



West and East Africa

The 2014 Rainfall Season

SAHEL

- The pronounced dryness that dominated the earlier stages of the season until July was alleviated by good August rainfall. In September, rainfall was more variable, restricting further recovery to more localized areas.
- Seasonal rainfall deficits remain across many areas of the Sahelian region, in particular in Senegal, Mauritania, northern Nigeria and eastern Niger who benefitted little from September rains.
- Across the Sahel, only Chad, Burkina Faso and western Mali reached average rainfall levels and even in these areas, seasonal distribution was uneven and irregular with marked delays in the start of the season
- Signs of the seasonal delay are evident in much above average vegetation levels for this time of the season.
- Serious impacts on agricultural production in Senegal and Mauritania can be expected. Perspectives are also unfavourable in eastern Niger and NE Nigeria.

EASTERN REGION (SUDAN, ETHIOPIA)

- September rainfall was quite favourable across the region, a trend continued through October, which so far has been much wetter than average.
- This brought marked improvements to conditions and crop perspectives in central and NE Ethiopia which had been affected by persistent rainfall deficits.
- Sudan is also benefitting from late abundant rainfall, with pastoral areas in the north enjoying exceptionally good grazing conditions and major sorghum producing regions recovering from pronounced early season deficits.
- South Sudan has had a good season so far with early onset of the growing season and no major rainfall deficits. However, heavy rainfall persisting since mid September led to flooding along riverine areas in Unity, Jonglei and Upper Nile States.

Current Situation and Near Term Perspectives

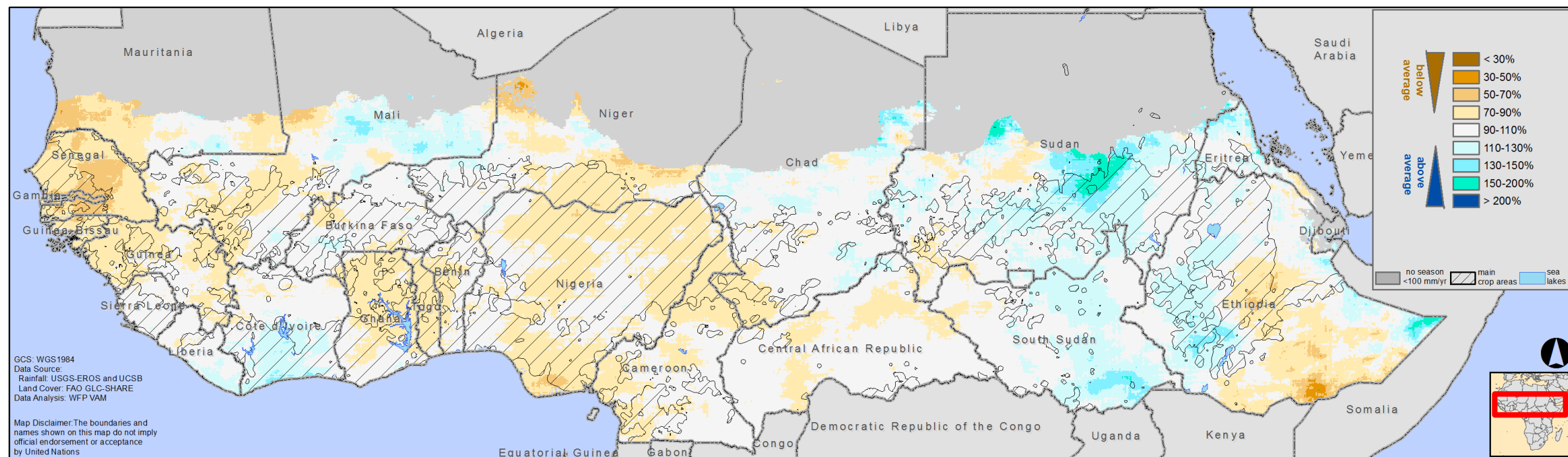


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WEST AFRICA SEASONAL ANALYSIS - 2014

10 Oct 2014

WEST AFRICA, SUDAN, SOUTH SUDAN, ERITREA, and ETHIOPIA
Total Rainfall (percent of average) by 10 Oct 2014



Total rainfall from February to August 2014 as a percentage of the 20 year average. Brown shades indicate below average rainfall, blue shades indicate above average seasonal rainfall

Overall Rainfall Performance

September rainfall wiped out seasonal rainfall deficits in Burkina Faso, central Sudan and in particular northern and central Ethiopia, where improved conditions provide better crop production perspectives, after a season marked by poor rains.

However, in Senegal, Mauritania and eastern Niger where drier than average conditions have dominated, September rainfall was again below average, resulting in continued seasonal rainfall deficits and poor crop and pasture production perspectives. October rainfall has so far been above average, particularly in Ethiopia and Sudan, where it helped the mechanized sorghum crop to a marked recovery. Elsewhere it may help some areas ensure good production outcomes but benefits will remain localized.

