

Sudan Agromet Dekadal Bulletin

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Highlights

- This dekad the ITCZ made a remarkable shift northwards. The current position is north of the long term average (about 18°N).
- Areas with heavier rainfall (over 80-100 mm) were found in the southern, Western and Eastern states of the country. Very low or no significant rainfall occurred in North Kordofan, Khartoum and White Nile States. Almost all of these regions registered less than 20mm.
- The highest recorded rainfall amount is 117.0 mm reported at EL Geneina and 99.9 mm reported at Gedarif
- In relative terms Southern States and Greater Darfur registered well above average rainfall, in contrast with Blue and White Nile States and Greater Kordofan, where rainfall amounts were markedly below the average.
- In Greater Darfur and West Kordofan current evidence from the vegetation index and rainfall estimates indicates delays in the start of the growing season due to poor rains – good rainfalls in the next two dekades are important for recovery from this situation. In East Equatoria, Jonglei and Upper Nile, vegetation conditions are also markedly below average.

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

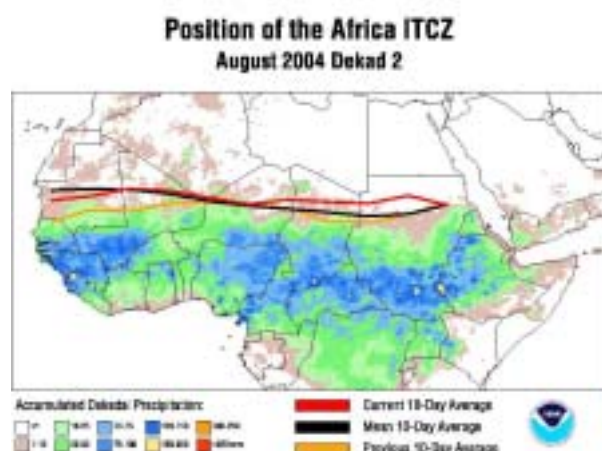


Fig 1a – Position of ITCZ over Africa in August Dek 2 2004 (red) compared to previous dekad (orange) and average position (black). Background is a rainfall map (Source : CPC-FEWS Net)

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

Rainfall Analysis - Dekadal Amounts and Frequency

10 day rainfall amounts produced by SAMIS at SMA/SEWS 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.

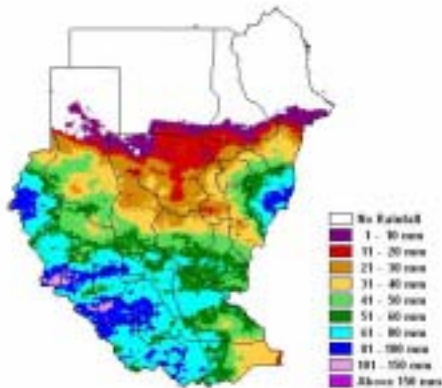


Fig 2a – Rainfall amounts (mm) 11-20 August 2004

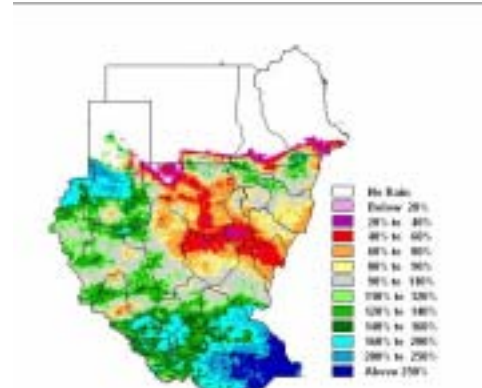


Fig 2b – Same but in relative terms : as % of long term average

In this dekad, the ITCZ moved northwards, in contrast with previous dekad, the rainfall amounts were generally larger than previous dekad. Areas with heavier rainfall (over 80-100 mm) were found in the southern, Western and Eastern states of the country (Jungolei, Lakes, Bahr EL Jabal, West Equatoria, Warab, North and West Bahr Ghazal, South and West Darfur, Sennar and Gedarf States) with point values reaching 117.0 mm reported at EL Geneina and 99.9 mm reported at Gedarf.

In contrast, very low or no significant rainfall occurred in northern parts of North Kordofan, White Nile and Khartoum States. Almost all of these regions registered less than 20mm.

In relative terms Southern States and Greater Darfur registered well above average rainfall, in contrast with Blue and White Nile States and Greater Kordfan, where rainfall amounts were markedly below the average.

