Sudan AgroMeteorological Bulletin

SUDAN METEOROLOGICAL AUTHORITY 11 -20 OCTOBER 2005

Sudan Meteorological Authority

Highlights

- In seasonal terms (Fig 1b),the ITCZ is currently near 13.8 °N.
- Areas with heavier rainfall were found in West Eguatoria.
- In relative terms, significant above average departures in most of Southern , Greater Darfur.
- Below average cumulative rainfall departure is seen in the Upper Bahr-ElGhazal, lower of South Darfur,border of west and South Kordofan and in the Eastern over lower Gedarif ,Sennar and Blue Nile .
- In relative terms, vegetation conditions are mostly above average across the country, particularly in Upper Nile regions, Jouley and El Gezira.
- Below average vegetation conditions can be seen in small patches, particularly in lower of White Nile, south Kordfan, parts of Gedaref .

Rainfall Analysis – Seasonal Progress

Rainfall in Sudan and its seasonal distribution is mostly the result of the northwards movement of moist air masses, source of the rainfall. The Intertropical Convergence Zone (ITCZ) marks the northernmost extent of these humid air masses, where they meet with drier and warmer air. The rains follow some distance south of this border between air masses, so that tracking this ITCZ through the season provides a quick evaluation of the seasonal movement of the rains

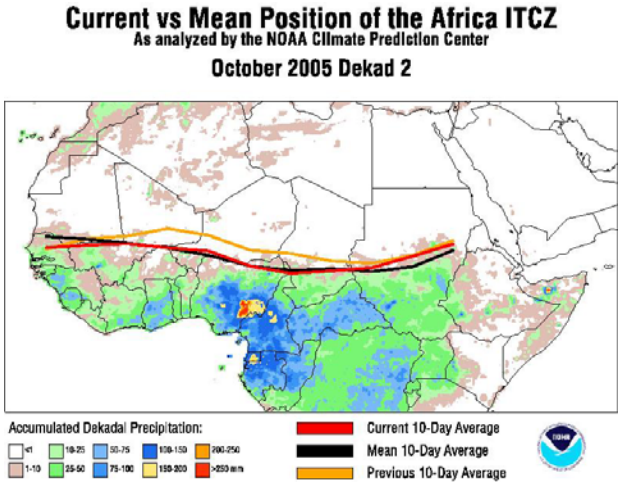

Fig 1a – Position of ITCZ over Africa in OCTOBER Dek 2 2005 (red) compared to previous dekad (orange) and average position (black). Background is a rainfall map (Source : CPC-FEWS Net)

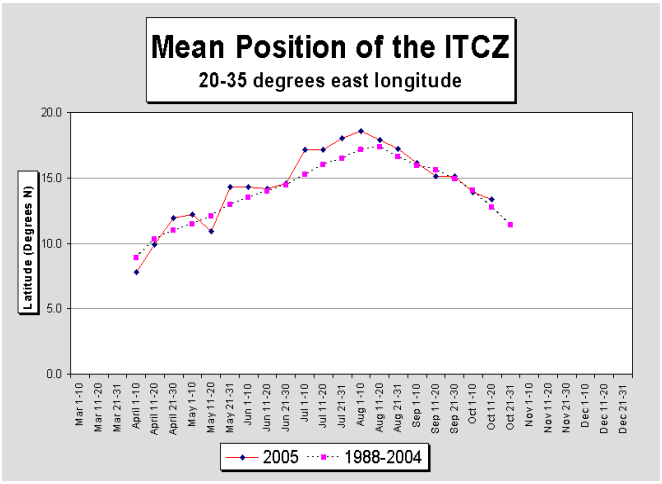

Fig 1b – Current latitude of the ITCZ position compared to the 15 year average. (Source : CPC-FEWS Net)

Note (fig 1a) how the ITCZ position marks the border between the (significantly) rainy and non-rainy rainfall areas. The way this position changes along the season can be described by the time series of its mean latitude (fig 1b). We can see :

- During this dekad the ITCZ over Sudan was close to the previous dekad and north the average position .(see Fig 1a).
- In seasonal terms (Fig 1b), the ITCZ is currently near 13.8°N and is now north the average.

Rainfall Analysis – 10 Day Amounts

10 day rainfall amounts produced by SAMIS at SMA are based on a combination of METEOSAT satellite and synoptic gauge data. Rainfall climatology is similarly derived from a combination of historical data from the two sources.

