

Sudan Agromet Dekadal Bulletin

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Highlights

- The ITCZ moved north in contrast with previous dekad, but is now a bit South of the usual.
- Good rainfall over most of South Sudan, but dry conditions prevailed in Eastern Sudan, mainly in Upper Nile, Blue Nile, Sinnar and Gedaref states.
- Cumulative rainfall amounts are on or above normal in Southern and SW parts of Sudan. Below average conditions prevail in the Upper Nile-South Kordofan border and the states of Blue Nile, Sennar and Gedaref.
- Vegetation development under way and on average in Southern and Central states, up to the borders of Blue and Upper Nile, South and West Kordofan and South Darfur. Conditions in Upper Nile and northeast Jonglei are reflecting the below normal rainfall relative to the average season.

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 progress of the rains

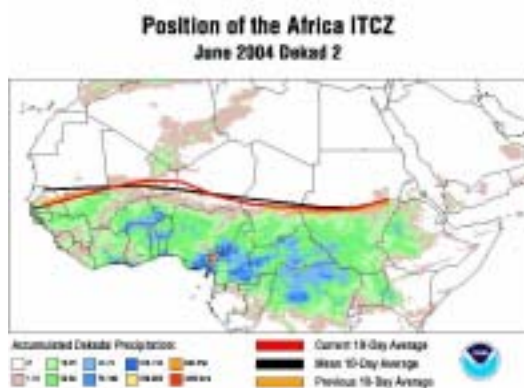


Fig 1a – Position of ITCZ over Africa in June Dek 2 2004 (red) compared to previous dekad (orange) and average position (black). Background is a rainfall map (Source : CPC-FEWS Net)

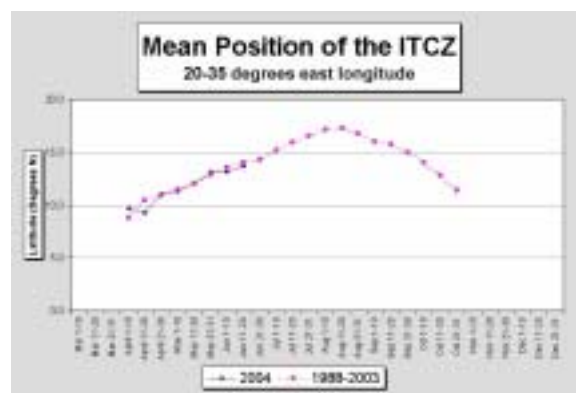


Fig 1b – Current latitude of the ITCZ position compared to the 15 year average. (Source : CPC-FEWS Net)

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 had been progressing northwards in line with the 15 year average until end of May, but made

no progress in early June.

- This dekad, the ITCZ moved North as normal, advancing relative to last dekad. The current position is at about 14°N and it is slightly south of the average.

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.

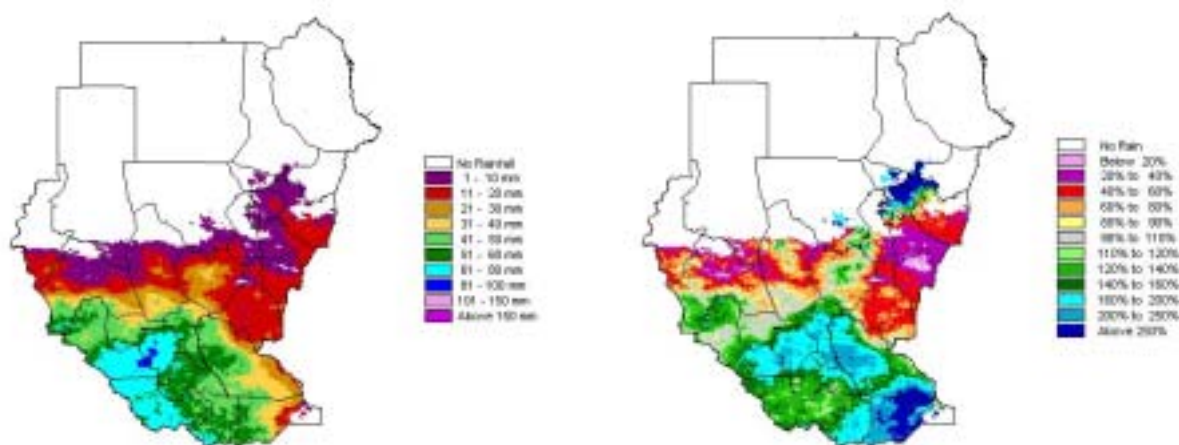


Fig 2a – Rainfall amounts (mm) 11-20 June 2004

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

The Northwards progress of Rainfall in this period was unremarkable, in spite of the ITCZ movement to the north (see previous section).

