Chapter 3. Main producing and exporting countries

Building on the global patterns presented in previous chapters, this chapter assesses the situation of crops in 30 key countries that represent the global major producers and exporters or otherwise are of global or CropWatch relevance. In addition, the overview section (3.1) pays attention to other countries worldwide, to provide some spatial and thematic detail to the overall features described in section 1.1. In section 3.2, the CropWatch monitored countries are presented, and for each country maps are included illustrating NDVI-based crop condition development graphs, maximum VCI, and spatial NDVI patterns with associated NDVI profiles. Additional detail on the agroclimatic and BIOMSS indicators, in particular for some of the larger countries, is included in Annex A, tables A.2-A.11. Annex B includes 2016 production estimates for Argentina, Brazil, Australia and South Africa.

3.1 Overview

Section 1.1 of this bulletin stressed that the global patterns of the CropWatch agroclimatic indicators (CWAIs: RAIN, TEMP and RADPAR) anomalies identify well-delimited zones but that the zones mostly do not coincide with, or only imperfectly overlap for, different indicators. This is apparent in figures 3.1 to 3.4 as well.

Figure 3.1. Global map of October 2015-January 2016 rainfall (RAIN) by country and sub-national areas, departure from 14YA (percentage)

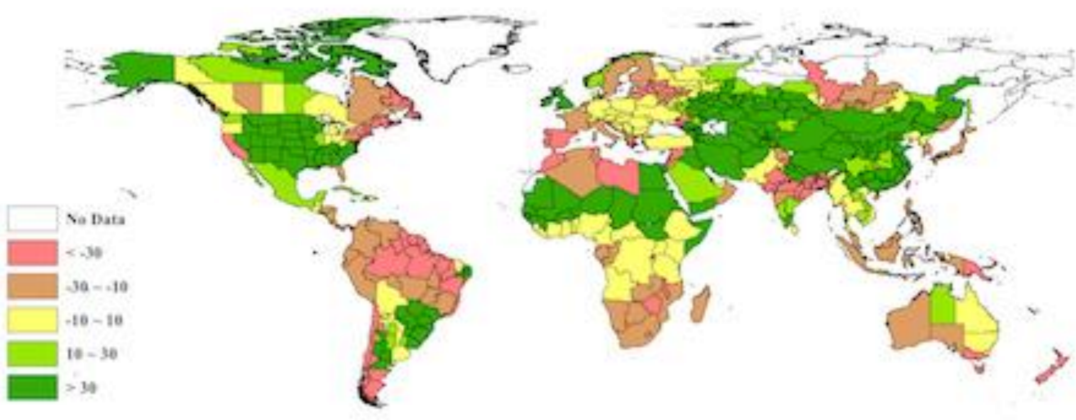


Figure 3.2. Global map of October 2015-January 2016 temperature (TEMP) by country and sub-national areas, departure from 14YA (degrees)

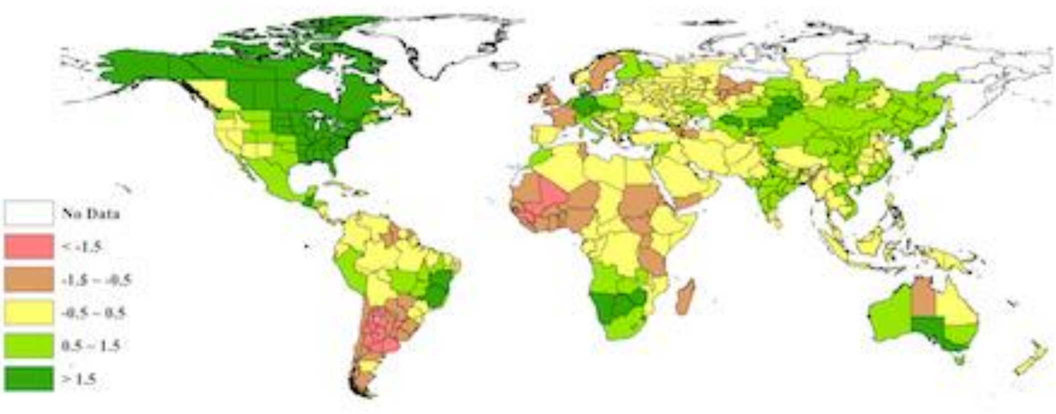


Figure 3.3. Global map of October 2015-January 2016 PAR (RADPAR) by country and sub-national areas, departure from 14YA (percentage)

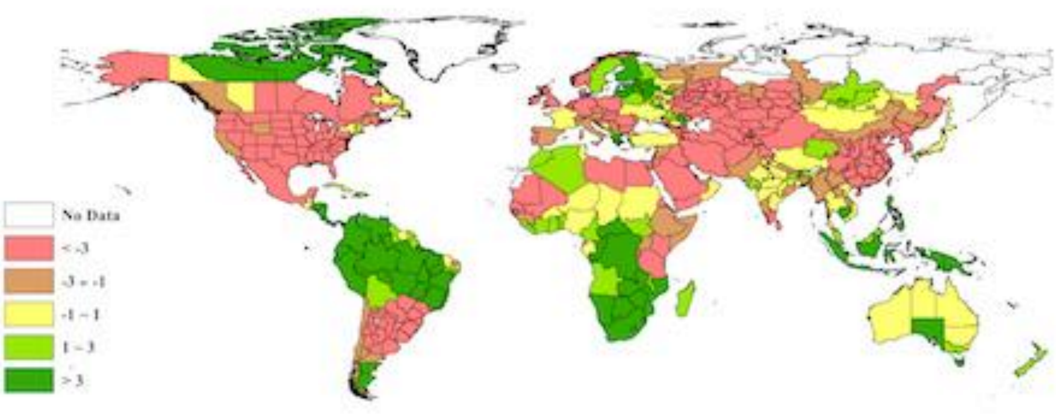
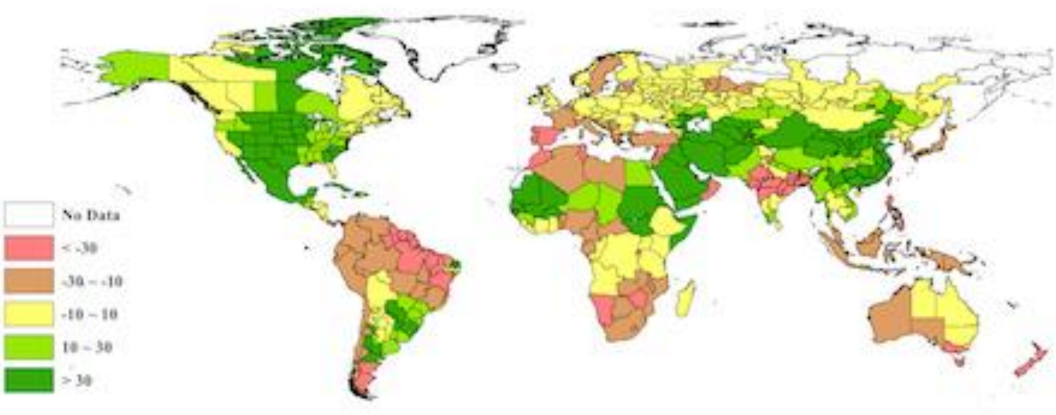


Figure 3.4. Global map of October 2015-January 2016 biomass (BIOMSS) by country and sub-national areas, departure from 14YA (percentage)



At the national and sub-national levels, the countries that underwent the most severe levels of environmental stress can be subdivided into several groups, which confirm the patterns identified in Chapter 1 but also but also provide additional detail more closely related to the likely outcome of the growing seasons. Figure 3.1 lists CropWatch agronomic and agroclimatic indicators for the monitoring period.

Table 3.1. CropWatchagroclimatic and agronomic indicators for October 2015-January 2016, departure from 5YA and 14YA

Country	Agroclimatic Indicators			Agronomic Indicators		
	Departure from 14YA (2001-2014)			Departure from 5YA (2010-2014)		Current
	RAIN (%)	TEMP (°C)	RADPAR (%)	BIOMSS (%)	CALF (%)	Maximum VCI
Argentina	24	-1.7	-10	13	8	0.82
Australia	-11	0.9	0	-11	4	0.68
Bangladesh	-38	-0.2	-1	-33	0	0.83
Brazil	-1	0.4	3	-9	14	0.84
Cambodia	23	0.5	3	-3	1	0.85
Canada	-15	2.4	-5	13	-2	0.84
China	85	0.5	-12	41	0	0.86
Egypt	32	0.3	-5	15	0	0.89
Ethiopia	2	0.3	-3	6	-2	0.79
France	-27	-0.9	0	-18	0	0.91
Germany	3	1.7	-7	4	0	0.93
India	-3	0.6	-1	-18	-4	0.75
Indonesia	-24	-0.1	6	-21	0	0.84
Iran	50	-0.3	-5	47	0	0.73
Kazakhstan	52	1.1	-9	12	-1	0.55
Mexico	21	0.5	-6	49	0	0.81
Myanmar	6	-0.4	-1	12	-1	0.84
Nigeria	-4	-0.7	1	-13	-3	0.80
Pakistan	3	-0.1	-2	18	-2	0.81
Philippines	-18	-0.1	10	-32	0	0.89
Poland	-1	0.7	-4	5	-3	0.81
Romania	-9	0.9	-7	-10	-5	0.88
Russia	16	0.3	-3	0	4	0.66
S. Africa	-26	1.4	9	-27	-12	0.48
Thailand	0	0.4	1	-3	0	0.89
Turkey	-1	0.5	0	-12	-3	0.73
United Kingdom	48	-0.7	-13	-2	0	0.92
Ukraine	1	0.2	0	4	-3	0.63
United States	47	1.6	-7	35	2	0.75
Uzbekistan	59	0.7	-9	51	11	0.83
Vietnam	-8	0.9	-1	13	0	0.90

Note: Departures are expressed in relative terms (percentage) for all variables, except for temperature, for which absolute departure in degrees Celsius is given. Zero means no change from the average value; Relative departures are calculated as (C-R)/R*100, with C=current value and R=reference value, which is the five-year (5YA) or fourteen-year average (14YA) for the same period (July-October).

The countries and sub-countries that suffered mostly from drought are located in (1) northern South America and (2) south-east Asia to New Zealand both at approximately -56% of rainfall on average: (1) The first group includes the Guyanas (Suriname, -70%; Guyana, -62%; Trinidad and Tobago, -53% as well as Dominica, -49%). This area also covers several states in Brazil, such as Roraima (-78%), Amapa (-71%), Para (-52%), Maranhao (-50%) and Amazonas (-32%). While almost all of them score low on the biomass production potential (-45% on average) and high on RADPAR (+5% on average), other agroclimatic indicators are close to average, with some exceptions such as temperature in French Guyana (-1.2°C), and sunshine in Para and Amazonas (+10% and +11%, respectively), two areas where rainfall should nevertheless have been sufficient for normal crop development.

Group (2) includes New Zealand (-66% precipitation), New Caledonia (-60%) and Timor Leste (-57%) as well as the Australian states of Tasmania (-75%) and Victoria (-45%), which deserve a mention in the area from Southeast Asia through to New Zealand. With the exception of temperature in New Caledonia (-1.3°C), all other agroclimatic variables behave as expected, in particular a biomass production potential drop of 46%.

(3) Dry conditions also prevailed in the northern part of the Indian subcontinent, with an average precipitation departure of -52% affecting Bangladesh and Bhutan (-38% and -37%, respectively) as well as the following areas in India: Meghalaya (-81%), Jharkhand (-80%), West Bengal (-73%), Bihar (-60%). Chhattisgarh, Orissa, Gujarat, Sikkim, Rajasthan, Madhya Pradesh, Delhi and Himachal Pradesh recorded rainfall deficits between -59% and -34%. Other agroclimatic variables are close to average, except for a biomass production drop expected to reach 42% on average. In Bhutan, however, the drop would reach only 5% due to more favorable temperature than adjacent areas in India.

(4) Most Mediterranean countries, which all grow winter crops, planted at the end of the year suffered a marked drop in precipitation close to 50%. This includes mostly Morocco (-74%), Portugal (-55%) and Lebanon (-54%), as well as Spain, Tunisia, Syria, Montenegro, Cyprus, Libya, Israel and Greece, with deficit values ranging from -51% to -35%. Civil unrest is an aggravating factor in several of them, but due to the fact that firstly, several months are still needed until the harvest, and secondly, low or no water consumption still prevails for the dormant crops, the outcome of the season will depend on rainfall during the coming months. For the reporting period, the biomass potential drop averages 29%. Morocco, Syria and Lebanon all recorded abnormally high temperatures (0.9°C, 1.0°C and 1.9°C, respectively). This has increased evaporation and may negatively impact future soil water availability.

(5) In addition to California (-37% precipitation over the reporting period), several areas in the north-eastern USA and Canada suffered from unusually dry conditions with deficits ranging from -52% (Maine) to -39% (Massachusetts). The vegetation and crops in the area, which also includes Newfoundland and Labrador, Nova Scotia, New Hampshire, New Brunswick, Vermont and New Jersey is unlikely to suffer due to the early winter drought.

(6) Several countries in Africa, even with a water stress that is low compared with the previous countries, are more likely to suffer due to the semi-arid conditions and inherently more fragile farming systems. They include mostly Lesotho (-44%), Zimbabwe (-42%), Malawi (-36%) and Namibia (-29%). Other countries in the area (particularly South Africa, Botswana) are at deficit levels close to 25% on average. Rwanda deserves a particular mention in the current context (-35%) in the light of the social and political tension prevailing in the region.

(7) The last area to be mentioned includes the larger Baltic, i.e. the Baltic States as well as the adjacent Russian areas to the east. Low rainfall was accompanied by large positive RADPAR values and positive temperature anomalies, which, similar to the situation in the Mediterranean countries, may negatively affect soil moisture availability in the coming months depending on the amounts of rainfall still to come

between now and the time of harvest. Rainfall in other countries also saw a decrease, for example Estonia (-41%) and Latvia (-37%) with the area of S. Petersburg in Russia (-48%) and several areas to the east including Moscow, Adygeya Republic, Tverskaya and Pskovskaya Oblasts which record deficits between 37% and 32%.

3.2 Country analysis

This section presents CropWatch results for each of thirty key countries (China is addressed in Chapter 4). The maps refer to crop growing areas only and include (a) Crop condition development graph based on NDVI average over crop areas, comparing the April-July 2015 period to the previous season and the five-year average (5YA) and maximum. (b) Maximum VCI (over arable land mask) for October 2015-January 2016 by pixel; (c) Spatial NDVI patterns up to January 2016 according to local cropping patterns and compared to the 5YA; and (d) NDVI profiles associated with the spatial pattern under (c). See also Annex A, tables A.2-A.10, and Annex B, tables B.1-B.4, for additional information about indicator values and production estimates by country. Country agricultural profiles are posted on www.cropwatch.com.cn.

