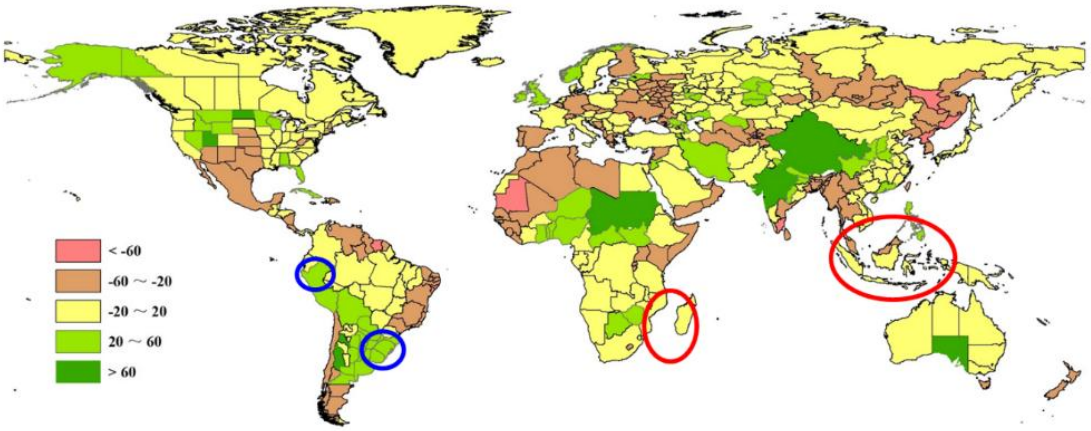
Chapter 3. Main producing and exporting countries

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. For each country, maps present maximum VCI, spatial NDVI patterns, associated NDVI profiles, and an NDVI-based crop condition development graph. Additional detail on the agroclimatic and BIOMASS indicators, in particular for some of the larger countries, is included in Annex A, tables A.2-A.10. Annex B includes 2014 production estimates for Argentina, Brazil, and the United States.

3.1 Overview

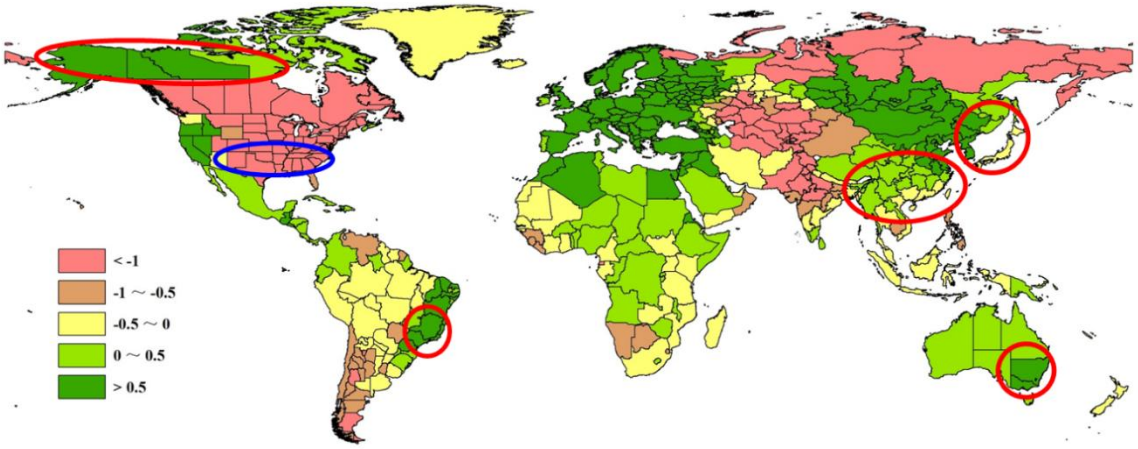
The significant climatic anomalies described in Chapter 1, which have affected large areas, can also be looked at on the level of individual countries. For some countries, the climatic anomalies were particularly severe. Figures 3.1-3.4 present the indicators for rainfall, temperature, PAR, and biomass for the thirty-one countries (including China). Table 3.1 presents the climatic and crop indicators for the countries. For rainfall, the largest negative departures occurred in Dominica (-73%), which is part of a group of several countries in the same area (Trinidad and Tobago, Suriname, Nicaragua, Venezuela, Guyana and French Guyana, Costa Rica and the Dominican Republic) where the average rainfall deficit reached 57%. Similarly, in the North Africa Mediterranean CPSZ, the worst affected country is Lebanon, but the problem affects at least six more countries between Lebanon and Morocco; the average rainfall deficit in this area reached 52.5%. For negative temperature departures, records occurred in Canada (-2.2°C) and in the United States (-1.8°C), while a large area was affected in Central Asia (Uzbekistan, Tajikistan, Kirgizstan, Turkmenistan, Pakistan, Kazakhstan, Jammu and Kashmir: average negative departures reached -1.5°C), impacting several CPSZs. The largest positive temperature departure affected a spatially coherent group of western European countries (from Slovakia with +3°C to Sweden), extending east as far as Poland, Turkey, and Syria, where departures were lower but nevertheless still reached 2.3°C, 2.0°C, and 2.0°C, respectively.

Figure 3.1. Global map of rainfall (RAIN) by country and sub-national areas, departure from thirteen-year average (2001-13) (percentage), January-April 2014



Note: The circles indicate respectively the areas coinciding with the WET (blue) and the DRY&WARM (red) events for December to February (figure 5.2) associated with El Niño (see section 5.2).

Figure 3.2. Global map of temperature (TEMP) by country and sub-national areas, departure from thirteen-year average (2001-13) (degrees), January-April 2014



Note: The circles indicate the areas coinciding with the WET&COOL (blue) and WARM (red) events for December to February (figure 5.2) associated with El Niño (see section 5.2).

Figure 3.3. Global map of PAR (RADPAR) by country and sub-national areas, departure from thirteen-year average (2001-13) (percentage), January-April 2014

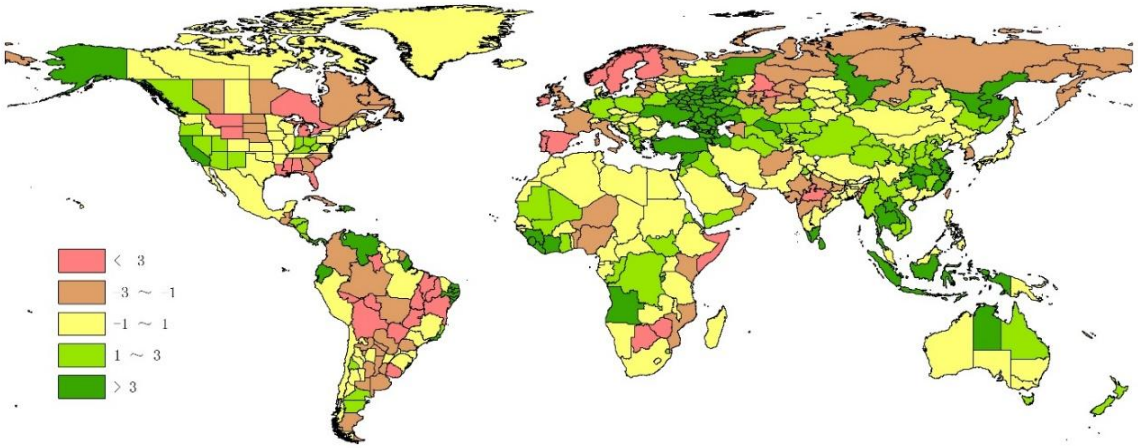


Figure 3.4. Global map of biomass (BIOMASS) by country and sub-national areas, departure from thirteen-year average (2001-13) (percentage), January-April 2014

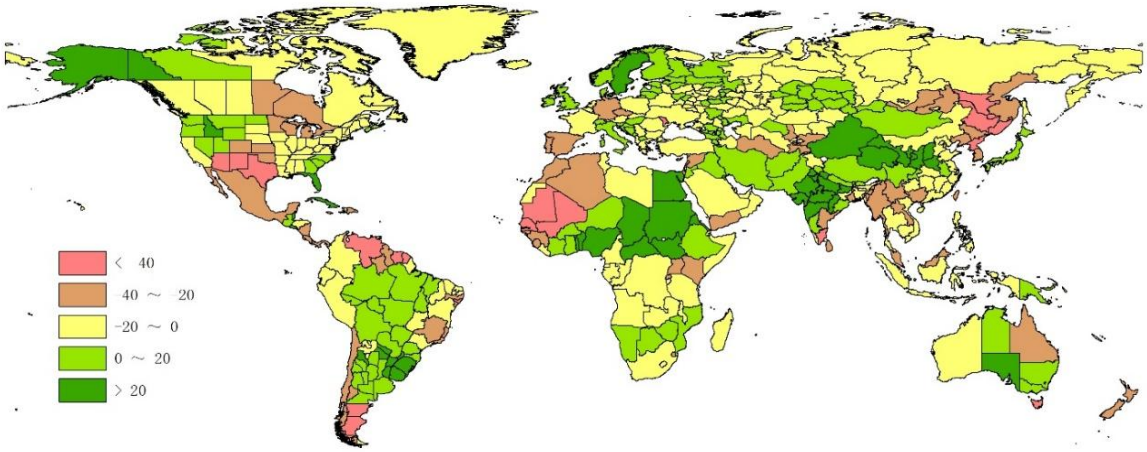


Table 3.1. CropWatch agroclimatic and agronomic indicators for January-April 2014, departure from 5YA and 13YA

Country	Agroclimatic indicators			Agronomic indicators		
	Departure from 13YA (2001-13)			Departure from 5YA (2009-13)		Current
	RAIN (%)	TEMP (°C)	RADPAR (%)	BIOMASS (%)	CALF (Abs. diff. in % points)	Maximum VCI
Argentina	33	-0.5	-1	21.0	0.2	**0.86**
Australia	-10	0.5	0.3	-12.1	8.2	**0.70**
Bangladesh	-32	-0.2	1	-0.7	-0.5	**0.79**
Brazil	-3	0.2	-2	0.0	-0.1	**0.85**
Cambodia	13	-0.6	2	-10.0	-0.1	**0.74**
Canada	2	-2.2	-2	-15.8	-9.0	**0.53**
China	-6	0.5	2	0.9	3.9	**0.86**
Egypt	-2	0.8	0.3	26.0	1.0	**0.88**
Ethiopia	16	0.3	0.0	17.6	-1.1	**0.74**
France	-20	1.7	-2	-3.4	0.6	**0.90**
Germany	-37	2.5	2	-17.1	0.2	**0.94**
India	11	-0.6	-1	39.7	-2.3	**0.86**
Indonesia	-17	0.0	5	-11.6	-0.1	**0.89**
Iran	26	-0.1	0.5	12.7	3.0	**0.69**
Kazakhstan	2	-1.2	1	2.7	13.7	**0.68**
Mexico	-23	0.2	-0.3	-16.3	3.1	**0.86**
Myanmar	-40	0.1	3	-36.6	-3.5	**0.80**
Nigeria	55	0.3	-2	30.0	-1.1	**0.73**
Pakistan	0.4	-1.2	-1	0.9	-2.9	**0.76**
Philippines	37	-0.6	-1	-14.3	-0.1	**0.87**
Poland	-14	2.3	2	-2.1	0.3	**0.98**
Romania	-15	2.0	0.5	-11.0	0.9	**0.96**
Russia	-13	0.7	3	2.4	28.2	**0.73**
South Africa	-5	0.0	-1	-7.6	2.5	**0.81**
Thailand	-23	-0.4	6	-22.8	-0.4	**0.77**
Turkey	-9	2.0	3	-9.8	0.4	**0.75**
United Kingdom	47	1.1	-1	15.8	-0.1	**0.90**
Ukraine	-31	1.7	3	-16.3	2.6	**0.84**
United States	-3	-1.8	-0.5	-6.4	-5.2	**0.65**
Uzbekistan	-25	-2.1	1	-18.4	0.8	**0.69**
Vietnam	0.3	0.0	1	-15.9	-2.1	**0.82**

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 thirteen-year average (13YA) for the same period (January-April).

3.2 Country analysis

Subsequent pages present CropWatch results for each of the thirty key countries (China is addressed in Chapter 4). The maps refer to crop growing areas only and include (a) Maximum VCI (over arable land mask) for January 1-April 30, 2014 by pixel; (b) Spatial NDVI patterns for January 1-April 30, 2014 (compared to the 5YA); (c) NDVI profiles associated with the spatial pattern under (b); and (d) Crop condition development graph based on NDVI, comparing the current January 1-April 30 2013 period to the latest season (since October 2013), to the five-year average (5YA), and the five-year maximum. See also Annex A, tables A.2-A.10 and CropWatch online resources to find additional information, including country agricultural profiles.

Figures 3.5-3.34. Crop condition for individual countries ([ARG] Argentina- [ZAF] South Africa) for January-April 2014

[ARG] Argentina

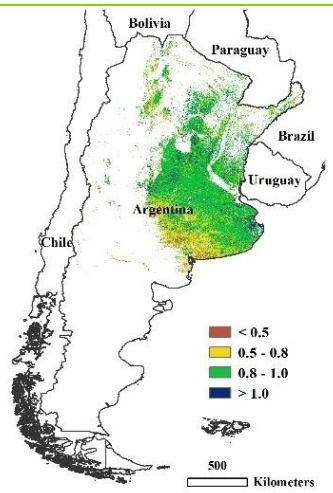
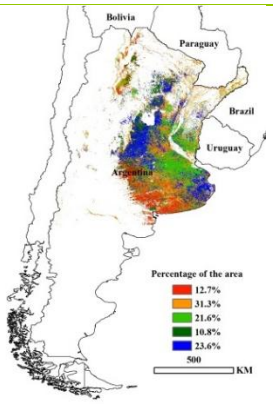
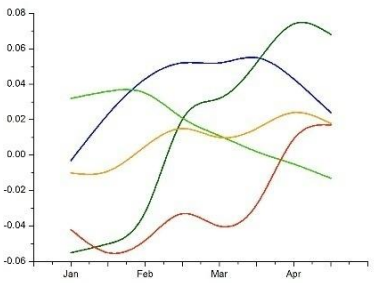


Figure 3.5. Argentina crop condition, Jan-Apr 2014
(a) Maximum VCI

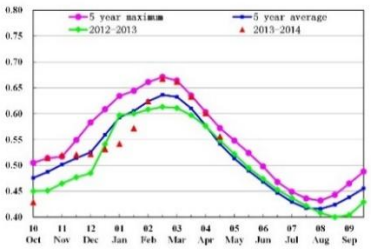
Crop condition in Argentina was generally favorable over the first four months in 2014. Currently, maize and soybean are being harvested in the country. According to HGCA, 70% of soybean and one third of maize had been harvested by May 22. Accumulated biomass from January to April in 2014 is 21% higher than the last five-year average because of 33% above normal precipitation. At the provincial level, only Salta and Tucuman show below average biomass. Temperature and PAR were slightly below the five-year average. Altogether climatic conditions were conducive to crop development and grain filling, although persistently high temperatures in January and February dominated in the main production regions. As shown by the NDVI profiles, crop condition is either above or at the five-year average level, except for south western Buenos Aries to southern Córdoba and scattered regions in Salta. Below normal NDVI in those regions is observed from January to mid-March due to the hot weather. The low maximum VCI in the same regions also confirms the impact of the persistent high temperature on crop development. Since early April, above-average precipitation has been beneficial for crops and crop condition is changing to average condition. Generally, the national NDVI development graph shows a peak well above both last year and the previous five-year average (and reaching the five-year maximum level), indicating above average soybean and maize crop yield expectations in Argentina. The recent above-average precipitation boosts soil moisture and gives a favorable prospects for planting of the 2014 winter wheat. Farmers' planting intentions for wheat indicate an increase in area planted, from last year's level to close to 4 million hectares, mainly in response to high domestic wheat prices. Due to mostly average conditions, Argentina is in for an average maize crop but an estimated 2.5% production increase in soybean, resulting from large inter-provincial differences as shown in table B.2 in Annex B.



