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Understanding and adapting to more frequent droughts in Eastern Africa

Chris Funk[†]; James Verdin
[†] USGS/UCSB, USA
Leading author: cfunk@usgs.gov

Every day global and local leaders make decisions to mitigate events that threaten health, safety, security and well-being of communities. While intended to avoid humanitarian crises these decisions may only be shifting and transporting risk to another region or to a later date. This is particularly true for slow onset disasters, such as climate change or the increasing environmental pressure due to our burgeoning population. Tools for mapping and understanding the 'local velocities' of decadal climate trends will improve our decision making and adaptation choices. This presentation discusses efforts along these lines, carried out to support the US Agency for International Development's Famine Early Warning System Network (FEWS NET). The objective of this work is to effectively observe, understand and communicate recent climate trends in Eastern Africa, evaluate agricultural vulnerability, and culminate in mainstreaming disaster risk reduction in the region. The research combines 'bottom up' analysis focused on careful evaluations of terrestrial station networks, and 'top down' analysis of large climatic drivers. The combination of these approaches suggest that recent drying in eastern Africa (and perhaps India) may be related to a Walker-cell like disruption linking warming in the southern Indian Ocean with subsidence across parts of eastern Africa. This pattern appears most strongly during boreal spring and summer, when warming of the Indian Ocean coincides with very rapid mean surface wind speeds. Observations suggest that this combination increases evaporation, moisture convergence and precipitation in the southern Indian Ocean, and supports stronger exports of dry static energy to the north and west. Continued warming of the Indian Ocean appears likely suggesting that the dryness across east Africa may persist or intensify. We briefly discuss how this information can be communicated to policy makers, leading to better food and development decisions.