Figures 3.5-3.34. Crop condition for individual countries ([ARG] Argentina- [ZAF] South Africa) for October 2015-January 2016

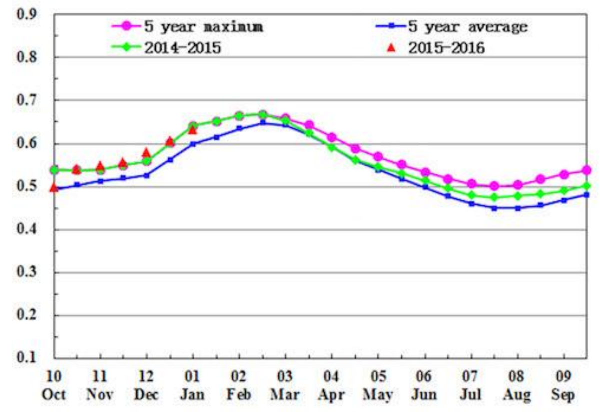
[ARG] Argentina

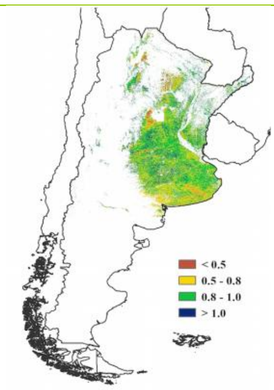
Generally, crops in Argentina experienced favorable conditions from October 2015 to mid January 2016. The harvest of winter wheat was concluded by mid January, and summer crops (maize and soybean) approached the peak of the growing season. Agroclimatic conditions were generally favorable for Argentina with 24% above average RAIN; accordingly, TEMP was 1.7 °C and RADPAR was 10% below average. Major agricultural provinces experienced similar patterns but with different departures from average RAIN, ranging from 0% to about 80% above average. Abundant rainfall accompanied by well below average radiation occurred in Corrientes, La Pampa, Misiones, and San Luis; this delayed farm operations and hampered the growth of summer crops. Sufficient rainfall (about 10% above average) in Buenos Aires, Cordoba, Entre Rios, and Santa Fe was beneficial for the development of soybean and maize crops. BIOMSS in each province was above average except for Salta and Chaco where the indicator was 6% below average and average, respectively.

According to the NDVI development profiles, crop condition was above the five-year average and at the same level as the previous year. The national average VCIx at 0.82 also confirms good crop condition. Areas in the west of Mar Chiquita Lake were the only regions with continuously below average crop condition during the monitoring period. A great diversity of crop conditions was observed as shown in the NDVI departure from the five-year average clustering and the corresponding profiles: in northern Argentina, San Luis, central Buenos Aires, and northern La Pampa crop condition was below average before November but it improved thereafter. In contrast, the condition of crops deteriorated in southern Santa Fe and the neighboring regions from November 2015. CALF for Argentina was 8% above average, indicating an increased summer crops planting area.

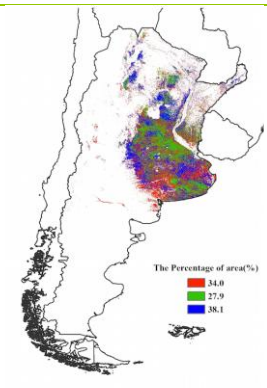
Based on the time series of NDVI data over the whole winter wheat growing season, winter wheat production was revised down to 10.7 million tons, 11% below that of the 2014-2015 growing season. The harvest area and yield for winter wheat was both below 2014-2015 (See Annex B Table B.1).

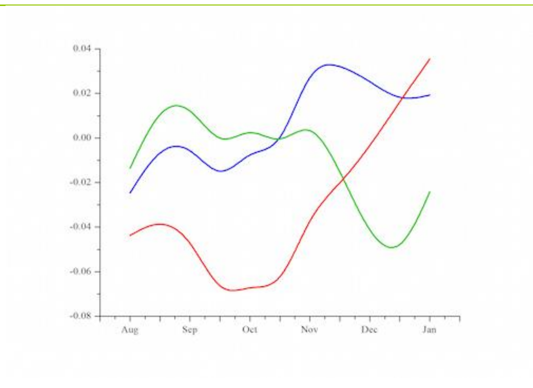
Figure 3.5. Argentina crop condition, October 2015-January 2016





(a) Crop condition development graph based on NDVI (b) Maximum VCI





(c) Spatial NDVI patterns compared to 5YA

(d) NDVI profiles

ARG **AUS**BGD BRA CAN DEU EGY ETH FRA GBR IDN IND IRN KAZ KHM MEX MMR NGA PAK PHL POL ROU RUS THA TUR UKR USA UZB VNM ZAF

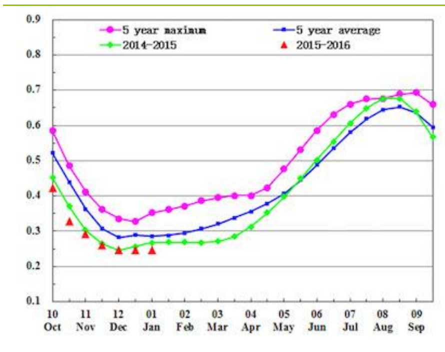
[AUS] Australia

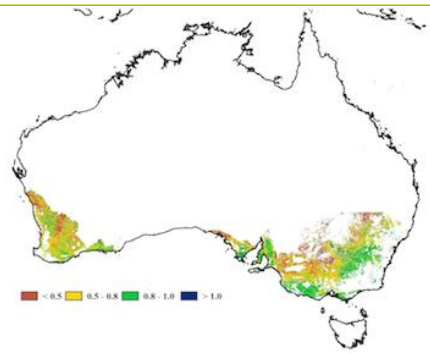
Crops in Australia showed below average conditions throughout the monitoring period from October 2015 to January 2016, which included the harvest season for winter crops (wheat and barley) from October.

The unfavorable crop condition is linked to below average precipitation (Southern Australia: -29%, Victoria: -45%, Western Australia:-12%) and high temperature (Southern Australia: +1.8°C, Victoria: +2.1°C, Western Australia: +1.1°C) which has increased plant water demand above average levels. The average maximum VCI only reaches 0.68 for Australia's cropped land (Table 3.1). The NDVI profiles also reflect below average conditions in most parts of south-western Western Australia, south-eastern Southern Australia as well as northern and middle Victoria.

Although the cropped arable land has increased by 4%, CropWatch reports a reduction of 1% in production for wheatin 2015-16. (Table B.2 in Annex B.)

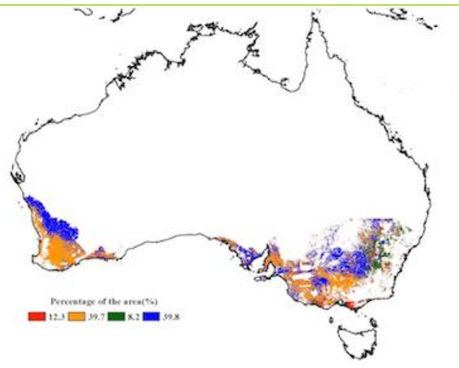
Figure 3.6. Australia crop condition, October 2015-January 2016

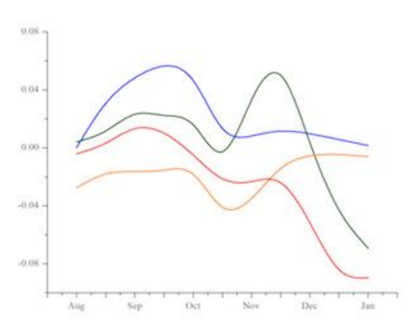




(a) Crop condition development graph based on NDVI

(b) Maximum VCI





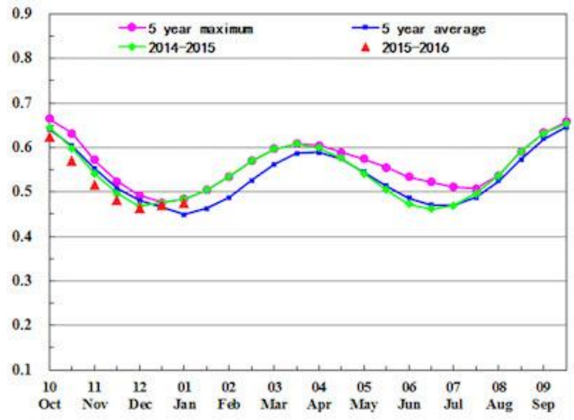
(c) Spatial NDVI patterns compared to 5YA

(d) NDVI profiles

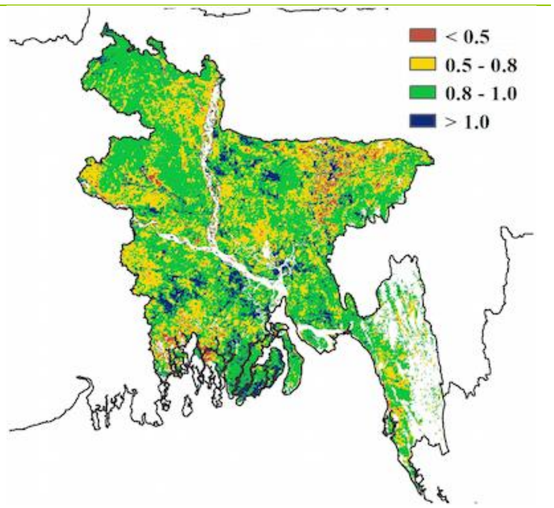
[BGD] Bangladesh

According to the CropWatch indicators overall crop condition is poor for Bangladesh. The reporting period corresponds to the harvesting of Aman and planting of irrigated Boro dry season rice. The rainfall (RAIN) was 38% below average including the coastal region (-15%) and Gangetic plain (-76%). The biomass accumulation potential (BIOMASS, -33%) was below average, but both temperature (TEMP, -0.2ºC) and photosynthetically active radiation (RADPAR, -1%) were average. The national NDVI profile was below the average of the previous five years pointing at poor crop condition. The maximum VCI below 0.5 was recorded in Sylhet and in some coastal parts of Khulna and Barisal indicating poor crop condition. Spatial NDVI profiles for the country improved after November and reached above average levels in January.

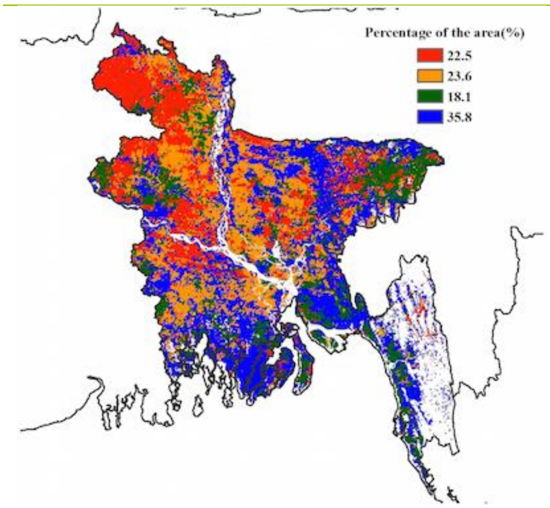
Figure 3.7. Bangladesh crop condition, October 2015-January 2016



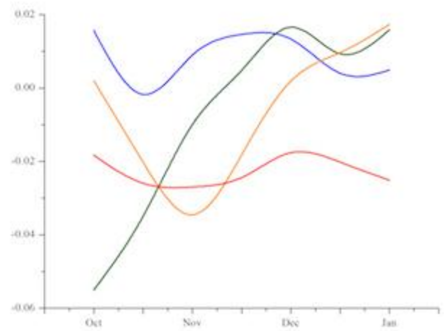
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA



(d) NDVI profiles

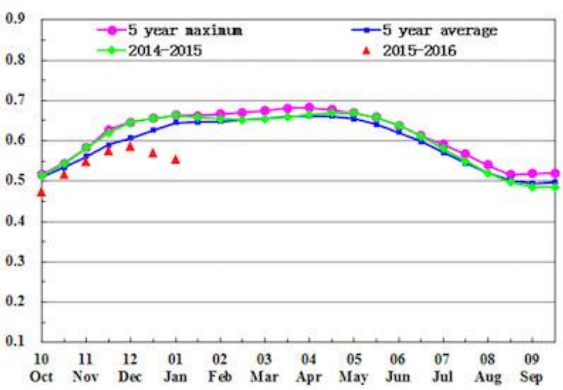
[BRA] Brazil

During the monitoring period from October 2015 to mid January 2016, crops in Brazil suffered from unfavorable conditions. Currently soybean is at the flowering stage and first season maize has reached grain-filling. The harvesting of wheat was concluded by the end of 2015. Nationally, agroclimatic indicators show average conditions with 1% below average RAIN, 0.4°C above average air temperature and 3% above average radiation. However, BIOMSS still decreased 9% compared to the average. For the current season, states can be ranked into two groups: (1) excessive rainfall in southern Brazil and north-eastern Brazil which resulted in insufficient photosynthesis of summer crops, including Sao Paulo, Santa Catarina, Parana and Mato Grosso Do Sul with precipitation 40% or more above average. RAIN was even double compared with average in Paraiba, Rio Grande Do Norte and the key agricultural states of Rio Grande Do Sul; (2) shortage of rainfall was observed in most other states leading to low BIOMSS. Although they are not major agricultural states, it is noteworthy that BIOMSS in Rio Grande Do Norte and Paraiba was at least 50% above average.

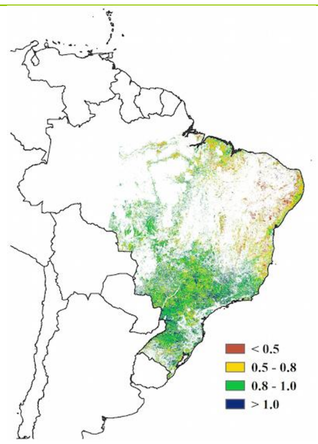
The unevenly distributed rainfall in Brazil generally resulted in below average crop condition as shown by the well below average NDVI since December 2015 (Figure 3.8). Below average crops occur in north-eastern coastal regions. In contrast, crops in Mato Grosso Do Sul, Sao Paulo and Minas Gerais are above the five-year average due to favorable moisture during the monitoring period. The low VCIx values in north-eastern Brazil coincide with below average crops according to the NDVI departure cluster map. Due to rainfall in major agricultural regions, CALF was 14% above the five-year average, indicating an increased summer crops area, which promises a good summer growing season outcome.

The overall situation for Brazil is still unclear due to low rainfall in the major soybean producing state Mato Grosso. CropWatch will update the production outlook in the next Bulletin to be released in May 2016. With the updated NDVI time series up to the end of 2015, the whole growing season of wheat can now be covered and the wheat production estimate was revised to 7 million tons, 4.5% above the previous year and 67 ktons above the November 2015 forecast.

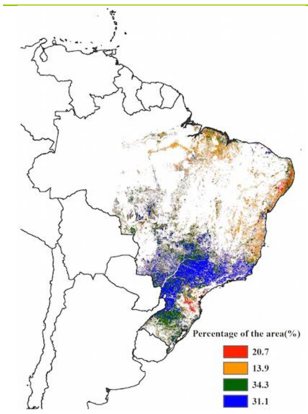
Figure 3.8. Brazil crop condition, October 2015-January 2016

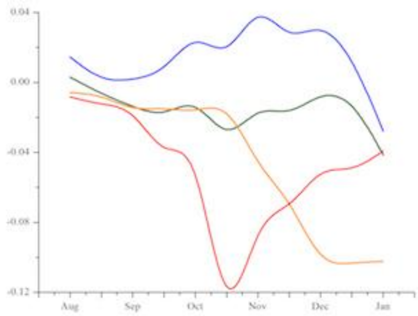


(a) Crop condition development graph based on NDVI



(b) Maximum VCI





(c) Spatial NDVI patterns compared to 5YA

(d) NDVI profiles

ARG AUS BGD BRA **CAN** DEU EGY ETH FRA GBR IDN IND IRN KAZ KHM MEX MMR NGA PAK PHL POL ROU RUS THA TUR UKR USA UZB VNM ZAF

[CAN] Canada

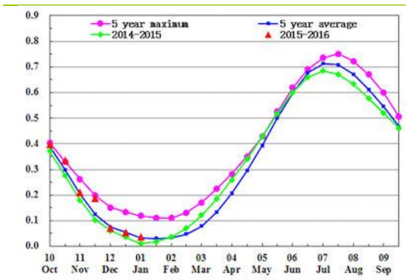
This monitoring period includes the end of the harvest of spring-summer crops, and all crops had been harvested by the end of November 2015. In general, the crop condition as assessed by the NDVI (Figure 3.9) looks average at this monitoring stage.