(b) Spatial NDVI patterns compared to 5YA



(c) NDVI profiles



(d) Crop condition development graph based on NDVI

[AUS] Australia

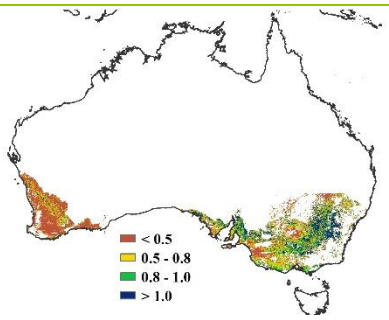
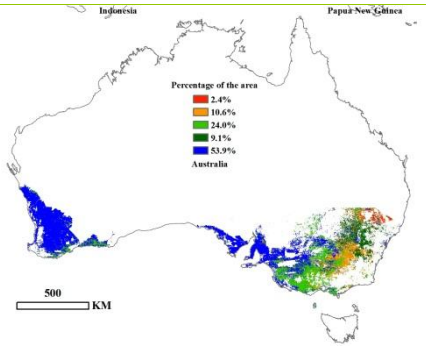


Figure 3.6. Australia crop condition, Jan-Apr 2014

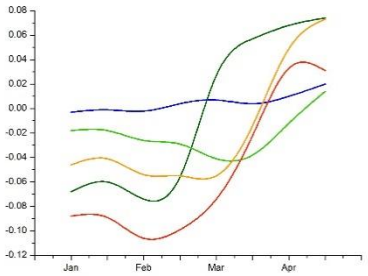
(a) Maximum VCI

The crops in Australia generally showed a poor condition during the period between January and April. Over the reporting period, cropped land covers the southern part of South Australia, Victoria, and New South Wales, as well as some areas in southwest West Australia. Compared with the recent five- and thirteen-year averages, total precipitation dropped by 24% and 10%, respectively, especially in eastern New South Wales, which is consistent with the results released from NOAA's National Climatic Data Center. Temperature and PAR display a slight increase over the recent five-year period (0.5% and 2% respectively). In general, the biomass accumulation potential in Australia decreased by 12% compared to the last five-year average.

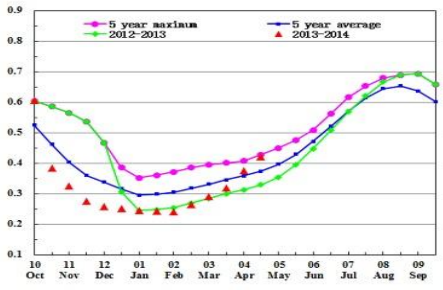
The spatial NDVI patterns and the corresponding time profiles show the condition of crops was below the five-year average before late February in the middle part of the southeastern New South Wales region. For the other parts of southeastern New South Wales and northern Victoria, the crops dropped below the five-year average from late March. For most regions of south-western Victoria, crops remained under the five-year average until the beginning of April. The crop condition map also confirms poor crop condition in Australia before April, which is close to the situation in 2012-2013. After April, crop condition was improved, indicating a good situation for the emergence of Australia's winter crops.



(b) Spatial NDVI patterns compared to 5YA



(c) NDVI profiles



(d) Crop condition development graph based on NDVI

[BGD] Bangladesh

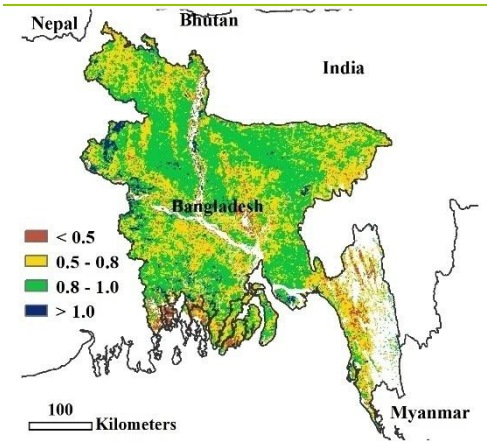
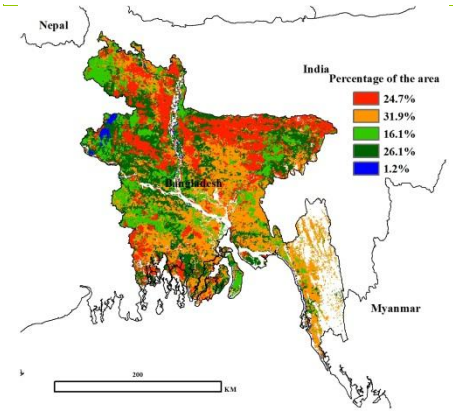
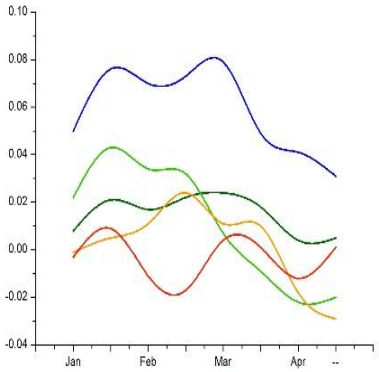


Figure 3.7. Bangladesh crop condition, Jan-Apr 2014 (a) Maximum VCI

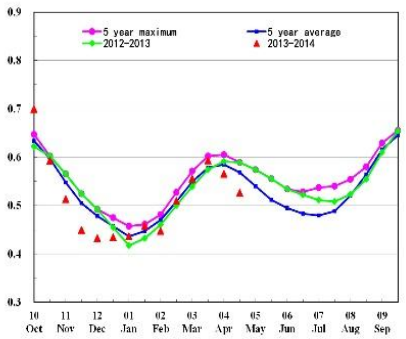
January to April covers the end of the growth and harvest period of dry season irrigated Boro rice, wheat, and early season crops. During the monitoring, period Bangladesh suffered from below average rainfall and temperature compared with the previous five years (-28% rainfall and -0.3°C). Crop condition was favorable in southern Rangpur, Eastern Rajshahi, most of Dhaka (except the central part), western Sylhet, southern Khulna and Barisal, and middle-western Chittagong, with maximum VCI ranges from 0.8 to 1.0. In northern Rangpur, southern Rajshahi, central Dhaka, southern Sylhet, northeastern Khulna and northern Barisal, crop condition was average with maximum VCI ranging between 0.5 and 0.8. At the national level, crop progress was above average from early January to the early April in northern Khulna, central and western Sylhet, and western Rangpur. Overall, CropWatch indicators describe the crop condition as above average compared to the previous five year's average. In spite of below-average rainfall and temperature over much of the country, biomass accumulation was favorable.



(b) Spatial NDVI patterns compared to 5YA



(c) NDVI profiles



(d) Crop condition development graph based on NDVI

[BRA] Brazil

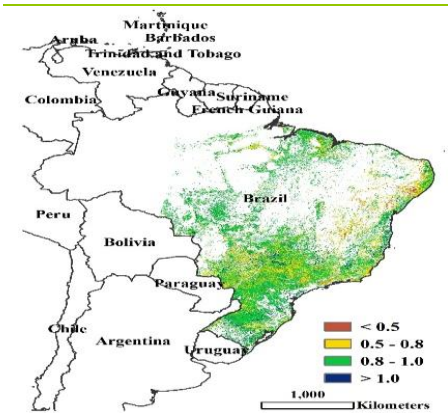


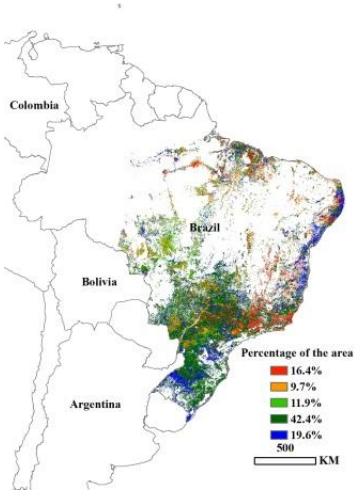
Figure 3.8. Brazil crop condition, Jan-Apr 2014

(a) Maximum VCI

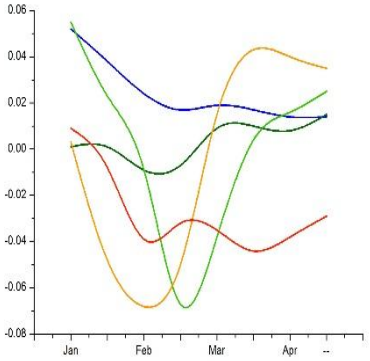
Crop condition in Brazil was generally average from January to April. Currently, harvesting of soybean and the first maize crop is almost complete and wheat is being planted in central and southern areas.

Below five-year average precipitation and above normal temperature dominate most of central Brazil and its eastern coastal states, resulting in a well below average biomass from north Sao Paulo to Ceara. In contrast, Rio Grande Do Sul, Santa Catarina, and Parana experienced above average precipitation and temperature with normal accumulated PAR. Accumulated biomass in those three states was at least 15% higher than the thirteen-year average. The maximum VCI map confirms that crop condition was better in southern and central Brazil, compared to regions along the São Francisco River and scattered regions in Minas Gerais and Goiás.

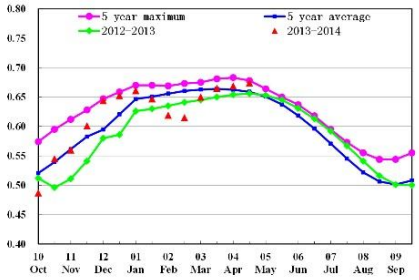
Considering the spatial patterns of NDVI profiles, most areas in Brazil experienced unfavorable conditions (low precipitation and high temperature) in February, but crops recovered in March (except for scattered areas in Minas Gerais and Pará). The crop condition development graph indicates the same pattern: above normal crop condition with a sharp decrease in February. Because average NDVI in March and April is still above last year and the recent five-year average levels, CropWatch estimates that the early unfavorable conditions did not permanently damage crop yield expectations. Brazil, like Argentina, is expected to produce a crop comparable to last year's, with minor producing states outperforming the "big ones" (Mato Grosso, Parana, Rio Grande do Sul) for maize, but under-performing for soybean (see also table B.3 in Annex B).



(b) Spatial NDVI patterns compared to 5YA



(c) NDVI profiles



(d) Crop condition development graph based on NDVI

[CAN] Canada

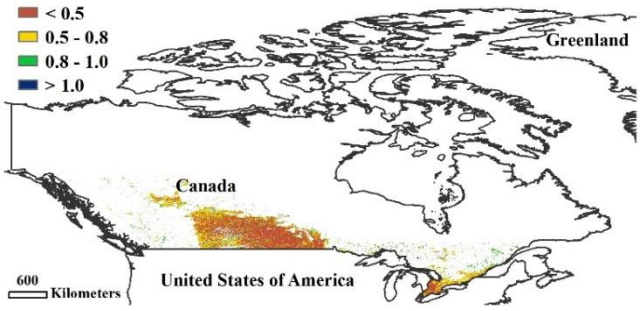
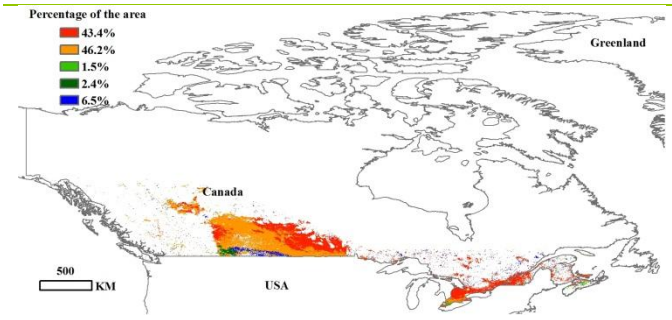


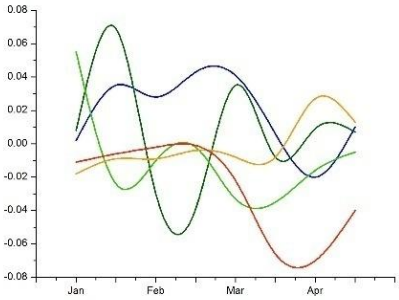
Figure 3.9. Canada crop condition, Jan-Apr 2014

(a) Maximum VCI

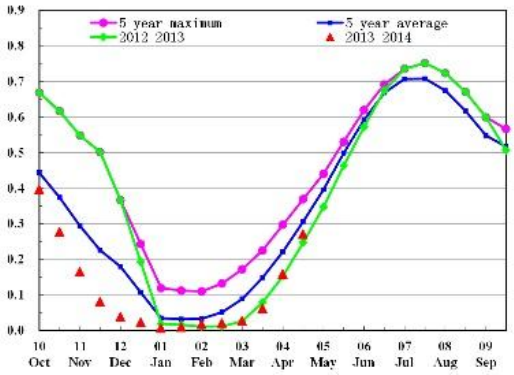
Almost all crops cultivated in the country are confined to the southern parts of Alberta, Saskatchewan, and Manitoba. Because spring crops (spring wheat, maize, soybeans) are sowed in April or May, maximum VCI, NDVI, and biomass have little meaning for this reporting period. In comparison with the recent thirteen-year average for the same period, rainfall increased 2%, temperature was below average (-2.2℃) and PAR was slightly below average as well. Abundant rainfall and low temperature (which reduces evaporation) increased the water content of soil, creating favorable wet conditions for the coming crop sowing and growing season. The NDVI profile indicates a condition similar to previous years.



