



Stability of Tropical Rainforest in a Changing Climate

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Cox et al. (2000) raised the possibility that the on-going burning of fossil fuels could force climate to change to such an extent that the Amazon rainforest becomes unsustainable and therefore “dies-back”. Here we place that result in to a much broader context, accounting for current uncertainty in modelled climate change, for additional tropical regions and we isolate the main meteorological causes of and predicted climate-induced loss of rainforest. We use an off-line impacts modelling system (called IMOGEN) that now emulates most of the climate models that contributed to the last Intergovernmental Panel on Climate Change (IPCC) report. These force the same land surface system used in the original Cox et al. (2000) paper, thereby allowing assessment of uncertainty between various climate modelling centres. We present estimates of rainforest cover for the Congo, for Malaysia as well as the Amazon. Biases are removed from the climate models by relaxing back to the Climate Research Unit (CRU) climatology for the near-contemporary period. The main meteorological drivers of die-back, where predicted, are found by factorial climate change simulations, separating the different features of varying surface “weather”.