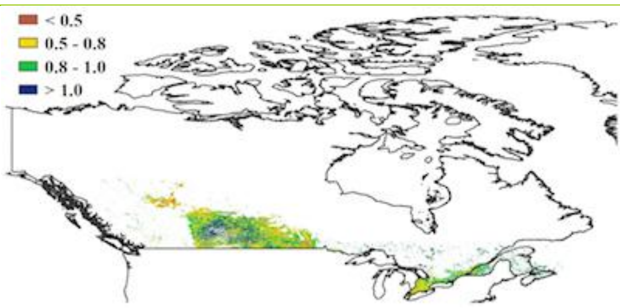
Warm yet dry agroclimatic conditions were common during the monitoring period. Rainfall over agricultural areas was 15% below average while temperature was significantly above (+2.4°C). As a result, soil moisture shortage may become a more serious issue due to continued drought, which may negatively affect the coming planting season in 2016. The RAIN and TEMP indicators for the three main agricultural provinces of Canada are as follows: Alberta, -17% and +2.1°C; Manitoba, +13% and +3.5°C; Saskatchewan, +3% and +3.2°C.

As mentioned in the last two CropWatch Bulletins, two of the major crop production provinces of Canada, Alberta and Manitoba suffered serious drought during the key growth stage of spring-summer crops, resulting in lower crop production in 2015; the relatively high NDVI values in this monitoring period may have resulted in the delayed harvest of summer crops in 2015.

The cropped arable land fraction (CALF) decreased by 2% compared to last five-year average.

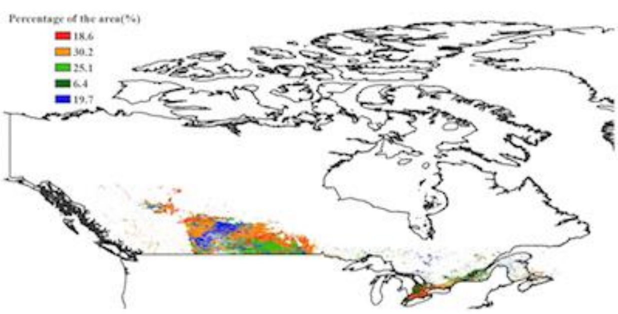
Figure 3.9. Canada crop condition, October 2015-January 2016

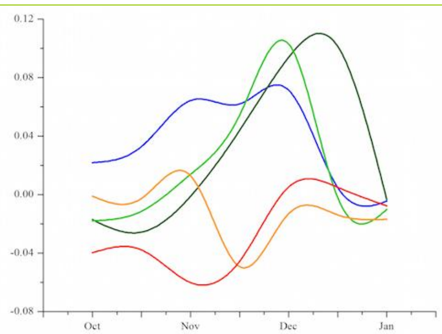




(a) Crop condition development graph based on NDVI

(b) Maximum VCI





(c) Spatial NDVI patterns compared to 5YA

(d) NDVI profiles

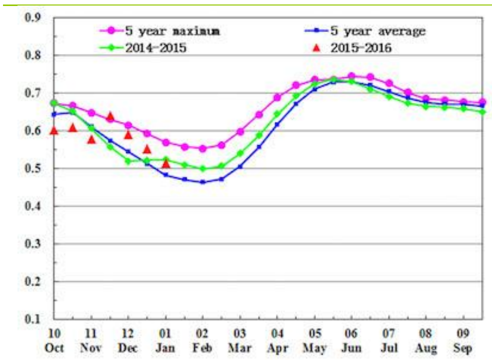
[DEU] Germany

The crops in Germany showed below-average to above-average conditions (according to areas) during the reporting period from October 2015 to January 2016. This time period covers the late stages of sugar beets (October harvest) and early vegetative stages of winter wheat and winter barley (planted in October).

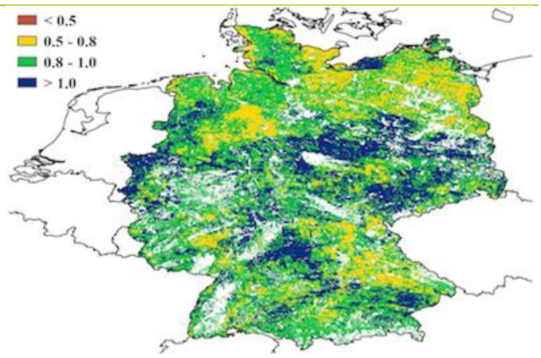
The Crop Watch agroclimatic indicators show above average rainfall and temperature (+3% and +1.7°C), and a 7% decrease in radiation. With positive moisture and thermal anomalies, biomass is expected to increase by 4% nationwide compared to the five-year average.

As shown by the crop condition development graph, national NDVI values were below average from October to early November due to lack of rainfall. National NDVI values started well above average and came close to the five-year maximum from mid-November to January, which is consistent with sufficient rainfall and suitable temperatures during this period. The spatial NDVI patterns also indicate that NDVI was above average from mid-November to January in 58.3% of arable land. This spatial pattern is also reflected by the maximum VCI in the different areas, with a VCIx of 0.93 for Germany overall. Generally, due to the suitable temperature and moisture conditions after mid-November, the agronomic indicators mentioned above indicate a favorable condition for most winter crop areas of Germany at the moment. Crops are nevertheless still vulnerable and the coming months may result in increased winter death due to poor hardening

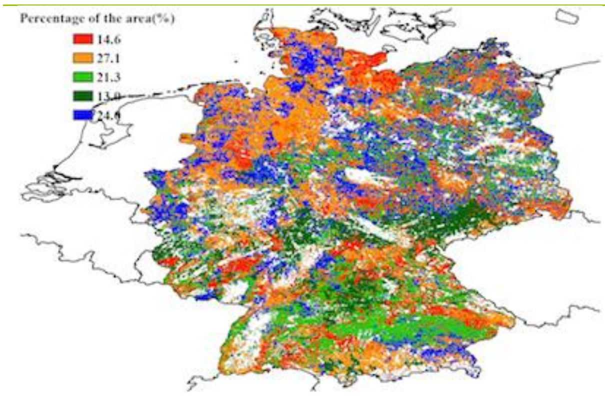
Figure 3.10. Germany crop condition, October 2015-January 2016



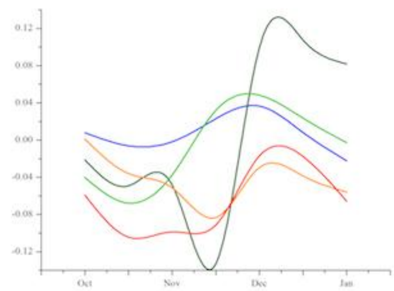
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA



(d) NDVI profiles

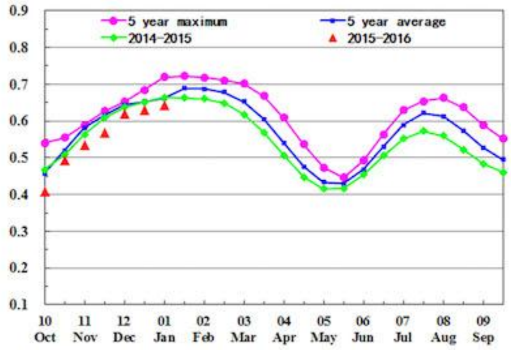
ARG AUS BGD BRA CAN DEU **EGY** ETH FRA GBR IDN IND IRN KAZ KHM MEX MMR NGA PAK PHL POL ROU RUS THA TUR UKR USA UZB VNM ZAF

[EGY] Egypt

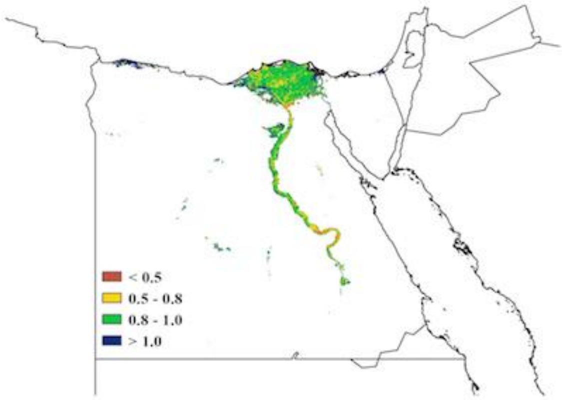
During the monitoring period, summer crops had been harvested while winter crops were still growing. The crop condition development graph based on NDVI (Figure 3.11) indicates that crop condition was slightly below the recent five-year average at the national scale. As for the sub-national regions, poor crop condition occurred in the western Nile Delta and the Nile Valley until December 2015. Conditions improved in January at the margin of the western and south-western Nile Delta, as indicated by the spatial NDVI patterns and NDVI profiles. Altogether, 58.6% of crops were at an average level, mostly in the northern and eastern Delta.

The CropWatch agroclimatic indicators show that rainfall was above average by 32% while temperature and RADPAR were near and below average, respectively (+0.3°C and -5%). As a result BIOMSS increased 15% compared to average. Moreover, the value of the maximum VCI reached 0.89 at a national scale, with 0.8-1.0 in most regions of the Nile Delta and Valley and 0.5-0.8 in the southern Valley, as implied by the graph of maximum VCI. The cropped arable land fraction (CALF) was at the average level. Considering the fair crop condition and stable CALF, CropWatch estimates the yields of winter crops will be close to the recent five-year average level.

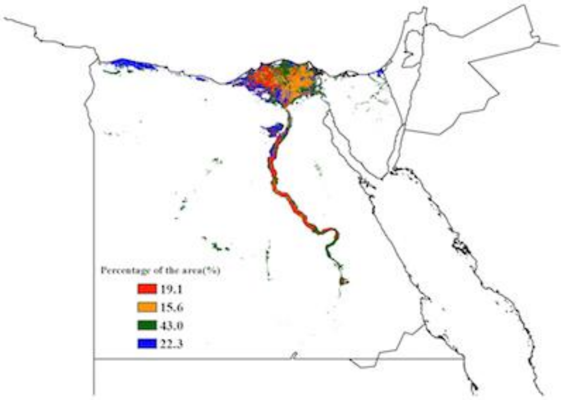
Figure 3.11. Egypt crop condition, October 2015-January 2016



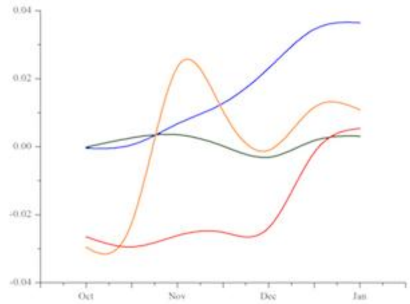
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA



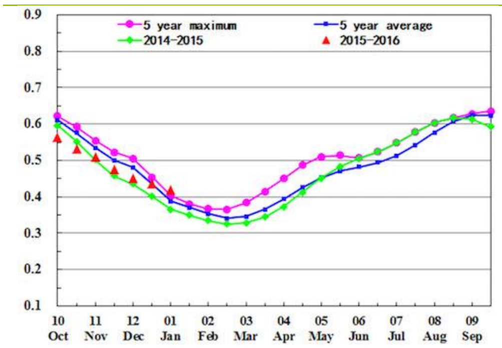
(d) NDVI profiles

[ETH] Ethiopia

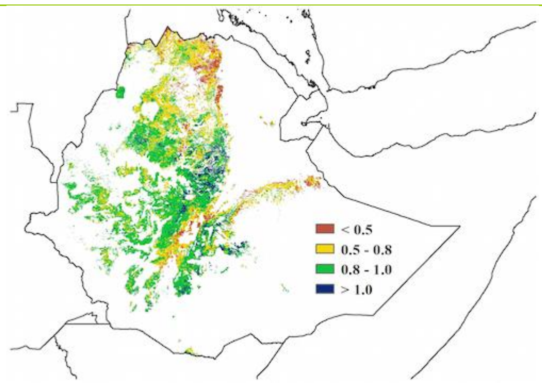
The harvest of all major crops and Meher crops was completed in December 2015, leaving only some minor coarse grains to be harvested in January 2016. Over the reporting period, all agroclimatic indicators were about average, including seasonally low rainfall. Crop condition at the time of harvest was below the average of the previous five seasons, and marked regional differences can be identified based on NDVI profiles (Figure 3.12).

In general, conditions were average in western and southern areas representing about 50% of croplands. This includes the northwest lowland areas where sesame, roots and cereals are cultivated (rainfall +52%) as well as the south-western coffee-enset highlands (+16% precipitation). The other half experienced consistently below average conditions in particular in centre and east Oromia and in Tigray; the rainfall deficit was largest in the north-western sesame irrigated lowlands (-22%). In the south-eastern Mendebo Highlands (-12% to 156mm for the reporting period) rainfall was moderately below average, as well as in the mixed maize zone (-8% to 149mm). The cropped arable land fraction dropped 2% but this figure is difficult to interpret because of unusual crop condition and phenology. Overall, environmental and crop conditions were unfavorable.

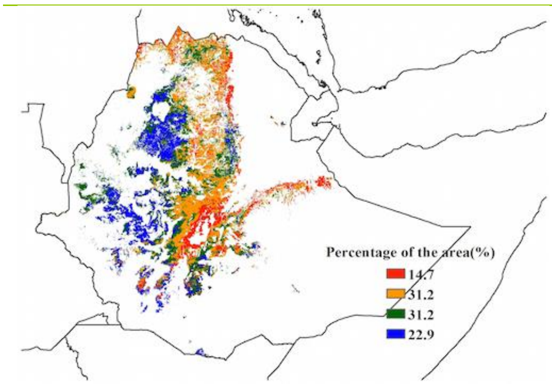
Figure 3.12. Ethiopia crop condition, October 2015-January 2016



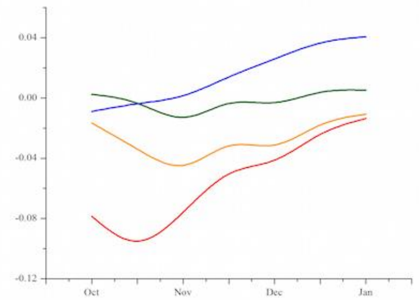
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA



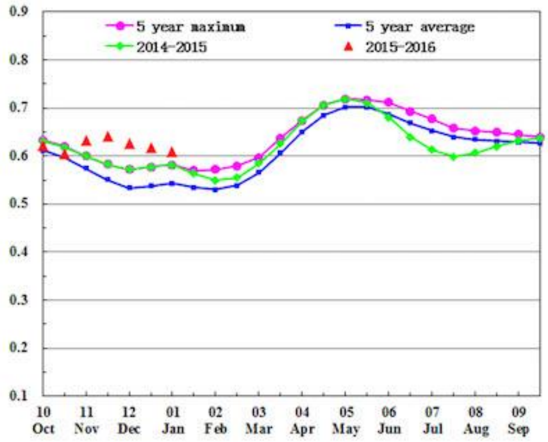
(d) NDVI profiles

[FRA] France

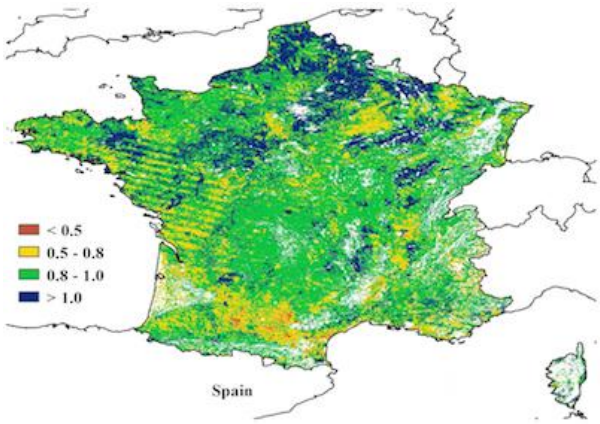
This report's monitoring period covers the late stages of sugar beets (October harvest) and the early vegetative stages of soft wheat and winter barley (planted in October). At the national scale, the CropWatch RADPAR indicator was average but TEMP and rainfall decreased by 0.9°C and 27% below average, resulting in a BIOMSS drop of 18% below the recent five-year average (Figure 3.13).