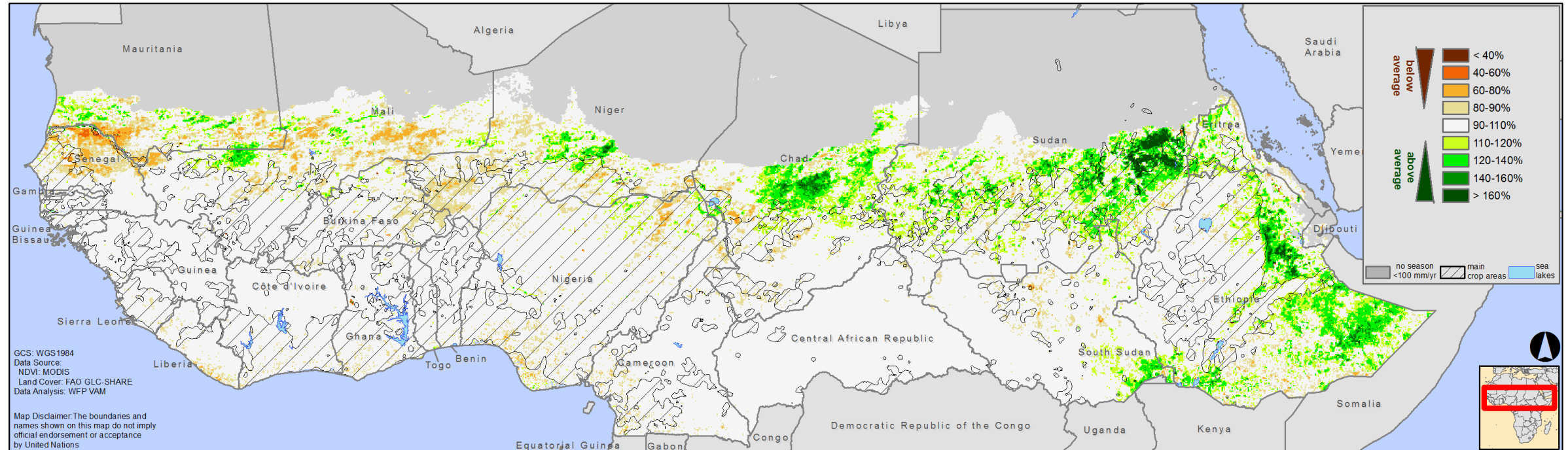
Areas of concern remain Senegal, Mauritania, western Mali and northern Nigeria. In eastern Niger, the tentative recovery during August may have faltered due to poor September rainfall. Favourable seasonal rainfall conditions were achieved in South Sudan, NE Mali, Chad and SW Ethiopia.

As the rainfall season comes to an end, no further recovery in crop conditions is expected. In many areas, although seasonal totals may be close to the average, there was marked unevenness in rainfall distribution with pronounced early season deficits.

WEST AFRICA SEASONAL ANALYSIS - 2014

30Sep-16Oct 2014

WEST AFRICA, SUDAN, SOUTH SUDAN, ERITREA, and ETHIOPIA
NDVI (percent of average) 30Sep-16Oct 2014



Vegetation index in the first half of October 2014 as a percentage of the 12 year average. Hashed pattern indicates main agricultural areas. Orange shades for below average vegetation, green shades for above average vegetation.

Overall Vegetation Status

A pattern of strongly above average vegetation emerged during September and early October: This is particularly noticeable in Niger, Chad, Sudan and Ethiopia, mostly in marginal pastoral areas (see area of dark green shades north of major cropping areas in map above). While some of this development is due to a better than average overall rainfall season, it mostly results from delays in the rains – vegetation development was also delayed and wetter conditions in August and September led to a late, vigorous response from grasslands resulting in significantly above average vegetation levels.

Although agricultural areas benefitted from the late rainfall, crop production from delayed development is usually less favourable. Poor production prospects are certain for Senegal and Mauritania, with concerns regarding eastern Niger and NE Nigeria and possibly western Mali and parts of Burkina Faso. Eastern Sudan's mechanized agriculture has benefitted greatly from September and October rainfall, as have agricultural and pastoral areas in central and NE Ethiopia.

Vegetation levels will now start reverting to average levels, following the end of the rainfall season, after which more in-depth and specific analysis can be carried out.

How the Season Evolved

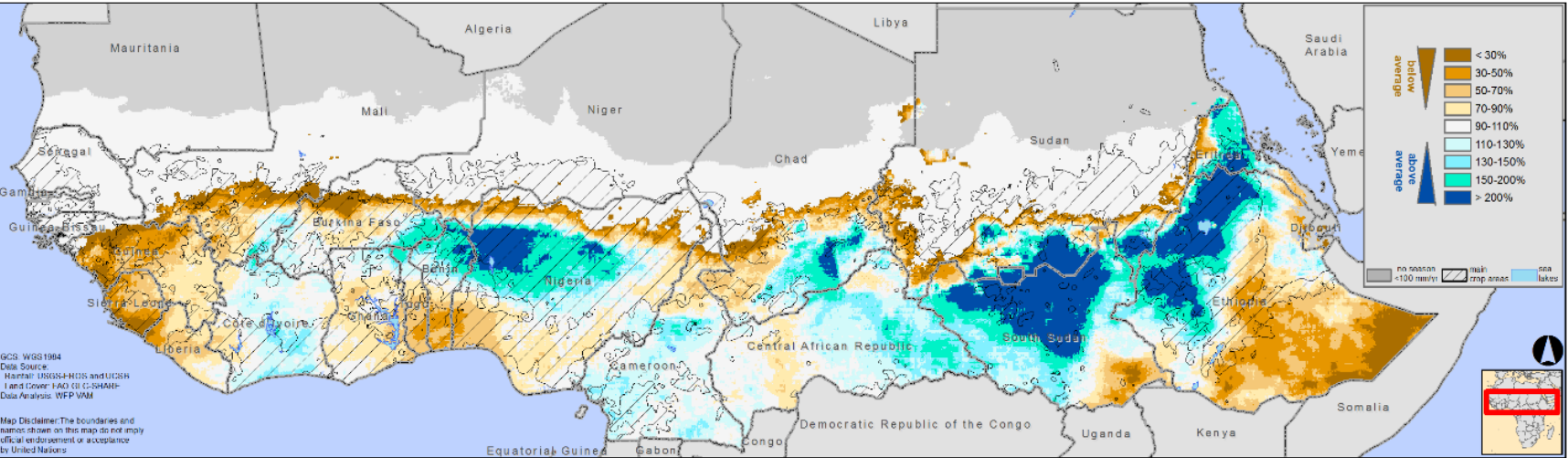


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WEST AFRICA SEASONAL ANALYSIS - 2014

30 Apr 2014

WEST AFRICA, SUDAN, SOUTH SUDAN, ERITREA, and ETHIOPIA
Rainfall (percent of average) in the 30 days to 30 Apr 2014



