yunque National Forest in Puerto Rico is home to several species of trees which are not found anywhere else in the world (Photo credit: elyunque.com)

In the first study of its kind, a team of scientists from the Michigan Technological University, US, is set to observe the effects of climate change on rainforests. The team will conduct experiments in El Yunque National Forest, Puerto Rico, US, to understand how an increase in temperatures might affect rainforests' ability to capture and store carbon.

Unlike regular forests, which go through various temperature and climatic changes throughout the year, rainforests thrive in a consistently wet and warm environment. These forests are home to approximately 50 per cent of all known species and about 55 per cent of the global forest biomass and exchange more carbon with the atmosphere than any other kind of ecosystem. Till date, not much has been known about how rainforests will be affected by global warming, except perhaps climate change posing a threat to the biodiversity of the forests. El Yunque, previously known as the Caribbean National Forest, is home to several species of trees that are not found anywhere else in the world and is the only rainforest in the US National Forest System.

The project, called "Tropical responses to altered climate experiment" or TRACE, has two objectives. First is to understand and study the mechanisms and effects of global warming on the carbon and nutrient cycle and storage in tropical forest soils. The second objective is to study the response of both understory and canopy vegetation to threshold temperatures. The team will also carry out heating experiments. Using infra-red heaters and cables, they will warm the understory and canopy vegetation of the forest and study the effects on leaves, fine roots and soil microbes, which are the most active tissues and organisms, and how it affects the carbon flux in the soil.

Scientists hope to gather the data and extrapolate it to a larger geographical area. They plan to combine finer scale models to create a larger, global model to aid in better predictions at a global scale for similar ecosystems.