As shown by the NDVI profiles, however, national NDVI values were well above average and even above the five-year maximum from early November to January, consistent with a maximum VCI of 0.91 for France overall. The country's spatial NDVI patterns indicate a situation that on the whole is better than the five-year average, except in 27.4% of agricultural areas (3.6% + 23.8%) regions, including most of Limousin, Poitou-Charentes and north of Midi-Pyrenees, most of Lorraine and Alsace and east of Rhone-Alpes, which were influenced by water stress. Generally, the agronomic indicators mentioned above indicate favorable condition for most winter crop areas of France.

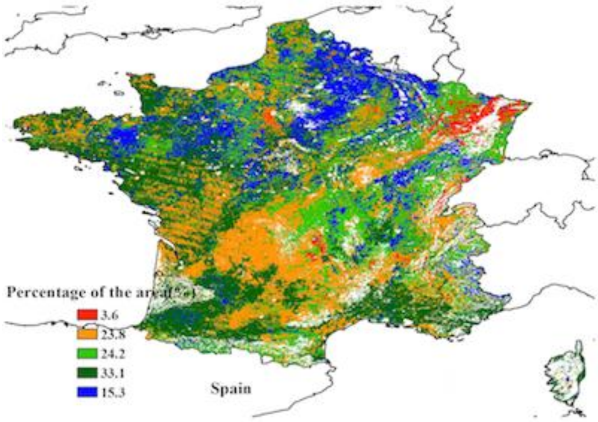
Figure 3.13. France crop condition, October 2015-January 2016



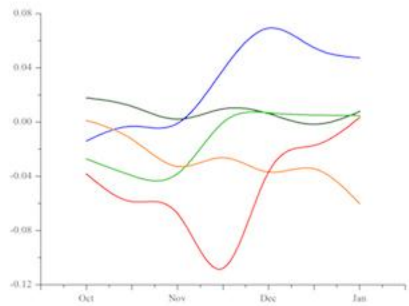
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA



(d) NDVI profiles

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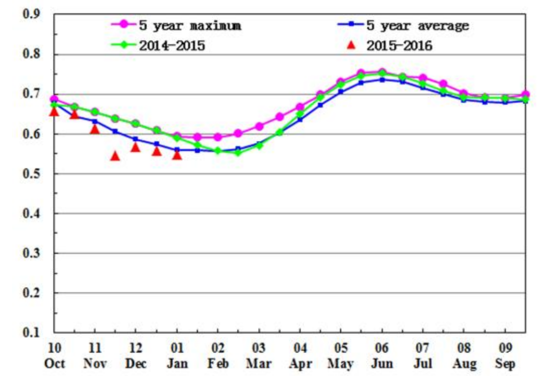
[GBR]United Kingdom

Crops in the United Kingdom showed below average conditions during this reporting period. Summer crops (including sugar beets) have been harvested, and winter crops (winter wheat, winter barley and rapeseed) have been planted. The country experienced unusually favourable, and sometimes catastrophic, rainfall conditions with an increase of the RAIN CropWatch agroclimatic indicators (Figure 3.14) of 48% compared to average.

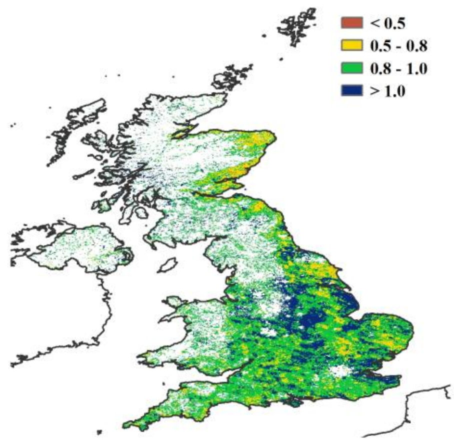
As shown by the NDVI profiles, national NDVI values were lower than average from November to January, but close to average by mid-October. According to the crop condition map based on NDVI, close to 65.9% of the country recorded lower than average NDVI from October to January. Only 34.1% of the region was higher than the average (Somerset, Wiltshire, Gloucestershire, Warwickshire, Northamptonshire, Leicestershire, West Midlands and Cheshire). This spatial pattern is also reflected by the maximum VCI in the different areas, with a VCIx of 0.92 for the country overall.

Temperature (TEMP, -0.7°C) and radiation (RADPAR, -13%) were below average. Due to excessive rain and low temperatures, BIOMSS decreased by 2% compared to the five-year average at the national scale, reflecting the above-mentioned crop conditions. Overall, the agronomic indicators currently show rather unfavorable conditions for the winter crop areas of the United Kingdom. The situation is likely to improve in spring.

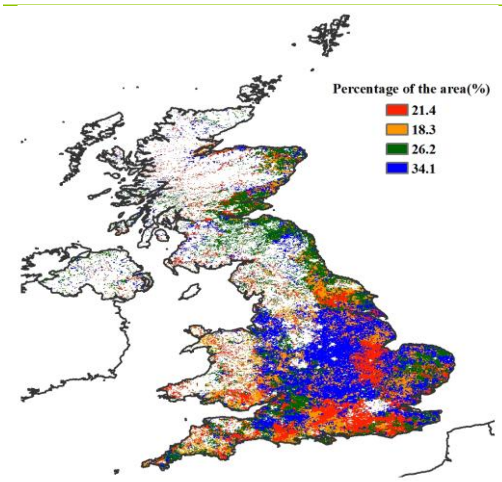
Figure 3.14. United Kingdom crop condition, October 2015-January 2016



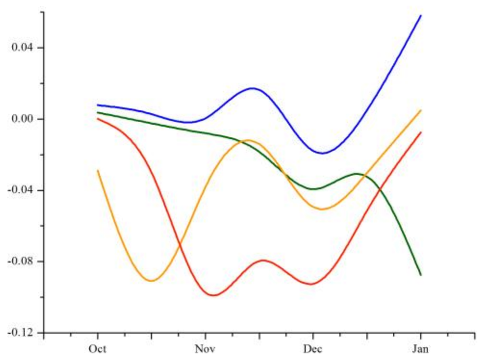
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA



(d) NDVI profiles

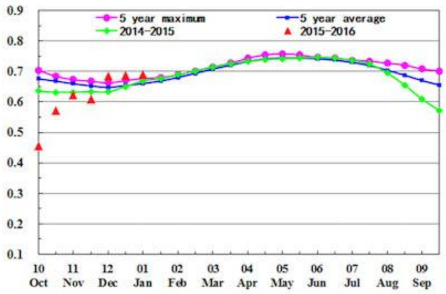
[IDN] Indonesia

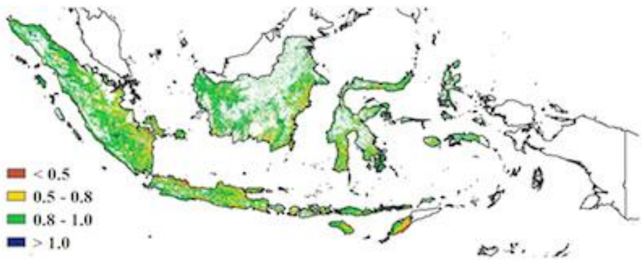
The crops in Indonesia generally showed poor condition between October and January. The monitoring period covers the harvesting stage of the dry season maize and rice, while wet season crops are currently in the field.

Compared with the recent average, precipitation was significantly below average (-24%) while the country enjoyed favorable PAR with values about 6% higher than average. As a result of the ongoing El Niño, the rainy season started late in Indonesia: dry and warm conditions had negative effects on rice planting, resulting in a drop of 21% in BIOMASS compared with the recent five-year average, which is confirmed by the national NDVI profiles showing poor crop condition in October and November (Figure 3.15).

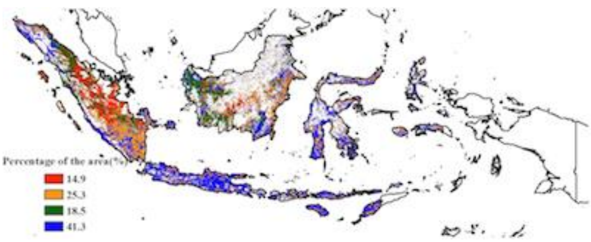
According to the spatial patterns of NDVI profiles, NDVI behavior was very poor in most parts of Sumatra and central Kalimantan island during the whole monitoring period, and crop condition in Java and eastern islands of Indonesia recovered to average or above average in December and January. Altogether, CropWatch estimates that dry conditions have caused yield reduction to this season's crops.

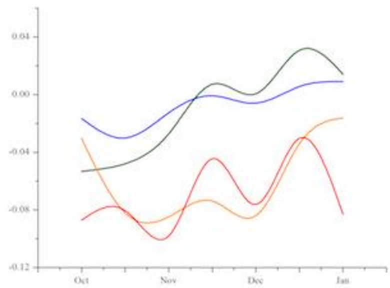
Figure 3.15. Indonesia crop condition, October 2015-January 2016





(a) Crop condition development graph based on NDVI (b) Maximum VCI





(c) Spatial NDVI patterns compared to 5YA (d) NDVI profiles

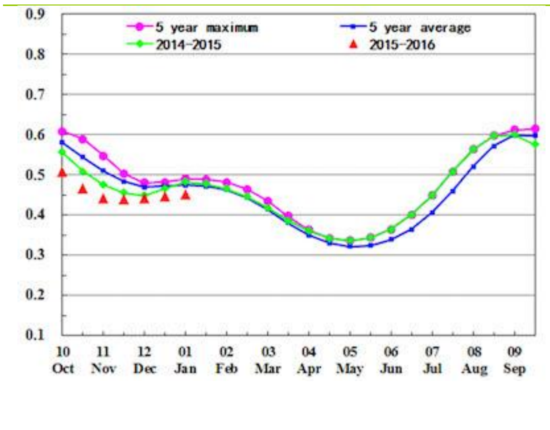
[IND]India

The monitoring period covers mainly the harvesting season of Kharif crops. Crop condition development was below both the previous year and the five-year average. Rainfall (RAIN) was below average for the country including Assam (-16%), Bihar (-60%), Chhattisgarh (-59%), Gujarat (-56%), Goa (-11%), Himachal Pradesh (-34%), Jharkhand (-80%), Maharashtra (-21%), Madhya Pradesh(-39%), Odisha (-57%), Rajasthan(-42%), West Bengal(-73%) and Sikkim (-50%). Several states experienced above average rainfall including Tamil Nadu (+57%), Uttarakhand (+37%), Karnataka (+14%), Kerala (+7%), Haryana (+25%), Nagaland (+18%) and Mizoram (+70%).

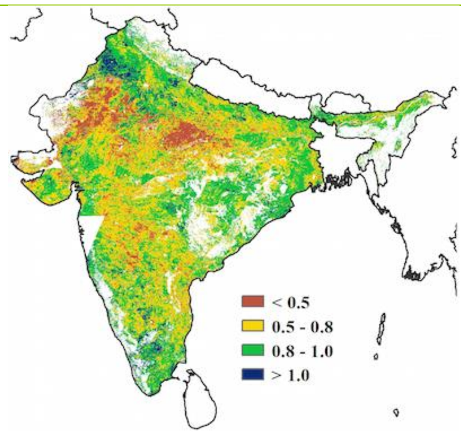
Low rainfall triggered the negative (-18%) biomass accumulation (BIOMASS) for the country mainly in Bihar (-54%), Chhattisgarh (-57%), Gujarat (-64%), Himachal Pradesh (-27%), Jharkhand (-72), Maharashtra (-41%), Madhya Pradesh (-42%), West Bengal (-58%), Rajasthan (-58%) and Odisha (-48%). Temperature (TEMP, +0.6°C) and photosynthetically active radiation (RADPAR,-1%) were close to average.

In central and western India, both maximum VCI values below 0.5 and NDVI profiles indicate poor crop condition (Figure 3.16). Overall, deficit rainfall resulted in the poor crop condition for the country as a whole and reduced output is expected.

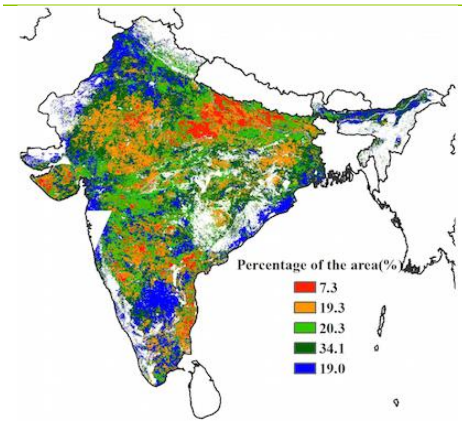
Figure 3.16. India crop condition, October 2015-January 2016



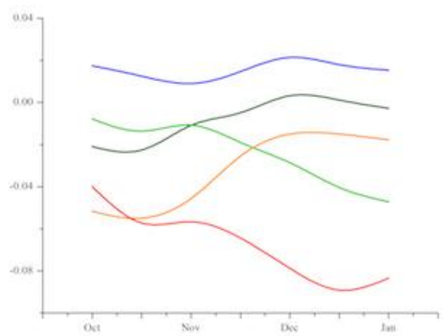
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA



(d) NDVI profiles

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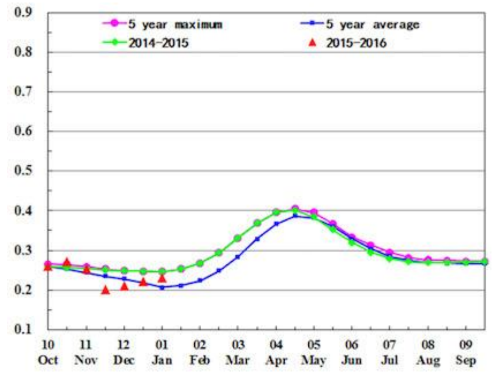
[IRN] Iran

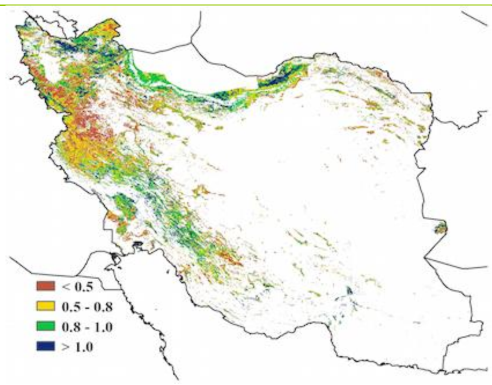
The crop condition was below average from November 2015 but recovered by January 2016. The planting of winter wheat has been completed while it was still underway for barley (to be completed at the end of January). Accumulated rainfall (+50%) was above average, but temperature (-0.3°C) and RADPAR (-5%) were below average.

The agroclimatic conditions (Figure 3.17) for the current season resulted in an increase of the BIOMSS index by 47%. The national average of VCIx (0.73) was above average conditions, and the CALF was close to the five-year average. Crop conditions were close to, or above, the five-year average in the Razavi Khorasan and North Khorasan provinces of the northeast region, and the Khuzestan and Fars province in the southwest region. The northwest region experienced crop conditions below the five-year average. In the central-northern region, particularly Mazandaran and Golestan provinces, the condition of crops was below the five-year average from October to the mid of November. Overall, the crop condition is mixed in the current season, however, the growth of winter crops will benefit from favorable soil moisture conditions in the coming months.