Total April 2014 rainfall as a percent of a 20 year average. Brown shades for below average rainfall, blue shades for above average rainfall. Note extensive above average rainfall in eastern regions (Sudan, NW Ethiopia, CAR) and deficits in western areas

Start of the Season (March-April)

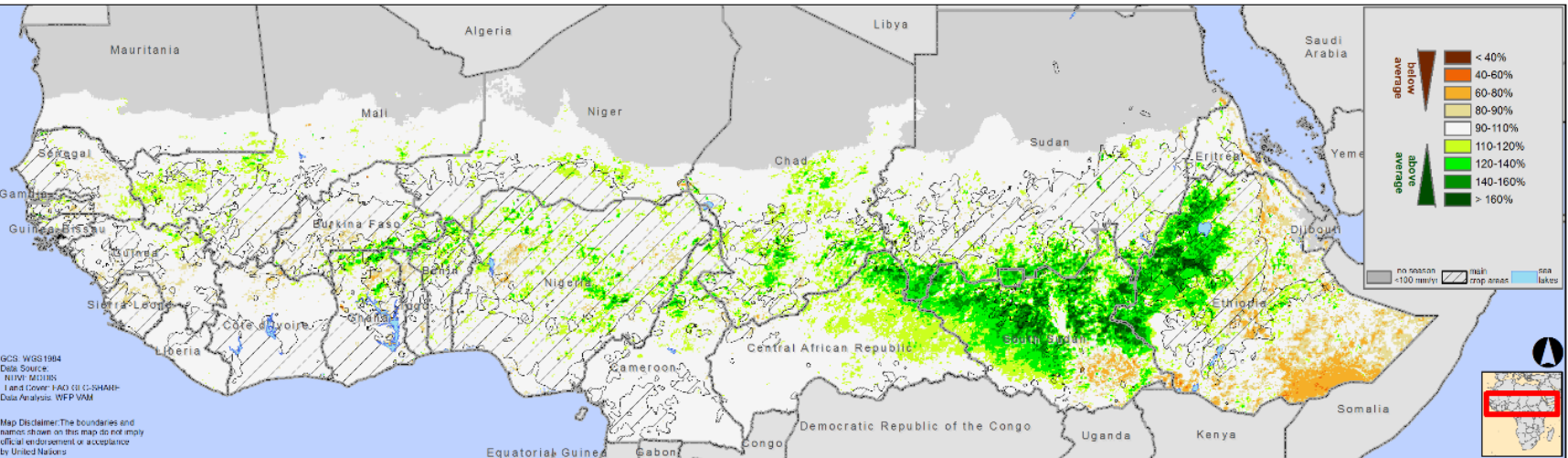
The early stages of the season (March to April) were very favourable across Sudan, South Sudan, CAR and Cameroon as well as NW Nigeria, with strong early rains across these regions.

This led to a very strong start to the season with vegetation at much higher levels than average, creating suitable conditions for early planting.

In contrast, in the western half of the region, early deficits were noticeable from Liberia to the Guineas and southernmost Mali.

23Apr-09May 2014

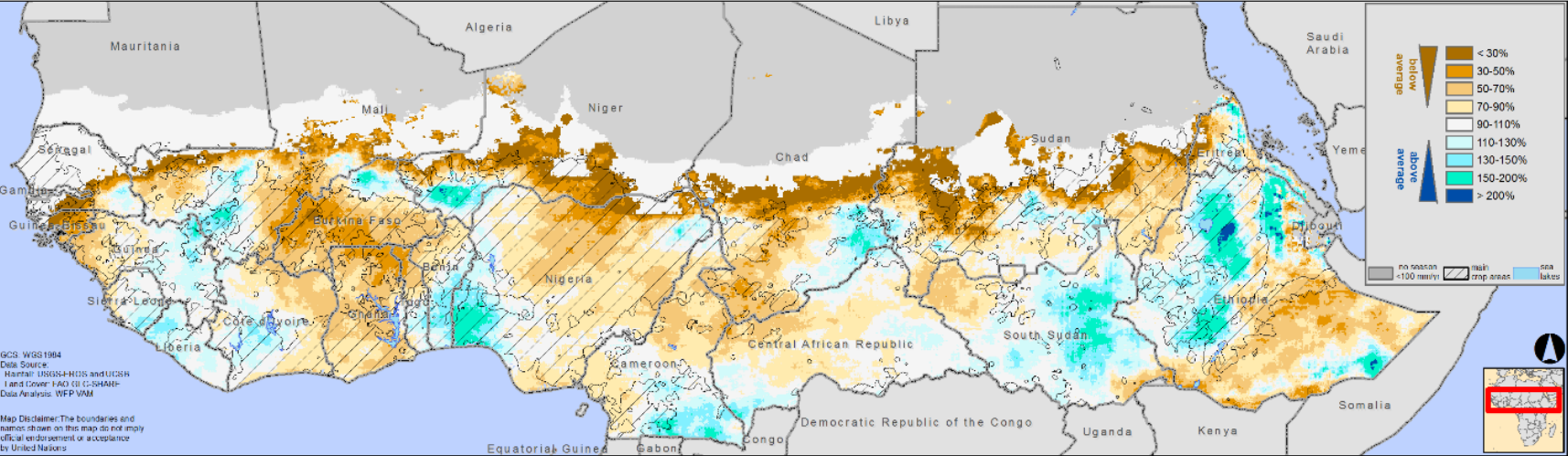
WEST AFRICA, SUDAN, SOUTH SUDAN, ERITREA, and ETHIOPIA
NDVI (percent of average) 23Apr-09May 2014



Vegetation index in early May 2014 as a percent of a 12 year average. Orange shades for below average, green shades for above average vegetation conditions. Note extensive above average vegetation in eastern regions (Sudan, NW Ethiopia, CAR) in response to early strong rainfall

