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Mechanisms for changing ecology in tropical forests

Simon Lewis (1), Stephen Sitch (1), Chris Huntingford (2), Pierre Friedlingstein (3), and Rainfor Team ()

(1) School of Geography, University of Leeds, Leeds, LS2 9JT, U.K., (2) Centre for Ecology and Hydrology, Wallingford, Oxfordshire, OX10 8BB, U.K., (3) School of Engineering, Computing and Mathematics, University of Exeter, Exeter, EX4 4QF, U.K.

Global environmental changes are likely altering the ecology of tropical forests (Lewis et al., 2009). Here we make a detailed comparison of forest plot data at over 1,900 sites across the pan-tropic for the period 1970-2010 with results from five Dynamic Global Vegetation Models (DGVMs) (Sitch et al., 2008; Le Quere et al., 2009). Firstly, we will evaluate the models in their ability to simulate observed changes in biomass over this period, and then use factorial simulation experiments to ascertain the likely drivers of change across the pan-tropical regions. We use detection and attribution techniques to ascertain the contributions of individual climate drivers (Temperature, Precipitation, Cloud cover) and atmospheric composition (CO2 concentration) to explain the observed changes in biomass.