

The Afghanistan Agrometeorological Monthly Bulletin



Issue No. 29

May 2007



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Wheat Crop Condition

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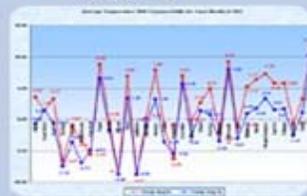
Synthesis Situation Map

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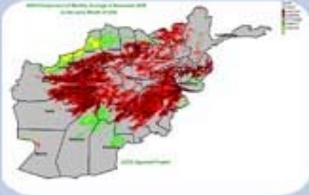
Rainfall Situation

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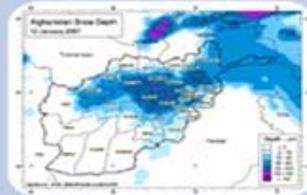
Rainfall Graphs

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Comparison of NDVI

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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

In Panjab District of Bamyan Province reports are indicating poor crop condition. Yakawlang District and central Bamyan Province is showing normal wheat condition.

In most parts of the country rainfall for the month of May 2007 is significantly higher compared to the same month in 2006.

In general lower temperature was recorded for the month of May 2007 compared to the same month in 2006 across the country.

Comparison of snow extent for the month of May 2007 with the same month of long term average shows significant decrease of snow extent during the month of May 2007 over the same month of long term average in the snow coverage area.

Wheat Crop Phenological Stages

Central Region:

In most parts of this Region the wheat is in flowering stage as in Paghman District of Kabul Province, Ghorband District and Chaharikar central Parwan Province, Dara District of Panjsher Province and central Kapisa Province. In Chak and Jaghatoo Districts of Wardak Province, Karizmir District of Kabul Province, Kohistan District of Kapisa Province and Dashtak District of Panjsher Province that wheat is in vegetative and grain filling stage.

East Central Region:

Reports are indicating from Punjab District of Bamyan Province winter wheat is in emergence stage and the seeding of the spring wheat has taken place. In Yakawlang District of Bamyan Province winter wheat is in vegetative stage and the spring wheat is in planting stage.

North East Region:

In some parts of this region wheat is in maturity stage as in Imam Sahib, Chahar Dara, Aqtipa, Qala-i-zal Districts and central Kunduz Province. Reports from Baghlan Province, Ishkashim and Baharak Districts of Badakhshan Province are indicating that wheat is in flowering and emergence stages. In Bangi District and central Takhar Province wheat is in flowering stage and rice is in emergence stage.

North Region:

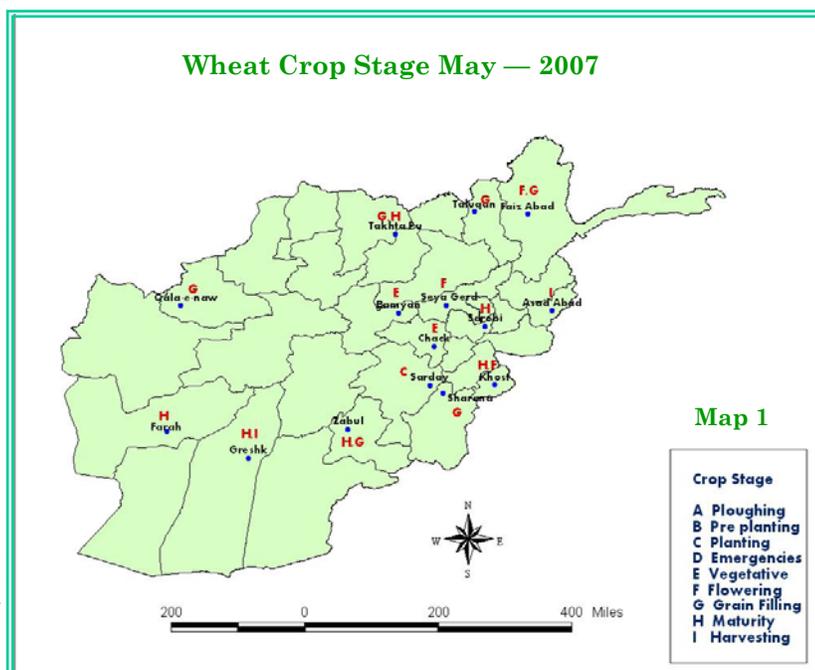
Wheat crop is ranging from maturity to harvesting stage as reports from Shibirghan central Jawzjan Province are indicating that wheat is in maturity stage, in Dihdadi and Nahri Shahi Districts of Balkh Province wheat is in harvesting stage.