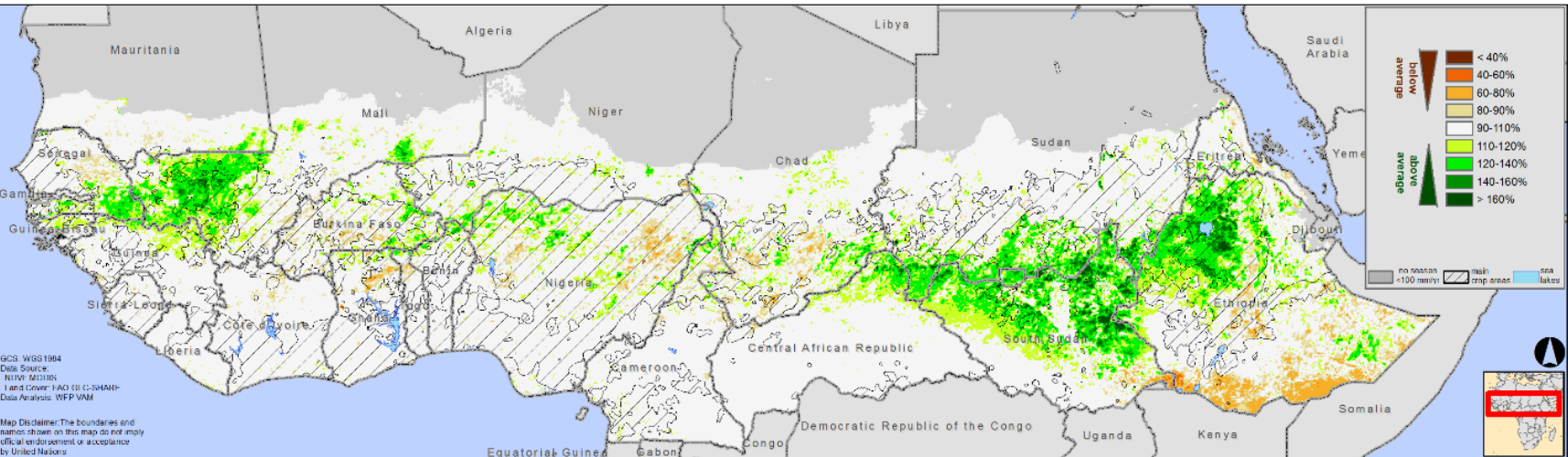
WEST AFRICA SEASONAL ANALYSIS - 2014

31 May 2014 WEST AFRICA, SUDAN, SOUTH SUDAN, ERITREA, and ETHIOPIA
Rainfall (percent of average) in the 30 days to 31 May 2014



Total May 2014 rainfall as a percent of a 20 year average. Brown shades for below average rainfall, blue shades for above average rainfall. Note widespread deficits except for wetter than average conditions in South Sudan and parts of Ethiopia.

25May-10Jun 2014 WEST AFRICA, SUDAN, SOUTH SUDAN, ERITREA, and ETHIOPIA
NDVI (percent of average) 25May-10Jun 2014



Vegetation index in early June 2014 as a percent of a 12 year average. Orange shades for below average, green shades for above average vegetation conditions. Note extensive above average vegetation in eastern regions (Sudan, NW Ethiopia, CAR) in response to continued strong rainfall, as well as western Mali.

Early Season (May)

In May, planting takes place in earnest across the more southern areas of the region (South Sudan, CAR, Nigeria, etc).

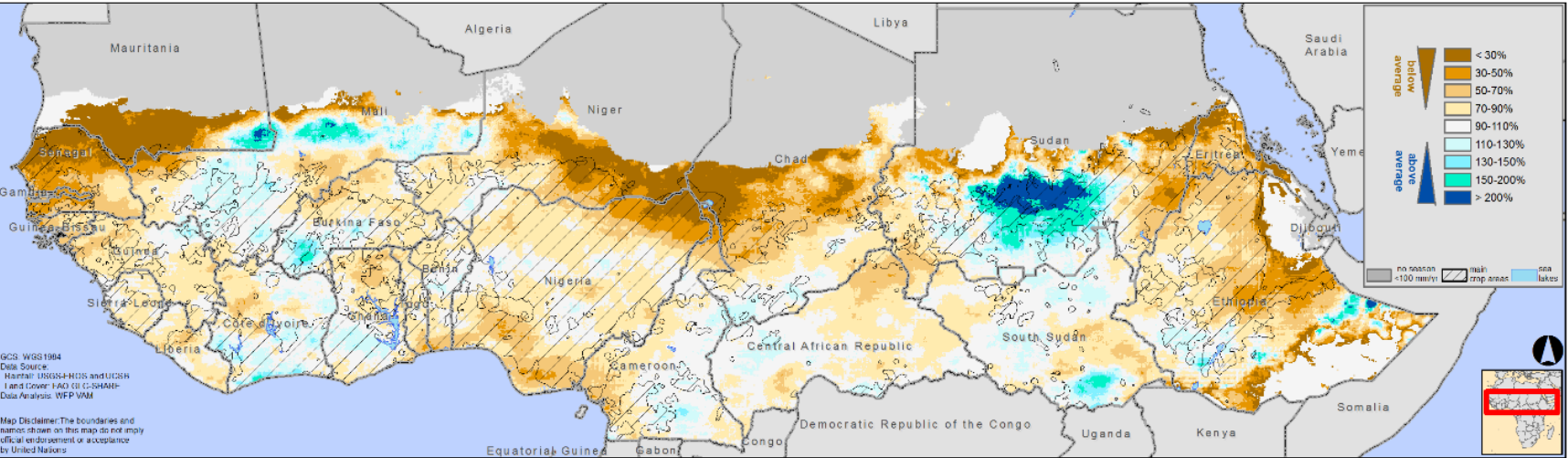
South Sudan and parts of central and western Ethiopia enjoyed a continuation of the early good rains and resulting above average vegetation. On the ground, this translated into effective early planting and expansion of cultivated areas.

