

The Afghanistan Agrometeorological Monthly Bulletin



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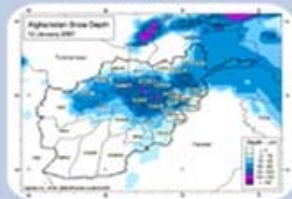
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Afghanistan Snow Depth

The Agromet Project of USGS, supported by the US Agency for International Development (USAID), is working together with the Ministry of Agriculture and irrigation and the Afghan Meteorological Authority (AMA) of Ministry of Transport (MoT).

Agromet Network



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Summary

Comparison of monthly average of NDVI for the month of June 2007 with the same month in 2006 shows small increase in NDVI values in some parts of the Northern, Northeastern, some parts in Northwestern, Eastern and Southeastern regions.

In general same temperature was recorded in most stations during the month of June 2007 compared to the same month in 2006 in the country.

Rainfall for the month of June 2007 is significantly higher compared to the same month in 2006 particularly in Jabal Seraj, Jalalabad, Karizmir and Paghman.

During the month of June 2007 due to monsoon phenomena too much rain occurred in several provinces and resulted heavy floods.

Wheat Crops Phenological Stages

Central Region:

In most parts of this region wheat is in flowering stage as in Karizmir District of Kabul province and Chak District of Wardak province. Reports are indicating from Chak District of Wardak Province that rice and maize are in vegetative stages, while in Kohistan District of Kapisa province maize is in planting stage.

Reports from Kohistan District and Mahmud Raqi central Kapisa Province, Charikar central Parwan Province and Dashtak District of Panjsher Province are indicating that wheat is in maturity stage (wheat is ready for harvesting) but in Surobi District of Kabul Province and Jaghatoo District of Wardak Province wheat is in harvesting stage.

East Central Region:

Reports are indicating from Panjab District of Bamyan Province that winter wheat is in emergence stage and the seedling of the spring wheat has taken place. In central Bamyan Province winter wheat is in flowering stage but in Yakawlang District of the same Province wheat is in grain filling stage.

North Eastern Region:

In most parts of this region wheat is in harvesting stage as in Imam Sahib, Chahar Dara, Aqtipa and Qali-I-Zal Districts and central Kunduz Province. Reports from Bangi District and central Takhar Province and Badakhshan Province are indicating that wheat is in maturity stage. In Taluqan central Takhar Province maize is in planting and rice is in emergence and vegetative stages.

Northern Region:

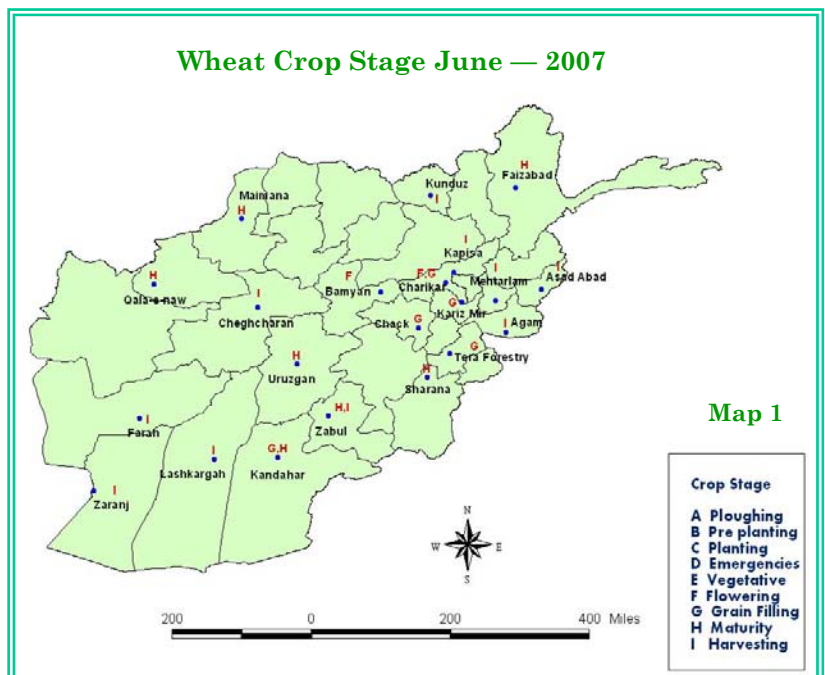
Reports from Shibirghan central Jawzjan Province, Saripul Province, Dehdadi and Nahri Shahi Districts of Balkh Province are indicating that wheat is in maturity stage. In Samangan and Faryab Provinces maize is in ploughing stage.

Southern Region:

From Nimroz, Zabul and Hilmand Provinces reports are indicating that wheat is in harvesting stage. In Uruzgan and Kandahar Provinces wheat is in maturity stage.

Western Region:

Reports are indicating from Muqur District and Qala-I-Naw central Badghis Province, Farah and Ghor Provinces that wheat is in harvesting stage.



Wheat Crop Phenological Stages

Eastern Region:

In most parts of this region as Asmar District and Asadabad central Kunar Province, Shesham Bagh, Agam District and central Nangarhar Province and Mihterlam central Laghman Province reports are showing that wheat is in harvesting stage. Maize and rice are in ploughing stages in Asmar District and Asadabad central Kunar Province.

South Eastern Region:

In most parts of this region as Muqur and Sardy Districts of Ghazni Province, Tera and Gardez District of Paktya Province, Khaikot and Sharana Districts of Paktika Province are showing that wheat is in grain filling stage. In Urgun District of Paktika Province and Rohani Baba farm in Paktya Province wheat is in harvesting stage. In Tera and Gardez District of Paktya

Wheat Crop Condition

Central Region:

In some parts of this Region wheat is in normal condition as in Kohistan District of Kapisa Province, Dashtak and Dara Districts of Panjsher Province, Chak District of Wardak Province and Mahmud Raqi central Kapisa Province. In Karizmir and Surobi Districts of Kabul Province, Chaharikar central Parwan Province and Jaghatoo District of Wardak Province wheat is in good (better than normal) condition.

Western Region:

In central Farah Province, Muqur District and Qala-I-Naw, central Badghis Province reports are indicating good crop condition (better than normal) . Ghor Province is showing normal wheat condition.

Eastern Region:

Mihterlam central Laghman Province, Asmar District and center of Kunar Province, Agam District and central Nangarhar Province are showing normal wheat condition.

East Central Region:

In Bamyan Province wheat is ranging from poor to good condition as central Bamyan Province is showing good wheat condition (better than normal). Panjab District of Bamyan Province reports poor crop condition. In Yakawlang District of the same Province wheat is in normal condition.

North Eastern Region:

In most parts of this region as in Imam Sahib, Chahar Dara and central Kunduz Province, Bangi District of Takhar Province and central Badakhshan Province wheat is in good condition. In Aqtipa and Qala-I-Zal Districts of Kunduz Province and central Takhar and Baghlan Provinces wheat is in normal condition.