Over all Southern Sudan rainfall amounts were much larger than in the previous dekad. Areas with heavier rainfall (over 60/80 mm) were found mostly along the south-western border of the country (West Equatoria, southern parts of West Bahar Al Ghazal and Warab) with point values of 115.9 mm at Wau. Eastern Sudan in particular states of Upper Nile, Blue Nile, Sinnar and Gedaref registered low rainfall this dekad. Over these regions most rainfall was below 20mm, a fairly dry dekad.

In relative terms, Southern Sudan registered significantly more than the average rainfall, in contrast with Eastern Sudan where amounts were severely below the average. This is the contrary of what happened in the previous dekad.

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)

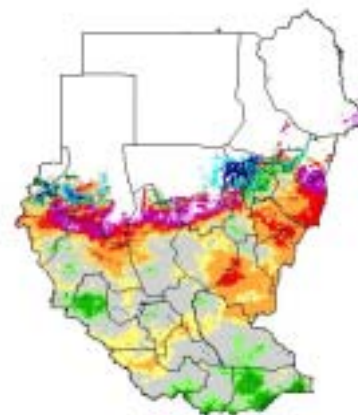


Fig 3b – Same but in relative terms : % of long term average

The cumulative rainfall amounts (Fig 3a) display the usual organisation in latitude bands (as the rainfall moves north following the ITCZ). Currently, values approach 500mm in southernmost Sudan and less than 50mm up to 14°N. Note significant increases relative to last dekad in SW Sudan.

In general, the situation relative to the average (Fig 3b) improved, due to the good rainfall over large parts of Sudan – a band of lower than average conditions which extended from West Equatoria to Upper Nile has nearly disappeared.

Compared to the average scenario (Fig 3b), values are on or above normal in most of Southern and Southwestern Sudan. Below average conditions prevail in the Upper Nile-South Kordofan border and the States of Blue Nile, Sennar and Gedaref. It is however fairly early in the season – the situation should be monitored but can be quickly reversed in the next dekads.

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. We expect to have NDVI reception and processing capacity at SMA in the near future.

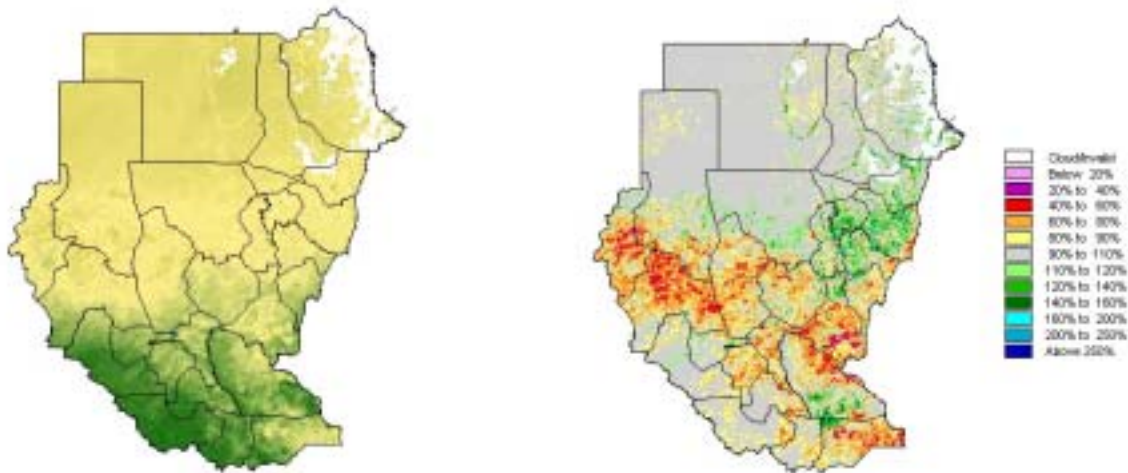


Fig 4a – NDVI 11-20 June 2004. Darker shades for denser vegetation, lightest shade for soil. (Source : ADDS).

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

The NDVI for this dekad (Fig 4a) continued the early season 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 Blue and Upper Nile, South and West Kordofan and South Darfur.

In Southern Sudan, vegetation conditions are mostly on average (Fig 4b), with a pocket of well above average vegetation development over the E Equatoria-Jonglei border, in broad agreement with an area of above average rainfall (Fig 4b). In general, conditions are declining a bit due to dry conditions in May and the first dekad of June. Conditions in Upper Nile and NE Jonglei are reflecting the below normal rainfall relative to the average.

Markedly lower than average conditions in West Sudan (West and South Darfur in particular) are not considered significant – typically, vegetation development starts in early July, so this most likely reflects only small scale fluctuations of dry season values (which tend to be fairly small).

One can also see (Fig 4b) that vegetation development seems above average over Eastern Sudan (Sinnar, Gezira, Gedaref). This is not due to new vegetation development – last season was very productive in these areas and there is probably more vegetation material remaining than is the usual – plus, the average amounts are quite low for this time of the season.

Acknowledgements

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