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Water resources transfers through southern African food trade: resource efficiency and climate adaptation

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The connections between climate and the water-food nexus are strong and economically significant in southern Africa, yet the role of observed climate variability as a driver of production fluctuations is poorly understood. In addition, as regional collaboration strengthens through the SADC (Southern Africa Development Community) and trade with other regions increases, it is important to understand both how climate variability affects productivity and how intra- and extra-regional trade can contribute to the region's capacity to deal with climate-related productivity shocks.
We use international food trade data (FAOSTAT) and a global hydrological model (H08) to quantify the water resources embedded in international food trade across southern Africa and with the rest of the world, from 1986-2011. We analyze the impacts of socio-economic, political and climatic changes on agricultural trade and embedded water resources during that period. In particular, the effects of climate variability on trade flows and crop yields are estimated, to provide insights on the potential of trade as a collaborative adaptation mechanism.