South Eastern Region

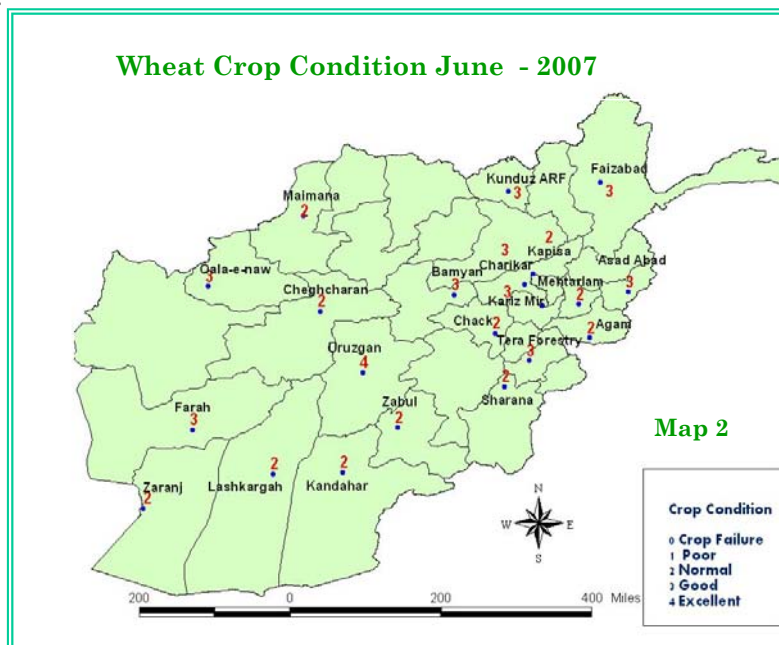
In Paktya Province reports are indicating good wheat condition. Normal wheat condition reported from Ali Sher farm and central Khost Province, Zurmat District of Paktya Province and Khaikot District of Paktika Province, Muqur and Sardy District of Ghazni Province and Urgun District of Paktika Province. But Sharana central Paktika Province is showing poor wheat condition.

Northern Region:

From most parts of this region reports are indicating that wheat is in normal condition as in Maymana central Faryab Province, Shibirghan center of Jawzjan Province, Sozmaqala District of Saripul Province, Nahri Shahi and Dihdadi Districts of Balkh Province. But central Saripul Province is showing poor wheat condition.

Southern Region:

Reports are showing from this region that wheat is in normal condition as in Kandahar Province, Zaranj central Nimroz Province, Nad Ali, Nawa-i-Barakzia and Greshk Districts of Hilmand Province and central Zabul Province. Uruzgan Province is showing good crop condition.



Adverse Factors

Central Region

Adverse Factors in Chaharikar central Parwan Province and Surobi District of Kabul Province, Kohistan District and central Kapisa Province are shortage of inputs and prevalence of wheat rust. In Kohistan District of Kapisa Province and Dashtak District of Panjsher Province too much weeds existed. In Parwan Province too much rainfall and heavy flood has damaged about 1882 Jerib agricultural lands. In Surkhy Parsa District of Parwan Province 2000 Jerib agricultural lands and about 20000 fruits and non fruits trees destroyed. In most parts of Kabul Province 15 to 20 Jerib agricultural lands damaged. Heavy flood has destroyed about 1152 Jerib agricultural lands and 1330 fruits and non fruit trees in Panjsher Province.

East Central Region:

Reports from Panjab District of Bamyan Province showing heavy storm, pests, diseases and too much weeds existence. Several irrigational canals and vast area of agricultural productive lands have been destroyed by flood.

North Eastern Region:

Reports from Imam Sahib, Chahar Dara, Aqtipa and Qala-I-Zal Districts and central Kunduz Province, Faizabad center of Badakhshan Province, Bangi District and central Takhar Province indicated existence of pests, diseases and too much weeds. In Faizabad District of Badakhshan Province and Bangi District and central Takhar Province negligible rainfall could not fulfill the water requirement of the crop in the area.

Northern Region:

Main noted adverse factors in Saripul Province were pests, diseases and too much weeds. In Faryab Province locust attack existed. Reports indicated from Khuram Wa Sarbagh District of Samangan Province 250 Jerib agricultural lands and 6 irrigational canals destroyed. In Dara-E-Suf Bala 100 Jerib agricultural lands and 24 irrigational canals damaged.

South Eastern Region:

Reports are showing from central Paktika Province, Khost Province, Urgun and Khaikot Districts and central Paktika Province shortage of inputs, pests and diseases existence. In Zurmat District of Paktya Province pests and disease, wheat rust, aphids, powdery mildew, cut worms, fungi and too much weeds in the fruits orchards prevailed.

Southern Region:

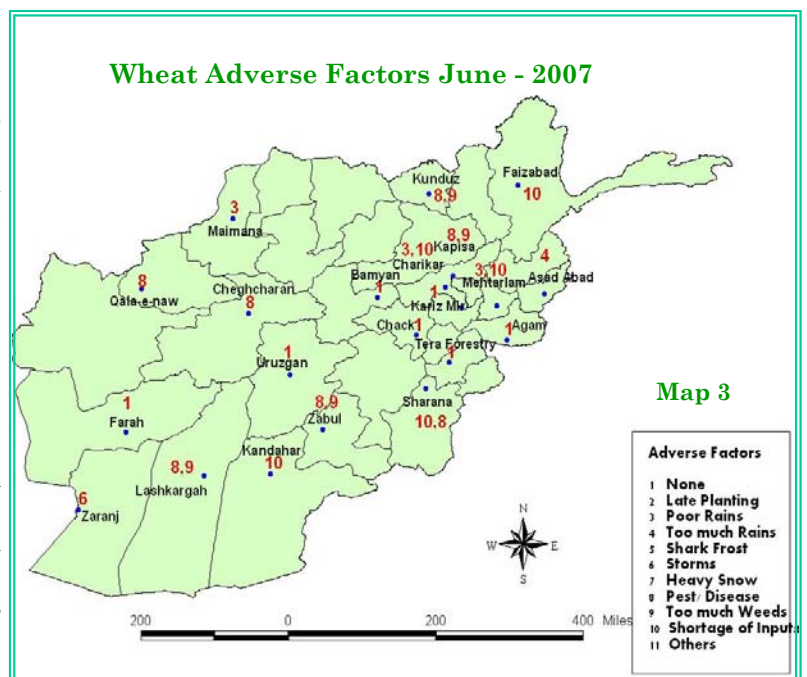
During the month of June 2007 reports are indicating that heavy storm in Nimroz Province occurred. Too much weeds, shortage of inputs, pests and diseases existed in Kandahar Province, Greshk District and central Hilmand Province and Qalat central Zabul Province.