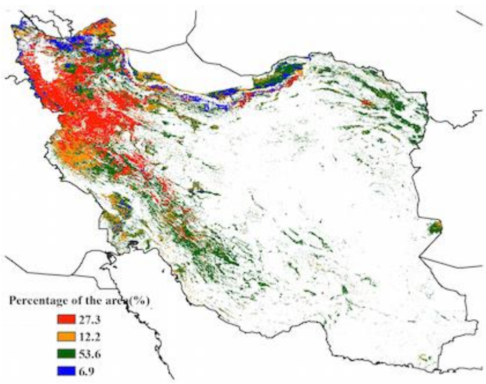
Figure 3.17. Iran crop condition, October 2015-January 2016



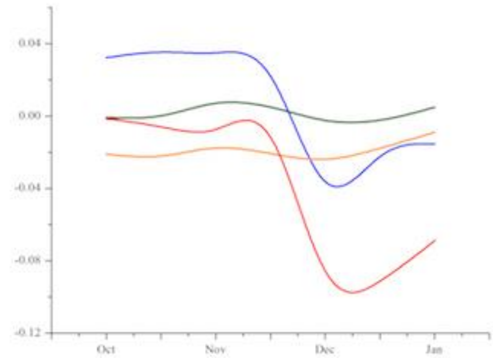
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA



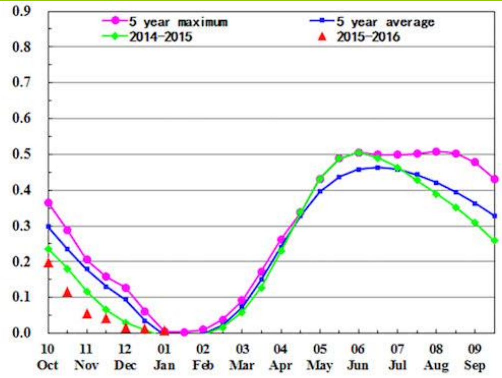
(d) NDVI profiles

[KAZ] Kazakhstan

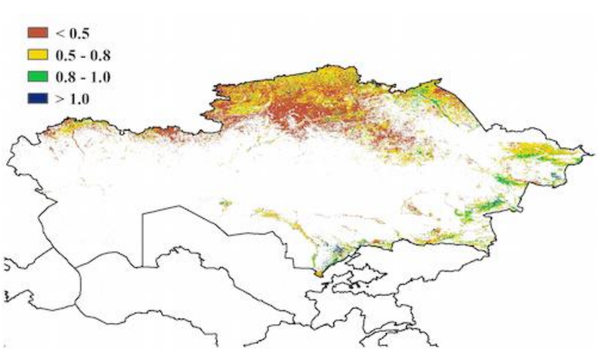
This monitoring period covers the harvesting of last year's summer crops (cereals, spring barley and wheat) from October 2015 to mid January of this year. Among the CropWatch agroclimatic indicators (Figure 3.18), compared with average, rainfall showed a sharp increase (+52%) except for Almaty City area (where there was an 8% decrease), an increase in temperature (+1.1%) and a sharp decrease of RADPAR (-9%), which combined to yield above average BIOMASS (+12%).

The maximum VCI indicates that crop condition of most arable land in north Kazakhstan was below average (pixel values below 0.5). The NDVI clusters indicate that crops were in poor condition from October to middle December in the areas of Aktyubinskaya, Kustanayskaya, Severokazachstanskaya, Akmolinskaya, Pavlodarskaya, VostochnoKazachstanskaya and Almatinskaya Oblasts. No crop was planted since November and from December the NDVI index has been close to zero. The crop condition development graph also showed that crops were obviously worse off than last year and the average of the past five years, but favorable rainfall has provided the appropriate soil moisture for the initial stages of the forthcoming crops.

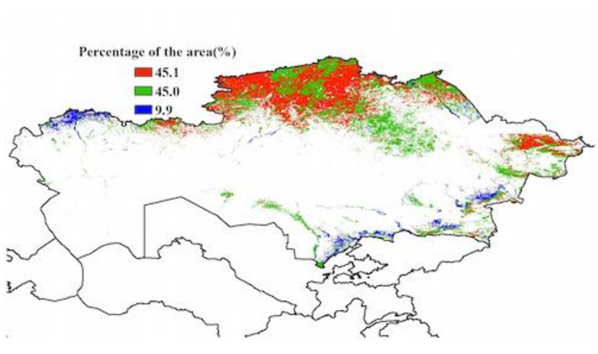
Figure 3.18. Kazakhstan crop condition, October 2015-January 2016



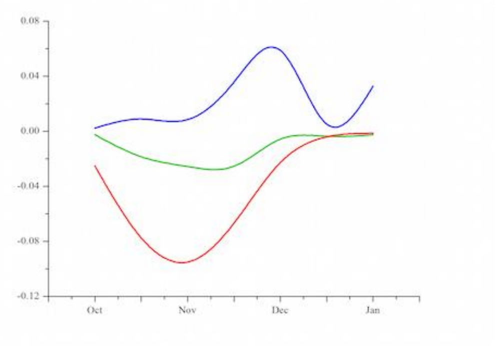
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA



(d) NDVI profiles

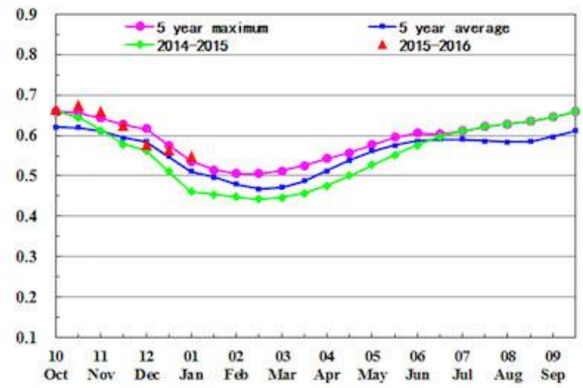
[KHM] Cambodia

October to January covers the growing period of the main (wet season) rice crop, and the early stage of the second (dry season) rice in Cambodia. The fraction of cropped arable land was consistent with the average of the previous five years. Compared to average, the CropWatch agroclimatic indicators show markedly above average rainfall (+23%), a slight increase in RADPAR (+3%) and a temperature increase (+0.5°C).

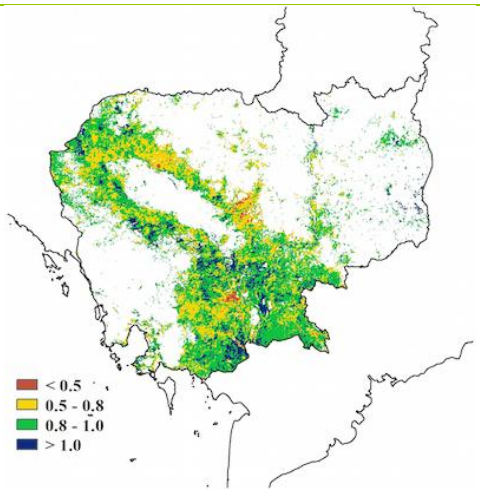
Favorable conditions meant that the NDVI was near the last five-year average, with a small biomass decrease (-3%). Sufficient rainfall was beneficial for the sowing and emergence of the second rice. Vegetation condition indices (VCIx) are high (>0.8) in most parts of the country.

The condition of the crops in the country is average.

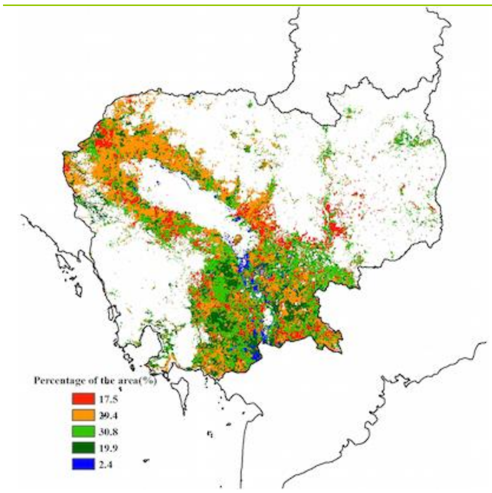
Figure 3.19. Cambodia crop condition, October 2015-January 2016



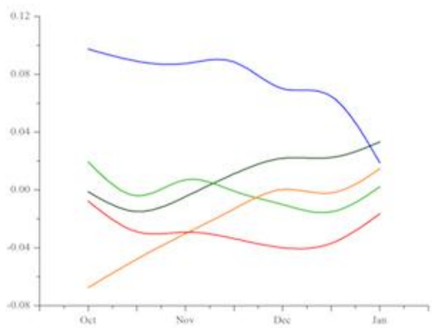
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA



(d) NDVI profiles

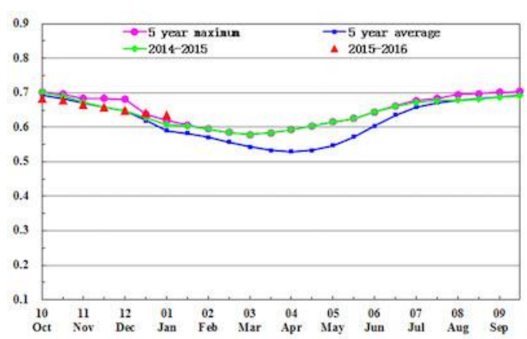
[MEX] Mexico

The harvest of the 2015 main maize crop and the planting of the secondary maize as well as winter wheat were underway in Mexico during the reporting period. According to the crop condition development graph based on NDVI (Figure 3.20), crop condition was average from October to early December 2015 and close to the five-year maximum between late December 2015 and early January 2016, .

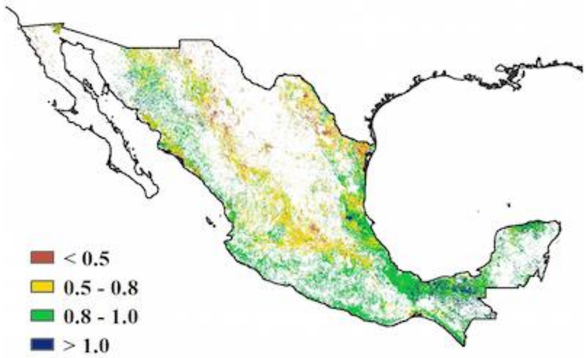
The CropWatch agroclimatic indicators show that rainfall and temperature increased respectively by 21% and 0.5°C when compared to the average while RADPAR decreased by 6%. The BIOMSS was far above average, with an increase of 49%. The value of maximum VCI was 0.81 at the national scale, with the highest values (0.8-1.0) occurring in southern, south-eastern and western Mexico, as indicated by the maximum VCI graph (Figure 3.20b). This pattern is consistent with that of NDVI profiles: 64.3% of crops were above or near average.

Considering the high values for NDVI and BIOMSS, above average crop output is expected.

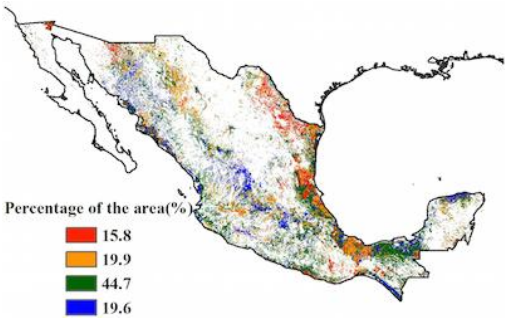
Figure 3.20. Mexico crop condition, October 2015-January 2016



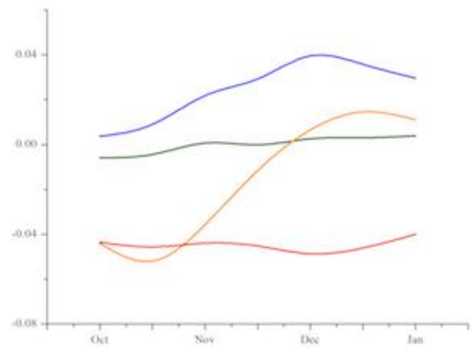
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA



(d) NDVI profiles

ARG AUS BGD BRA CAN DEU EGY ETH FRA GBR IDN IND IRN KAZ KHM MEX **MMR**NGA PAK PHL POL ROU RUS THA TUR UKR USA UZB VNM ZAF

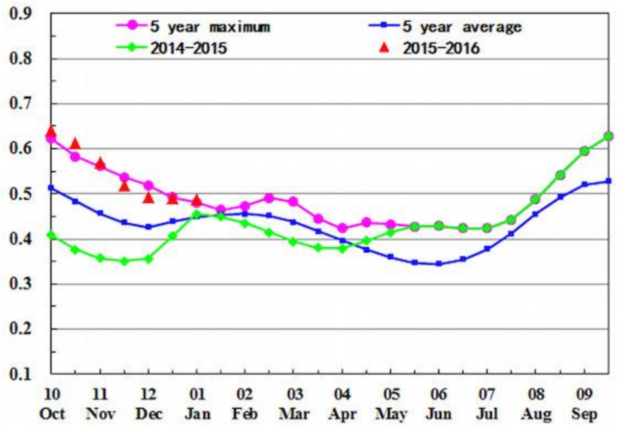
[MMR] Myanmar

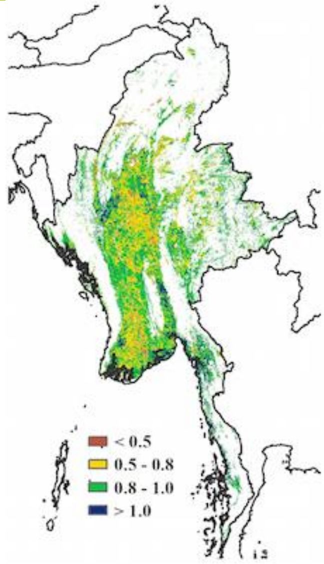
In Myanmar, the reporting period of October 2015 to January 2016 corresponds with the harvesting season of rice and planting season of maize and wheat.

Rainfall (RAIN) was 6% above average, temperature was only slightly below average (TEMP, -0.4°C) and radiation (RADPAR, -1%) was close to average. The biomass accumulation potential (BIOMASS) increased by 12% for the country (Figure 3.21).

National crop condition development profiles were mostly above average and exceeded the previous five-year average in early November. The maximum VCI below 0.5 was observed in scattered areas of central Myanmar; however, overall maximum VCI ranged 0.5 to 1, indicating favorable crop condition. The condition of crops is assessed as above average for the country.

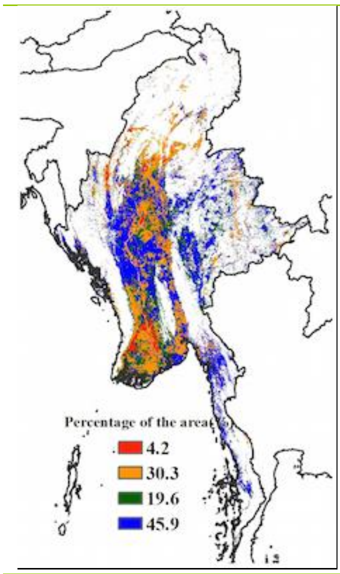
Figure 3.21. Myanmar crop condition, October 2015-January 2016

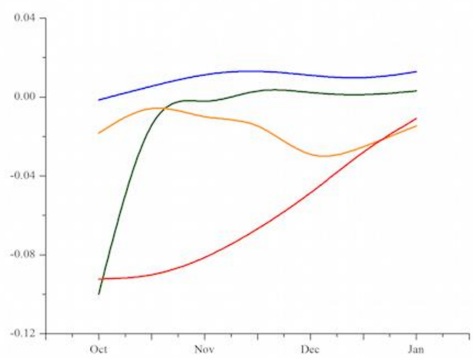




(a) Crop condition development graph based on NDVI

(b) Maximum VCI





(c) Spatial NDVI patterns compared to 5YA

(d) NDVI profiles

[NGA] Nigeria

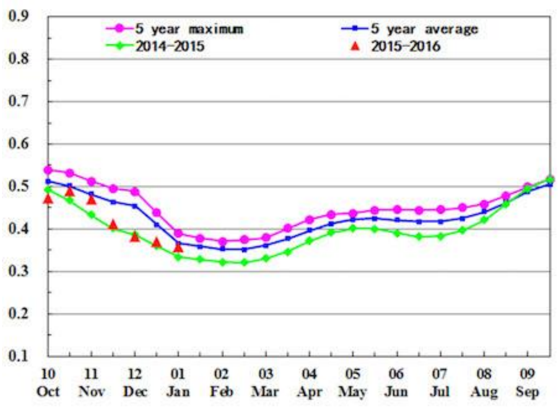
The reporting period coincides with the harvesting of all crops in Nigeria, as indicated by the decreasing national NDVI profiles, which reach their minimum around February 2016.