(b) Spatial NDVI patterns compared to 5YA



(c) NDVI profiles



(d) Crop condition development graph based on NDVI

[DEU] Germany

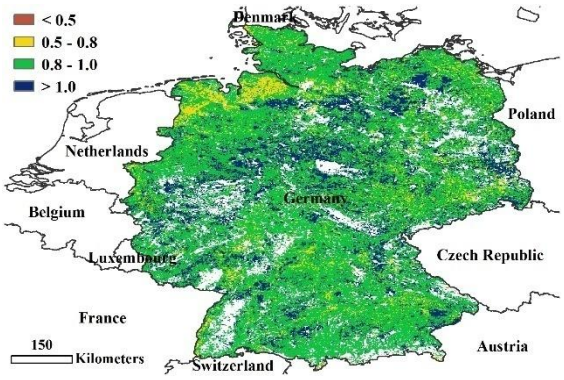
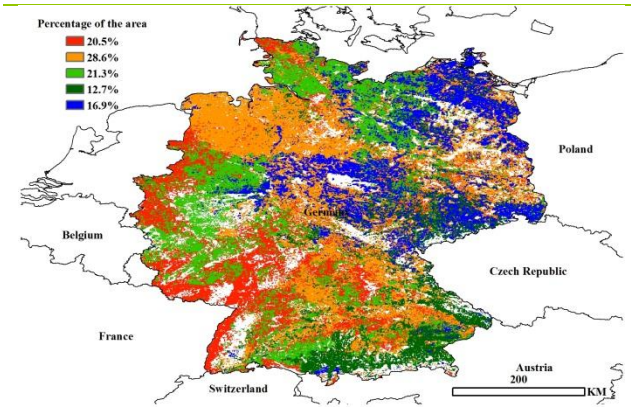
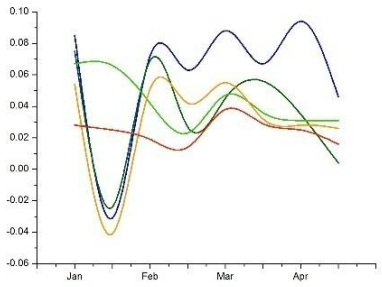


Figure 3.10. Germany crop condition, Jan-Apr 2014
(a) Maximum VCI

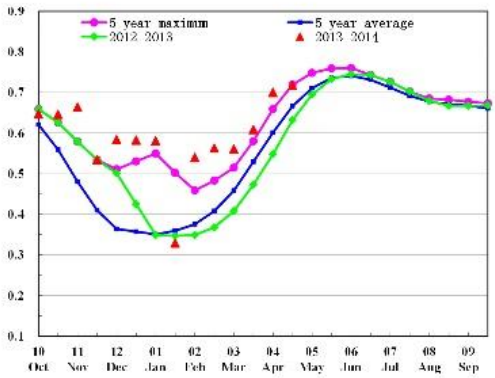
The crops in Germany show generally good and above average condition during the period between January and April in 2014. Currently, winter wheat and winter barley are in the vegetative stages and maize is being planted; according to HGCA, 90% maize has been planted by May 9. The CropWatch agroclimatic indices indicate globally warmer than average weather and close to normal PAR at the national scale. These observations are consistent with the warmer than usual weather in Europe recorded in the JRC/MARS bulletin and in the NCDC report on climate anomalies. At the national level, biomass decreased by 17% compared to the five-year average due to low rains (-24%). As shown by the NDVI profiles, the national NDVI values were well above average and even higher than the five-year maximum between January and April (except for a sharp drop at the begin of January and April). A sharp drop of NDVI in January is mostly occurring in Niedersachsen and Mecklenburg-Vorpommern. The maximum VCI map presents good crop condition everywhere except in the northwest of Niedersachsen, which confirmed by the NDVI profiles.



(b) Spatial NDVI patterns compared to 5YA

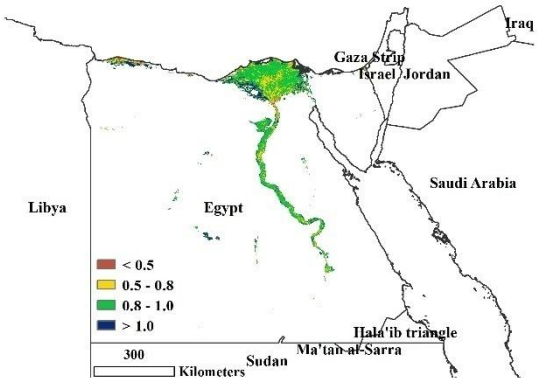


(c) NDVI profiles



(d) Crop condition development graph based on NDVI

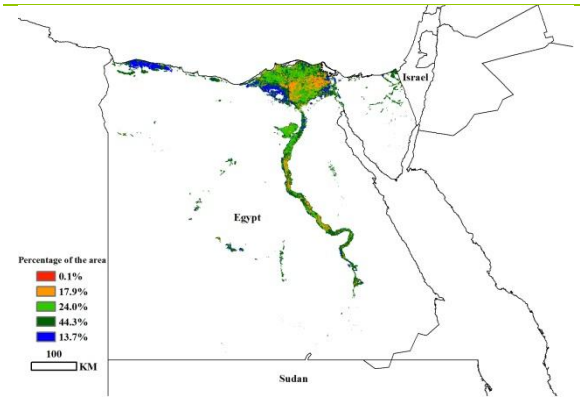
[EGY] Egypt



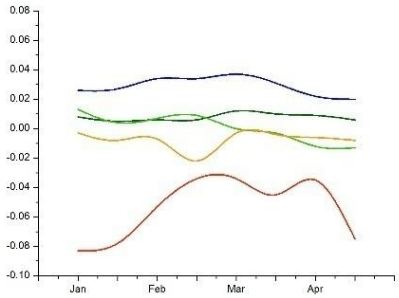
Harvest of winter crops (wheat and barley) is currently underway, while planting of summer crops (maize and rice) has started. As virtually all crops are irrigated, rainfall plays an insignificant part but slightly above average temperature during the early months of 2014 result in an estimated biomass production increase of 9%. In spite of NDVI development being below average (and limited patches of below average NDVI in the central and eastern delta at the end of February), the maximum VCI reaches a high value of 0.88, indicating satisfactory crop condition in line with other good years of the recent past. The cropped arable land fraction also increased. Overall, CropWatch indicators point at average to good conditions that should result in the customary and population-driven increase in wheat output.

Figure 3.11. Egypt crop condition, Jan-Apr 2014

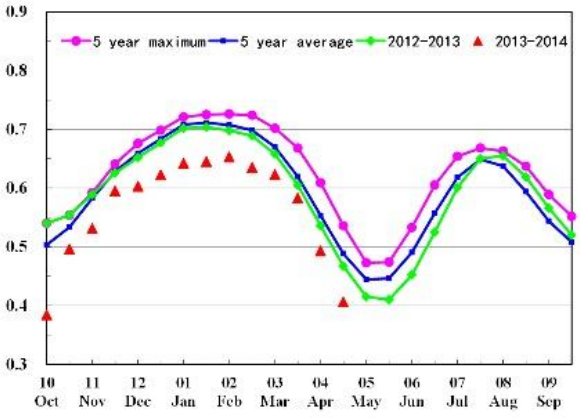
(a) Maximum VCI



(b) Spatial NDVI patterns compared to 5YA



(c) NDVI profiles



(d) Crop condition development graph based on NDVI

[ETH] Ethiopia

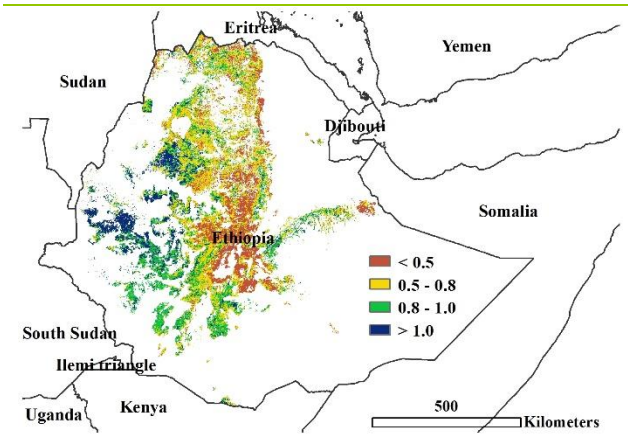
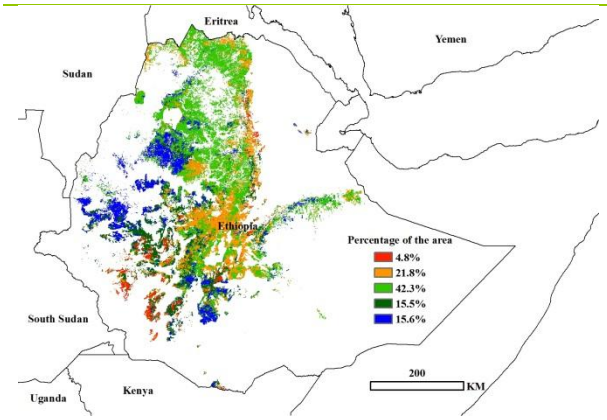


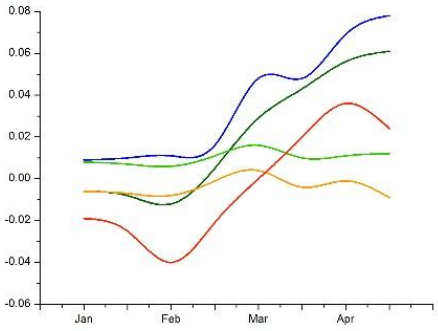
Figure 3.12. Ethiopia crop condition, Jan-Apr 2014

(a) Maximum VCI

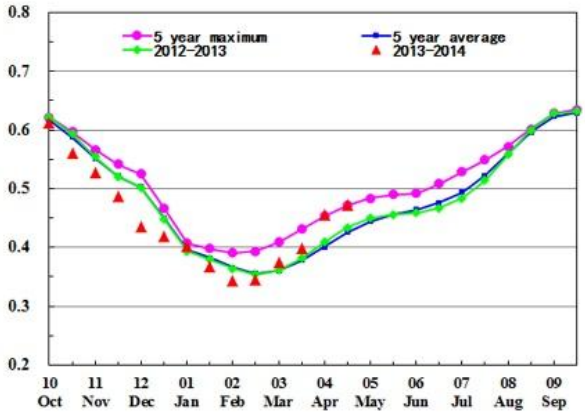
From the time of planting of Belg crops (February) until now, overall conditions in the country were mostly comparable to the average of the last five years. From March, crop conditions were rather favorable, particularly in some central southern and western areas (north SNPP, west Oromia, east Benishangul, and west Amhara), with some areas having crops comparable to the best recent years. Crop condition (wheat, maize) is just average around east Shewa, but better than average over most of Amhara and Tigray. At the beginning of the season, January to April, rainfall was globally about 15% above average, with slightly above average temperature. The biomass production potential increased 9%. In spite of a slight decrease of cropped arable land, which is probably due to a somewhat late onset of the season in the central area around east Shewa, current prospects for the Meher crops are at least average.



(b) Spatial NDVI patterns compared to 5YA



(c) NDVI profiles



(d) Crop condition development graph based on NDVI

[FRA] France

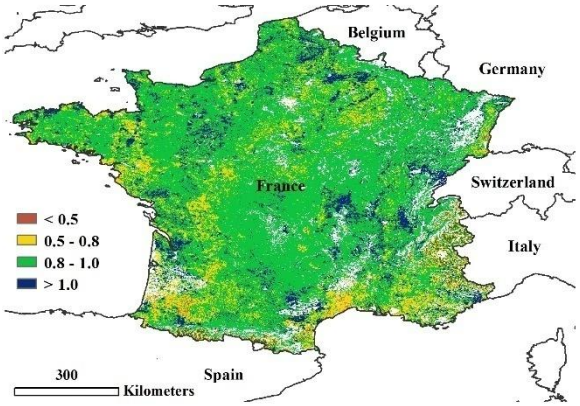
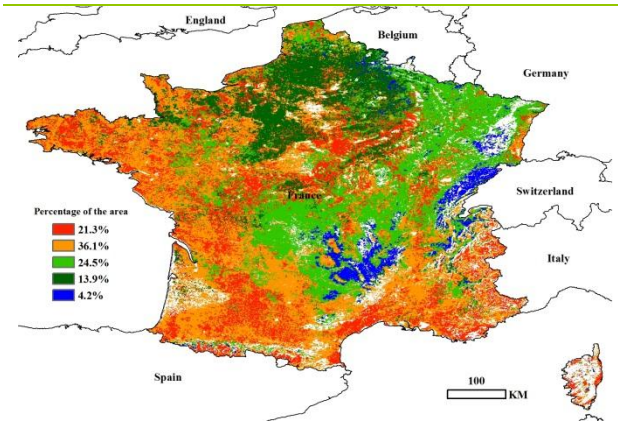


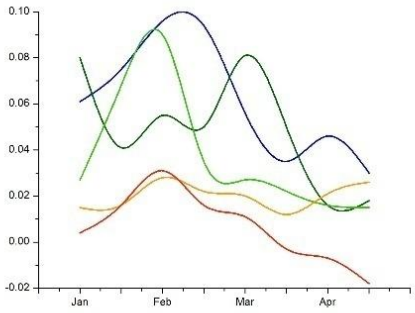
Figure 3.13. France crop condition, Jan-Apr 2014

(a) Maximum VCI

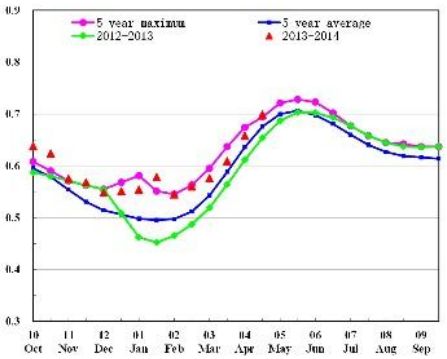
The crop in France was generally in good and above average condition during the reporting period. Currently, winter wheat, winter barley and spring barley are in the vegetative stages and maize is being planted. According to HGCA, 83% maize had been planted by May 9. Compared with the last five-year average, CropWatch agroclimatic indices indicate warmer than average weather at the national scale and PAR displays a decrease of 4%. These observations are consistent with the warmer than usual weather in Europe recorded in the JRC/MARS bulletin and in the NCDC report on climate anomalies. At the national level, biomass decreased by 3 percent compared to the five-year average due to low rains (-11%). According to the NDVI profile analysis, values are above average across the country with the exception of the south of the Pyrénées, the north of Languedoc-Roussillon, and the northwest of Champagne-Ardennes and Burgundy, where NDVI values were below average from mid-March to April. Generally good NDVI conditions are present in the Picardie region and the east and south of Bourgogne-Franche Comté, which is consistent with the maximum VCI map.