Western Region:

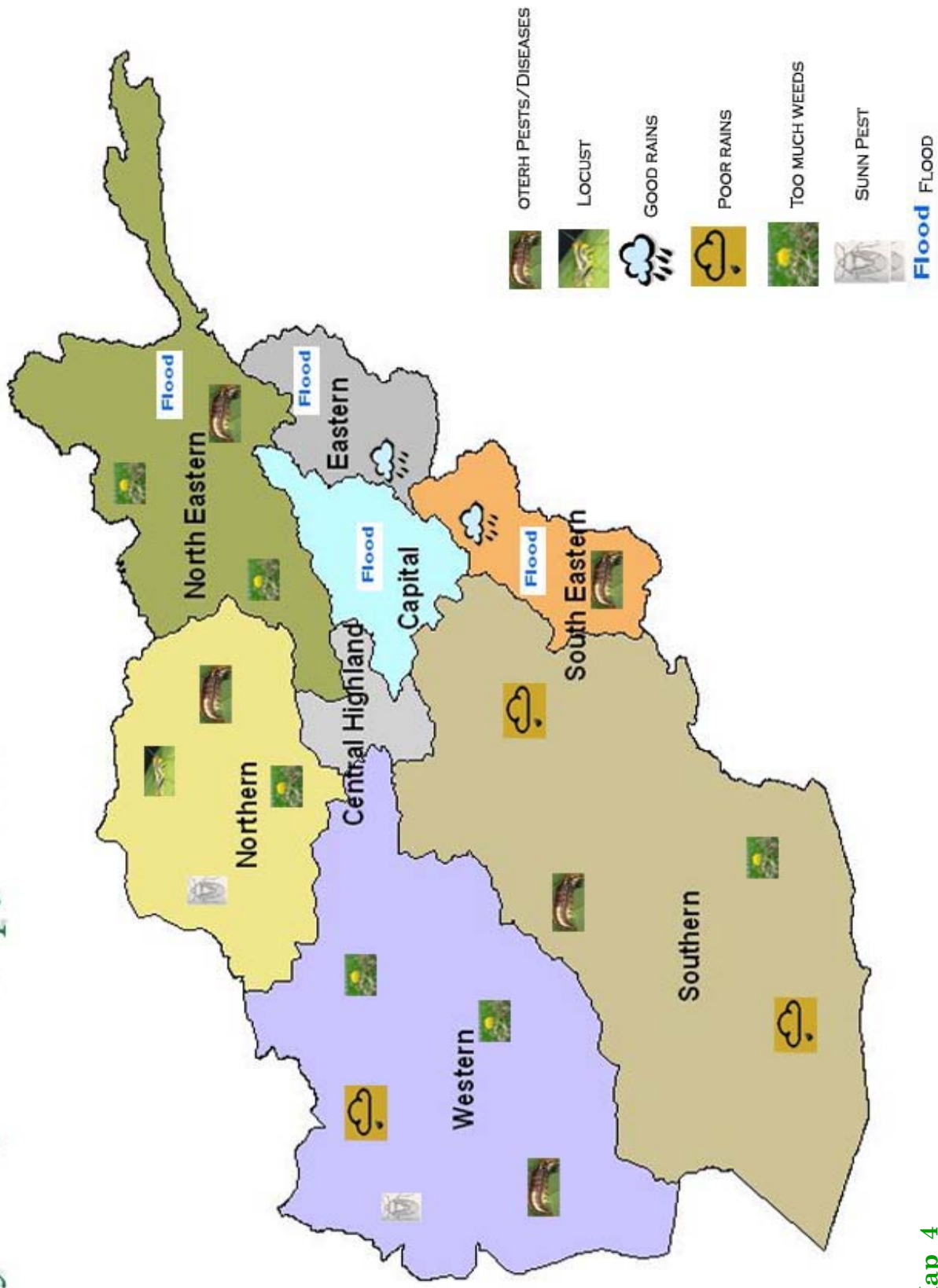
Reports indicated from Chaghacharan central Ghor Province too much weeds existed. Muqur District and central Badghis Province had pests and diseases.

Eastern Region:

During the month of June 2007 reports are showing heavy storm, too much rainfall and flood have destroyed about 4000 Jerib agricultural Productive lands in Alingar and Qarghayi Districts and Mehterlam central Laghman Province. Reports are indicating from Central Kunar Province that heavy flood had destroyed about 1626 Jerib agricultural Productive lands. But in different Villages and various Districts of the same Province as in Hakimabad District 200 Jerib Agricultural land, Watapur Village 350 Jerib Agricultural land, Shegal District 100 Jerib agricultural land and 100 fruit trees were destroyed in Damkalay and Roshakhel Village of Kunar Province.



