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# Assessing the impacts of 1.5°C of global warming – The Inter-Sectoral Impact Model Intercomparison Project (ISIMIP) approach

Katja Frieler, Lila Warszawski, Fang Zhao, and the The ISIMIP2b Cross-Sectoral Science Team and Sector Coordinators Team

Potsdam Institute for Climate Impact Research, Potsdam, Germany

In Paris, France, December 2015 the Conference of Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC) invited the IPCC to provide a "special report in 2018 on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways". In Nairobi, Kenya, April 2016 the IPCC panel accepted the invitation. Here we describe the model simulations planned within the Inter-Sectoral Impact Model Intercomparison Project (ISIMIP) to address the request by providing tailored cross-sectoral consistent impacts projections. The protocol is designed to allow for 1) a separation of the impacts of the historical warming starting from pre-industrial conditions from other human drivers such as historical land use changes (based on pre-industrial and historical impact model simulations), 2) a quantification of the effects of an additional warming to 1.5°C including a potential overshoot and long term effects up to 2300 in comparison to a no-mitigation scenario (based on the low emissions Representative Concentration Pathway RCP2.6 and a no-mitigation scenario RCP6.0) keeping socio-economic conditions fixed at year 2005 levels, and 3) an assessment of the climate effects based on the same climate scenarios but accounting for parallel changes in socio-economic conditions following the middle of the road Shared Socioeconomic Pathway (SSP2) and differential bio-energy requirements associated with the transformation of the energy system to reach RCP2.6 compared to RCP6.0. To provide the scientific basis for an aggregation of impacts across sectors and an analysis of cross-sectoral interactions potentially damping or amplifying sectoral impacts the protocol is designed to provide consistent impacts projections across a range of impact models from different sectors (global and regional hydrological models, global gridded crop models, global vegetation models, regional forestry models, global and regional marine ecosystem and fisheries models, global and regional coastal infrastructure models, energy models, health models, and agro-economic models).