Southern Sudan Agrometeorology Update

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HIGHLIGHT:

- **Increased likelihood of near normal to above normal rainfall is forecasted over Southern Sudan for September to December 2010.**
- **Agriculture Seasonal progress is normal but limited/affected by insecurity and localized floods in some areas of southern Sudan.**
- **Vegetation performance in most areas in southern Sudan is ranging from Normal/average to above normal hence normal to above normal pasture performance and Livestock condition**

Produced by Food Security and Technical Secretariat (FSTS), Southern Sudan Center for Census, Statistics and Evaluation (SSCCSE) in collaboration with Government of Southern Sudan Institutions

1. Ministry of Agriculture and Forestry. 2. Ministry of Animal Resources and Fisheries 3. Ministry of Health. 4. Southern Sudan Relief and Rehabilitation Commission

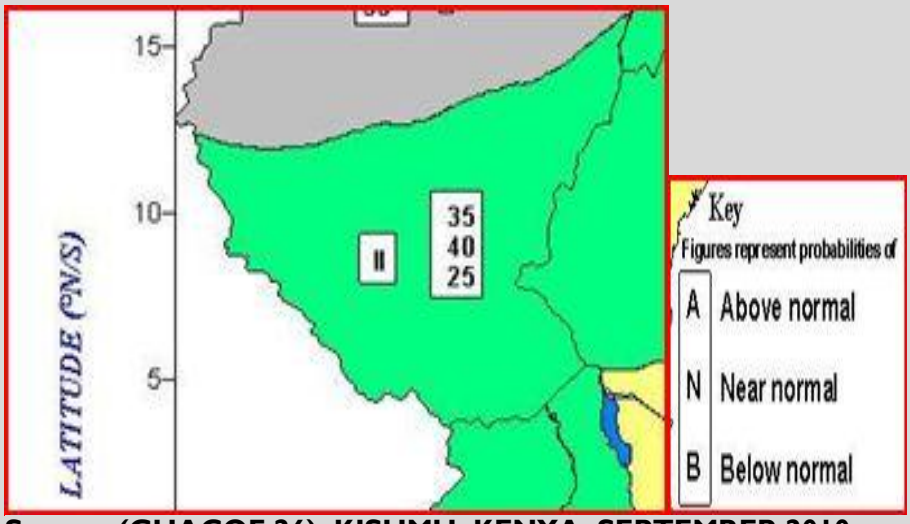
INTRODUCTION

The Agro-meteorology bulletin is a report produced monthly to report on the agricultural season in Southern Sudan. The emphasis of the report is mainly on rainfall performance and its implication on crops and rangeland. The impact of agricultural season has huge implications on food security situation of households that basically depend on agriculture.

RAINFALL PERFORMANCE IN SOUTHERN SUDAN

Reports from the regional consensus climate outlook for the September to December 2010 rainfall season indicate increased likelihood of near normal to above normal rainfall over the western and northern parts of the Greater Horn of Africa (GHA) of which southern Sudan is inclusive. Similar reports also reported that rainfall received during September to December months is relatively small in many parts of the sub-region relative to the normal totals for the same period.

Figure 1: Greater Horn of Africa Consensus Climate Outlook for the September to December 2010 showing southern Sudan region.



Source: (GHACOF 26), KISUMU, KENYA, SEPTEMBER 2010

From figure I, southern Sudan is indicated in Zone 11 which is described by increased likelihood of near normal to above normal rainfall. The numbers for each zone indicate the probabilities of rainfall in each of the three categories, above-, near-, and below-normal. The top number indicates the probability of rainfall occurring in the above-normal category; the middle number is for near-normal and the bottom