Synthesis Situation Map June 2007



Map 4

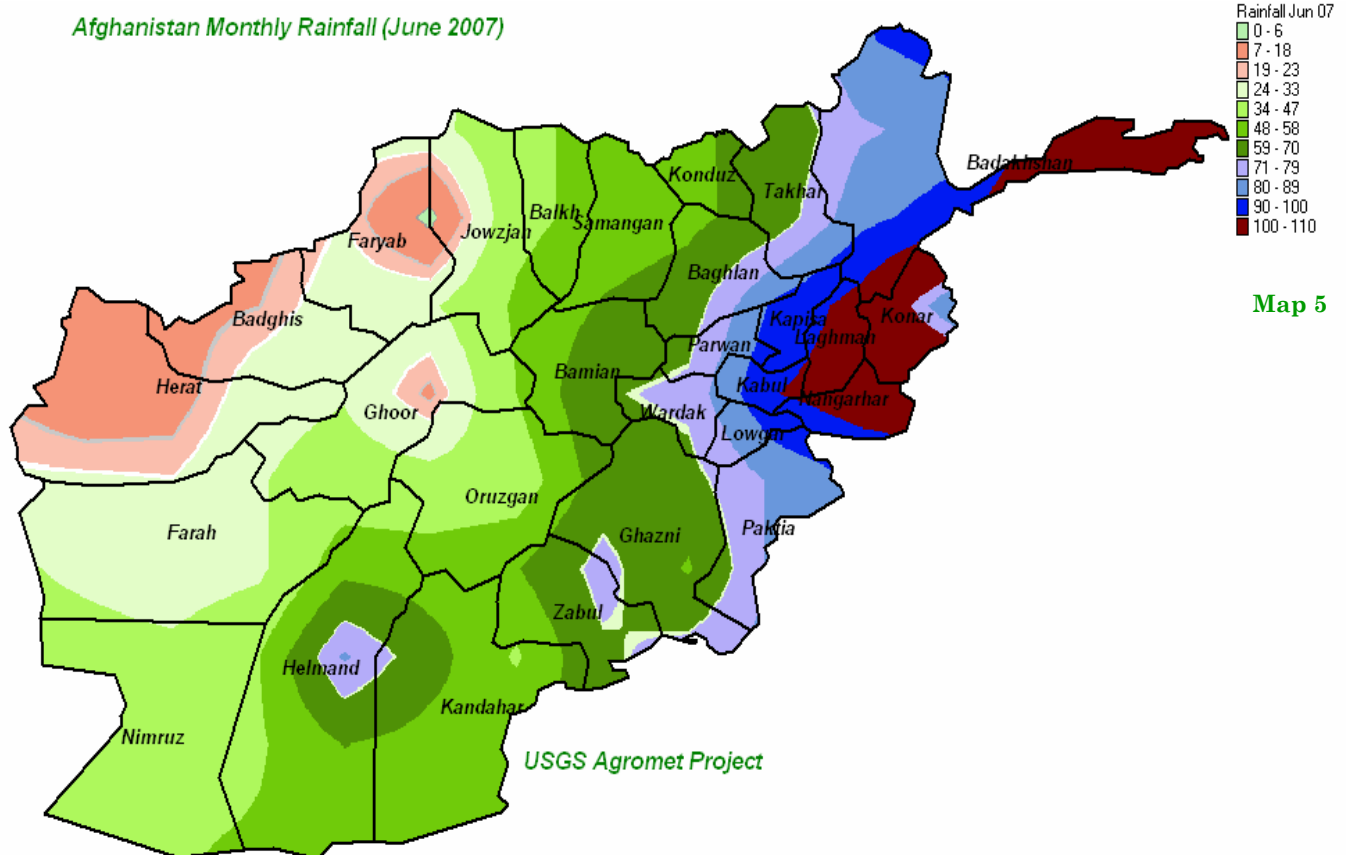
Rainfall Situation

Rainfall for the month of June 2007 is significantly higher compared to the same month in 2006 particularly in Jabal Seraj, Jalalabad, Karizmir and Paghman (chart 1). Monsoon has pushed adequate moisture inside the country and resulted heavy rain in some Provinces, so June 2007 evaluated wet month compared to the same month in 2006. The percentage of rainfall increasing calculated 100 % across the country.

In the month of June 2007 the overall amount of precipitation is higher than that compared to the same month of long term average except Faizabad, Gazni, Maimana and Taluqan .

Where the rainfall had small decrease during the month of June 2007 compared to the same month of long term average. The percentage +/- of rainfall is as follows:

Baghlan 1767 %, Darul Aman 806 %, Faiz Abad - 32 %, Farah 0 %, Gardiz 295 %, Ghazni - 55 %, Ghaziabad 100 %, Jabul Seraj 3011 %, Jalalabad 2233 %, Kabul 908 %, Kandahar 100 %, Kariz Mir 1588 %, Kunduz 4400 %, Maimana -100 %, Mazar 100 %, Paghman 2108 %, Sheberghan 100 %, Sarobi 1567 %, Sari Pul 0 % and Taluqan - 31 %.

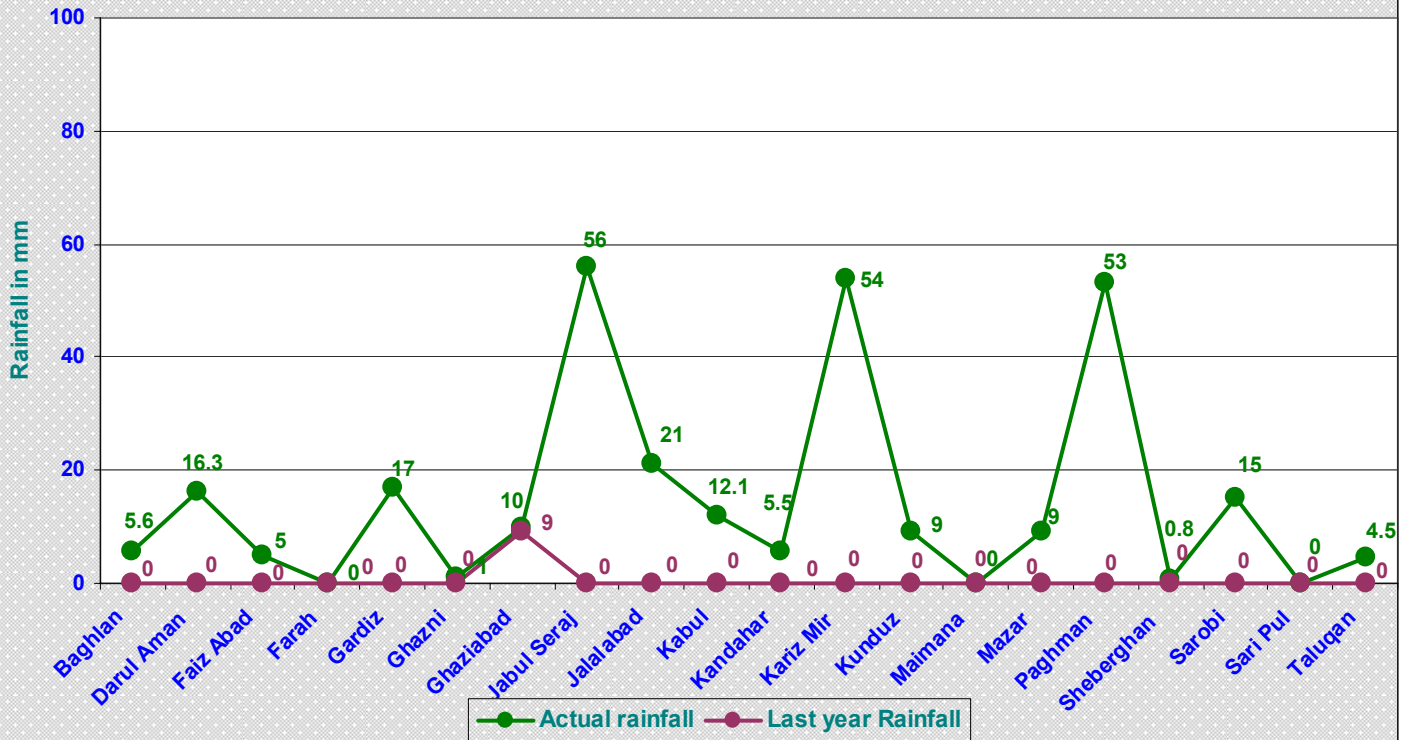


Distribution of rainfall varies in different regions of the country, as map (5) shows more rainfall occurred in the Eastern regions particularly in Kunar, Jalalabad and Laghman provinces and some parts of the Northeastern (Herat, Faryab, Ghor), in the West and Northeast and Helmand in the South region experienced less amount of rainfall during the month of June 2007.