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 :

- The ITCZ has been North of the average for the this dekad.
- This dekad, it made a remarkable shift northwards (see Fig 1b). The current position is north of the long term average (about 18°N).

Rainfall Analysis - Cumulative Amounts

Cumulative amounts are obtained by summing the dekadal estimates starting from Dekad 1 of March until present.

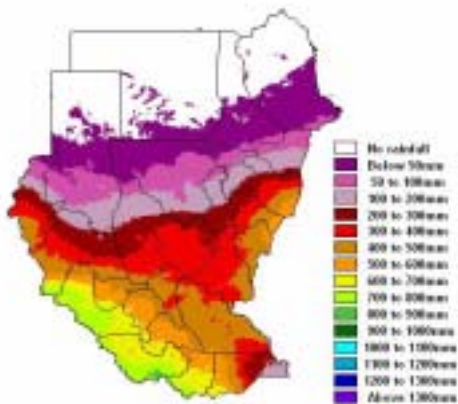


Fig 3a – Cumulative rainfall (Mar Dek1 – Current Dek)

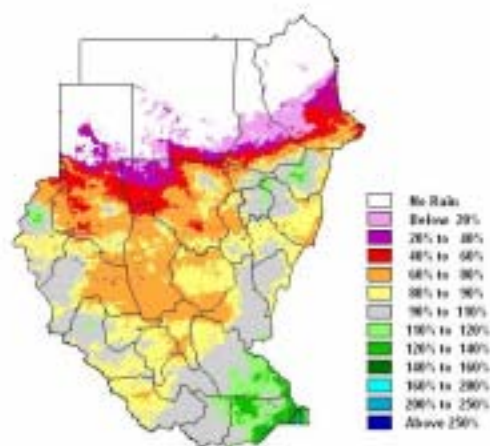


Fig 3b – Same but in relative terms : % of long term average

The cumulative rainfall amounts (Fig 3a) display the usual organisation in latitude bands (as the rainfall moves north following the ITCZ). Currently, values reach 800mm in southernmost Sudan and less than 50mm up to 18°N.

The situation relative to the average (Fig 3b) has not changed much from last dekad in many parts of Sudan. The belt of below average conditions now includes North Darfur, Greater Kordfan, Unity, Warab, White Nile and western parts of West Equatoria States. In these areas it is important that rainfall situation improves during the coming two dekades.

Elsewhere, in the South (East Equatoria, Bah Al Jabal and Jungolei States) and in the East (Blue Nile, Gazira and Kassala States) of the country the situation is close to the average or above.

Vegetation Analysis

Vegetation information is based on the NDVI, a satellite index related to vegetation amount and vigour. NDVI data is sourced from the Africa Data Dissemination Service and processed at SMA.



Fig 4a – NDVI 11-20 August 2004. Darker shades for denser vegetation, lightest shade for soil. (Source : ADDS).

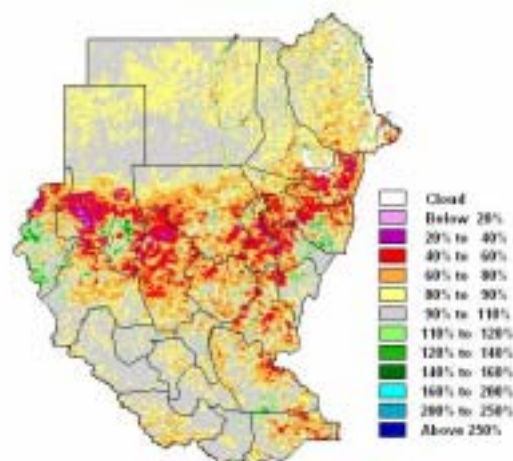


Fig 4b – Same in relative terms : % of long term average (ADDS)

The NDVI for this dekad (Fig 4a) continues the trend of vegetation advancing northwards following the progress of the rains. Currently, new season vegetation development is registered in the central States, up to the borders of Sennar, Gedaref, South and West Kordofan and West and South Darfur.

In Southern Sudan, vegetation conditions are mostly on average (Fig 4b) in broad accordance with the rainfall situation but declining vegetation conditions are noticeable in East Equatoria, northern parts of Jonglei and Upper Nile States.

In Greater Kordofan and North Darfur vegetation conditions are markedly below average. This reflects the same conditions in seasonal rainfall displayed in Fig 3b.

The indications from the vegetation index and rainfall estimates imply that early season vegetation development is somewhat delayed due to poor or irregular rains. However some improvements are already noticeable in West Darfur but these are dependent on good rains during the coming two dekads .

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