In general, NDVI was close to values observed during the previous season for the country as a whole as well as lower than the recent five-year average. RAIN and the cropped arable land fraction were slightly below average (-4% and -3%, respectively) although vegetation condition indices were fair.

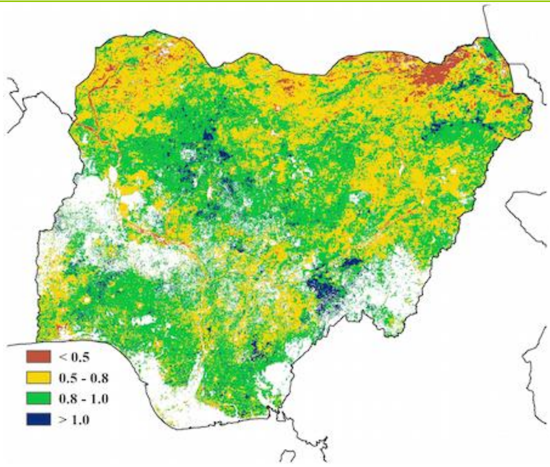
Rainfall was slightly above average in the Sudano-Sahelian zone (+9%) and slightly below average elsewhere (-3 to -4%). Due to lower than average temperature, the expected biomass production potential is below average (-7% in the northern half of the country to -20% in the southern half). Below average crop condition affect 7.9% of the areas and concentrate in the southern half of the country, especially in the southwest (Moyo and east Ogun). Pockets of unfavourable conditions also occur in a scattered way in other areas throughout the country.

Altogether, crop condition was close to average (Figure 3.22).

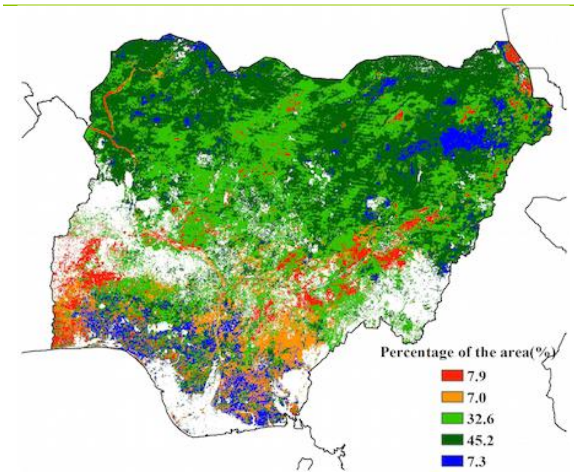
Figure 3.22. Nigeria crop condition, October 2015-January 2016



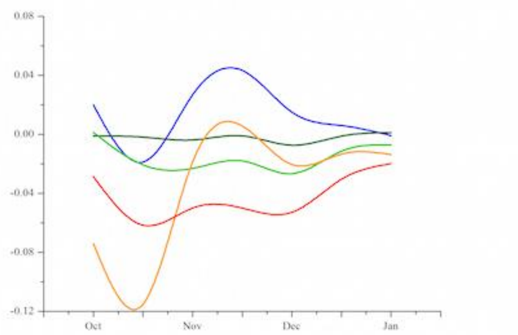
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA



(d) NDVI profiles

[PAK] Pakistan

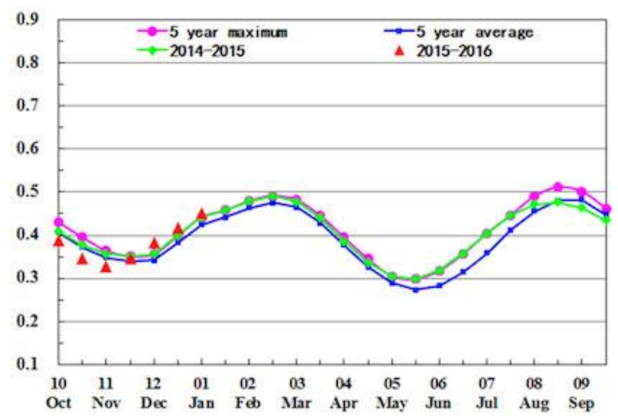
In Pakistan, the reporting time coincides with the sowing of winter crops (wheat, barley, oats, lentils and sugar beet) between October and December, and the harvesting time of maize, rice, cotton and soybean (autumn).

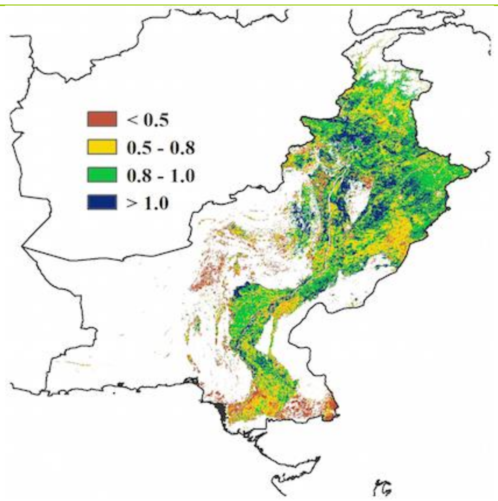
The agroclimatic indicators show an average value for rainfall (RAIN, +3%) and a slight decrease of radiation (RADPAR, -2%) compared to the average. Temperature was below average (TEMP, -0.8 C), while biomass production potential was above (BIOMSS, +18%). CALF decreased (-2%) below the five-year average.

The national NDVI development graph (Figure 3.23) indicates that crop condition was unfavorable in the month of November, but that it started gradually improving in December and that it later became comparable to the five-year maximum. The lowest maximum VCI values (<0.5) occur in North Baluchistan and Southeast Sindh. According to the NDVI profile, 63% of the cropped areas display above average conditions from December, much of it is in Khyber Pakhtunkhwa, FATA, Punjab and Sindh. Remaining areas (37% of land) show average conditions.

Altogether, crop condition is estimated to be above average.

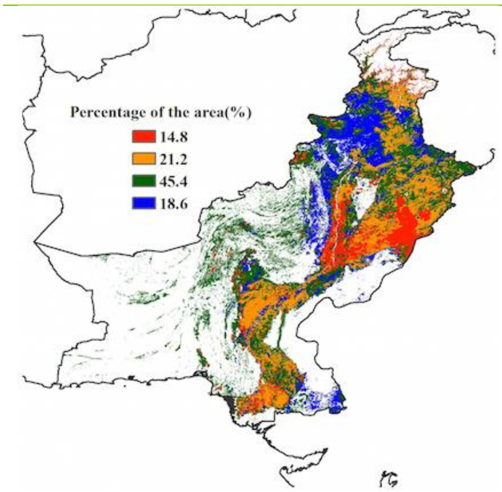
Figure 3.23. Pakistan crop condition, October 2015-January 2016

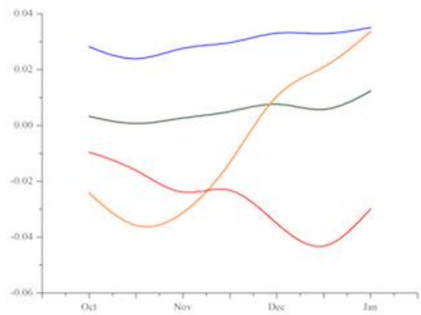




(a) Crop condition development graph based on NDVI

(b) Maximum VCI





(c) Spatial NDVI patterns compared to 5YA

(d) NDVI profiles

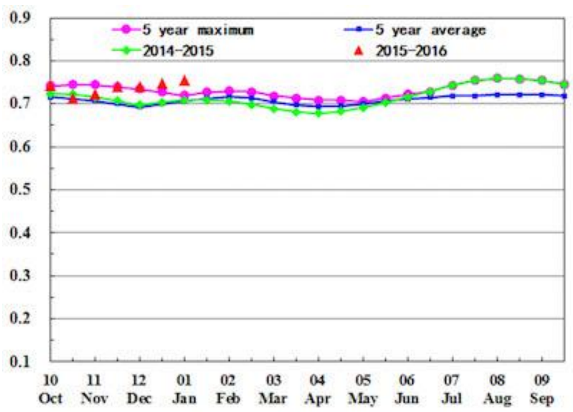
[PHL] The Philippines

Crop condition in the Philippines was generally average for the monitoring period between October 2015 and January 2016. This period covers the harvesting stage of last year's main rice, as well as the sowing and growing stage of secondary rice and maize. Nationwide, PAR was above average by 10%, while rainfall decreased by 18%, mainly resulting from El Niño conditions. As a result of rainfall deficit, the biomass accumulation shows a significant 32% decrease compared to the most recent five years.

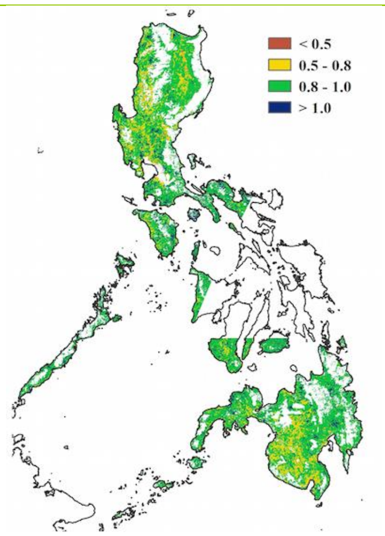
Considering the spatial patterns of NDVI profiles (Figure 3.24), crop condition in the Ilocos region and Cagayan Valley was below average in the second and third dekad of December. In addition, tropical cyclone Melor landed in Philippines in mid-December, bringing short-term heavy rainfall for the central islands and secondary rice suffered in some areas.

Altogether, the output of rice is expected to be below average.

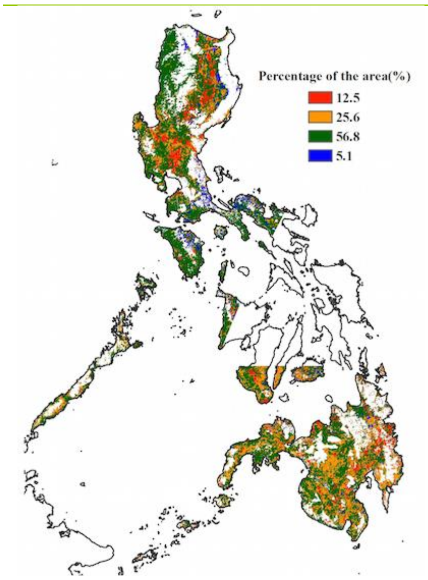
Figure 3.24. Philippines crop condition, October 2015-January 2016



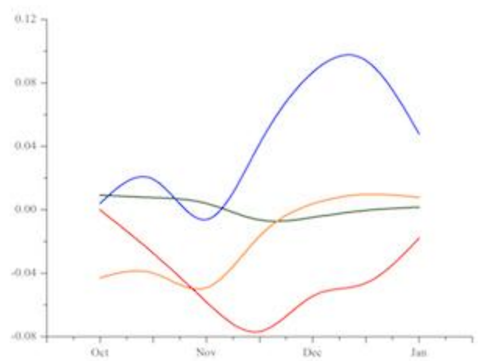
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA



(d) NDVI profiles

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[POL] Poland

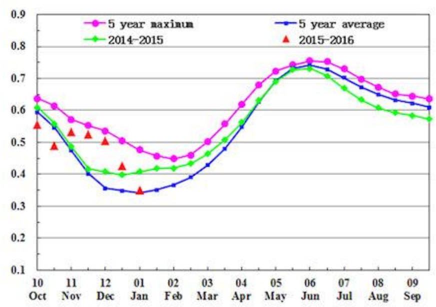
In Poland this monitoring period witnessed the harvest of maize (before October) and the sowing of winter wheat. The cropped arable land fraction (CALF) was 3% below average. From October to January, the weather conditions improved from dry and cold conditions during the previous monitoring period. The rainfall departure was 1% and the temperature increased 0.2°C above average. RADPAR was average and the potential biomass was above average due to favourable weather conditions (Figure 3.25).

As shown in the NDVI condition development graph, due to the delayed sowing of winter wheat, the NDVI in October was lower than the five-year average and then significantly above average from November. This phenomenon is most apparent in the east of Poland, including Lubeiskie, Mazowieckie and Podlaskie.

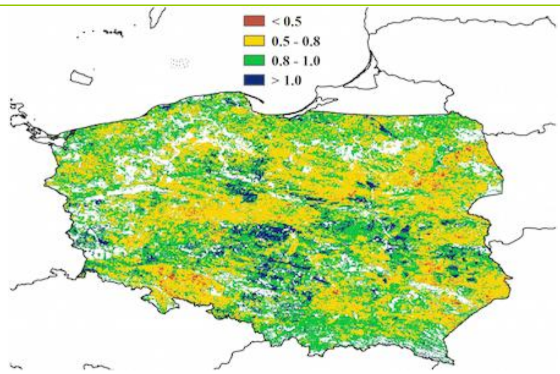
In most other parts of Poland, NDVI was lower than average, especially in Dolnoslaskie and Opolskie.The VCIx in Poland during this monitoring period is 0.81.

Due to the unusual weather condition in Poland last summer, the outlook for the winter crop is cautiously optimistic.

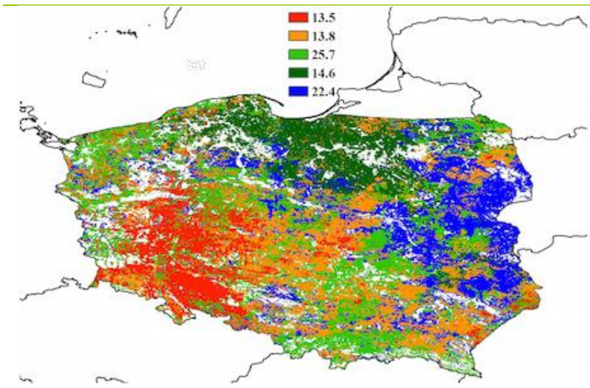
Figure 3.25. Poland crop condition, October 2015-January 2016



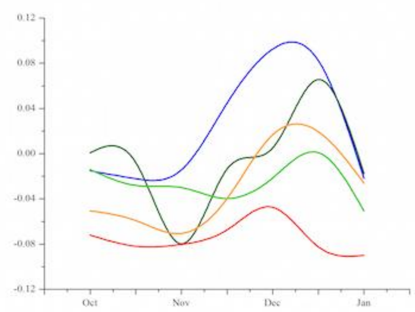
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA



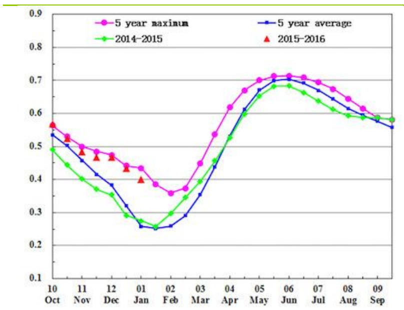
(d) NDVI profiles

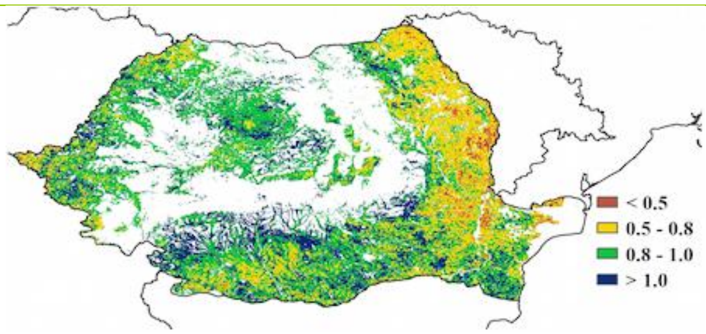
[ROU] Romania

During this monitoring period, the maize harvest and sowing of winter wheat was completed before the end of October; the next three months are the early wintering period of crop. Cropped arable land dropped 5% compared with the last five-year average. Overall, the temperature increased when compared to the average (+0.9°C) while rainfall dropped (-9%). The potential biomass accumulation decreased 10% compared with the average of the last five years.