Rainfall Graphs for the Month of June 2007

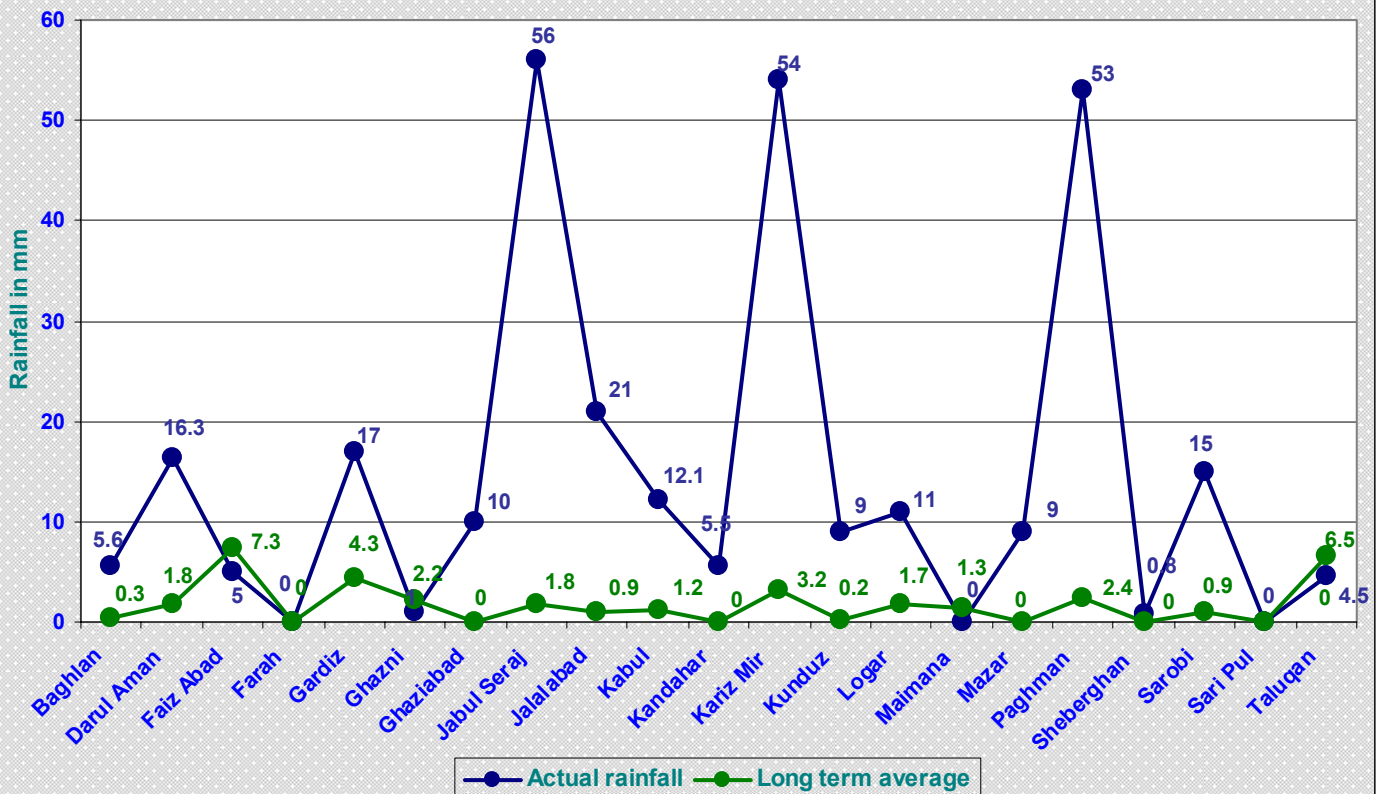
Comparison of Actual and Last Year Rainfall (June 2007)

Chart 1

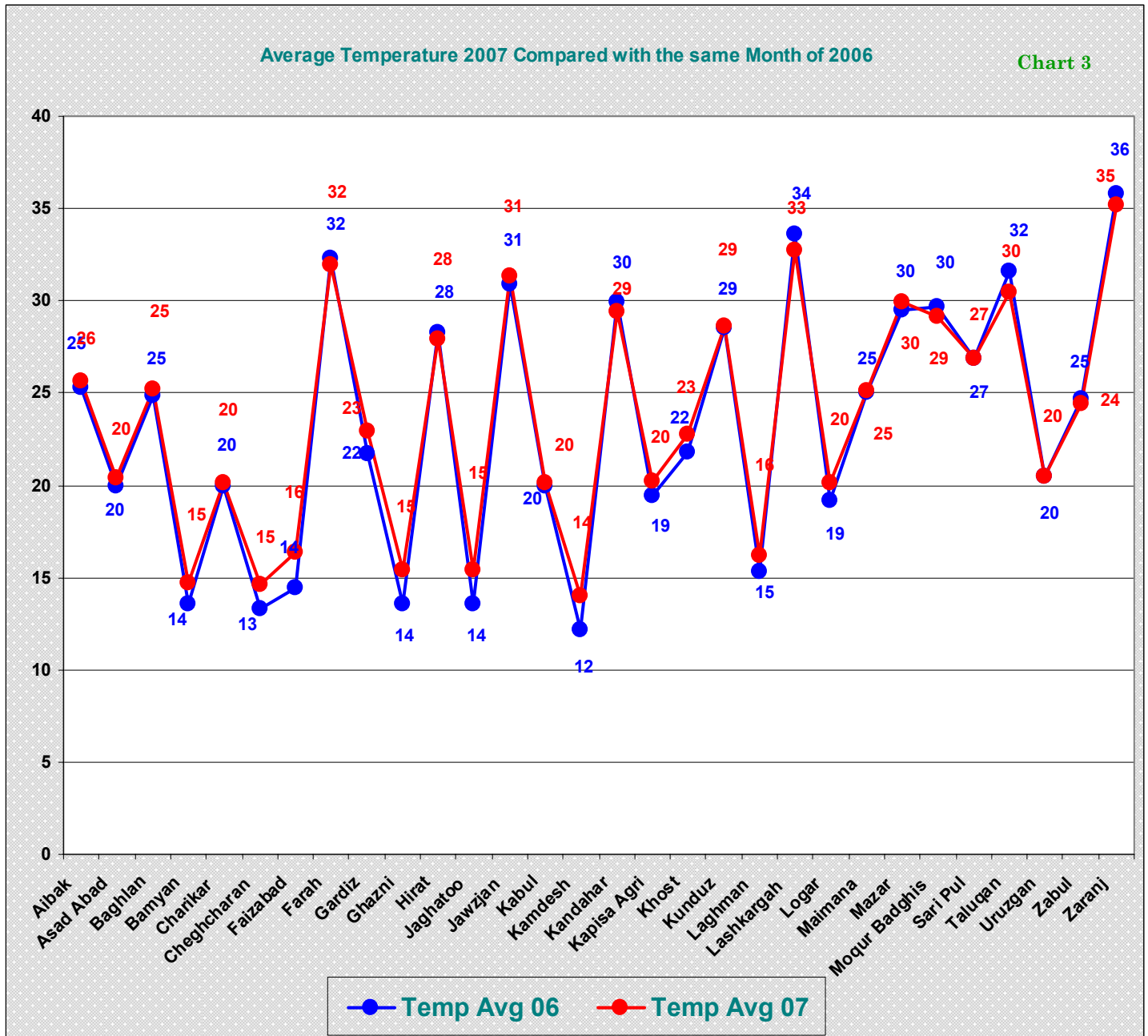


Comparison of Actual and Long Term Average Rainfall (June 2007)

