Characterizing climate change

Canadian-led environmental monitoring ranked fourth globally for Santa Rosa National Park supersite.

By Jennifer Pascoe on March 16, 2018

The Santa Rosa National Park environmental monitoring supersite monitors tropical dry forests’ response to climate change with carbon flux towers, wireless spectral networks, satellite technology, and drone research, producing more than 10 billion data points each year.

Environmental monitoring site led by UAlberta professor was placed in the top five in the world for work on climate change research.

Led by principal scientist Arturo Sanchez-Azofeifa, the Santa Rosa National Park environmental monitoring supersite in Costa Rica is looked to by researchers and policy makers the world over as a best practice for environmental monitoring. The site monitors tropical dry forests’ response to climate change with carbon flux towers, wireless spectral networks, satellite technology, and drone research, producing more than 10 billion data points each year.

The ranking announcement by the Committee on Earth Observation Sciences (CEOS) Working Group on Calibration and Validation: Land Product Validation subgroup was made simultaneous to Intergovernmental Panel on Climate Change (IPCC) meetings this week in Paris. The meetings are part of ongoing global conversations following the 2015 Paris Agreement, where participating countries agreed to pursue efforts to limit global temperature increase to 1.5 degrees Celsius.

“Tropical dry forests are like the proverbial canary in the coal mine, because they have such strong phenological responses to climate change,” says Sanchez-Azoefeifa, professor in earth and atmospheric sciences at the University of Alberta, who focuses on environmental monitoring. “This recognition shows that the international community is starting to pay more attention to one of the most fragile and least understood ecosystems in the world.”

Tropical dry forests provide conclusive evidence of climate change, yet are still overshadowed by the focus on rainforests, both in the scientific community and society. Slowly but surely, however, Sanchez-Azofeifa is tipping the scales to increase both attention and understanding of tropical dry forests, critical as scientists and policy makers wrestle with mitigating the impacts of climate change.

“So much attention is devoted to rainforests, but the phenological changes in their plant life cycles are so subtle. However, the swings in changes in the tropical dry forests between the leaf-on and leaf-off seasons are so strong that it allows us to get to these things ahead of time,” said Sanchez-Azofeifa. “While there is ongoing discussion whether phenology is changing in the Amazon, tropical dry forest ecosystems provide conclusive answers to the questions key to the work being done by the IPCC.”

The Santa Rosa site also hosts NASA calibration and validation testing as well as airborne and ground-based LiDAR. The University of Alberta runs field schools at Santa Rosa each year to train next generation earth observation scientists.

Source: Faculty of Science