(b) Spatial NDVI patterns compared to 5YA



(c) NDVI profiles



(d) Crop condition development graph based on NDVI

[GBR] United Kingdom

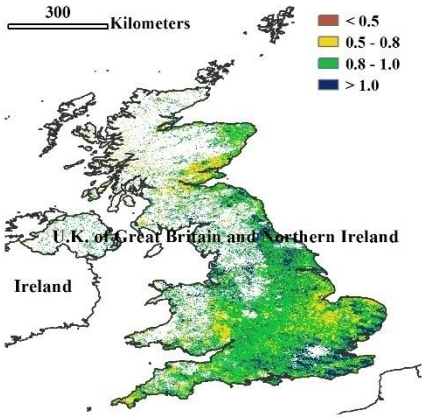
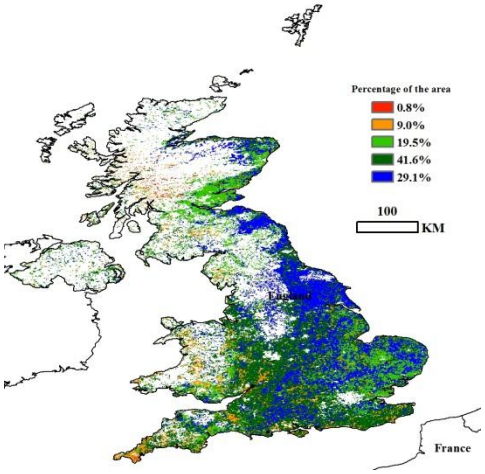


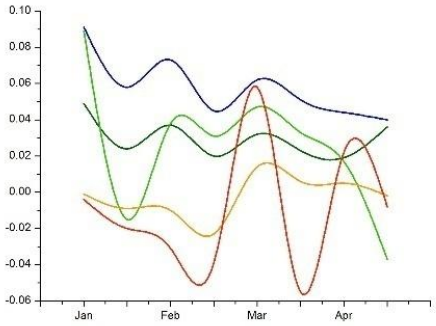
Figure 3.14. United Kingdom crop condition, Jan-Apr 2014

(a) Maximum VCI

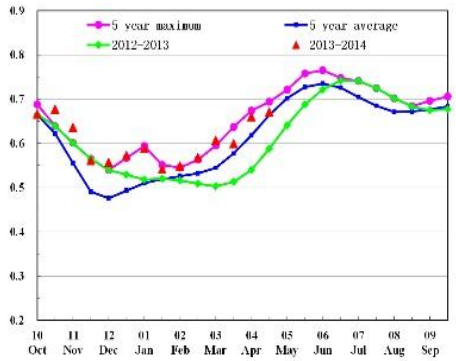
The crop in the United Kingdom shows generally favorable condition during the period between January and April 2014. Currently, wheat, winter barley, spring barley, and rapeseed are in the vegetative stages. Compared with the last five-year average, the CropWatch agroclimatic indices indicate warmer than average weather at the national scale, while PAR displays a decrease of 3%. These observations are consistent with the warmer than usual weather in Europe recorded in the JRC/MARS bulletin. At the national level, biomass increased by 16 percent compared to the five-year average with abundant and locally excessive rainfall (+ 59%). This is consistent with the interpretation of the NDVI profile, which shows that the national NDVI average is well above the recent five-year average and close to the five-year maximum value. According to the NDVI clusters, the NDVI values across the country are above average with the exception of the southwest and northern regions, where NDVI values are below average from January to late February and early March to mid-march, and the southeast regions, which presents a NDVI decrease from early April due to excess water; this is confirmed by the maximum VCI map.



(b) Spatial NDVI patterns compared to 5YA



(c) NDVI profiles



(d) Crop condition development graph based on NDVI

[IDN] Indonesia

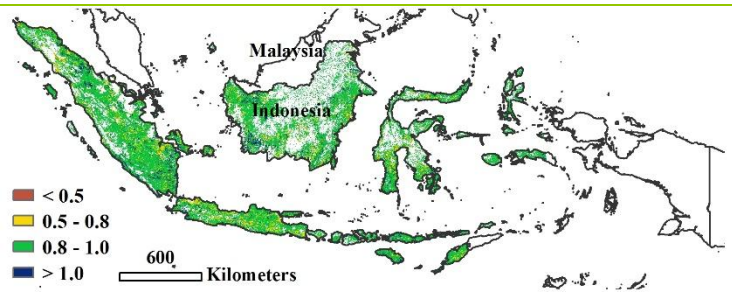
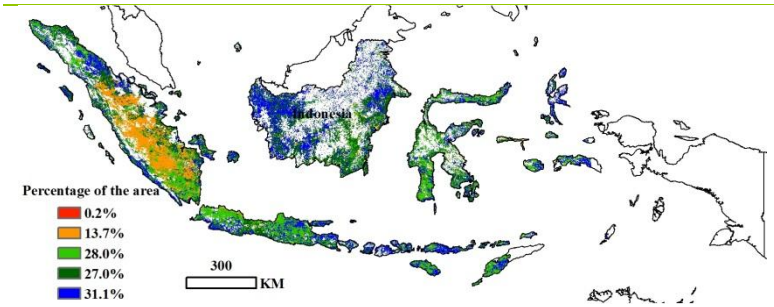


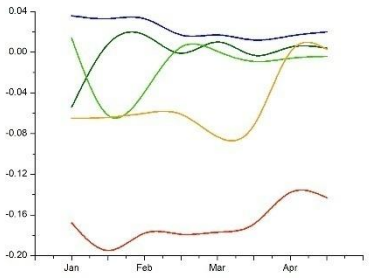
Figure 3.15. Indonesia crop condition, Jan-Apr 2014

(a) Maximum VCI

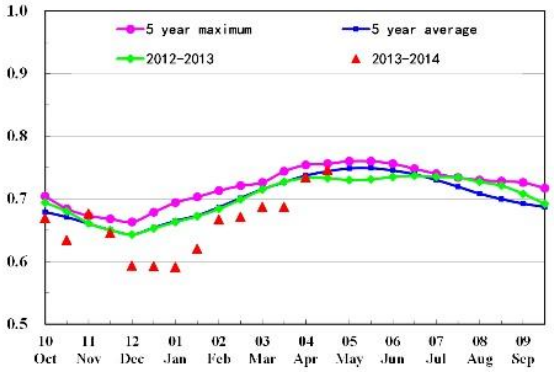
In May, harvest begins for the rice planted in January, while the crop planted in February is entering early generative or early ripening stage. At the beginning of this season, low environmental indices (including PAR and air temperature) brought about unfavorable crop condition, possibly compensated by normal to above-normal rainfall conditions. The national NDVI profile was also below average until the end of January. Starting in January, the national NDVI profile was between normal to above-normal conditions. Crop condition is now generally average or above average, except for Sumatra: most areas of the island had below average crop condition, possibly as a result flooding at the beginning of the season.



(b) Spatial NDVI patterns compared to 5YA



(c) NDVI profiles



(d) Crop condition development graph based on NDVI

[IND] India

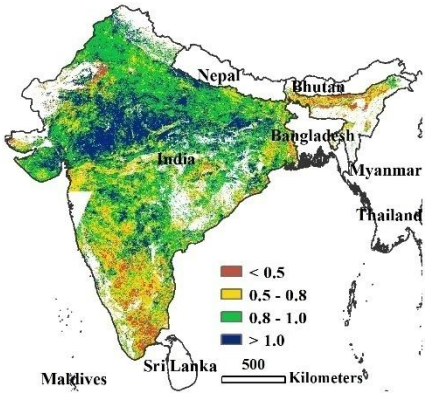
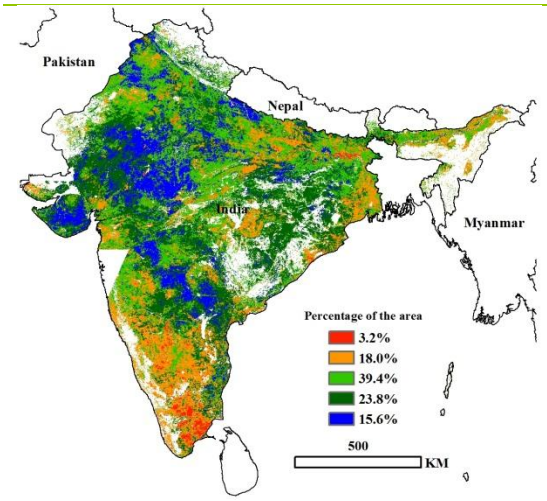


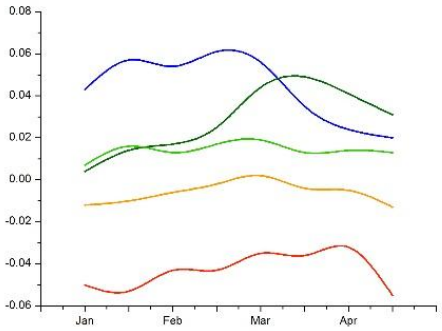
Figure 3.16. India crop condition, Jan-Apr 2014

(a) Maximum VCI

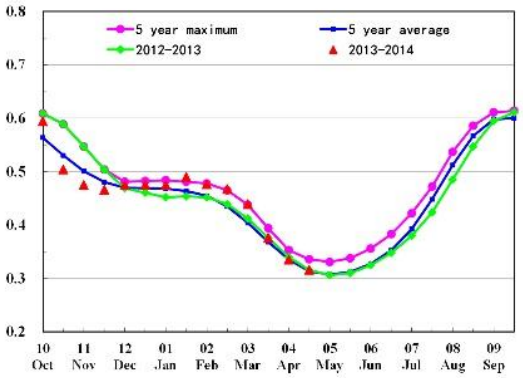
During the monitoring period, the situation of agriculture in India was very favorable, except for some areas in the south and northeast. The reporting period covers mostly the Rabi (winter) wheat and rice crop. Condition of crops was very good in Punjab, Haryana, Rajasthan, Uttar Pradesh, Central Gujrat, Northern Bihar, and Maharashtra, with maximum VCI greater than 0.8. These areas experienced very good rainfall, which was above the previous five-year average. Condition was average in the north-eastern part of India, west Bengal, the central part of Tamil Nadu, and the southern part of Karnataka, with VCIx in ranging between 0.5 and 0.8. Crops in south and northeast India were affected by below average rainfall compared with the previous five years. Crop development progress was very satisfactory between early January and end of the march. However, NDVI changes were negative after early April due to the harvesting of Rabi crops. In general, crop condition was good compared with the previous five years' average. Biomass accumulation was very favorable with a 40% increase compared to the previous five-years average.



(b) Spatial NDVI patterns compared to 5YA



(c) NDVI profiles



(d) Crop condition development graph based on NDVI

[IRN] Iran

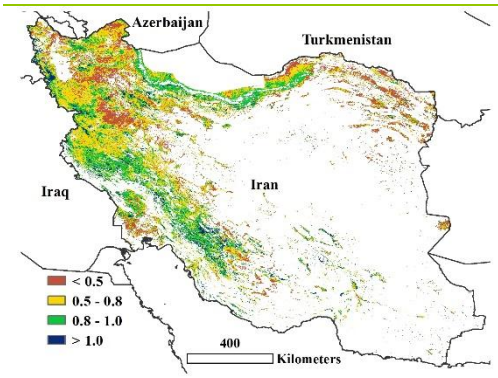
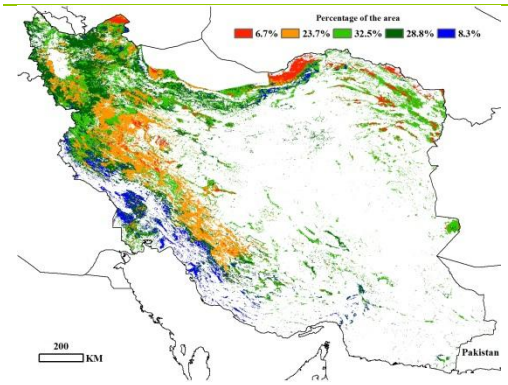
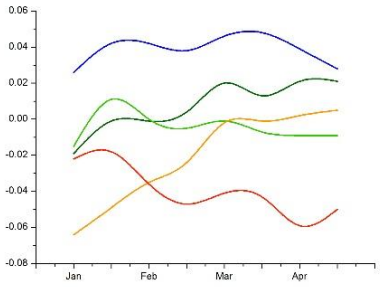


Figure 3.17. Iran crop condition, Jan-Apr 2014
(a) Maximum VCI

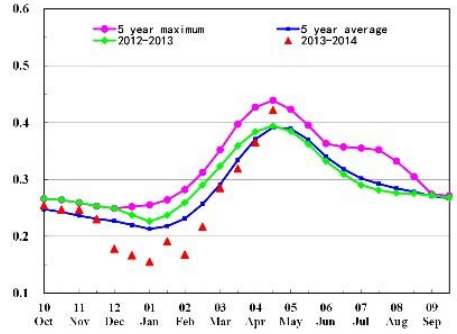
Accumulated rainfall and PAR for January to April 2014 were above the five-year and thirteen-year averages, while the accumulated temperature was below for the same period. During this period, winter wheat was grown and barley harvested. The CropWatch agroclimatic indices for the current season indicate favorable conditions for winter crops, which is confirmed by the increase of biomass by 13%. Poor growth conditions occurred in the Razavi Khorasan, north Khorasan, and the center of Golestan provinces of the northeast region; conditions close to or above the five-year average are mainly distributed in the Ardabil, Zanjan, and Hamadan provinces of the northwest regions, and the Khuzestan, Kermanshah, and Fars provinces of the southwest region. The major wheat producing areas experienced the end of dormancy in March. Overall, the outcome of this season is expected to be favorable.