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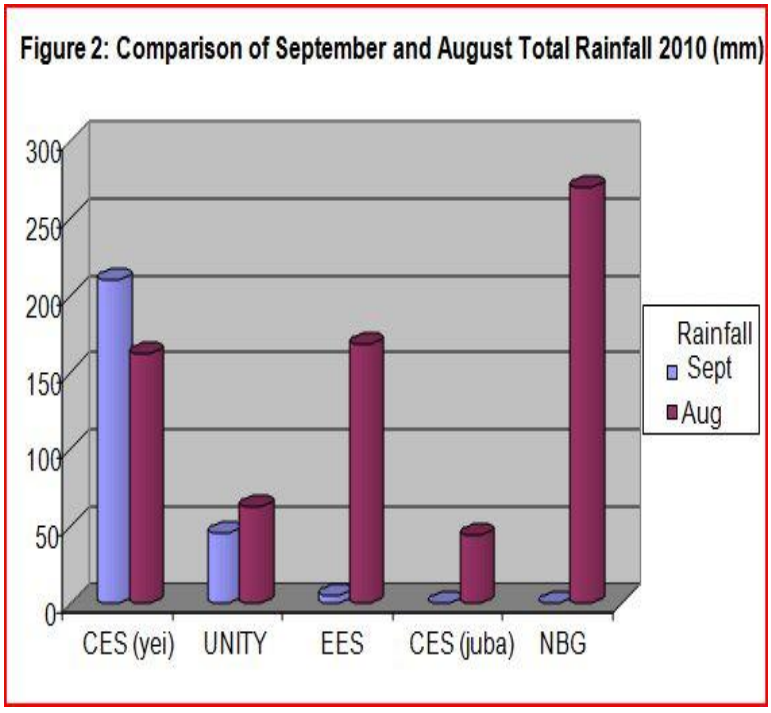
number for the below-normal category. Meaning that there is a 35 % probability of rainfall occurring above normal, 40% probability of rainfall occurring near to normal and then 25% probability of rainfall occurring in below normal category. Therefore high chances are for the rainfall to perform normally in southern Sudan for the month of September to December. This will also mean a normal season ending.

With reference to the current rainfall images, rainfall amount in the first dekad was observed concentrating in the northern parts of southern Sudan, covering areas of greater Bahr el Ghazal, Warrap, Unity and Upper Nile and was ranging from 40-80 mm while most areas in southern Sudan received less than 40mm of rainfall. In the second dekad, most parts in the west and eastern southern Sudan received rainfall ranging from 40-80mm while the rest of the areas received less than 40mm in the last dekad, only few areas in WBG, Lakes, Unity, Upper Nile and WES (Nzara and Ibba). When the current rainfall image is compared with what normally happens (Long term), it gives us the difference in the rainfall image. Most areas in southern Sudan have received normal rainfall in the month of September except for some few places like Panyijar, Mayendit and Leer in Unity, Maban and some parts of Renk and Melut in Upper Nile state that had below normal 25mm. However some areas have received above average rainfall by 25mm like some parts of WBG (Raga), NBG (between Aweil south, center, west, east and north),WES (Tambura, Nagero, Ezo, Nzara), Jonglei state (Pibor and Pochalla) and this has led to incidences of floods in these areas. Some areas received normal rainfall but are flooding meaning at this time of year, they are usually flooded and these include areas like Rumbek east and cuiebet counties, in Unity state Guit County, in Upper Nile state Ulang, Logochuk, and Baliet. According to reports from fewsnet, floods to a large extent will determine crop performance in some parts of Warrap, the greater Bahr el Ghazal, and Upper Nile, Jonglei and Unity states and the effects will be determined by the October Crop Assessment.



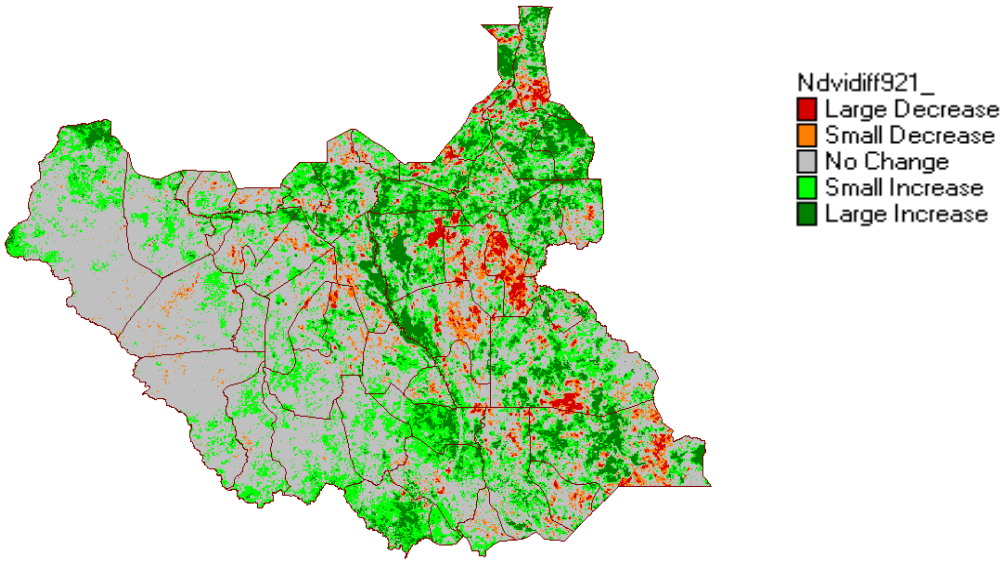
Furthermore the report clarified that better pasture are expected on recession of floods water in the low lands

The graph in figure 2 shows that generally there has been a decline in September rainfall when compared to the month of August. Comparisons among the four states, only central equatorial state in particular Yei had an increase in rainfall and this explains the progress of the second season. The flooded areas are likely to receed and the situation will normalize though crops will be affected but not severe. CES, Yei received 210mm in September and 162mm in August, EES (Torit) 6.2mm September and168mm in August), Unity (Bentiu) 46mm in September and 63mm in August and CES (Juba) 1mm in September and 45mm in August, NBG with less than 1mm in September compared to 270mm in August this gives an implication of floods subsiding in the floods affected counties/areas.