Southern Region:

From Muqur and Sardy Districts of Ghazni Province winter wheat is in flowering stage and the spring wheat and spring maize is in **planting stage**. Reports are indicating from Zabul Province, Nad Ali, Nawa, Greshk and Lashkar Gah of Hilmand Province that wheat is in maturity and harvesting stages.

Western Region:

Wheat is ranging from flowering to maturity stage as reports are indicating from Muqur District and Qala-i-now central Badghis Province crop is in flowering stage and in Farah Province wheat is in maturity stage. In Ghor Province wheat is in vegetative stage, plant height is more than 10 cm.



Crop Phenological Stages

Eastern Region:

In most parts of this region as Asmar District and Asadabad center of Kunar Province Shesham Bagh Farm, Agam District and central Nangarhar Province and Mihtarlam central Laghman Province that wheat is in maturity and harvesting stage.

South Eastern Region:

In Zarmat District and central Paktya Province wheat is in flowering, maize is in ploughing and rice is in emergence stages. In Urgun and Khair Kot Districts and center of Paktika Province wheat is in grain filling stage. Reports are indicating from Shimal and Ali Sher Agricultural farms of Khost Province that wheat is in flowering and grain filling stages. Central Khost Province showing that wheat is in harvesting stage.

Crop Condition

Central Region:

In some parts of this region wheat is in normal condition as in Ghorband District of Parwan Province, Paghman District of Kabul Province, central Kapisa Province, Dashtak and Dara Districts of Panjsher Province and Chak District of Wardak Province. In Kohistan District of Kapisa Province, Jaghatoo District of Wardak Province, Karizmer District of Kabul Province and central Parwan Province wheat is in good condition (better than normal)

Western Region:

Reports from most parts of this region is indicating good crop condition (better than normal) as in center of Farah Province, Muqur District and Qala-i-now center of Badghis Province. Ghor Province indicating normal wheat condition.

Eastern Region:

In most parts of Eastern region wheat is in good condition (better than normal) as in Mihtarlam center of Laghman Province, Asmar District and Center of Kunar Province. Agam District and central Nangarhar Province is showing normal wheat condition.

East Central Region:

In Panjab District of Bamyan Province reports are indicating poor crop condition. Yakawlang District and central Bamyan Province is showing normal wheat condition.

North Eastern Region:

In some parts of this region as in Imam Sahib, Aqtipa, Chahar Dara and central kunduz Province wheat is in good condition. In Ashkashem and center of Badakhshan Province, Baghlan Province, Bangi District and central Takhar Province wheat is in normal condition.

South Eastern Region

From Gardiz center of Paktya Province reports are indicating that wheat is in good condition. Normal wheat condition reported from Ali Sher farm and central Khost Province, Zarmat District of Paktya Province and Khair Kot District of Paktika Province. Urgun District and Sharana central Paktika Province showing poor wheat condition.