(b) Spatial NDVI patterns compared to 5YA

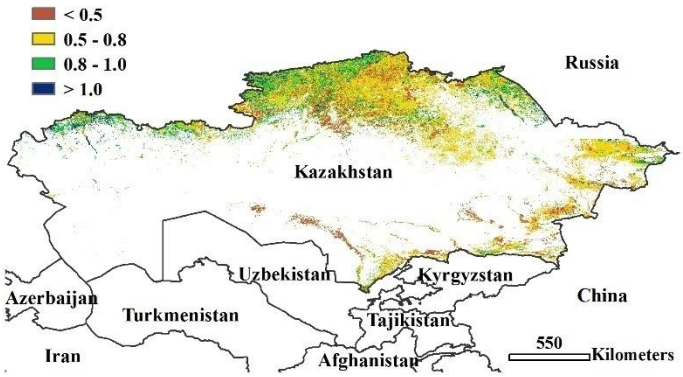


(c) NDVI profiles



(d) Crop condition development graph based on NDVI

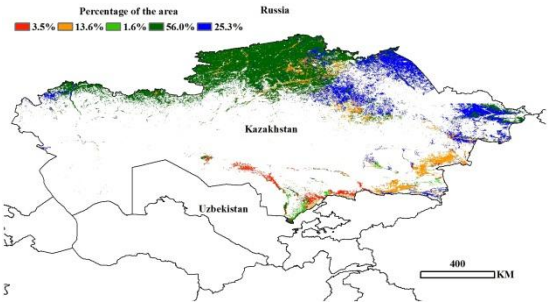
[KAZ] Kazakhstan



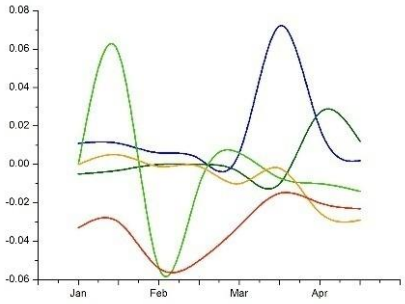
No crops are grow from January to April; spring crops are in the sowing stage. During the reporting period, rainfall and PAR accumulation was slightly above the past thirteen-year average (by 2% and 1%, respectively) but the average temperature decrease was low in comparison with the thirteen-year average (-1°C). The NDVI development curve shows that there was almost no vegetation cover from January to March. However, lower temperature and more rainfall and PAR accumulation may have some influence on the ongoing and future spring crops by improving soil moisture availability.

Figure 3.18. Kazakhstan crop condition, Jan-Apr 2014

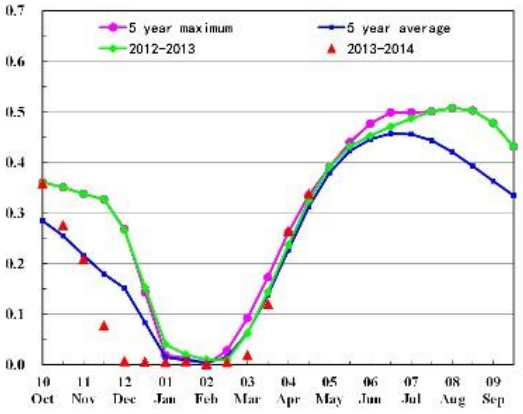
(a) Maximum VCI



(b) Spatial NDVI patterns compared to 5YA



(c) NDVI profiles



(d) Crop condition development graph based on NDVI

[KHM] Cambodia

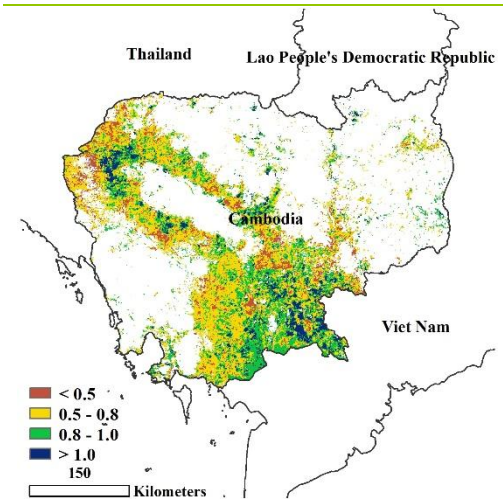
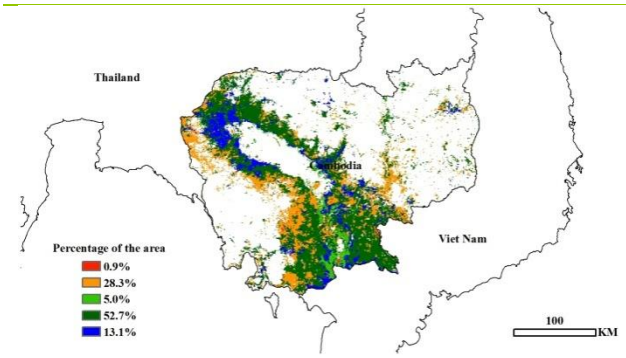


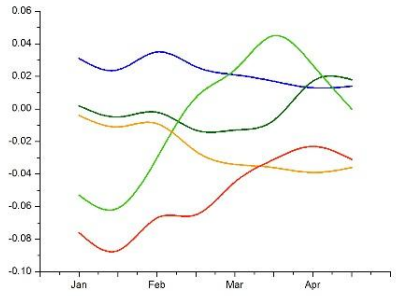
Figure 3.19. Cambodia crop condition, Jan-Apr 2014

(a) Maximum VCI

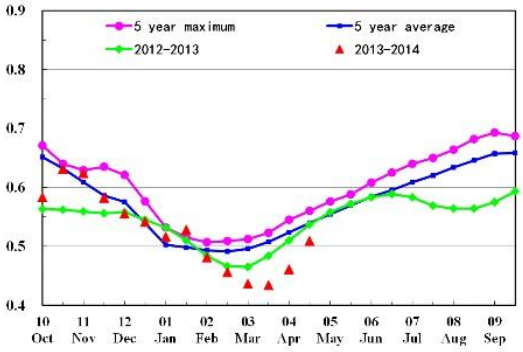
The period from January to April 2014 covers the whole growing period of the second (dry season) rice crop and the harvest of the main (wet season) rice crop in Cambodia. Crop condition was below average during the entire period covered by this bulletin. The results of the climatic indicators and biomass monitoring by CropWatch indicate that the country enjoyed a favorable rainfall and PAR accumulation with values about 5% higher than the five-year average. On the contrary, temperature was slightly lower than the average. As a result, the biomass accumulation shows a 10% decrease compared with the average of the last five years. Crop condition was a little better than average in January and turned to below average in the following three months. NDVI profiles show that crop condition in 13.1% of the cropped area (mainly Banteay Meanchey and Battambang, as well as northwest Cambodia) was above average from January to April, but nearly all the remaining areas were below average during the monitoring period. Most of Cambodia has a maximum VCI in the range of 0.5 to 1.0. Overall, although crop condition was below average during the monitoring period, the absence of major setbacks and the presence of favorable conditions during the early stages of rice crops suggest a good rice production can be expected for 2014, slightly up from 2013.



(b) Spatial NDVI patterns compared to 5YA

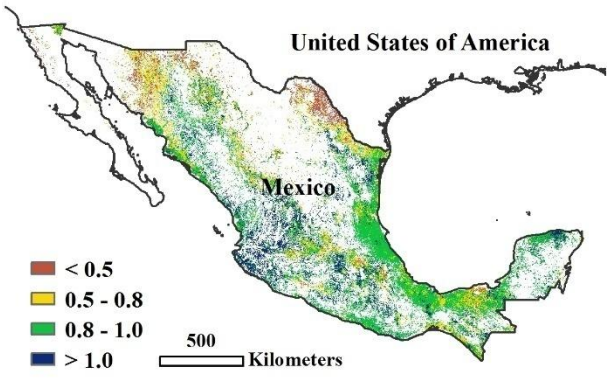


(c) NDVI profiles



(d) Crop condition development graph based on NDVI

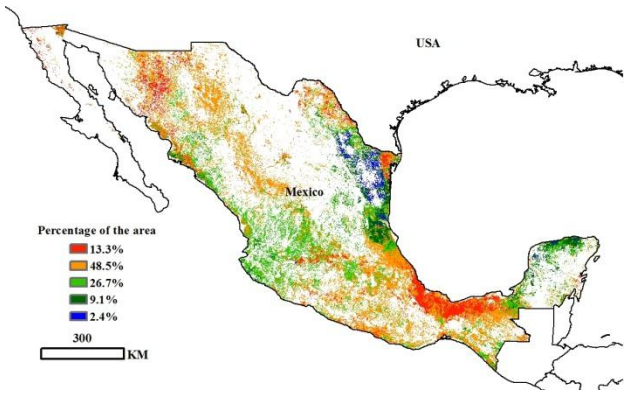
[MEX] Mexico



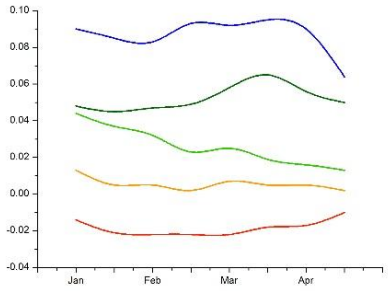
The monitoring period coincides with Mexico's dry season and almost all the summer crop have been harvested. Rainfall was significantly lower than the thirteen-year average (-23%); temperature and PAR were near average. The maximum VCI in the southern region of Mexico is much above the five-year average, indicating good crop growing condition, even if values remained below the five-year maximum value. Compared with the last five-year average, 38.2% of crop areas display relatively good growing condition, 48.5 percent shows average growing condition, while 13.3 percent shows an inferior condition. The rainy season of Mexico is about to start; abundant rainfall is needed to offset the deficit over the monitoring period.

Figure 3.20. Mexico crop condition, Jan-Apr 2014

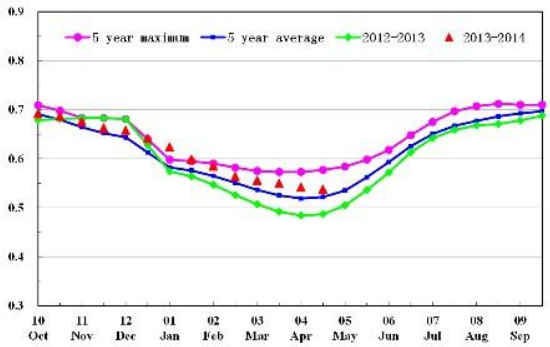
(a) Maximum VCI



(b) Spatial NDVI patterns compared to 5YA

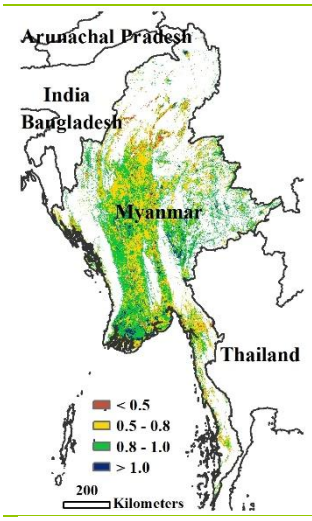


(c) NDVI profiles



(d) Crop condition development graph based on NDVI

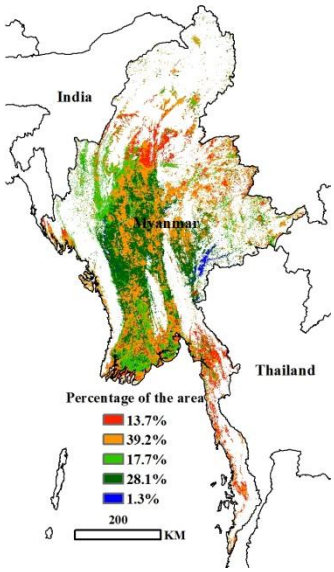
[MMR] Myanmar



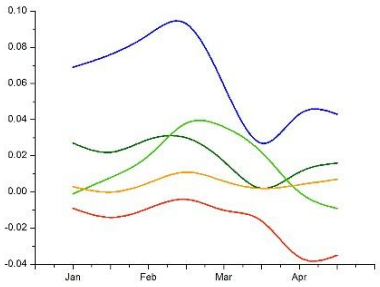
The harvest of the second rice and wheat crop occurred from February to mid-April, while the harvesting of maize is completed. The crop condition in mid-April was inferior to that of both the previous season and the last five years. The condition shows a sharp decrease of NDVI from February to mid-April. For the period under consideration, the climatic and crop indicators show slightly increased PAR accumulation (+3%), accompanied by slightly decreased temperature (-0.2°C) in comparison with the last five years. The rainfall and biomass accumulation suffered large decreases by about 40% compared with the last five-year average. Drought-affected areas, particularly in Kayin state and Sagaing region, are identified by below-average NDVI profiles (almost 15% of the cropland area). While the NDVI profiles are mostly average in the largely irrigated dry zone, a sharp drop of NDVI in mid-February happened mostly in Kayah.

Figure 3.21. Myanmar crop condition, Jan-Apr 2014

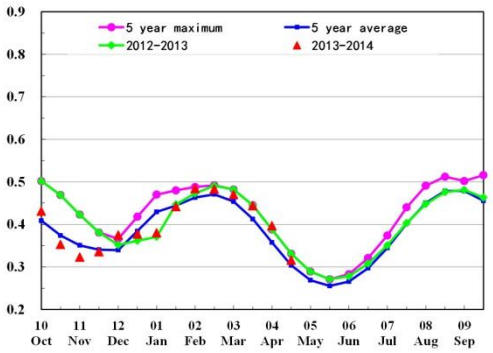
(a) Maximum VCI



(b) Spatial NDVI patterns compared to 5YA

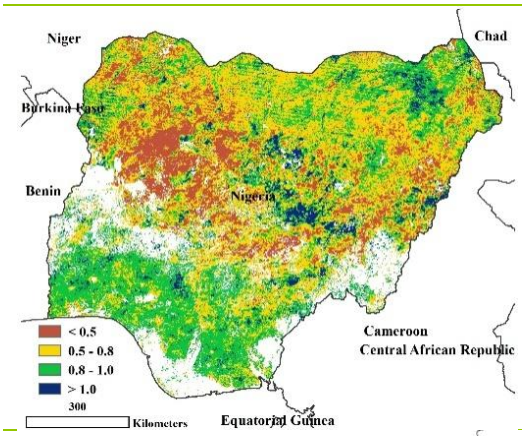


(c) NDVI profiles



(d) Crop condition development graph based on NDVI

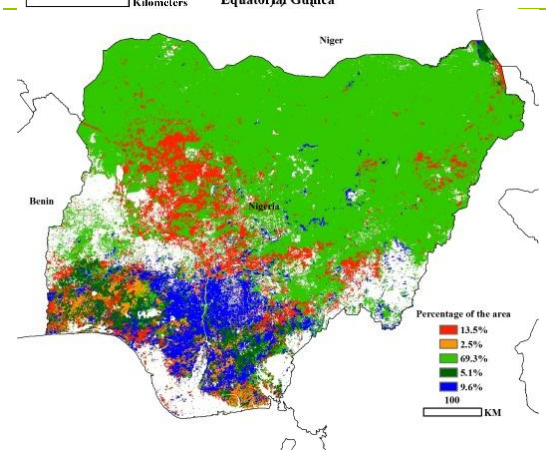
[NGA] Nigeria



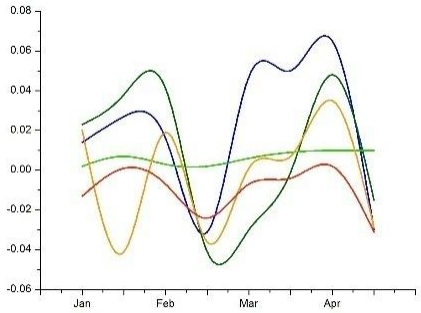
Temperature and sunshine conditions in Nigeria were close to average during the reporting period, while rainfall shows a large increase over average (+54%). Maize and rainfed rice planting took place in the southern-central part of the country in March and April. NDVI values at the time were generally close to average, but they show a marked drop at the end of April throughout the country. Based on current VCI values (0.73) the situation is best described as average in the center and favorable in the southeast, provided the NDVI drop is only temporary.