Figure 3. NDVI Difference for the Period (20-30) Sept 2010.

Satellite Imagery: The satellite imagery Normalized Difference Vegetation Index (NDVI) is used to obtain an overall picture of the progress of the agricultural season.

With reference to NDVI satellite images, vegetation performance for most areas in southern Sudan was ranging from average to above average; this can be attributed to changes in season progress as the season approaches to an end normally. Only very few areas had large vegetation decrease to no change especially in the eastern parts and these include areas in Jonglei, EES, and Upper Nile. Most areas to the west and north of southern Sudan performed normally mainly western equatorial state, WBG, NBG and Warrap state. Pastures and availability of water for livestock is also expected to perform normally. Since this is a normal year, livestock condition is expected to perform normally. Poor livestock condition in a normal year can be attributed to prevalence of pests and diseases that may affect livestock health.



Source; FSTS/SSCCSE

SUMMARY OF AGRICULTURE SEASON BY STATE

Eastern Equatoria State: Excessive rainfall in this state has brought about reports of localised floods especially in the low land areas of Pachidi in Lafon /Lopa County, Olikwi and Alibia Nimule payam Magwi County and Hiyala payam in Torit County (EP&R, Sept, 2010). Crop farmlands near / around these areas are likely to deteriorate due to the effect of excess water, however, the impact on crop/farm lands are likely to be moderate. Pasture and water available for the animals are likely to improve livestock condition. Generally the state has mixed trends of vegetation performance with some areas especially the greater Kapoeta ranging from average to below average. While most areas are performing from average to above average (figure 3).

The season is normal although there were reports of quelea quelea birds having severe attack on first season crops in Kapoeta. This is likely to affect the yields, the ratoon crops are on early flowering stage but flowering is likely to be affected by excessive rains however the situation will be updated accordingly.

Warrap State: Excess rainfall is reported to have caused floods in Georgrial west (unconfirmed, RCSO), Twic and Tonj North county (Rualbet, Marial Akop (WVI, OCHA, ERCSO). Vegetation performance is at average to above average with small increase. Mostly early grown crops especially sorghum crops are at maturity stage and some have already been harvest as other crops wait for December and January next year harvesting period.

Central Equatoria State: The second season has been established and the crops are performing well crops grown include Sorghum, sweet potatoes, vegetables, groundnuts etc, With Sorghum at vegetative state. Vegetation is looking very good (figure 3) although excessive rainfall caused flooding of lowlands in areas of Ganji, Bungu, Kansuk-Digala and Kansuk-Gwonga likely to affect crops in these areas. A mixed trend of rainfall performance exist between counties, while some counties like Yei observed increased rainfall, others like Juba observed

reduced rainfall in the month of September. Generally vegetation is performing well ranging from no change to large increase; the central is covered with no change/normal while the north and the south have large and small vegetation increase (figure 3). Pasture condition is better compared to last year.

Upper Nile State: Generally this state had a problem of delayed rainfall that brought about late establishment of the season. Although the rains were late, reports of floods caused by excessive rainfall had been observed over areas of Maban (subsided), but post floods effect on crop performance exist. Crops are at maturity stage especially maize depending on planting time. Other flood affected areas Nasir, Ulang, Logochuk caused displacements of farming households. However, vegetation is performing in mixed trends with most areas covered with no change to large increase only few spots of large decrease were observed (figure 3).

Northern Bahr el Ghazal State: The major limitation to the progress of the season is the occurrence of the flood in Aweil, displacing households to the highlands abandoning their farm lands. However, for areas where the season is normal, sorghum is at maturity stage while others are at late maturity stage depending on the time of planting. Vegetation performance is at average with few spots of above average (figure 3) and small increment in flooded areas of Aweil. While floods have negative impacts on crops and pastures, availability of water is likely to improve in the low land areas that have been flooded hence increasing accessibility by livestock during the dry season. This will limit pastoralists migrating for pastures and water during the dry season that always end up into cattle raiding and inter tribal conflicts for grazing lands. Generally rainfall performance is observed to range from normal to above normal. Above normal rainfall is concentrated around areas of Aweil, this caused the floods.