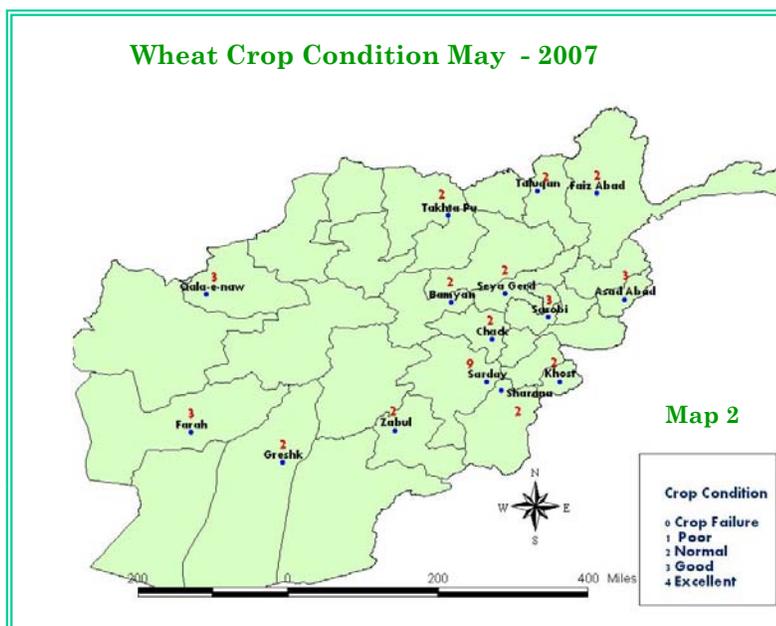
Northern Region:

From most parts of this region reports are indicating that wheat is in normal condition as in Shibirghan center of Jawzjan Province, Sozma Qala and central Suripul Province, Nahri Shahi and Deh Dadi Districts of Balkh Province .

Southern Region:

Reports are showing from this region that wheat is in normal condition as in Muqur and Sardy Districts of Ghazni Province, Nad Ali, Nava-i-Barakzyi, Greshk Districts and center of Hilmand Province and central Zabul Province.

Wheat Crop Condition May - 2007



Adverse Factors

Central Region

In central region from Kabul Province during the month of May 2007 reports are indicating raising water level in Kabul River which has damaged about 3555 Jerib agricultural land and 23152 fruit and non fruit trees. In Kapisa Province flood has destroyed about 7014 Jerib of agricultural land and has damaged about 2950 fruit and non fruit trees. Reports from Logar Province indicate that flood has destroyed about 8608 Jerib agricultural land and about 800 fruit and none fruit trees. Due to flood in Parwan Province about 2690 Jerib agricultural land and about 5129 fruit and non fruit trees have destroyed. Panjsher Province has greatly influenced by raising water level in Panjsher River which resulted damaging about 98 Jerib agricultural land. In Wardak Province locust attack and raising water level has destroyed about 3610 agricultural land and has damaged about 3800 fruit and non fruit trees.

East Central Region:

Reports from central Bamyan Province showing heavy flood damaged about 360 Jerib agricultural land and about 15000 fruit and non fruit trees. Kohmard and Saighan Districts of Bamyan Province suffered from severe locust attack.

North Eastern Region:

In Baghlan Province pests like aphids and water melon flies spread diseases in agricultural lands. In Rustaq District of Takhar Province heavy flood has destroyed about 50 Villages, about 641 irrigation canals, about 23150 Jerib rain fed areas and about 7230 fruit and non fruit trees. In Urgan District of Badakhshan Province flood has destroyed about 139 Jerib irrigated areas and about 108 Jerib rain fed land, although Baharak District of Bakakhshan Province had influenced by heavy flood which has destroyed about 1870 Jerib irrigated land and about 18700 number of fruit and non fruit trees. Other areas like Shohada and Tagub Koshem Districts of Badakhshan Province were also inundated by heavy flood.

Northern Region:

From Qush Tapa Village of Jawzjan Province reports indicate the presence of Anthracnose and Pestholes diseases killing about 42 sheeps. In Takhta Pul District of Balkh Province the main adverse factors were too much weeds. In central Sari Pul Province weeds existed and flood has damaged about 375 Jerib agricultural lands. In Faryab Province heavy flood has destroyed about 400 Jerib agricultural land.

South Eastern Region:

From Paktya Province reports indicated existence of pests and diseases, aphids, powdery mildew, cut warms, fungi and too much weeds in the fruit orchards. In Khost Province the adverse factors were too much weeds hail

has damaged about 46.25 Jerib orchards fields, 40 Jerib vegetable fields and 120 Jerib wheat clover fields. In Urgan and Khaikot Districts and central Paktika Province the main adverse factors were pest diseases and too much weeds.