Figure 3.22. Nigeria crop condition, Jan-Apr 2014

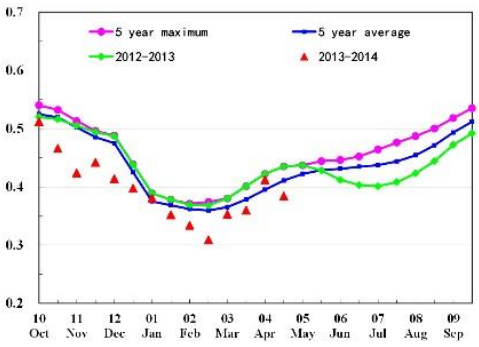
(a) Maximum VCI



(b) Spatial NDVI patterns compared to 5YA

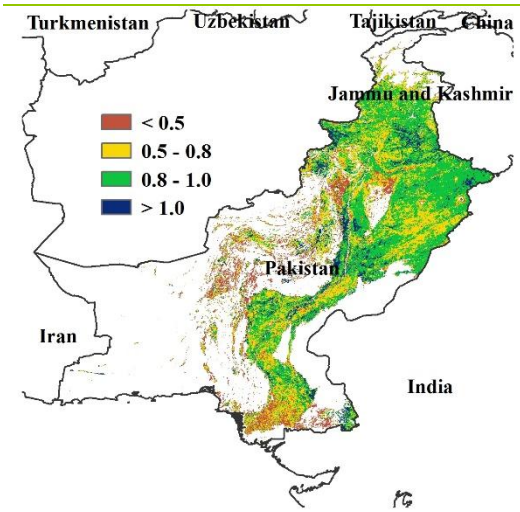


(c) NDVI profiles



(d) Crop condition development graph based on NDVI

[PAK] Pakistan

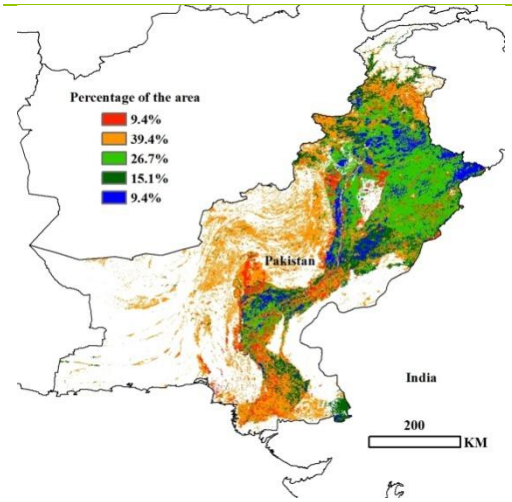


This monitoring period covers the growing and harvesting stage of winter wheat and barley. Generally the crop condition was favorable from January to April. Compared with the past thirteen-year average level, rainfall slightly increased (0.4%) while temperature and PAR accumulation decreased (-1.2% and -1°C), all of which result in average crop condition.

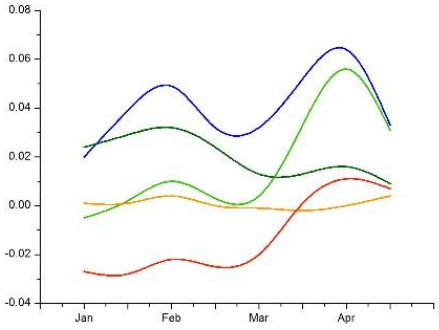
Spatial NDVI patterns and clusters indicate that crop growth is generally above the recent five-year average. Only January experienced a drop in rainfall, which is agreement with other sources. In some areas such as Sibi and Khushah, crop condition was below the recent five-year average from January to the middle of March.

Figure 3.23. Pakistan crop condition, Jan-Apr 2014

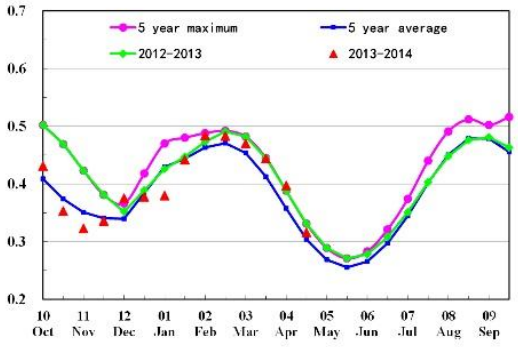
(a) Maximum VCI



(b) Spatial NDVI patterns compared to 5YA

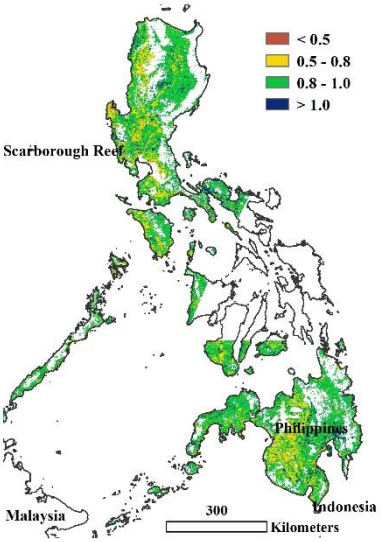


(c) NDVI profiles



(d) Crop condition development graph based on NDVI

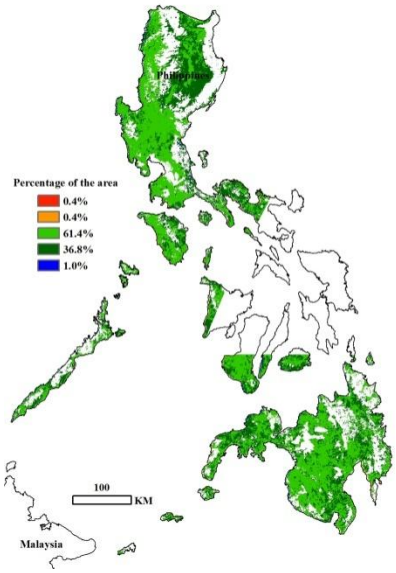
[PHL] The Philippines



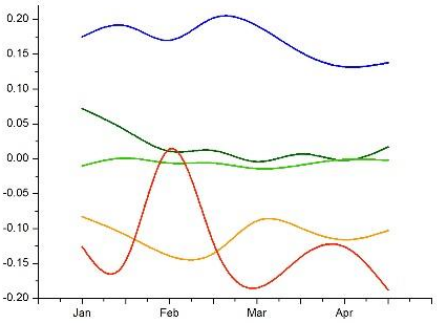
The Philippines mostly enjoy a very long humid season with ample moisture supply, interrupted locally by a short dry season around the beginning of the year. As illustrated by below average indices for air temperature and PAR, accompanied by above-average rainfall, crops planted in November (for harvesting around April) may suffer from the unfavorable weather conditions for the season. NDVI profiles indicate that throughout the season, especially from February to April, the country underwent unfavorable conditions comparable with those of previous years. According to the recent crop condition map, most of the country enjoys average crop conditions. Additional details about the Philippines are provided in section 5.1 on disasters.

Figure 3.24. Philippines crop condition, Jan-Apr 2014

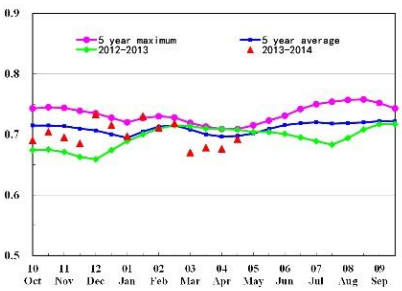
(a) Maximum VCI



(b) Spatial NDVI patterns compared to 5YA



(c) NDVI profiles



(d) Crop condition development graph based on NDVI

[POL] Poland

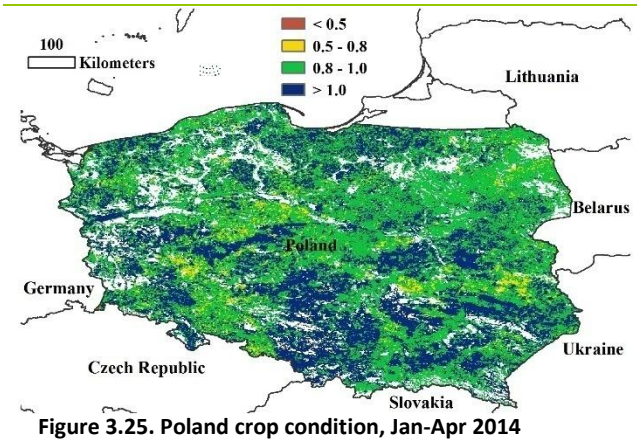
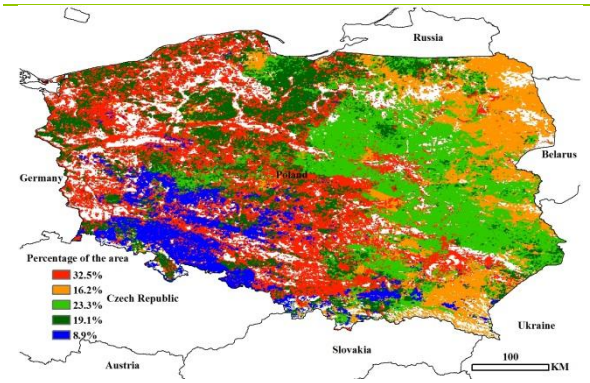


Figure 3.25. Poland crop condition, Jan-Apr 2014

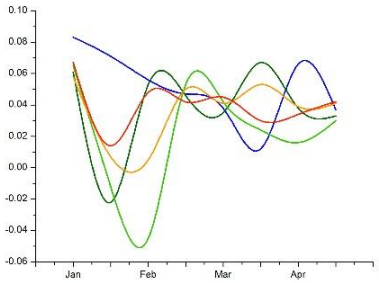
(a) Maximum VCI

Poland presents a very favorable crop condition during the period under review, which is also the major crop development stage for winter cereals. The planting of maize will be started after April. The cropped arable land was about the same as the last five-year average. The weather during the period was drier and warmer than usual with rainfall down 14%, PAR up 2%, and especially temperature up 2.3%, compared to the thirteen-year average.

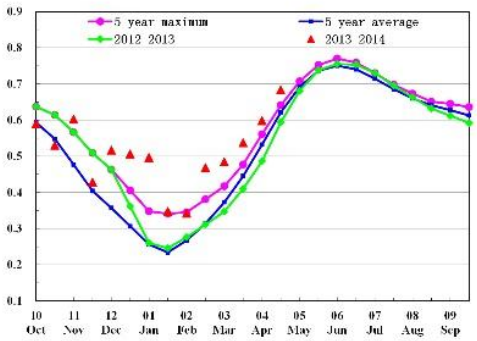
The positive thermal anomalies contribute to an advanced crop development, which is shown in the NDVI development profile: average NDVI values are all near and above the five-year maximums from January on forward. Spatial NDVI profiles indicate that the crop condition in Mazowieckie and Lubeiskie was at first below average in January but recovered soon in February, and other regions maintained above average condition within the monitoring period. The maximum VCI also confirms the excellent crop condition in Poland which, at 0.98, tops the monitored European countries. The winter wheat growing regions including Szozeoin, Elblag, Olsztyn, Torun, Opole, Katowice, Bublin, and Zamoso all present the best crop condition on record in the maximum VCI map. Therefore, a rather good yield can be expected for Poland.



(b) Spatial NDVI patterns compared to 5YA



(c) NDVI profiles



(d) Crop condition development graph based on NDVI

[ROU] Romania

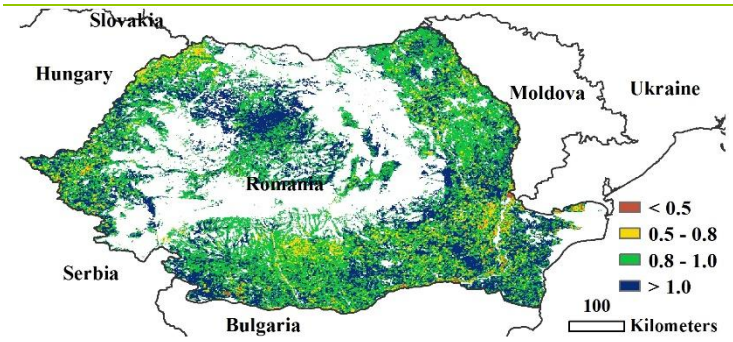
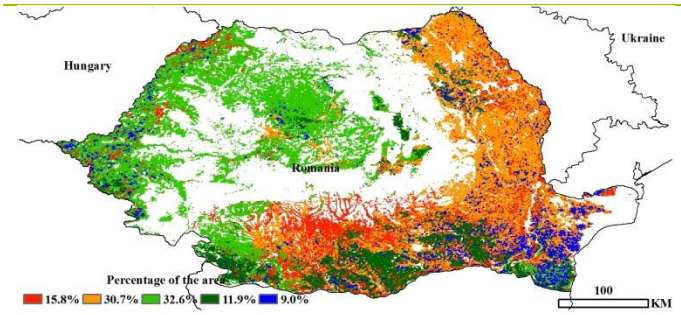


Figure 3.26. Romania crop condition, Jan-Apr 2014

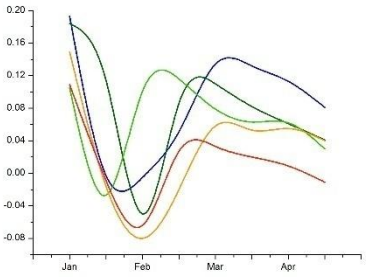
(a) Maximum VCI

Winter crops in Romania generally enjoyed good condition. The planting of maize has started in April. Consistent with the prevailing warmer than usual weather over most of the European regions (reported by the JRC/MARS bulletin), Romania experienced scarce rainfall, abundant radiation, and positive thermal anomalies, with the CropWatch rainfall indicator down 13%, the PAR indicator up 0.5%, and temperature up 2 degrees compared with the recent thirteen-year average. The dry and warm conditions lead to a drop of 11% of potential biomass accumulation in Romania.