Western Bahr el Ghazal State: Vegetation has been performing normally in the state. There were isolated locations in the state with poor vegetation performance. Rainfall performance is normal with some parts receiving above normal by 25mm especially areas of Raga. The season is also expected to perform normal except for the low lands crop that may experience localised flooding impacting on crop performance. Sorghum is reported to be at maturity stage and harvesting has started as well as processing of mature maize and groundnuts.

Jonglei State: This state has been affected by the excessive rainfall that caused flooding of some counties like Akobo, Twic east, Pibor, Duk padiet that affected the crop performance and the yields are likely to be low. Vegetation has mixed trend performance some areas are deteriorating/large decrease while others are at average and large increase (figure 3). However, the most/rest of the areas is performing well in terms of vegetation development and will allow for good performance of pastures. Animals are likely to stay longer home since water catchment areas are likely to have improved vegetation with heavy rains hence migration may be delayed. This will also minimized intertribal conflict associated with competition for grazing land in these pastoralists community. Sorghum, maize is at maturity stage.

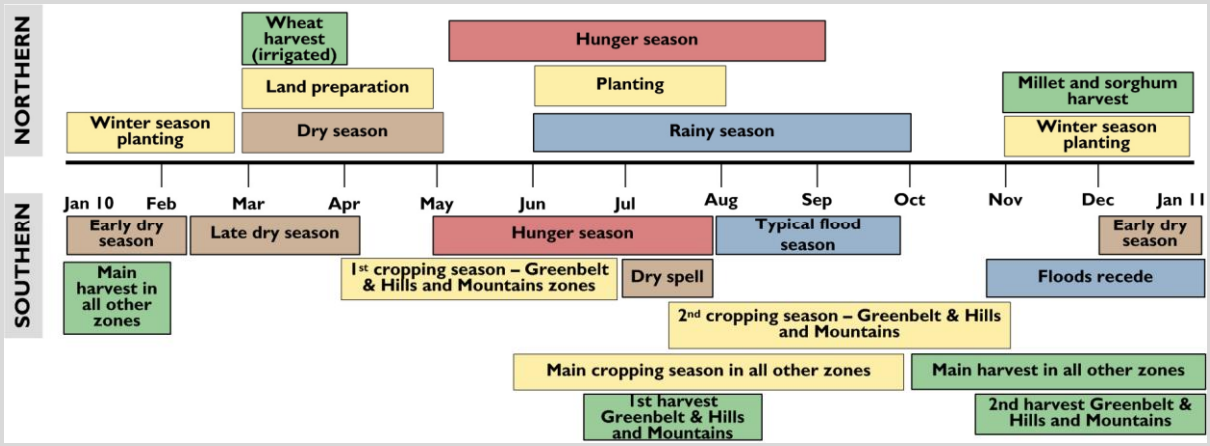
Unity State: Reduced rain fall has been observed in this state, in the month of September it received rainfall of 46 mm compared to August 63 mm this gives an implication of the season coming to an end. However, excessive rainfall previously caused flooding in areas like in Leer County. From the central to southern part of the state, vegetation performance range from no change to large increase covering areas of Mayendit, Panyijar etc. Sorghum is at maturity stage and ready for harvest until December.

Lakes State: Rainfall performance was observed to be normal with reference to the satellite rainfall images. However, the NDVI satellite image for the last dekade of September shows mixed trends of vegetation performance with most areas performing on average including previously flooded areas around Cueibet, Rumbek East and hence availing pastures and water for livestock. Early planted long maturity sorghum is nearing ready for harvest varying among farms depending on planting time. Most of the harvesting of the long maturing varieties takes place in December and January.

Western Equatoria State: The seasonal progress has been affected by the insecurity caused by LRA rebels especially in areas of Ezo, Tambura, and Nzara. Second season crops include cassava, maize

are at various stage depending on time of planting but generally at vegetative stage. other crops grown include Maize, g/nuts, sorghum, simsim etc. crops are performing well, however, performance is being affect by pests and diseases like the elegant grass hoppers and rosette that destroy cassava plants and ground nuts respectively and no control measure have been applied. Generally vegetation is performing normally with areas at the borders of DRC and CAR performing at above average with small increment. Areas at above average apply to the forested areas in Ezo, Yambio, Tambura, and Nzara. Households that did not cultivated are the recently displaced IDPs in Yambio town and they have limited access to land.

Figure 4: Seasonal Calendar and Critical Timeline Events for Sudan



With reference to the seasonal calendar in a normal year in Southern Sudan (figure 4), September is the typical flood season. The first harvest approaches its end at the beginning of the month with the second cropping season in progress for the Greenbelt and Hills and Mountains. In September also in all other zones, it is the main cropping season.