Chart 2



Average Temperature for the Month of June 2007

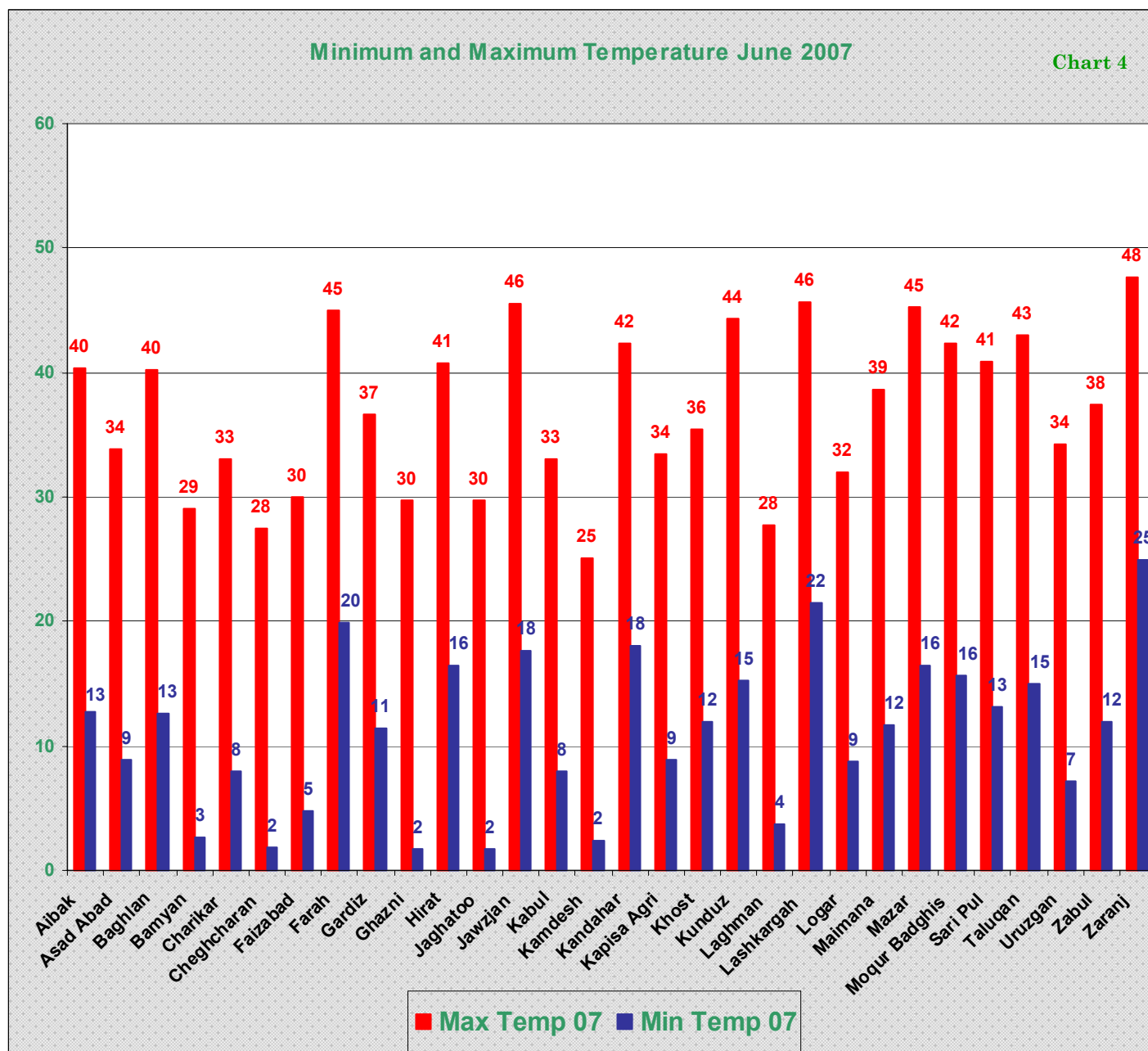


Same temperature was recorded in most stations during the month of June compared to the same month in 2006 in the country.

In general same temperature was recorded in most stations during the month of June 2007 compared to the same month in 2006 in the country. Comparison of temperature values (chart 3) shows the same value of temperature approximately, were observed during the month of June 2007 over the same month in 2006.

Although all over the country no significant change has occurred in temperature regime except in some stations where the temperature had very small decrease. The temperature difference for the month of June 2007 compared to the same month in 2006 is just 1° C likely higher (chart 3).

Temperature for the Month of June 2007



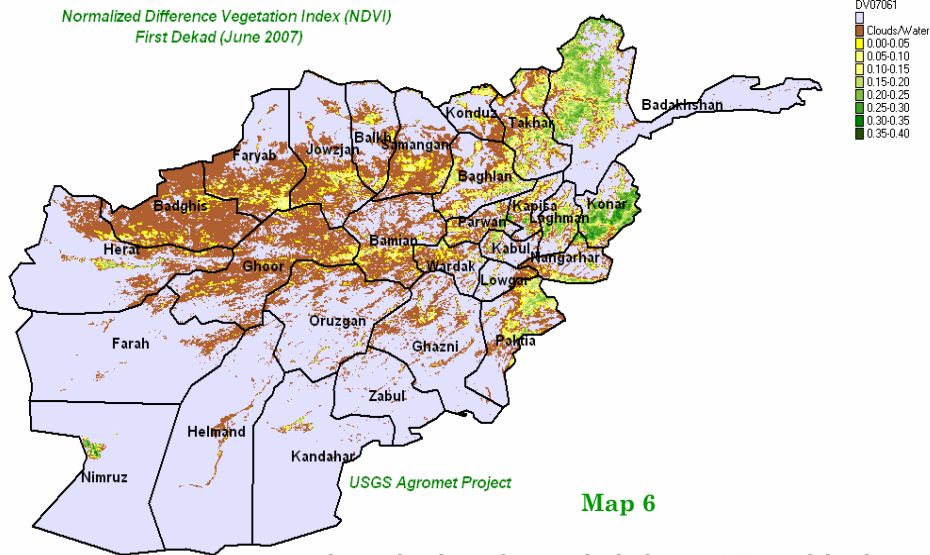
Zaranj center of Nimroz Province with 48 ° C was the warmest spot in the country

Chart (4) shows maximum and minimum temperature for the month of June 2007 where the minimum temperature was above freezing point across the country.

Zaranj District of Nimroz Province with 48 ° C was the warmest spot in the country, Gazni, Jaghatoo and Comdesh with 2 ° C experienced lowest temperature compared to other regions in the country during the month of June 2007.