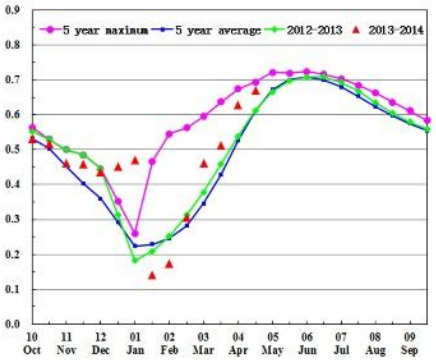
More arable land was cropped in this monitoring period than the last five-year average (up 0.9%). The NDVI development profile shows an upward trend for the country's average crop condition, which was poor in January and February but recovered in March and gradually reached the level of the recent five-year maximum. The NDVI spatial profiles also demonstrate that this pattern was similar over the whole country. The VCIx value of Romania ranked second (0.96) among the monitored European countries. The best crop condition areas largely lie in the major wheat growing area including Mehedinti, Dolj, Teleorman, Giurgiu, Calarasi, and Constanta, which indicate a promising yield prospect in Romania.



(b) Spatial NDVI patterns compared to 5YA



(c) NDVI profiles



(d) Crop condition development graph based on NDVI

[RUS] Russia

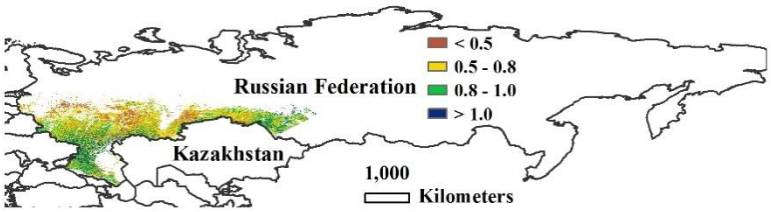


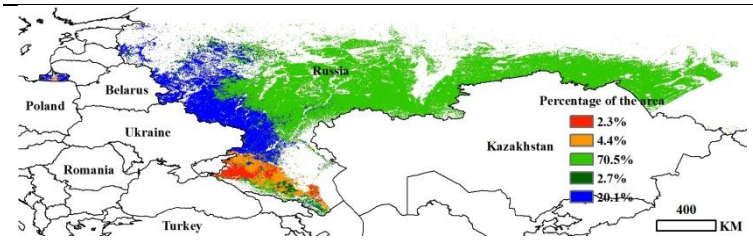
Figure 3.27. Russia crop condition, Jan-Apr 2014

(a) Maximum VCI

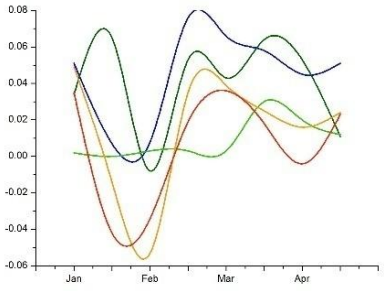
Russia shows average crop condition during the monitoring period. The planting of spring crops (spring wheat and barley) and summer crops (maize, rapeseed and soybean) will start after April.

The weather condition during the first months of the year was dry and mild with rainfall down 13%, temperature up 0.7 degrees, and a PAR increase of 3%, compared with the thirteen-year average.

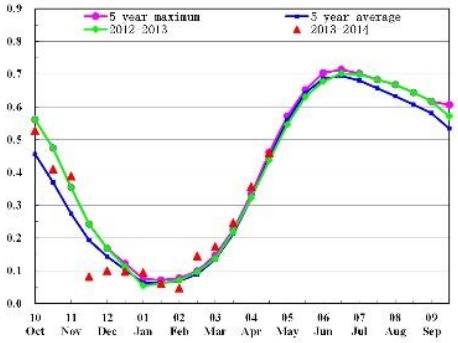
The fraction of cropped arable land in this period increased as much as 28.2% compared with the last five-year average, indicating an increasing area of winter wheat. The overall crop condition is satisfactory with VCIx valued 0.73. Large below-average areas can be observed in the north of the Central Region, Volga Region and Urals Region (including Tverskaya Oblast, Yaroslavskaya Oblast, Ivanovskaya Oblast, Nizhegorodskaya Oblast, Tatarstan Rep., and the border between Chelyabinskaya Oblast and Kurganskaya Oblast), which mainly corresponds with uncropped arable land. The NDVI development profile showed the country average NDVI was slightly below average in January and February, but favorable in March and remaining average ever since. The Southern Region of Russia (including Rostovskaya Oblast, Krasnodarskiy Kray, Stavropolskiy Kray and north of Dagestan Rep.) presented below average condition before mid-February but recovered and did well in March, while other cropped areas maintained good condition through the whole period. Average to good yields can be expected for the winter crop in Russia.



(b) Spatial NDVI patterns compared to 5YA



(c) NDVI profiles



(d) Crop condition development graph based on NDVI

[THA] Thailand

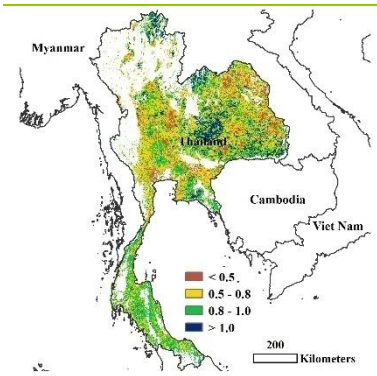
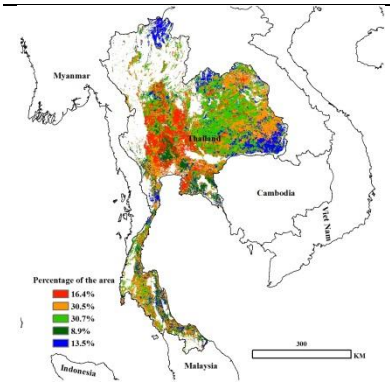


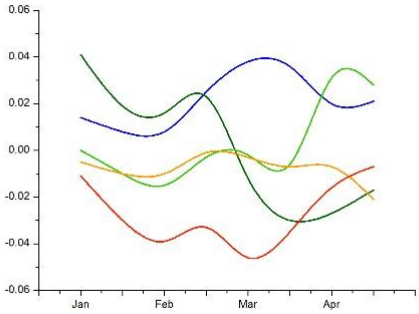
Figure 3.28. Thailand crop condition, Jan-Apr 2014

(a) Maximum VCI

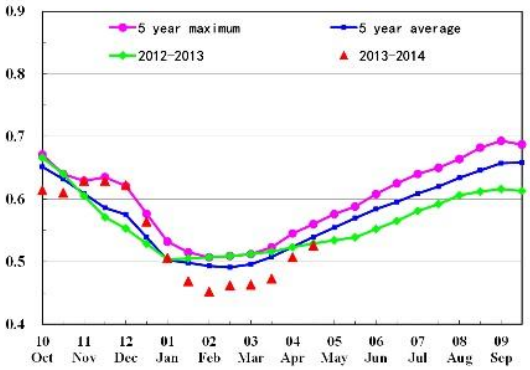
The harvest of the main rice crop was completed in January, while the second season rice has reached maturity and was ready to be harvested in April. For the period under consideration, the crop condition shows below average conditions compared to the last five years and the previous year due to poor rainfall. NDVI increased from February to mid-April. The agroclimatic and crop indicators show increased PAR accumulation (+6%) and slightly decreased temperature average (-0.5°C) in comparison with the last five years. Rainfall dropped by 30% compared to that from the last five years, indicating a drought situation. As a result, the biomass accumulation potential decreased by about 23% compared to the five-year average. The NDVI profiles confirm that crop condition was mostly below average, particularly in central Thailand, but not in March, which is the growing period of second rice crop. Ubon Ratchathani, Sisaket, Loei, and Chiang Rai provinces generally enjoyed above average conditions. The maximum VCI index increased to 0.77. VCI indicates that the best crop is in Khon Kaen province.



(b) Spatial NDVI patterns compared to 5YA



(c) NDVI profiles



(d) Crop condition development graph based on NDVI

[TUR] Turkey

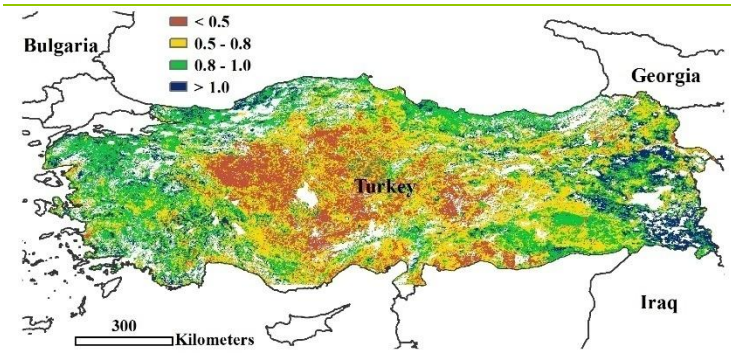
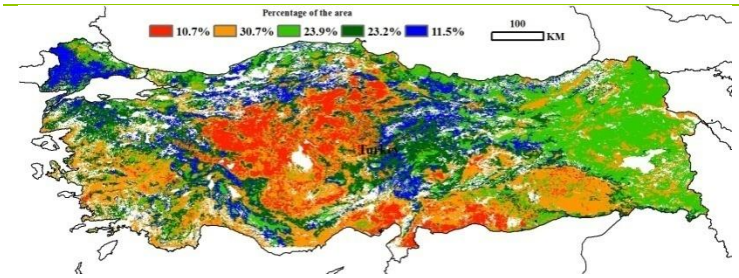


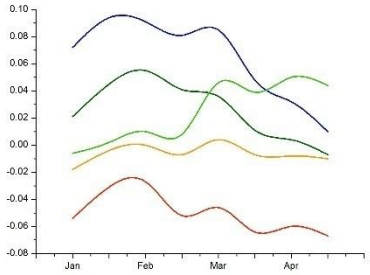
Figure 3.29. Turkey crop condition, Jan-Apr 2014

(a) Maximum VCI

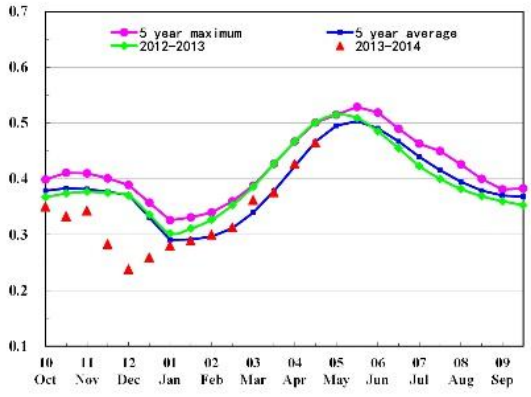
Accumulated rainfall for January to April 2014 was below the five-year and thirteen-year average, while temperature and accumulated PAR were above average. Biomass was far below in comparison with both reference periods. During the monitoring period, the winter grains are grown, and planting of summer crops started in April. The environmental indices indicate poor growing conditions for winter crops in the current season and crops will be affected; this is confirmed by the biomass decrease of 10 percentage points. Crop condition below the five-year average for January to April was found in the majority of the Western and Central Anatolia region, and the Mersin and Hatay provinces in the Mediterranean region. Other regions underwent favorable conditions mostly from March to April, especially in the Central-Eastern Anatolia and Thrace regions. The outlook for the winter crop season is unfavorable.



(b) Spatial NDVI patterns compared to 5YA



(c) NDVI profiles



(d) Crop condition development graph based on NDVI

[UKR] Ukraine

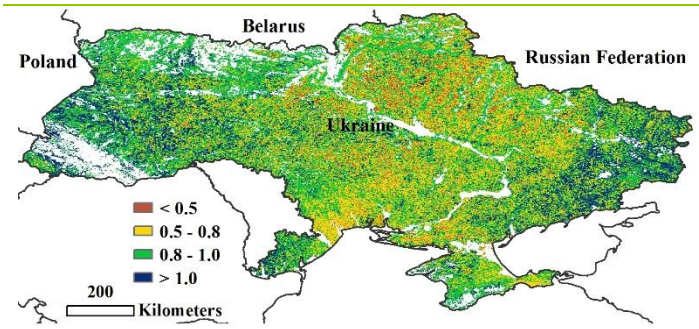
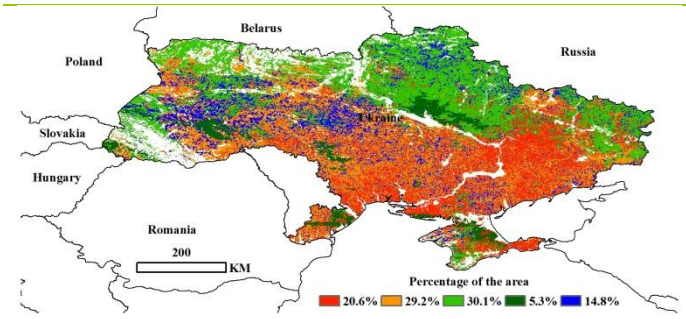


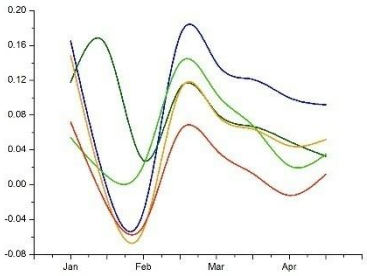
Figure 3.30. Ukraine crop condition, Jan-Apr 2014

(a) Maximum VCI

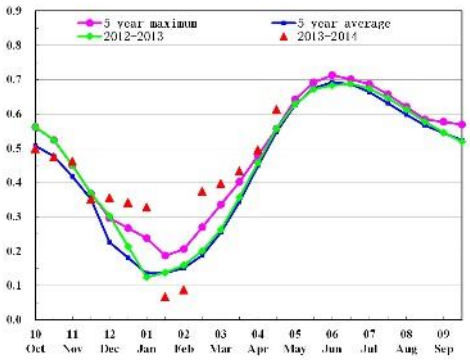
Winter cereals are still growing (to be harvested during summer) while summer crop planting (maize) is nearing completion. NDVI development covering the current crop was generally above average, with a temporary drop at the very beginning of the year. From January to February, the NDVI "dropped" to average in the north, east and west of the country, while it dropped to below average in the central southern parts. Nationwide, rainfall was well below average (-31%), which could not be offset by increased average temperature (and excellent sunshine conditions: +3%), resulting in an overall drop of biomass potential of 18%. At the end of April, NDVI values were below average in about 20% of the country only, affecting the center and especially center-south. VCI values above 1 (the best of the last thirteen years) do occur in the eastern fourth and the western third of the country, resulting in a national average of 0.84. In spite of a rather abnormal weather situation during parts of the season, current crop indicator values point at satisfactory winter crop condition.