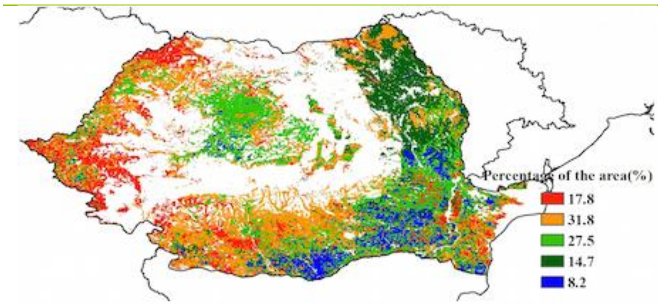
During this monitoring period, as shown in the NDVI development graph (Figure 3.26), due to the continued warm weather, the NDVI is significantly above last year’s and close to the last five-year maximum. Most parts of Romania enjoyed favourable conditions from last summer except Satu Mare, Bihor, Timis and Hunedoara in the west of Romania. As the VCIx in Romania during this monitoring period is 0.88, the final assessment for Romania's output is just fair.

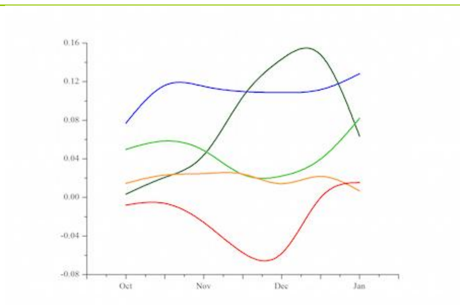
Figure 3.26. Romania crop condition, October 2015-January 2016





(a) Crop condition development graph based on NDVI (b) Maximum VCI





(c) Spatial NDVI patterns compared to 5YA (d) NDVI profiles

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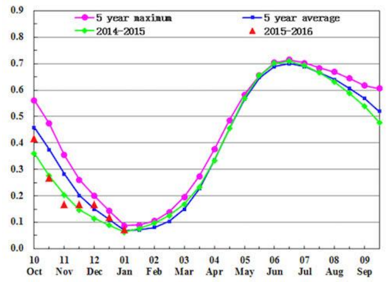
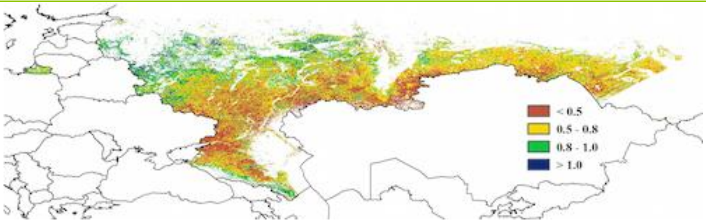
[RUS] Russia

During the monitoring period, the sowing of winter wheat was delayed but nevertheless completed before November, while maize and spring wheat were harvested before October. Cropped arable land increased 4% compared to the last five-year average. Like the whole Central Europe to Western Russia region, the weather in Russia improved during this monitoring period from dry and cold. The rainfall departure was +16% and the temperature increased 0.3°C above average. The BIOMASS was average.

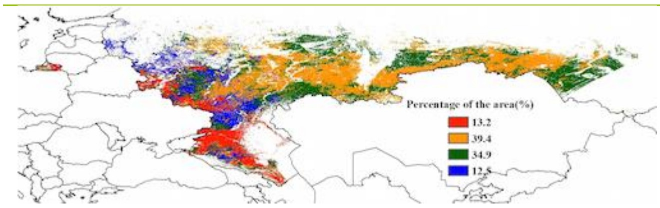
As shown in the NDVI development graph (Figure 3.27), due to the delayed sowing of winter wheat, the NDVI was first recorded as low but later began to recover from the end of November onwards. In the South Urals and Volga areas, due to the abundant rainfall (above 30% RAIN departure), the NDVI is above average for October and December. NDVI of cropland in the Caucasus, Central area, Kaliningrad, North Subarctic area, Northwest area and South Siberian area was significantly lower than average. The VCIx in Russia during this monitoring period was 0.66 and the outlook for Russian winter crops is below average.

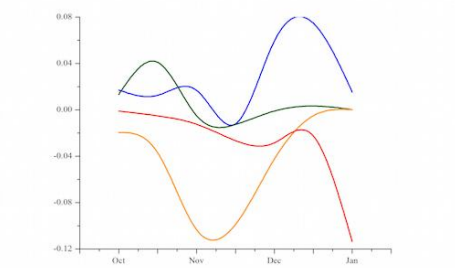
Figure 3.27. Russia crop condition, October 2015-January 2016





(a) Crop condition development graph based on NDVI (b) Maximum VCI





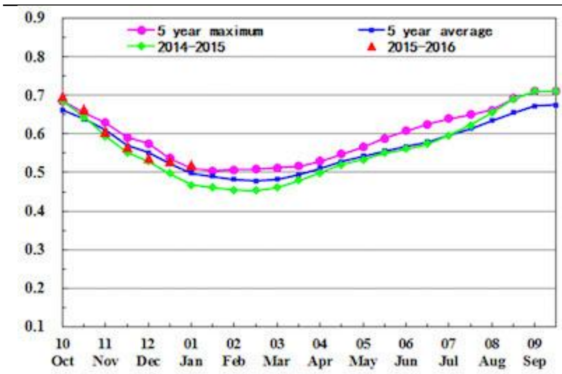
(c) Spatial NDVI patterns compared to 5YA (d) NDVI profiles

[THA] Thailand

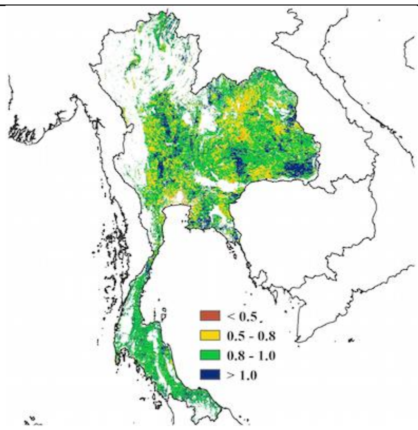
During the monitoring period in Thailand, the harvest of the first (main) rice crop started in October and was completed in January. Sowing of the second rice crop began in early January. According to agroclimatic and agronomic indicators (Figure 3.28), there was a slight increase in temperature (+0.4°C) and radiation (+1%) compared to the average, while rainfall was average. Based on the indices, the situation of crops during the reporting period was comparable to the previous five years, which is consistent with the decrease of the biomass index (-3%).

The NDVI profiles in the areas around the Chao Phraya river basin and southern region show decreased values below the average, while favorable crop conditions are found in the north-eastern and eastern regions, as well as in the south of the central region. The maximum VCI index displays a spatial pattern consistent with the NDVI cluster map in the central and northeast region; they present high values (>0.8) in the southern region. Generally, the crop production prospects are favorable.

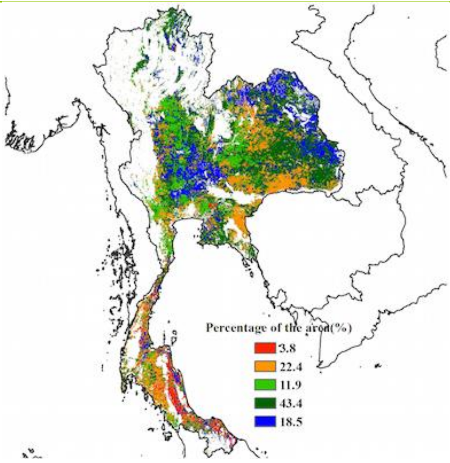
Figure 3.28. Thailand crop condition, October 2015-January 2016



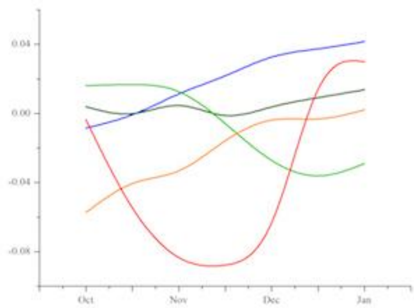
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA



(d) NDVI profiles

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[TUR] Turkey

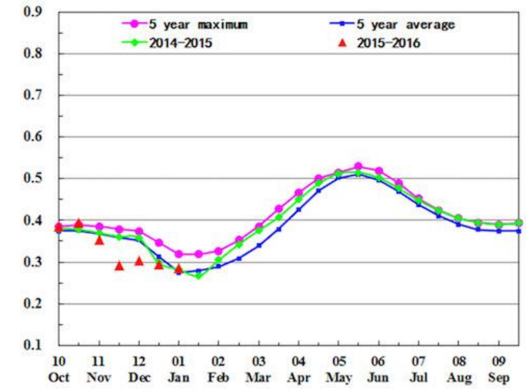
From October 2015 to January 2016 the condition of crops was generally below average in Turkey. The planting of winter grains was completed, accumulated rainfall (-1%) and RADPAR were slightly below or close to average, while the temperature (+0.5°C) was above average.

The agroclimatic indices for the current season indicate unfavorable conditions for crop growth, which are confirmed by the decrease of the BIOMSS index by 12%. The map of maximum VCI (0.73 on average) presents a consistent pattern with the NDVI cluster map in the Central Anatolia Region. CALF decreased by 3% compared to the recent five-year average.

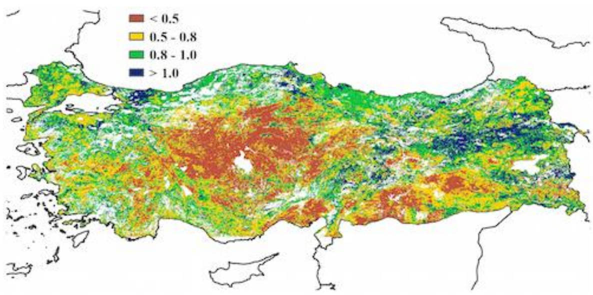
Crop condition in most areas across Turkey was below average from November during the whole monitoring period. Compared to the most recent five-year average, most areas in the Marmara Region, Aegean Region, Eastern and south-eastern Anatolia Region experienced favorable crop conditions from October to the mid of November, while unfavorable crop conditions prevailed in the Black Sea Region and Central Anatolia.

Overall, Turkey's current winter crop has been subject to unfavorable conditions so far. The final outcome of the season will be largely determined by soil moisture in March when vegetative grows will resume.

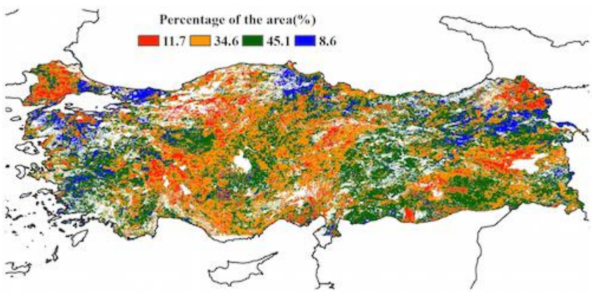
Figure 3.29. Turkey crop condition, October 2015-January 2016



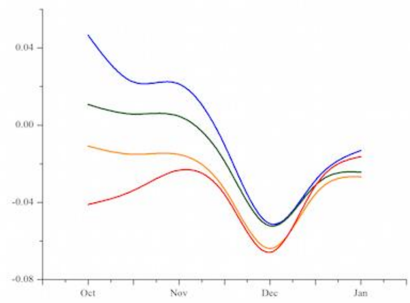
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA



(d) NDVI profiles

[UKR] Ukraine

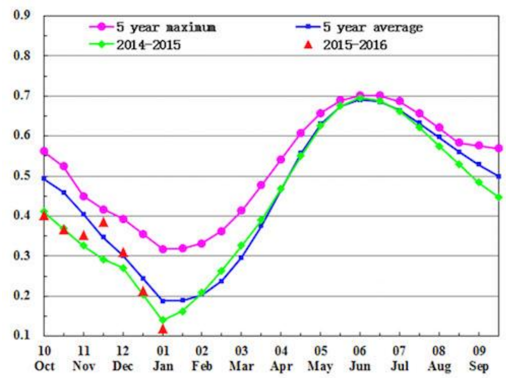
The planting of winter wheat in Ukraine concluded by mid-October and is currently in its dormancy period. Rainfall and radiation were slightly above average.

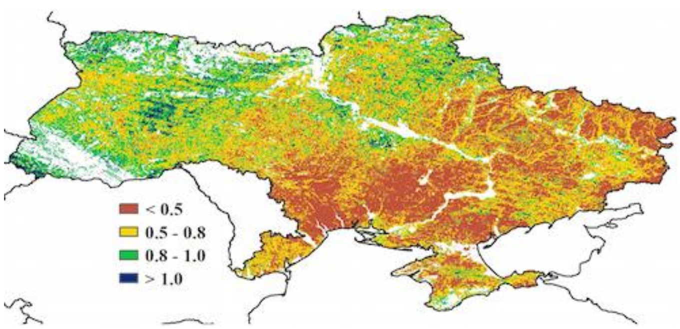
As illustrated in the section on the Central Europe to Western Russia MPZ, the decrease in potential biomass potential (as described by BIOMSS) is large in the southeast part of the country (-20%), while part of northwest and some patches in the southeast had favorable conditions with good average BIOMSS (>20%).

At the national level, a BIOMSS increase of 4% is expected. According to the NDVI profiles, crop condition in Ukraine is close to the reference five-year average with a maximum VCI index of 0.66. According to the spatial NDVI patterns and compared to the five-year average, southern and eastern areas of the country underwent unfavorable conditions (except for limited favorable patches) while northern, western and some central areas of the country showed favorable conditions in December through January, which is confirmed in the maximum VCI map (Figure 3.30). The pixels with values >1.0 in the VCI map indicate good crops in those areas.

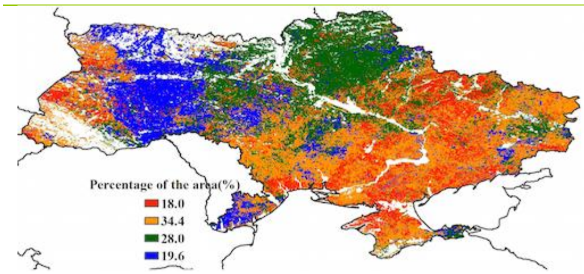
Altogether, the situation of both autumn and winter crops has recovered from the poor conditions in the northwest but the situation is still poor in the south-eastern part of the country. The current expectation is that crop production will be close to or below average.