Elsewhere, apart from localized rainfall surpluses (e.g. western Mali) the general panorama was one of rainfall deficits leading to delays in usual planting activities. Impacts on vegetation were not yet felt at this stage, given the early stages of development

WEST AFRICA SEASONAL ANALYSIS - 2014

30 Jun 2014

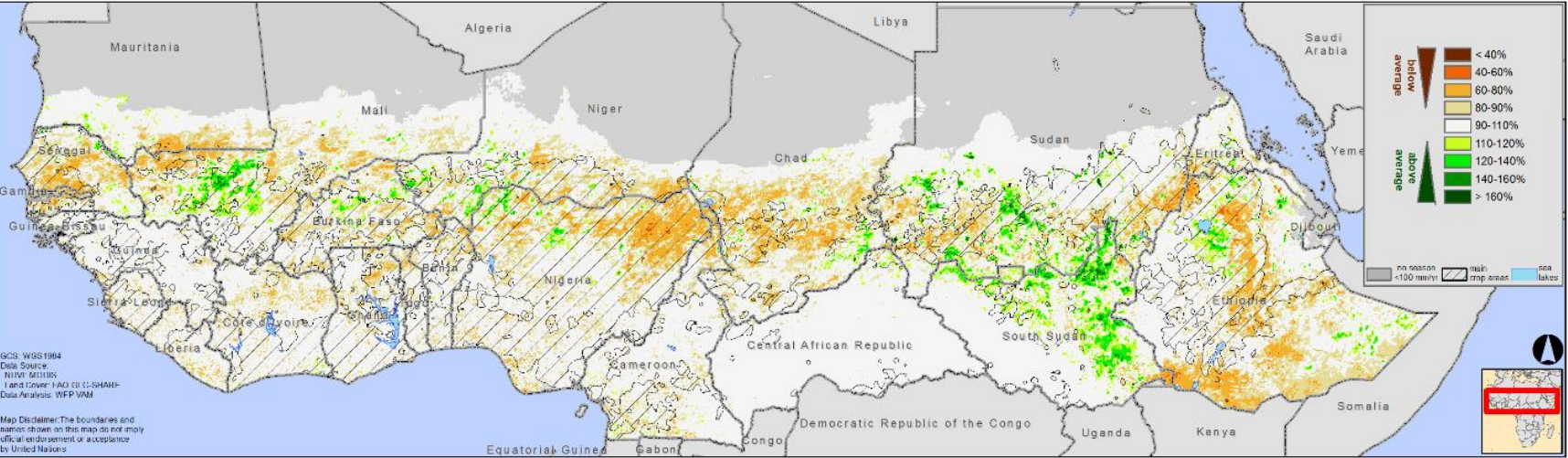
WEST AFRICA, SUDAN, SOUTH SUDAN, ERITREA, and ETHIOPIA
Rainfall (percent of average) in the 30 days to 30 Jun 2014



Total June 2014 rainfall as a percent of a 20 year average. Brown shades for below average rainfall, blue shades for above average rainfall. Note widespread deficits except for localised wetter events in central Sudan and parts of Mali.

26Jun-12Jul 2014

WEST AFRICA, SUDAN, SOUTH SUDAN, ERITREA, and ETHIOPIA
NDVI (percent of average) 26Jun-12Jul 2014



Vegetation index in early July 2014 as a percent of a 12 year average. Orange shades for below average, green shades for above average vegetation conditions. Note emergence of below average vegetation levels across the region and a decrease in previous above average vegetation in eastern regions

Early Season (June)

In June, the rainfall season becomes established across the region; later in the month, planting can take place in more northern areas.

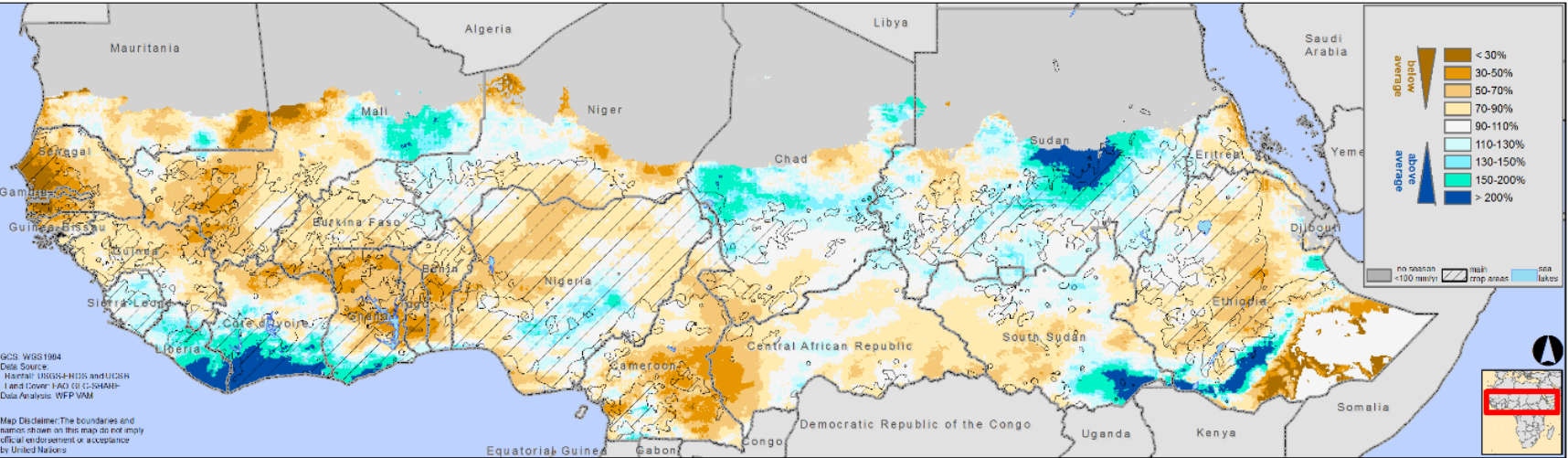
June brought little change to the conditions that had prevailed in May. Drier than average conditions actually extended across Niger, Chad and Nigeria, also affecting CAR. In Senegal and Mauritania, deficits deepened further. Ethiopia experienced fairly dry conditions across most of the country.