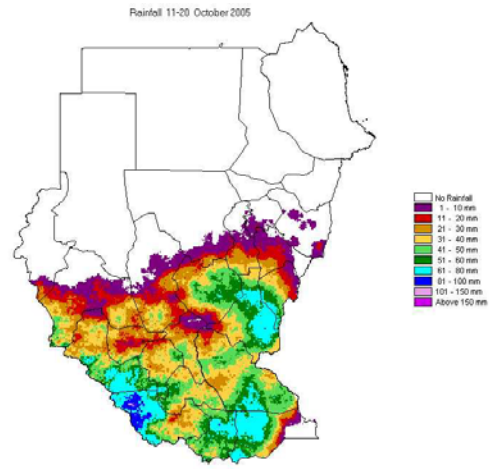

Fig 2a – Rainfall amounts (mm) 11– 20 October 2005

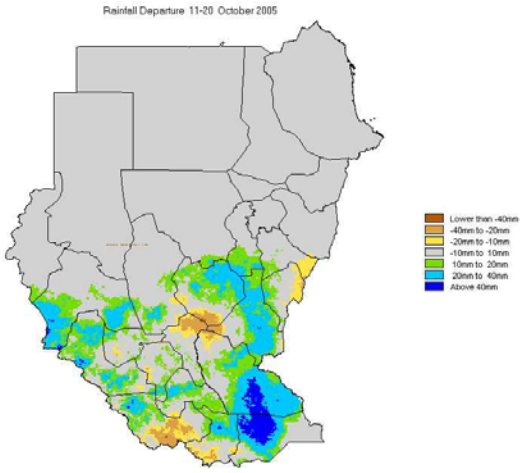

Fig 2b – Same as a difference from the average : yellows/ browns for rainfall deficit, greens/blues for rainfall surplus

In this dekad the rainfall amounts were generally greater than the previous dekad. Areas with heavier rainfall (over 80-100 mm) were found in upper West Eguatoria.

In contrast, lower rainfalls occurred in eastern of East Equatoria,upper of Unity, Sennar, White Nile ,El Gezira states, and in particular North and west Kordofan, West Darfur, upper of south Darfur, Kassala and Gedaref were very dry (no rainfall) .

In relative terms, above average rainfall registered in East Equatoria, East of Jongley, Upper Nile, West Bahr El Ghazal, south kordofan , upper of west Equatoria and south DarFur. In contrast, in the lower Bahr El Jabel , the border of Unity and South kordofan and lower of West Equatoria were below the average.

Rainfall Analysis – Cumulative Amounts

Cumulative amounts are obtained by summing the dekadal estimates starting from Dekad 1 of March until present. The climatological cumulative are likewise derived by summing the dekadal climatological estimates over the same period of time.

The cumulative rainfall amounts (Fig 3a) display the usual organization in latitude bands (as the rainfall moves north following the ITCZ). Currently, values are exceeding 1300 mm in the Yei region (West Equatoria) and less than 50 mm up to 20°N.

In relative terms, significant above average departures (Fig 3b) are evident in most southern and Greater Darfur , as well as in the Eastern over Kassala, southern Red Sea, parts of Khartoum and Gezira .

Below average cumulative rainfall is seen in the Upper Bahr-ElGhazal, lower of South Darfur,border of west and South Kordofan and in the Eastern over lower Gedarif ,Sennar and Blue Nile.

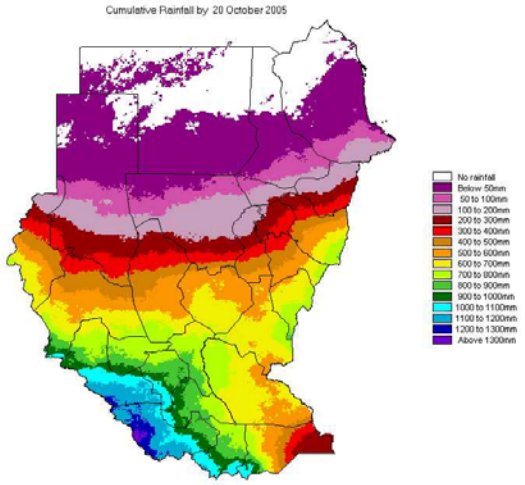

Fig 3a – Cumulative rainfall (Mar Dek1 – Current Dek)