Southern Region:

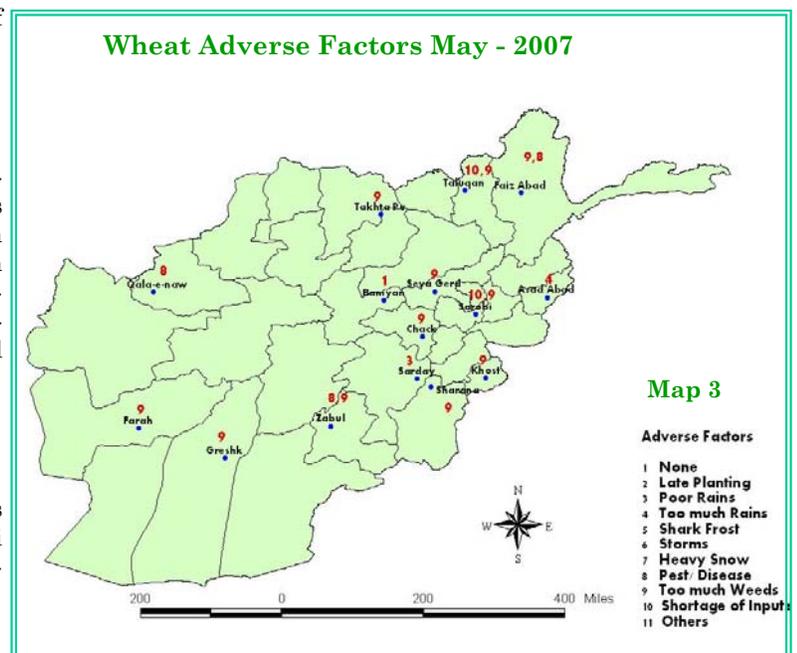
During the month of May 2007 reports indicate that in Ghazni Province due to flood water level raised and about 100 Jerib agricultural land damaged. Similarly in Nimroz Province flood has destroyed about 44930 Jerib agricultural land and about 10680 fruit and non fruit trees. In Uruzgan Province 20200 Jerib agricultural land has been damaged. Reports from Khuram Wa Sarbagh District of Samangn Province indicated heavy flood has destroyed about 600 Jerib orchards, 1300 meter road and about 192 animals has been killed.

Western Region:

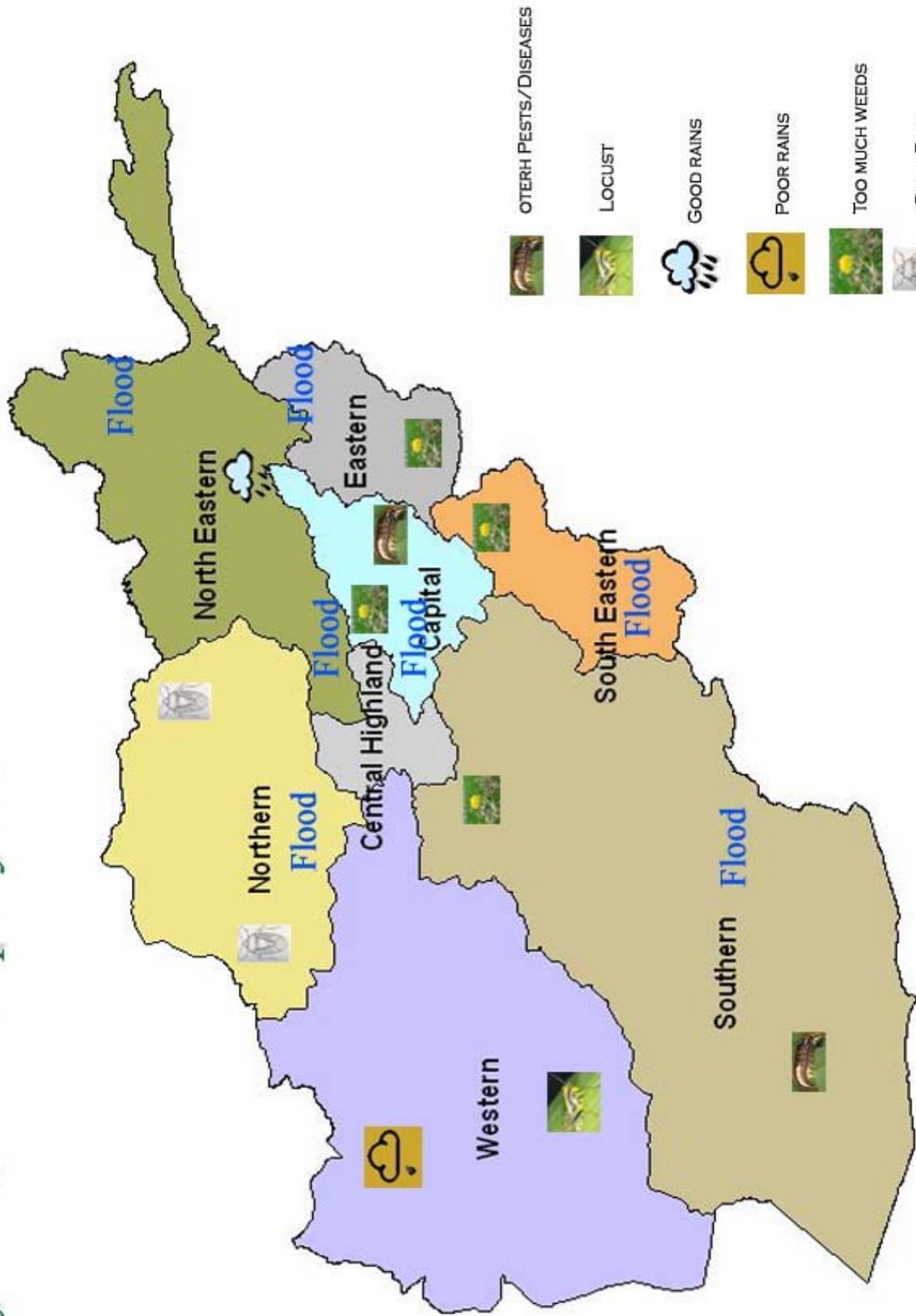
In Qala-i-now center of Badghis Province melon fly and other pest and diseases has affected the agricultural lands. In Ghor Province heavy flood has damaged about 6400 agricultural land and about 9000 fruit and non fruit trees were lost.

Eastern Region:

Reports are showing from Mihtarlam central Laghman Province indicate flood has destroyed about 8988 Jerib agricultural land and about 5735 fruit and non fruit trees damaged. In center of Kunar Province the main adverse factors were too much rain and heavy flood resulted 4438 Jerib agricultural land and about 1900 fruit and non fruit non fruit trees have destroyed.



