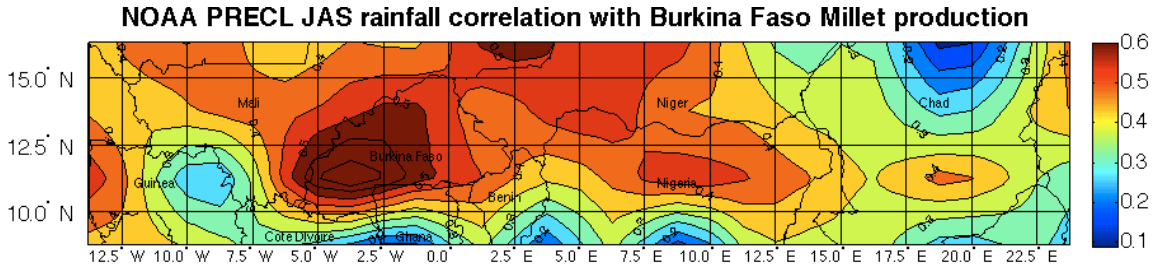
My dissertation research attempts to address a case study of how index insurance, a type of financial adaptation to climate risk, may itself be challenged by the dynamics of a changing climate. Given the shortfall of global adaptation financing relative to need through top-down "official" channels, there is evident need for bottom-up, public private partnership and market based approaches to adaptation form of insurance that is based on a geophysical index that pays out to a client population when a particular trigger index level is reached. There have been many pilot index insurance projects (and some larger than pilot scale projects) intended to help various groups, especially farmers, across the developing world over the last decade and a half.

However, the definition of the terms (trigger point and premium) of an index insurance contract depends on knowledge of the region's climate history. As global and regional climate systems change, the frequency of extreme events changes in a rather sensitive way. This statistical non-stationarity has significant implications for the potential of index insurance over time. While my dissertation does share some background on climate change and insurance more broadly and other methods of adaptation to climate changes in West Africa, the main components of my research are the development of theoretical indices as a basis for contract and the exploration of the potential future frequency of extreme events (and the implications for payout frequency and price) using both Monte Carlo statistical methods and global climate model data.



Correlation of rainfall with detrended Burkina Faso Millet Production