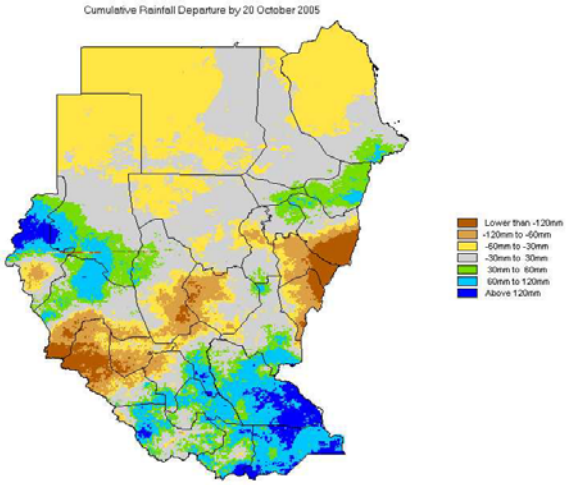

Fig 3b – Same as a difference from the average : yellows/ browns for rainfall deficit, greens/blues for rainfall surplus

Vegetation Analysis

The NDVI (Fig 4a) vegetation retreated southwards following the progress of the rains. Currently, season vegetation development is registered up to Kassala, El Gezira, White Nile, south and west Kordofan , south and west Darfur.

In relative terms, vegetation conditions are mostly above average across the country, particularly in Upper Nile regions, Jouley and El Gezira.

Below average conditions can be seen in small patches, particularly in lower of White Nile, south Kordfan, parts of west Kordofan . Elsewhere there are small patches of lightly below average conditions of little significance.

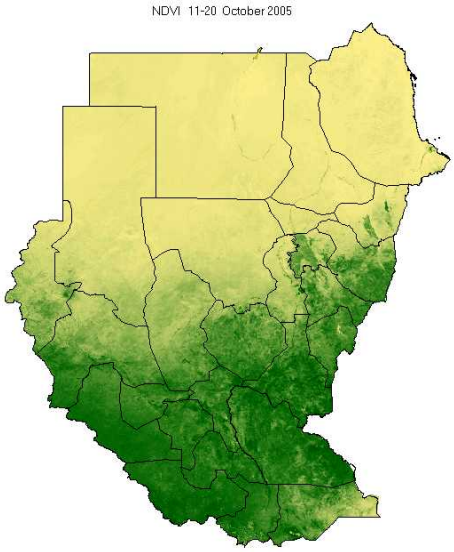

Fig 4a – NDVI 11 – 20 OCTOBER 2005. Darker shades for denser vegetation, lightest shade for soil.

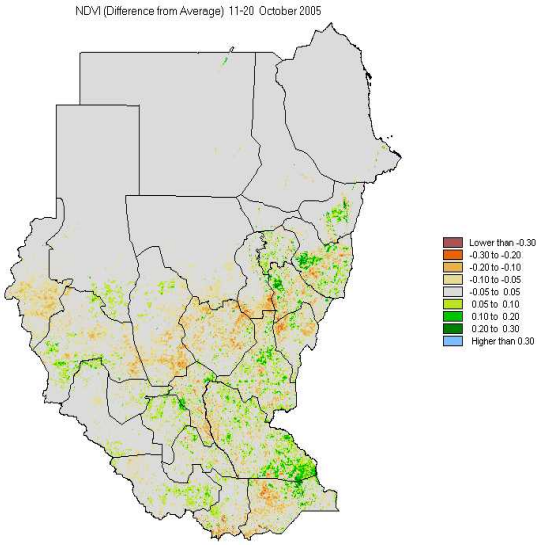

Fig 4b – NDVI difference from average at second of OCTOBER 2005. Yellows/reds for below average vegetation development, greens/blues for above average

ACKNOWLEDGEMENTS

This Bulletin is issued twice a month (after the first and second 10 day periods of the month) and complements/updates a larger monthly Bulletin prepared in cooperation with the Sudan Early Warning System and originates from a 2002 capacity building initiative of the World Food Programme (WFP) to improve the range and quality of the monitoring information available to the institutions involved in humanitarian assistance in Sudan.

This initiative led to the installation at the Sudan Meteorological Authority of a system to process meteorological station and satellite data into a range of rainfall, vegetation and crop related information products. This system – SAMIS (Satellite based Agro-Meteorological Information System) – developed by the TAMSAT group (Univ of Reading, UK), has been fully operational at SMA since 2003.

SMA expects to develop further the range and quality of the products available over the course of the next seasons.

SMA would like to thank the major providers of the satellite data, TAMSAT group, University of Reading , UK (METEOSAT) and FAO/ARTEMIS (SPOT-VGT).

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