(b) Spatial NDVI patterns compared to 5YA



(c) NDVI profiles



(d) Crop condition development graph based on NDVI

[USA] United States

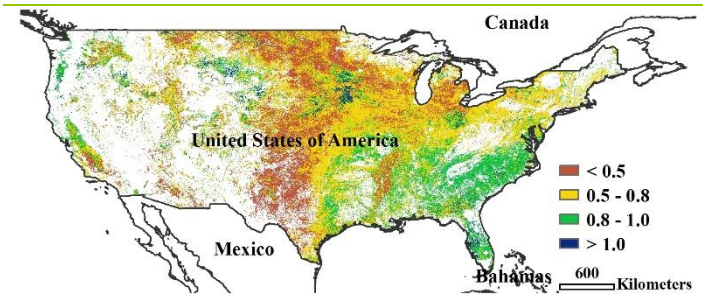
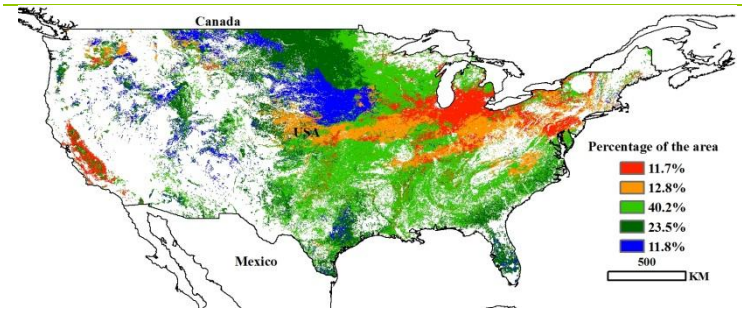


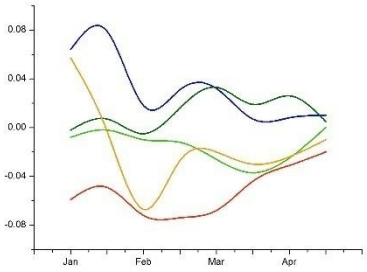
Figure 3.31. United States crop condition, Jan-Apr 2014

(a) Maximum VCI

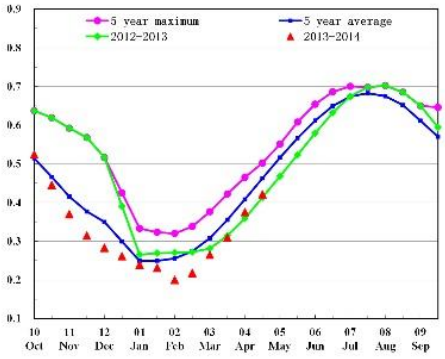
This monitoring period is the growing season of winter wheat and the sowing season of spring crops. Compared to the thirteen-year average for the same period, rainfall and temperature were below average (-3% and -1.8°C), while PAR was near average (-0.5%).Rainfall was always below the five-year average in the southwest and west of the country, especially in the north of Texas and Oklahoma. Severe droughts happened in these regions and VHI sharply drops after mid- or late February. Maximum VCI in the south-eastern regions, such as Florida, Georgia, North Carolina, South Carolina and Alabama, was above average (in northern crop zones VCIx is not very meaningful during the period covered). According to the NDVI profiles, about 40.2% of agricultural zones experienced conditions close to, but slightly below, average value; especially in the center and west regions, such as Texas and Oklahoma, crop growing condition was below the five-year average due to the drought in this monitoring period. Compared to the five-year average, nearly 11.8 percent of crop areas enjoyed good growing condition, such as North Dakota, South Dakota, and Iowa. Another 11.7 percent of crop zones in the country showed worse growing condition, including the Great Lake area (Michigan, Indiana, Illinois and parts of Iowa) due to abnormal lower temperature and California due to severe droughts. Compared to previous years, the crop growing conditions in this monitoring period are slightly better than last year, but obviously lower than both the five-year maximum and five-year average. CropWatch estimates that winter wheat production in the United States is up 1.6% compared to last year's production (table B.1), resulting from very variable situations in the major producing states, including large decreases in California, Illinois, Michigan, and Texas and increases in N. and S. Dakota, Nebraska, and Montana, where temperature was close to average and rainfall abundant.



(b) Spatial NDVI patterns compared to 5YA



(c) NDVI profiles



(d) Crop condition development graph based on NDVI

[UZB] Uzbekistan

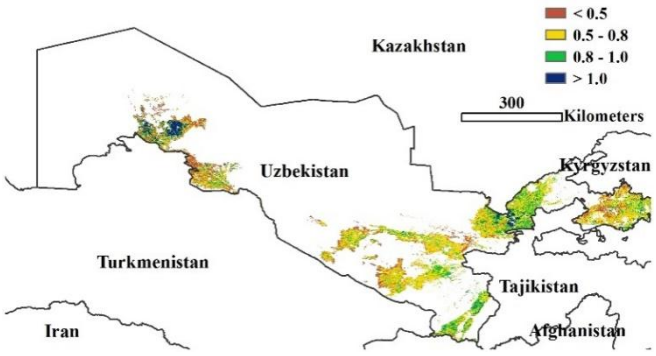
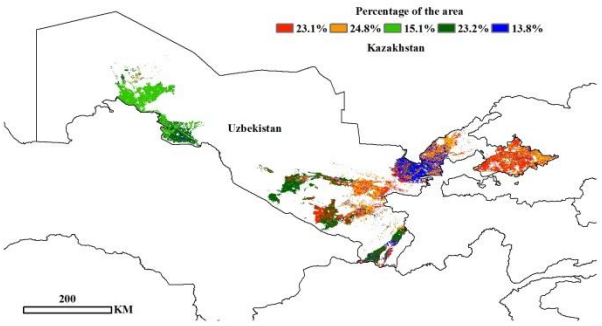


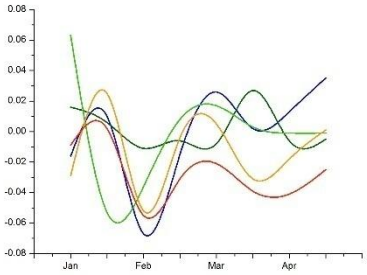
Figure 3.32. Uzbekistan crop condition, Jan-Apr 2014

(a) Maximum VCI

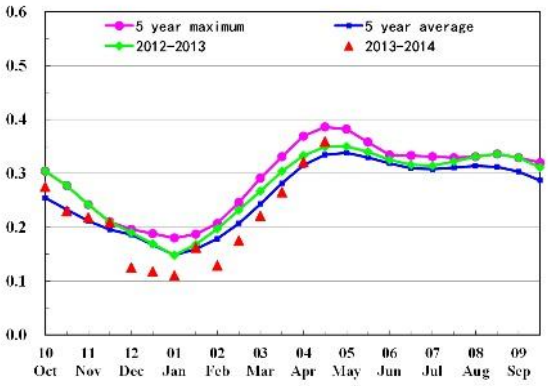
This analysis covers the growing stage of winter cereals and the sowing stage of coarse grains and maize in Uzbekistan from January to April 2014. Crop condition is generally unfavorable. The country as a whole showed a large decrease of rainfall (25%) and biomass (18.4%), while temperature is a little above the past thirteen-year average for the same period. A detailed look at the indicators shows a less rosy picture in most parts, except for the west and parts of the central areas (which are mostly cotton areas), where maximum VCI is mostly above 0.8. From January to March, the national NDVI development curves indicate that crop condition is well below the recent five-year average. More precise spatial information is provided by the NDVI clusters, which show a drop from January to March in the eastern areas (due to low rainfall), while other eastern areas underwent a gradual increase from April (Sirdarya, Jizzakh, Guhston). The national NDVI development show that crop condition is close to and above the recent five-year average from April.



(b) Spatial NDVI patterns compared to 5YA

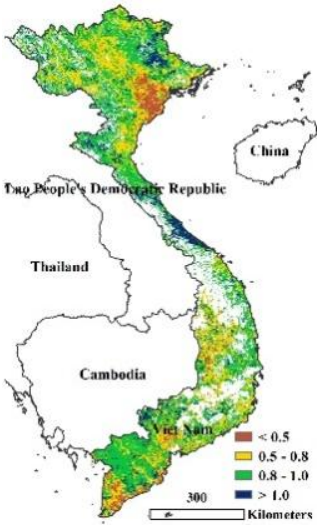


(c) NDVI profiles

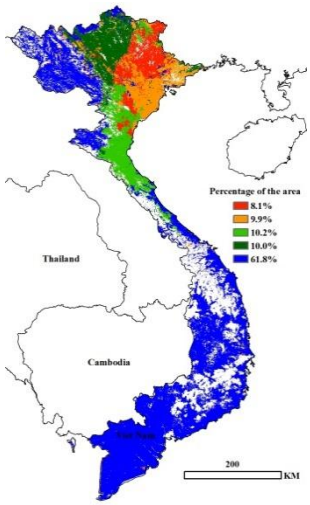


(d) Crop condition development graph based on NDVI

[VNM] Vietnam



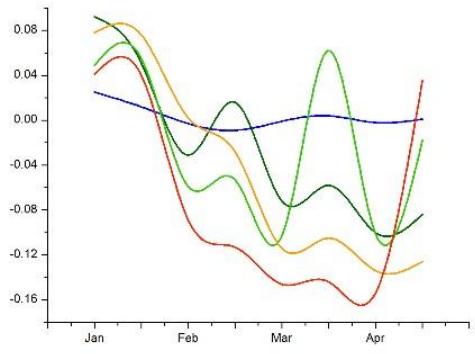
(a) Maximum VCI



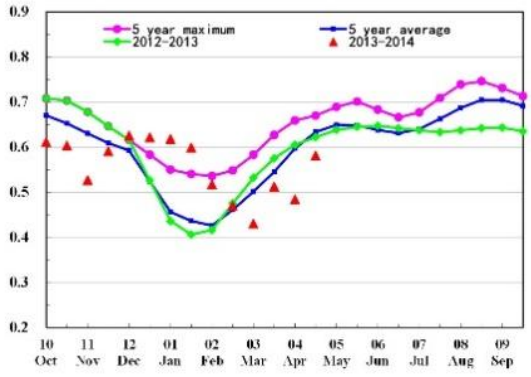
(b) Spatial NDVI patterns compared to 5YA

Figure 3.33. Vietnam crop condition, Jan-Apr 2014

The period covered by this bulletin is of relevance for winter/spring rice in Vietnam. The crop condition changed from above average to below average and divided the whole monitoring period into two phases. As can be seen from the results of the agroclimatic indicators and biomass monitoring, Vietnam suffered from a 6% drop of rainfall compared to the five-year average, while air temperature and PAR accumulation were comparable to that same period's average. The inadequate rainfall led to a 16% decrease in biomass accumulation for rainfed crops. Crop conditions was much better than average (compared to the recent five years) until mid-February, after which the crops showed below average condition in March and April. This is also confirmed by the profiles of NDVI: crop condition changed from above average to below average in February. The NDVI profiles also show that more than 60% of crops kept balance with the recent five-year, which coincides with the distribution of maximum VCI values greater than 0.8. The production of 2013/14 winter and spring rice is expected to be at least fair.

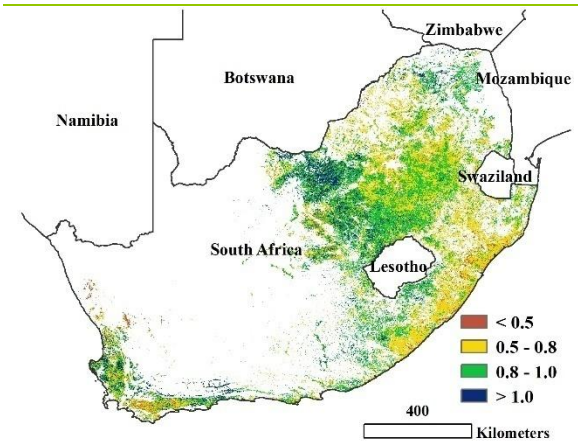


(c) NDVI profiles



(d) Crop condition development graph based on NDVI

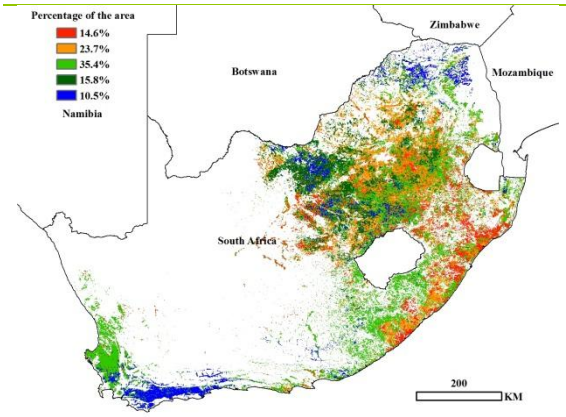
[ZAF] South Africa



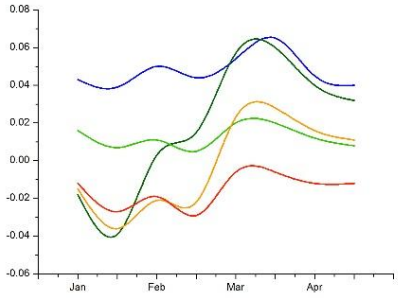
South Africa underwent close to average conditions, with a slight rainfall deficit of 4% (mostly in the west). Summer crops (maize, soybean) are currently being harvested in the east (up to June) and somewhat later in the west (June-July). Although initial NDVI values (from December to March) were low, current values indicate a good recovery, with mostly average values nationwide. Contrasting NDVI profiles are observed with mostly below average conditions in Kwazulu-Natal and eastern Cape, mixed in Mpulamanga, but favorable in the Free State and very favorable in the North West province. The analysis is largely confirmed by the maximum VCI values which indicate good average crops in the Free State and a crop that is possibly the best of the last thirteen years in the North-West province. Combined with a crop arable land increase of 2.5%, the indicators converge on assessing the crop as rather favorable.

Figure 3.34. South Africa crop condition, Jan-Apr 2014

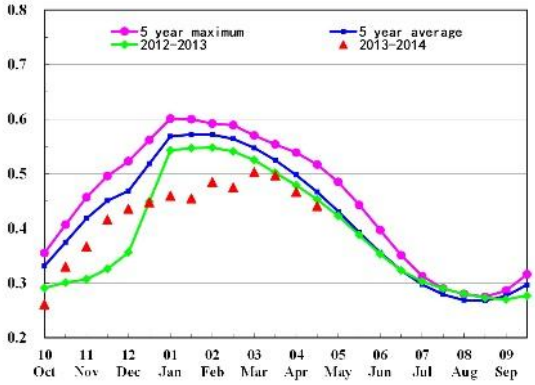
(a) Maximum VCI



(b) Spatial NDVI patterns compared to 5YA



(c) NDVI profiles



(d) Crop condition development graph based on NDVI