Synthesis Situation Map May 2007



Map 4

Rainfall Satiuation

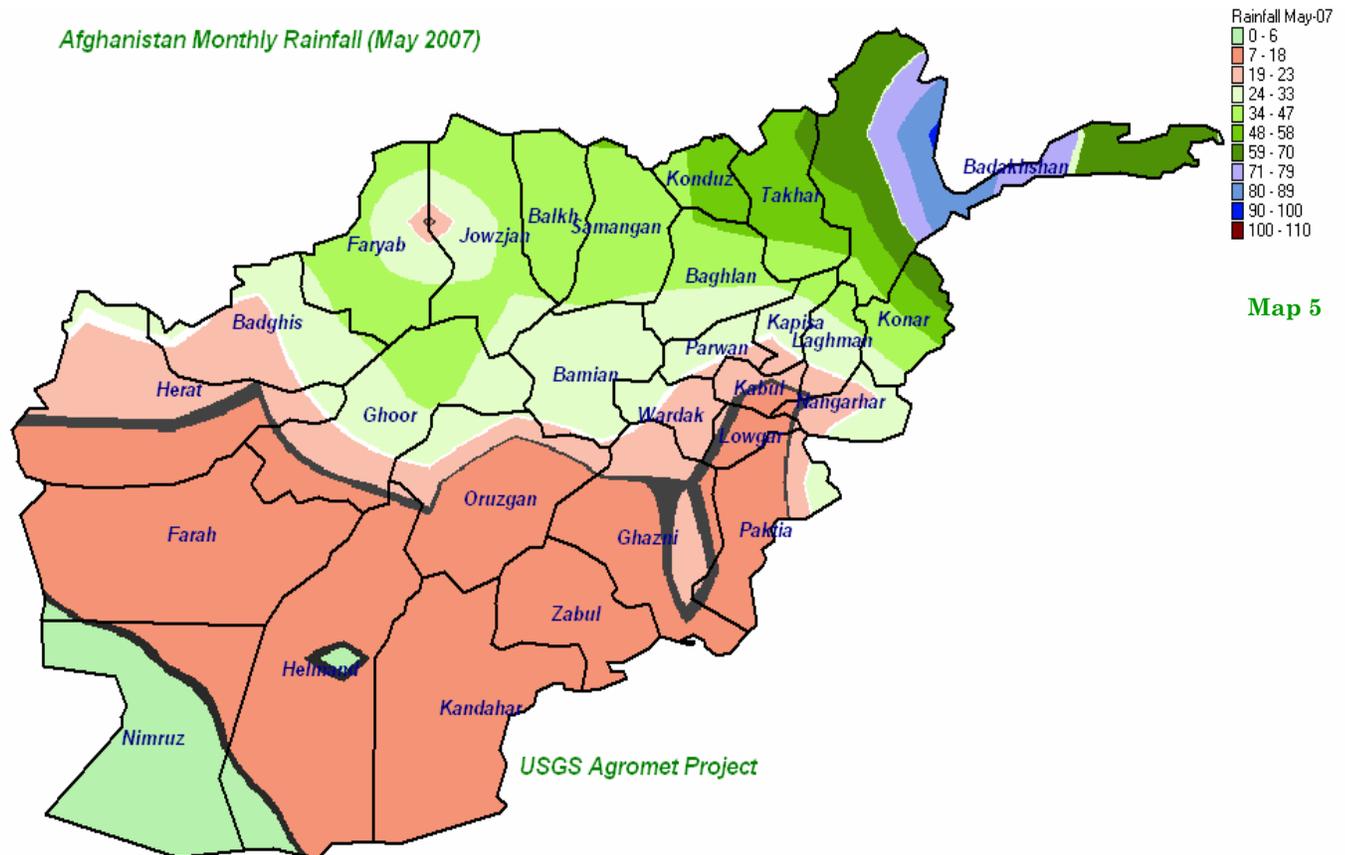
In most parts of the country rainfall for the month of May 2007 is significantly higher compared to the same month in 2006, except Jabul Seraj, Mazar and Sarobi, where the cumulative observed rainfall was less than that over the same month in 2006 (Chart 1). The percentage +/- of rainfall throughout the country is as follows:

Baghlan 75 %, Darul Aman 0 %, Faiz Abad 163 %, Farah 0 %, Gardiz 0 %, Ghazni 0 %, Ghaziabad 0 %, Jabul Seraj - 100 %, Kariz Mir 1200 %, Kunduz 375 %, Murghab %, Maimana %, Mazar -100 %, Sarobi - 50 %, Sari Pul % and Taluqn 120 %.

For the month of May 2007, the overall amount of precipitation is lower than that compared to the same month of long term average

except Maimana and Sheberghan where the rainfall had an increased during the month of May 2007 compared to the same month of long term average. Chart (2) shows comparison between cumulative rainfall for the month of May 2007 and the same month of long term average across the country. The percentage +/- of rainfall is as follows:

Baghlan - 81 %, Darul Aman - 100 %, Faiz Abad - 20 %, Farah -100 %, Gardiz - 47 %, Ghazni - 92 %, Ghaziabad - 100 %, Jabul Seraj - 100 %, Jalalabad - 50 %, Kabul - 40 %, Kandahar - 100 %, Kariz Mir - 58 %, Kunduz - 7 %, Murghab - 88 %, Maimana 10 %, Mazar - 100 %, Paghman - 70 %, Sheberghan 21 %, Sarobi - 93 %, Sari Pul - 71 % and Taluqn - 74 %.