In South Sudan while conditions remained good, some dryness affected the state of Jonglei, where conflict may enhance moderate weather impacts. Very dry conditions also affected the cereal producing regions in Eastern Sudan, though the region is resilient to late starts.

WEST AFRICA SEASONAL ANALYSIS - 2014

31 Jul 2014

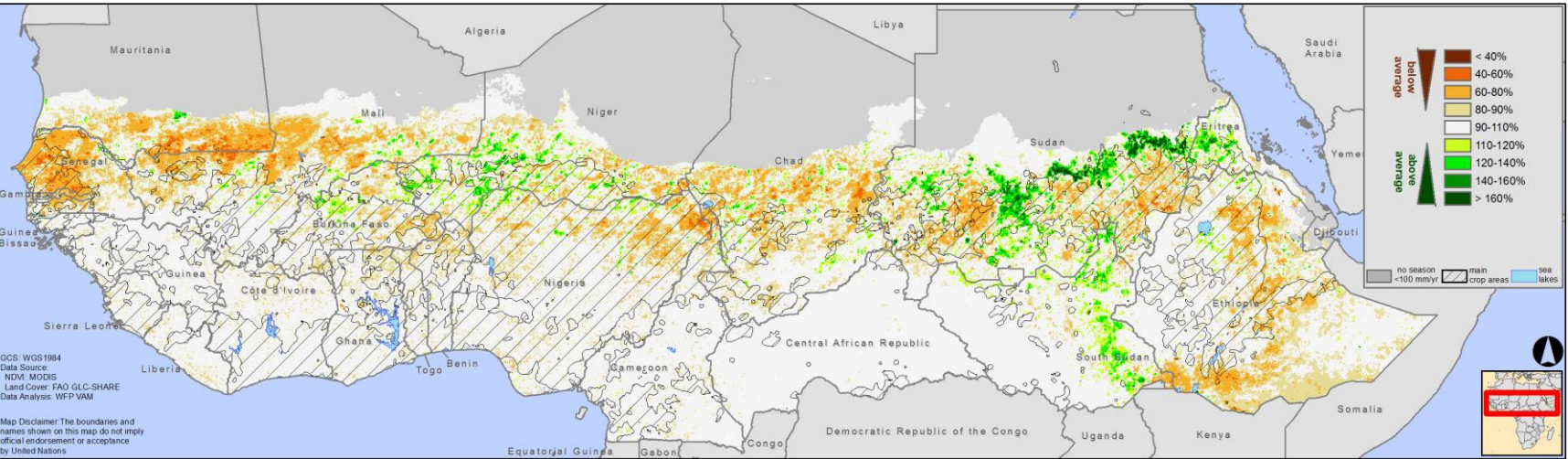
WEST AFRICA, SUDAN, SOUTH SUDAN, ERITREA, and ETHIOPIA
Rainfall (percent of average) in the 30 days to 31 Jul 2014



Total July 2014 rainfall as a percent of a 20 year average. Brown shades for below average rainfall, blue shades for above average rainfall. Note maintenance of widespread deficits though with good improvements in Sudan, eastern Chad, eastern Mali.

20Jul-05Aug 2014

WEST AFRICA, SUDAN, SOUTH SUDAN, ERITREA, and ETHIOPIA
NDVI (percent of average) 20Jul-05Aug 2014



Vegetation index in early August 2014 as a percent of a 12 year average. Orange shades for below average, green shades for above average vegetation conditions. Note below average vegetation in western areas, Chad and Ethiopia while a degree of recovery is seen in Niger and parts of Sudan

Mid Season (July)

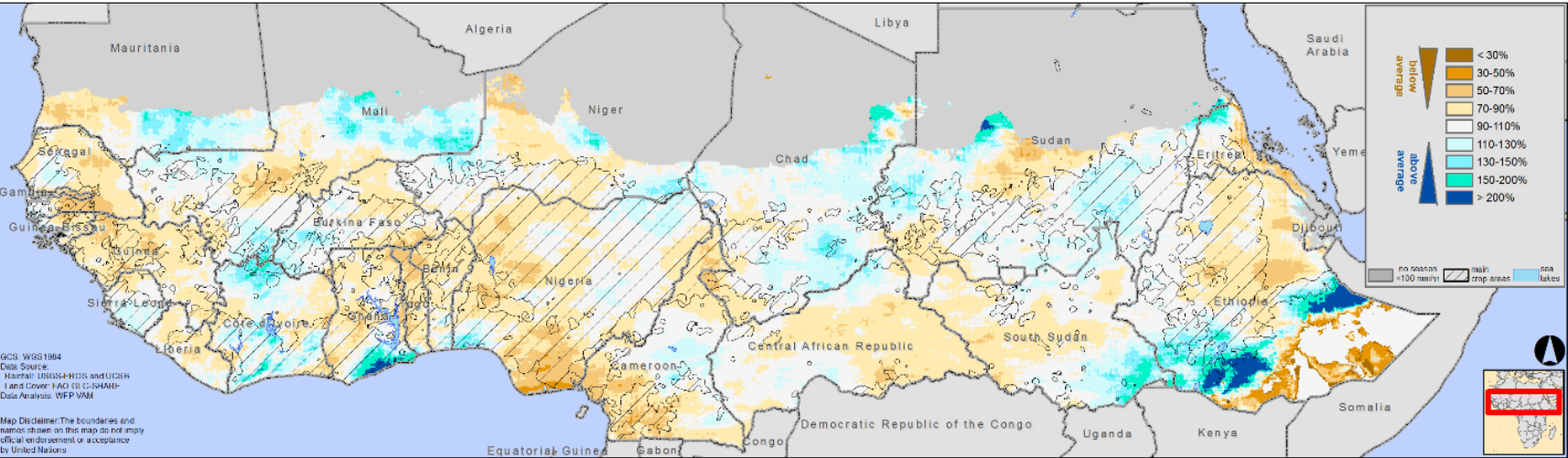
July saw the continuation of drier than average conditions across most of the region though better rains later in the month brought some improvement in eastern Mali, western Niger and western Chad. Very dry conditions continued in Senegal, western Mali, northern Nigeria as well as north-eastern Ethiopia and extended into Cameroon - western CAR and northern Ghana. Moderate dryness affected South Sudan during July.