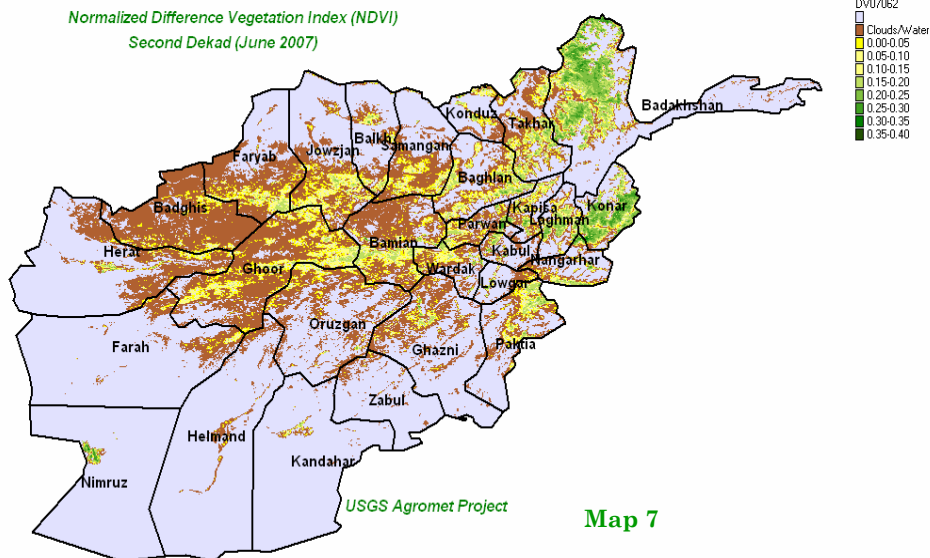
Normalized Difference Vegetation Index (NDVI) (June 2007)

Normalized Difference Vegetation Index (NDVI)
First Dekad (June 2007)



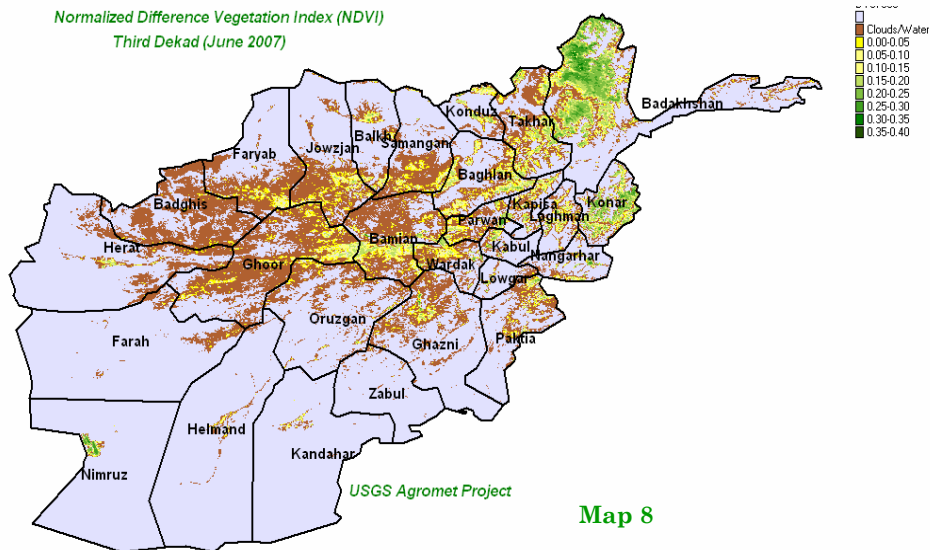
Map 6
Vegetation Index (NDVI) 1st Dekad of June 2007—Afghanistan

Normalized Difference Vegetation Index (NDVI)
Second Dekad (June 2007)



Map 7
Vegetation Index (NDVI) 2nd Dekad of June 2007—Afghanistan

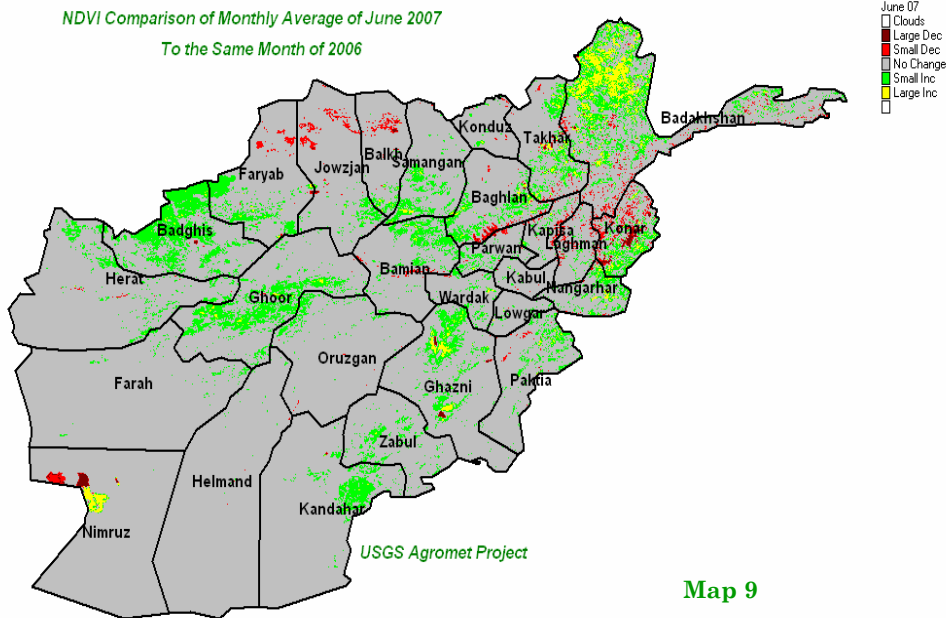
Normalized Difference Vegetation Index (NDVI)
Third Dekad (June 2007)



Map 8
Vegetation Index (NDVI) 3rd Dekad of June 2007—Afghanistan

Comparison of NDVI Values June 2007

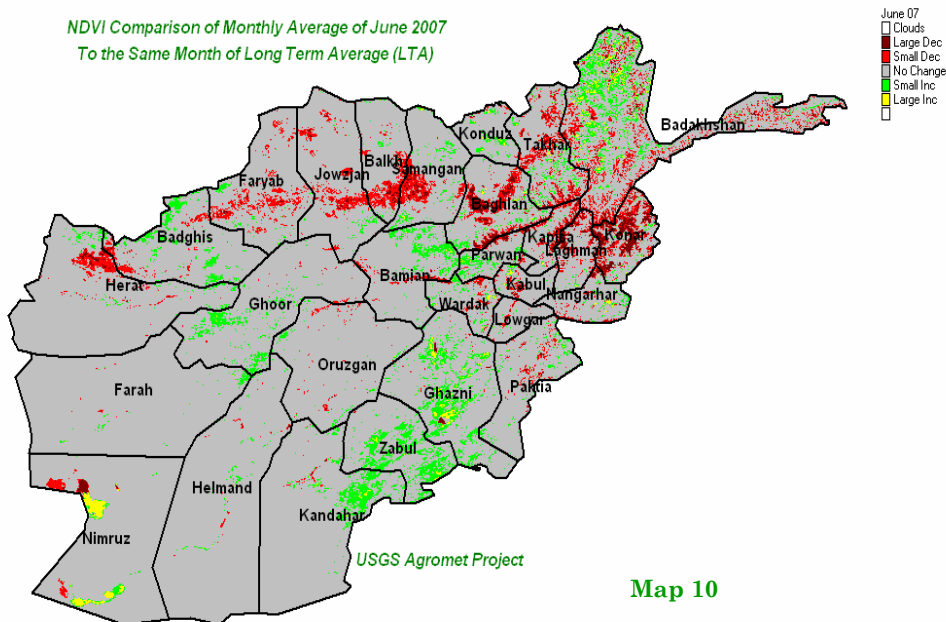
NDVI Comparison of Monthly Average of June 2007
To the Same Month of 2006