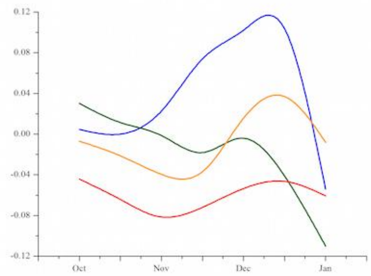
Figure 3.30. Ukraine crop condition, October 2015-January 2016





(a) Crop condition development graph based on NDVI (b) Maximum VCI





(c) Spatial NDVI patterns compared to 5YA (d) NDVI profiles

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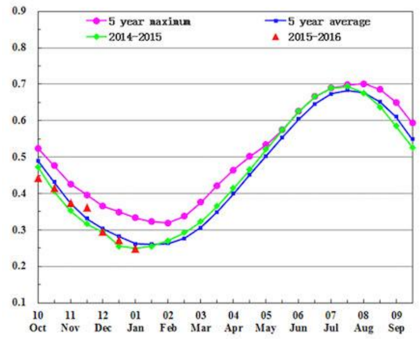
[USA] United States

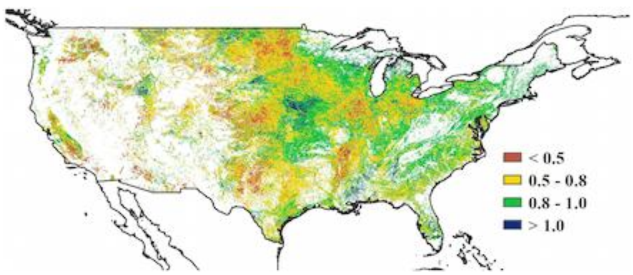
In general, crop condition was average in the United States over the CropWatch monitoring period, which covers the harvesting season of 2015 summer crops as well as the planting of 2016 winter crops.

Warm and wet agroclimatic conditions were common (Figure 3.31) with agroclimatic indicators showing significant positive departures of rainfall (+47%) and temperature (1.6°C). The main production zones for winter crops, the south of the Great Plains, enjoyed overly wet conditions (RAIN: +85%; TEMP: +0.9°C), including in Kansas (+35%), Oklahoma (+99%), northern Texas (+78%) and Nebraska (+75%). Although excess precipitation hampered farm operations, it improved soil moisture conditions to ensure growth of winter crops.

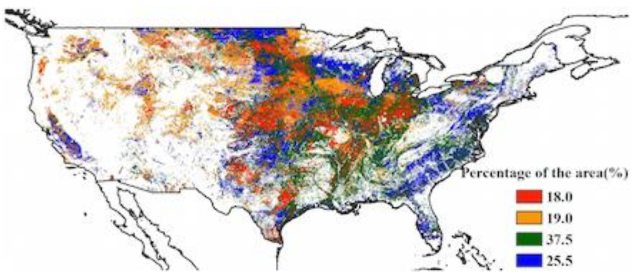
Serious flooding was recorded in the Mississippi River Basin and resulted from continued heavy rainfall in Tennessee (+78%), Arkansas (+88%), Iowa (+62%), Minnesota (+76%), Missouri (+86%), Nebraska (+75%), Oklahoma (+99%), Wisconsin (+59%) and the lower Mississippi region (+55%). Summer crops were harvested before the onset of the heavy rainfall and production losses are minimal, and abundant rainfall will benefit the planting of maize, soybeans and paddy in 2016. The cropped arable land fraction shows a positive departure of 2%.

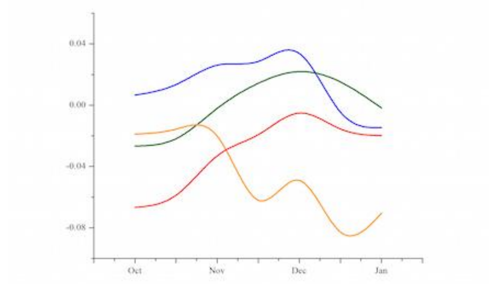
Figure 3.31. United States crop condition, October 2015-January 2016





(a) Crop condition development graph based on NDVI (b) Maximum VCI





(c) Spatial NDVI patterns compared to 5YA (d) NDVI profiles

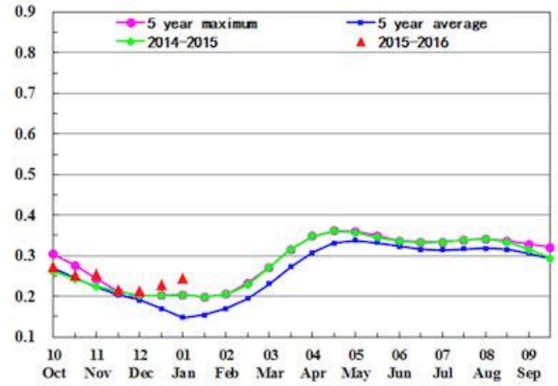
[UZB] Uzbekistan

This monitoring period covers the sowing and early growing stage of winter cereals in Uzbekistan, mostly winter wheat and barley. The country as a whole enjoyed a sharp increase in rainfall (+59%) and biomass (+51%) with temperature being close to average while RADPAR (-9%) was below average (Figure 3.32).

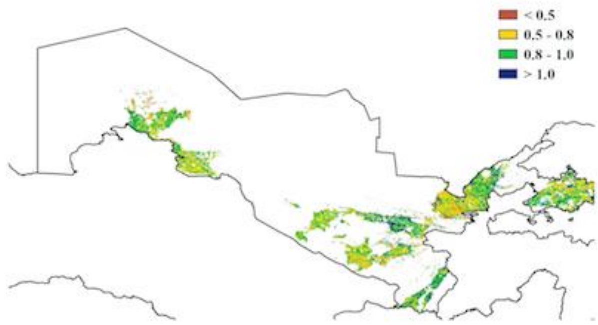
Crop condition was favorable in many areas (such as Ferghana, Andijan, Tashkent, Samarkhand, Nawoiy, Denow, Sherabad and Termez) where the maximum VCI was mostly above 0.8.

Crop condition in 29% of arable land was below the five-year average from early December to early January. More precise spatial information is provided by the NDVI clusters, which show a sharp drop in late November, and a recovery thereafter in western and central areas of the country (Karakalpakistan, Shakhrisabz, Gulistan, Jazzakh and Tashkent). From December to January, crops benefited from abundant rainfall, leaving crop condition above average according to both crop condition development graphs and the NDVI cluster profiles (See Figure 3.32).

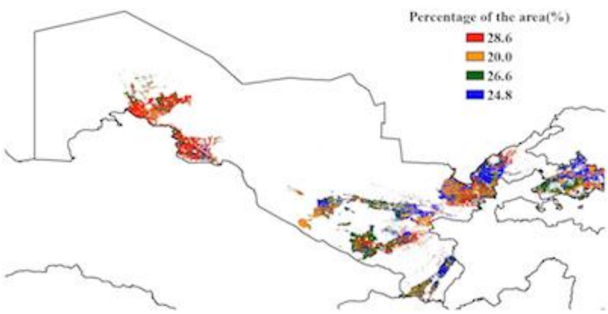
Figure 3.32. Uzbekistan crop condition, October 2015-January 2016



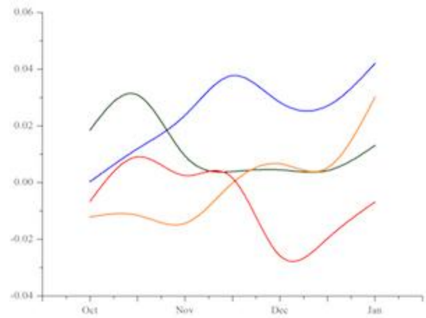
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA



(d) NDVI profiles

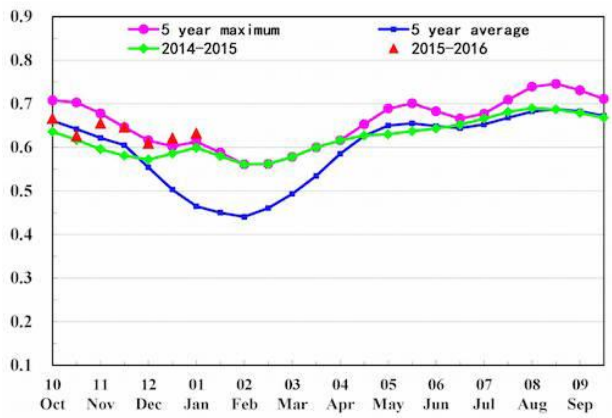
[VNM] Vietnam

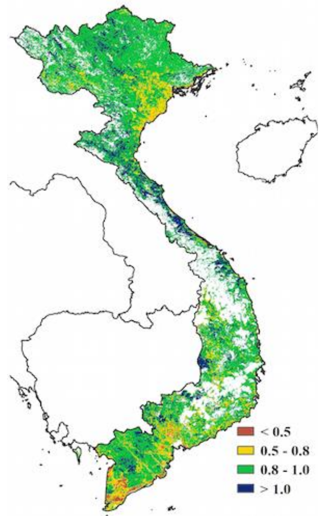
This monitoring period from October 2015 to January 2016 covers the growing stages of the 10th month rice, and the sowing of the winter and spring rice in Vietnam. Most of the rice cultivation regions are distributed in the northern Red River delta in the Mekong River delta in the south.

The fraction of cropped arable land was similar to the average of the previous five years. Vegetation condition indices (maximum VCI) were favorable (>0.8). For the period under consideration, the CropWatch agroclimatic indicators show below average rainfall (-8%) and a slight decrease in radiation (-1%) with increased temperature (+0.9°C), leading to the increase of biomass (+13%). Crop condition was at the five-year average, and slightly lower than five-year maximum.

Correspondingly, the profiles of NDVI clusters (Figure 3.33) also show most of the country (mainly at the Mekong River delta) are experiencing favorable crop condition.

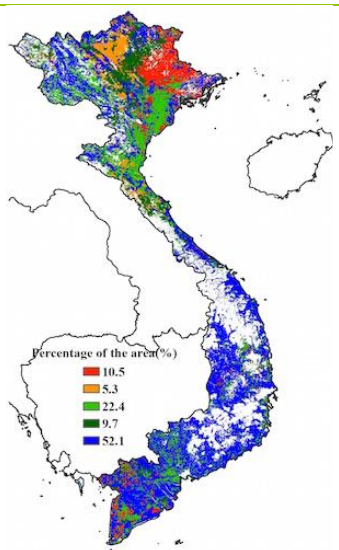
Figure 3.33. Vietnam crop condition, October 2015-January 2016

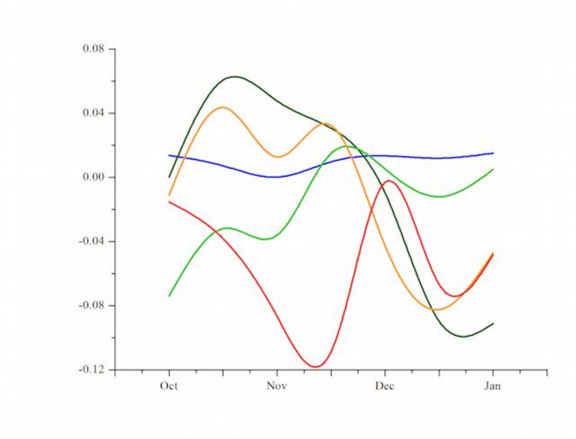




(a) Crop condition development graph based on NDVI

(b) Maximum VCI





(c) Spatial NDVI patterns compared to 5YA

(d) NDVI profiles

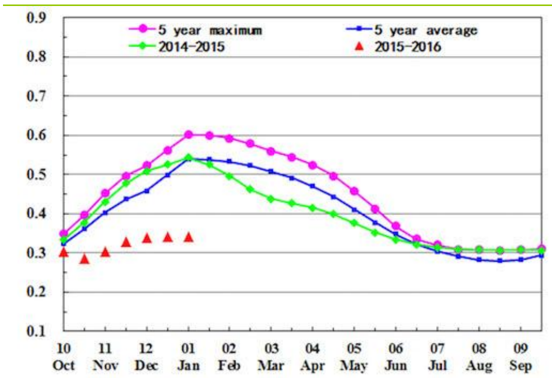
ARG AUS BGD BRA CAN DEU EGY ETH FRA GBR IDN IND IRN KAZ KHM MEX MMR NGA PAK PHL POL ROU RUS THA TUR UKR USA UZB VNM **ZAF**

[ZAF] South Africa

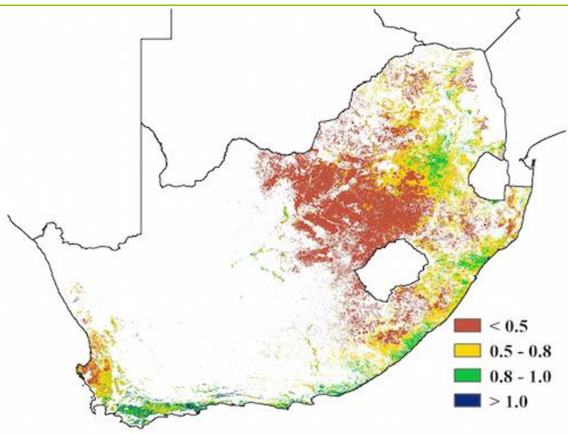
Winter crops, essentially barley and wheat, were harvested in November and December, and the summer crops have reached mid-season stages by the end of this reporting period. Nationwide, rainfall from October was well below average (-26%), with slightly above-average temperature (+1.4°C) and increased radiation (+1%). For the period under consideration, and compared with the previous five cropping seasons, the biomass production potential fell 27% and cropped arable land fraction value was 12% below the reference values.

VCIx did not exceed 0.48. Conditions are close to average (but deteriorating) in about one third of agricultural areas only which, at the time of reporting, include Eastvaal district in Mpumalanga and Westcoast district and the southern Western Cape. The least favourable conditions are recorded in about 21% of cropped areas, especially in the northern Free State. They extend into the north-western province. The driest areas suffered most in relative terms, with biomass production potential drops between 25% and 75% according to zone. Given the overall rather gloomy prospects for the current summer season, especially maize, in South Africa, it is worth nothing that a relative improvement has affected about 10% of the national cropland, mostly in Kwazulu-Natal in December and January, where NDVI however remains below average. With national NDVI values 0.2 units below average, prospects for the current summer crop can only be poor to very poor. Refer to section 5.2 for additional detail.

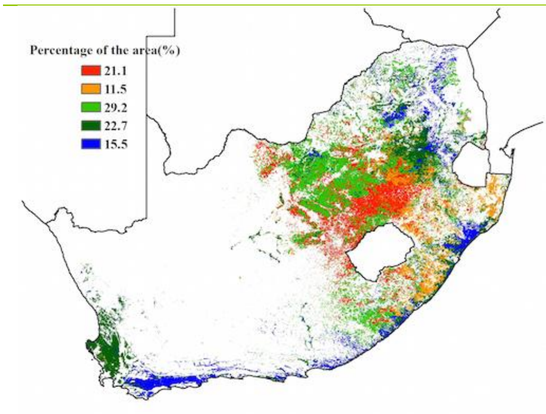
Figure 3.34. South Africa crop condition, October 2015-January 2016



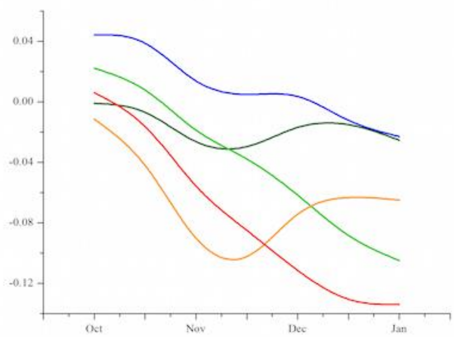
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA



(d) NDVI profiles