Northern Sudan registered heavy rains leading to localised flooding events. Wetter than average conditions also affected coastal areas of Ivory Coast and Liberia.

Impacts on crop and pasture development are evident in the satellite vegetation data which shows extensive below average development across the whole of the Sahelian belt.

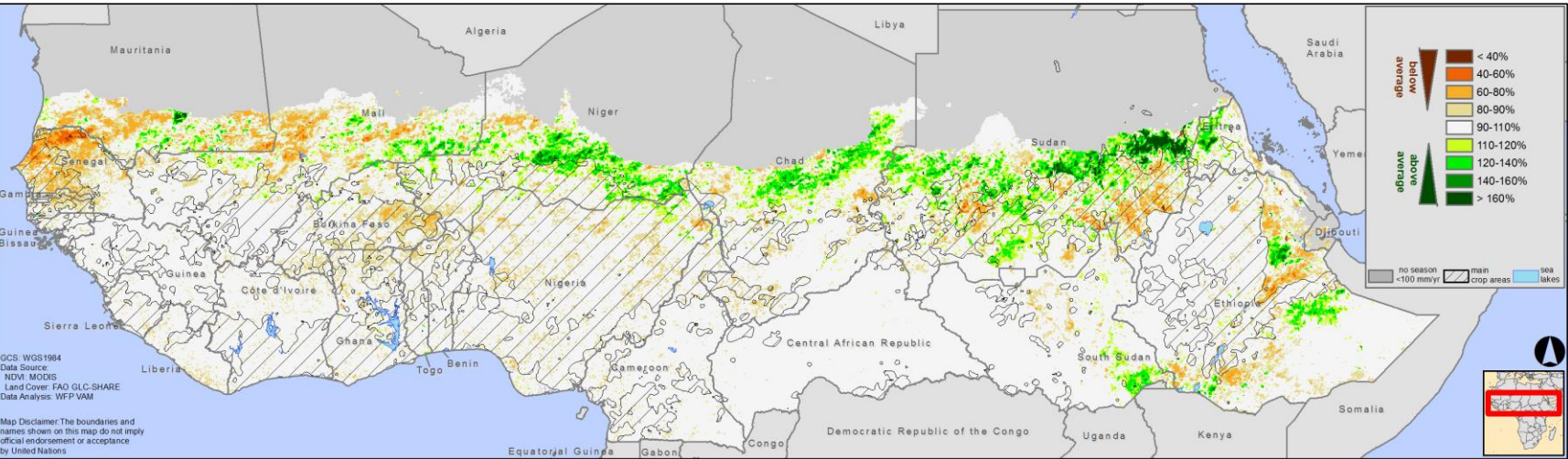
WEST AFRICA SEASONAL ANALYSIS - 2014

31 Aug 2014 WEST AFRICA, SUDAN, SOUTH SUDAN, ERITREA, and ETHIOPIA
Rainfall (percent of average) in the 30 days to 31 Aug 2014



Total August 2014 rainfall as a percent of a 20 year average. Brown shades for below average rainfall, blue shades for above average rainfall. Note the mixed pattern of moderate deficits and surplus rainfall - deficits are maintained in westernmost areas, Nigeria and Ethiopia.

21 Aug-06 Sep 2014 WEST AFRICA, SUDAN, SOUTH SUDAN, ERITREA, and ETHIOPIA
NDVI (percent of average) 21 Aug-06 Sep 2014



Vegetation index in early September 2014 as a percent of a 12 year average. Orange shades for below average, green shades for above average vegetation conditions. Note below average vegetation in western areas and eastern Sudan and good recovery in Niger, Chad and other areas of Sudan.

Peak Season (August)

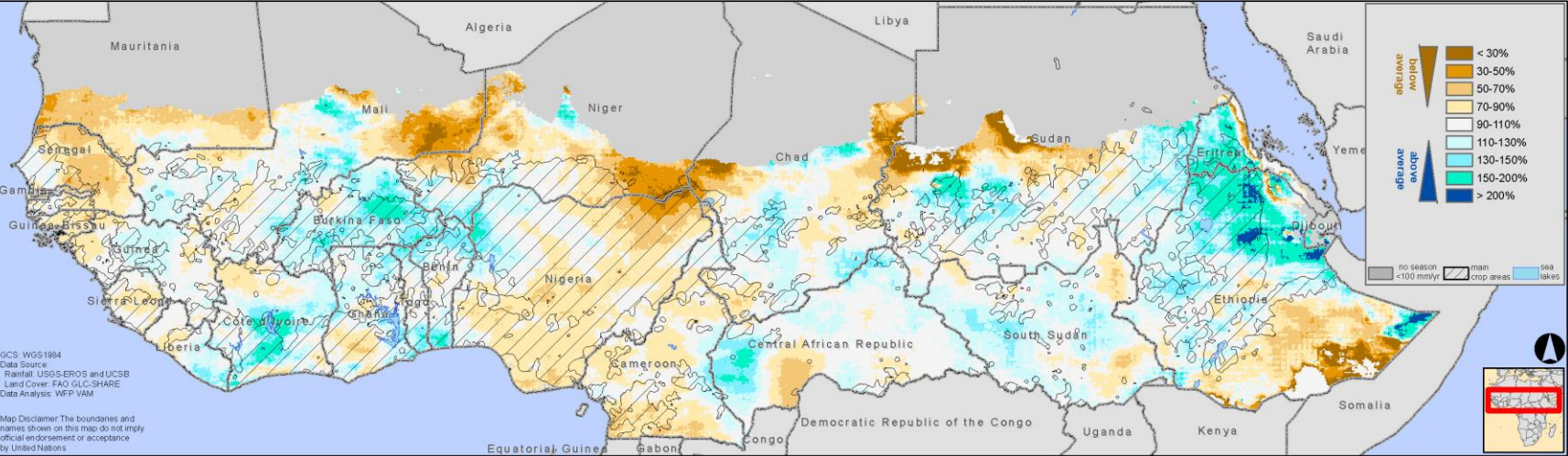
August finally provided some respite from the drier than average conditions that had so far predominated. Above average rainfall was more widespread and rainfall deficits while frequent, were mostly moderate – seasonal rainfall amounts recovered to closer to average levels.