Map 9

Vegetation Index: Comparison to Last Year

NDVI Comparison of Monthly Average of June 2007
To the Same Month of Long Term Average (LTA)



Map 10

Vegetation Index: Comparison to Long Term Average

NDVI: June 2007

Comparison of monthly average of NDVI for the month of June 2007 with the same month in 2006 (map 9) shows small increase in NDVI values in some parts of the Northern, Northeastern, some parts in Northwestern, Eastern and Southeastern regions and small decrease of NDVI values occurred in limited area in the Eastern regions during the month of June 2007 over the same month in 2006. In the remaining regions of the country there is no change of NDVI values during the month of June 2007 compared to the same month in 2006.

Comparison of NDVI monthly average for the month of June 2007 with the same month of long term average (map 10) shows small increase in NDVI values in some parts of the Southeastern and limited area in the Northern regions, some parts of the Northeastern and Eastern region during the month of June 2007 compared to the same month of long term average. There is no change in NDVI values during the month of June 2007 over the same month of long term average.

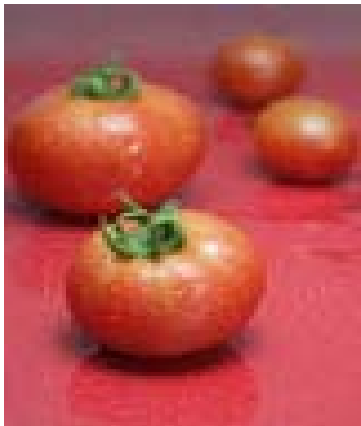
The Effect of High Temperature on Plants

The effect of high temperature on Plants:

The effect of high temperatures during periods of relatively short duration (3-4 days) at various stages following Anthesis at the first bloom node. Which was studied in relation to yield of peas at this node. Except for the periods of differential temperature treatments, the plants were maintained in a standard environment room (24C, light ;12 hr, 15C, darkness, 12 hr.). Three different temperature regimes during the treatment periods were studied: high day temperature-standard night temperature (32-15C.), standard day temperature-high night temperature (24-30 C.), and high day and night temperatures combined (32 -30C.). The data reveal the existence of a relatively well-defined thermal-sensitive period, with maximal sensitivity to high day temperatures occurring at about 9-11 days from full bloom, and maximal sensitivity to high night temperatures occurring about 6-9 days from full bloom. High night temperatures proved more critical, resulting in a maximal reduction of 25% in yield, as opposed to about 8% for high day temperatures. The effect of high day and night temperatures combined tended to be roughly additive.

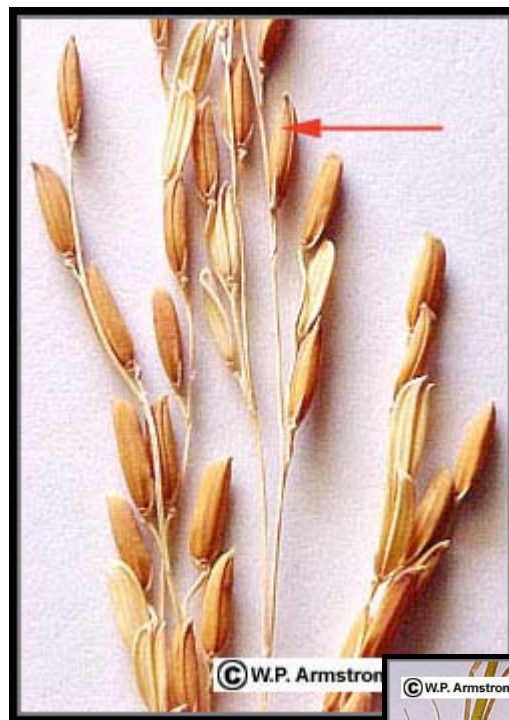
High temperature reduces fruit set of tomato:

The effects of plant growth regulators on fruit set of tomato under high temperature were examined in a controlled environment and a field under rain shelter. Tomato plants exposed to high temperature (34/20°C) had reduced fruit set. Treatments of plant growth regulators reduced the fruit set inhibition by high temperature to some extent, especially treatment with mixtures of 4-chlorophenoxyacetic acid (4-CPA) and gibberellins (GAs). In the field experiment, tomatoes treated with a mixture of 4-CPA and GAs showed increased fruit set and the numbers of normal fruits (excluding abnormal types such as puffy fruit) were more than the plants treated with 4-CPA alone during summer.



The effect of high temperature on rice grain:

Rice (*Oryza sativa* L.) grain quality is affected by the environmental temperature. To investigate the physiological molecular mechanisms of the effect of high temperatures on rice grain, a non-waxy indica rice was grown under two temperature conditions, (29/35 degrees C) and (22/28 degrees C), during ripening stage in two phytotrons. The activities and gene expression of key enzymes for the biosynthesis of amylose and amylopectin were examined. The activity and expression levels of soluble endosperm starch synthase I were higher at 29/35 degrees C than that at 22/28 degrees C. In contrast, the activities and expression levels of the rice branching enzyme1, the branching enzyme3 and the granule bound starch synthase of the endosperm were lower at 29/35 degrees C than those at 22/28 degrees C. These results suggest that the decreased activity of starch branching enzyme reduces the branching frequency of the branches of amylopectin, which results in the increased amount of long chains of amylopectin of endosperm in rice grain at high temperature.



Flood

During the month of June 2007 due to monsoon phenomena too much rain occurred in several provinces and resulted heavy flood which damaged Agri lands, people, residents, livestock, fruit trees, canals and roads. The casualties are as follows:

No	Province	Type of Disaster	Casualties			Affected Families	Affected Houses		Fruit Trees	live-stock	Affected Areas	
			killed	Injured	missed		Destroyed	Damaged			Agr.Lands Jirebs	in
1	Badakhshan	Flood				156	22		2650	200	358	1 mousq
2	Mazar	Flood	2	4		15					16	
3	Baghlan	Flood		9			69	40		620	1791	25 water dam, 1 mousq, 8 School, 9 km road
4	Saman-gan	Flood						2			350	24Water dam, 1 mailon, 13 Km road
5	Panjsher		30	50					1330		1152	
6	Bamyan	Flood					2					
7	Gazni	Flood	1	3			2			40	5900	2 water canal
8	Kunar	Flood	4	4	9		271		100	86	1729	
9	Laghman	Flood									4000	100 m road
10	Helmand	Flood	6							495	27720	50 water pump 241 wells
11	Kabul	flood	5	20			10				20	
Total			44	90	9	171	376	42	4080	1441	43036	

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