Acte de conférences

10ème édition du congrès

28 et 29 mai 2018

Modéliser la dynamique post-exploitation de la biomasse des forêts amazoniennes

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Keywords : Amazonia, Selective logging, Carbon, Modelling

Along with being home to a huge variety of plants and wildlife, rainforests also play an important role in storing carbon: the Amazon rainforest alone holds around 30% of the total carbon stored in land-based ecosystems, thus playing a major role in climate change mitigation. When Amazonian forests are selectively logged to extract high-value timber, part of this stored carbon is lost, but the loss can be compensated for in the medium to long term if the forest is left to regrow. New trees and trees that survived the logging grow to fill the gaps left by the felled trees. However, it is not clear how differences in the forest (for example, forest maturity), environmental factors (such as climate or soil) and the degree of the disturbance caused by the logging affect the ability of the forest ecosystem to recover the lost carbon. We used computer modeling to analyze data from over a hundred different forest plots across the Amazon rainforest. Our results show that the forest's ability to recover carbon after selective logging greatly differs between regions. For example, the overall amount of carbon recovered in the first ten years is predicted to be higher in a region in the north known as the Guiana Shield than in the south of the Amazonian basin where the climate is less favorable. Our findings highlight the key role the trees that survive selective logging play in carbon recovery.