

Area Frame Design and Field Campaign in Kilosa District, Morogoro- By Christina Justice and Catherine Nakalembe

In July 2015 AgriSense-STARs teams composed of researchers from University of Maryland (UMD) and Sokoine University (SUA) completed an area frame based on satellite data for monitoring and collecting production statistics for Kilosa District in Tanzania. The area frame designed by the team is composed of well-defined land units that were used to draw survey samples to validate agricultural land use and collect data on crop production. Agricultural fields within ten hectare segments located within the selected segments were digitized using high resolution satellite data from DigitalGlobe® [Left: The red line marks one of the 10 hectare segments visited while the black lines mark fields within and adjacent to it digitized from WorldView 2 imagery provided by DigitalGlobe®]



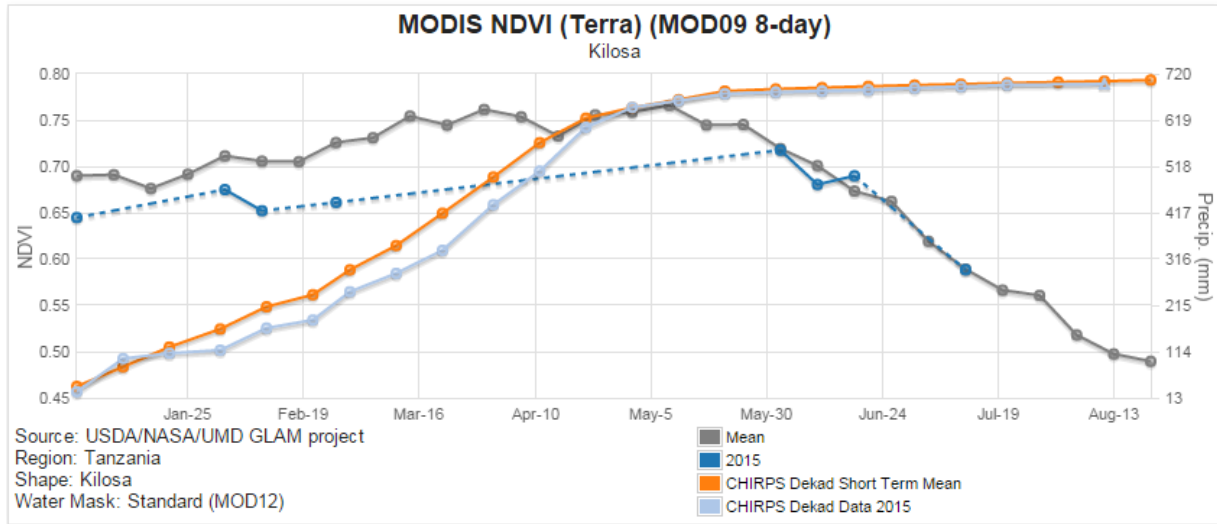
Together with Ward Extension Officers the UMD/SUA team interviewed farmers who own fields within the selected units. Questions were targeted to inform future monitoring efforts looking at crop productivity for the 2015 growing season. Information collected included crop type, relative productivity of that crop and amount harvested as well as amount of the harvest that is sold versus home consumption.



The fieldwork was targeted to coincide with the end of harvest in Kilosa district though a few sites were still being harvested. [Left: Farmer harvesting maize in Kilosa]

Farmers reported overall recurring themes of late rains and not enough rain over the growing season leading to below average harvests. University of Maryland's Global Agricultural Monitoring System (GLAM-East Africa) data corroborated the field reports indicating below average precipitation in the early part of the growing season as well as a below average NDVI - a proxy for crop and vegetation health for Kilosa District. [Below: Summary graph from GLAM-East Africa showing how this year's rainfall

(CHIRPS) and Normalized Difference Vegetation Conditions (NDVI) data compare to the averages]



Interviews with farmers in the selected units found that little to no inputs are used over Kilosa District. The majority of the fields are prepared by hand and ox-ploughed with minimal use of tractors and farm machinery. Traditional (recycled) seeds are dominant across. Seeds are typically recycled from season to season up to 5 years before new seeds are bought. New seeds are only acquired once productivity drops below sustainable levels as determined by the farmer. Irrigation is restricted to areas close to rivers which exposes most farmers to rainfall flux exemplified by farmer reports of late rains at the beginning of the 2015 growing season and drought leading to below average harvests.

Maryland’s Global Agricultural Monitoring System (GLAM-East Africa) data corroborated the field reports indicating below average precipitation in the early part of the growing season as well as a below average NDVI - a proxy for crop and vegetation health for Kilosa District.