Vegetation conditions improved noticeably in eastern Mali, central and eastern Niger and along marginal pastoral areas in Chad. In Sudan, though marginal northern areas display exceptional greenness, crop development in the key eastern crop producing regions is still way beyond normal for this time of the year. Senegal, southern Mauritania and parts of western Mali remain seriously affected as well as pastoral areas in NE Ethiopia.

Further rainfall improvements were required in September to avoid serious consequences even in areas now under recovery.

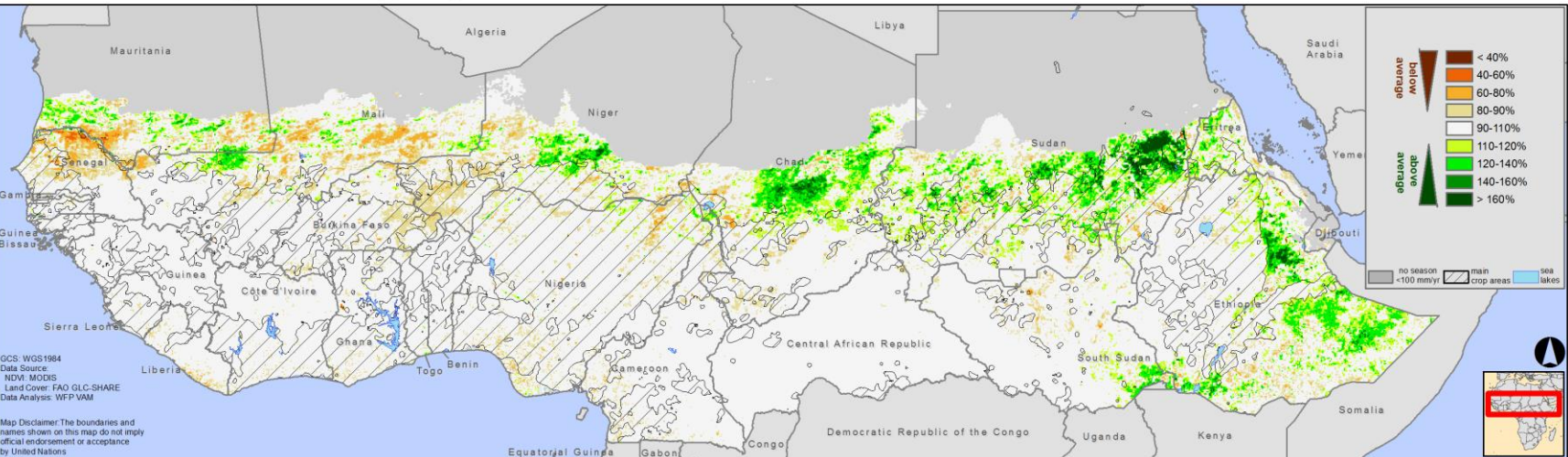
WEST AFRICA SEASONAL ANALYSIS - 2014

30 Sep 2014 WEST AFRICA, SUDAN, SOUTH SUDAN, ERITREA, and ETHIOPIA
Rainfall (percent of average) in the 30 days to 30 Sep 2014



Total September 2014 rainfall as a percent of a 20 year average. Brown shades indicate below average rainfall, blue shades indicate above average seasonal rainfall. Hashed pattern indicates main agricultural areas. Note marked deficits in eastern Mali, Niger and Senegal, with good rainfall in Ethiopia.

22Sep-08Oct 2014 WEST AFRICA, SUDAN, SOUTH SUDAN, ERITREA, and ETHIOPIA
NDVI (percent of average) 22Sep-08Oct 2014



Vegetation index in early October 2014 as a percent of a 12 year average. Orange shades for below average, green shades for above average vegetation conditions. Hashed pattern indicates main agricultural areas. Note widespread above average vegetation levels due to later than average development.

Peak Season (September)

The rainfall patterns in September were mixed across the region: Above average rainfall provided much needed moisture in Burkina Faso, parts of Chad, central Sudan and in particular the northern half of Ethiopia. However, in eastern Mali, most of Niger, as well as Senegal and southern Mauritania, rainfall deficits were again the norm.

Vegetation shows pronounced above average levels across the region, in particular in the more marginal, mainly pastoral, areas – in a few places this is due to a good rainfall season (e.g. NE Sudan, NW Eritrea); however, elsewhere this pattern results from the marked delays in the onset of the rains which pushed vegetation development to the later stages of the season, therefore resulting in higher vegetation levels than usual for this time of the year.

October usually contributes little to the seasonal rainfall – in areas with moderate deficits, late showers help crops reach the end of the season. In areas of strong deficits where September rainfall was poor, October rains will be of little help.

Data Sources:

Rainfall: CHIRPS, Climate Hazards Group, UCSB

Vegetation: MODIS NDVI, EOSDIS-NASA

Land Cover: FAO GLC-Share

Processing:

VAM software components, ArcGIS

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