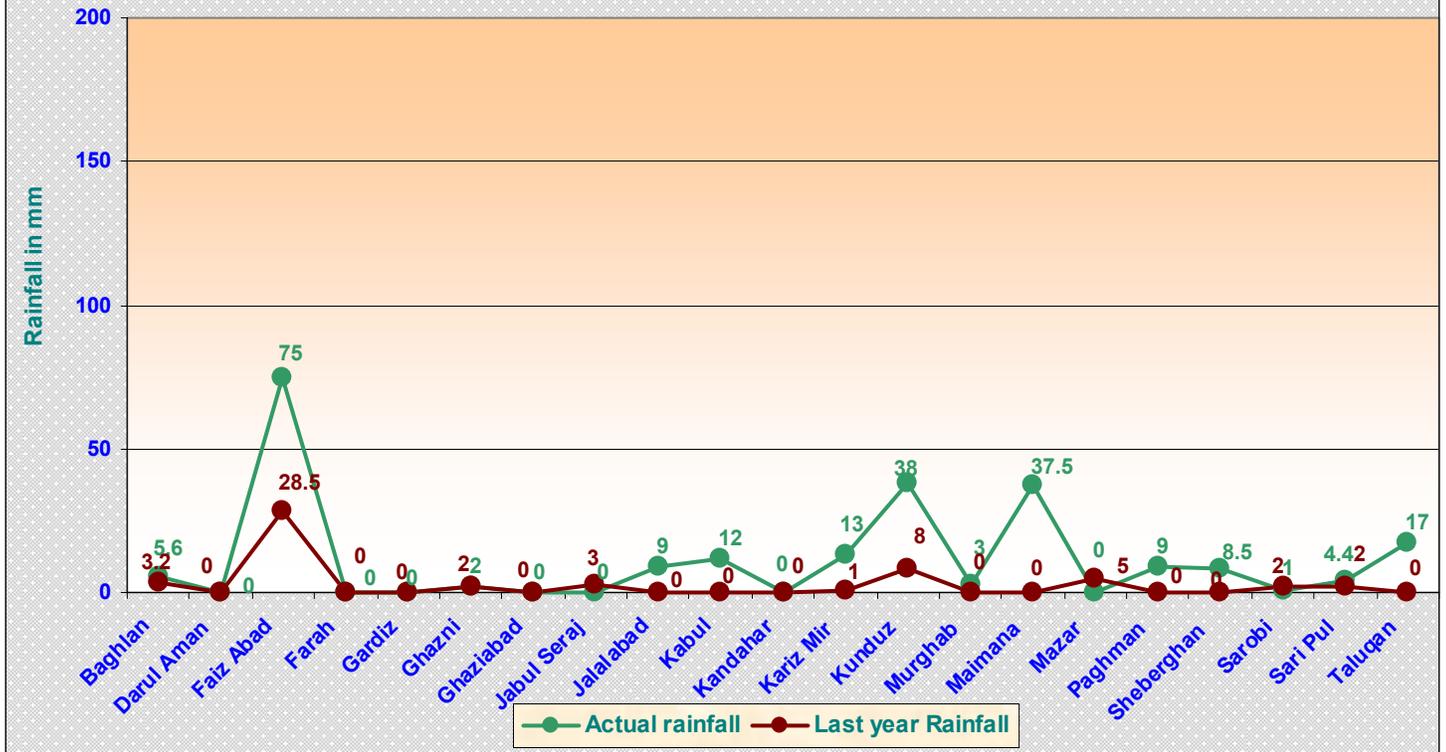


Distribution of rainfall varies in different regions of the country as map (Map 5) shows more rainfall occurred in various parts of the Northeastern region particularly in Badakhshan province, some parts of Southern and Southwestern regions (Nimroz in particular) experienced less amount of rainfall than other regions during the month of May 2007

Rainfall Graphs for the Month of May 2007

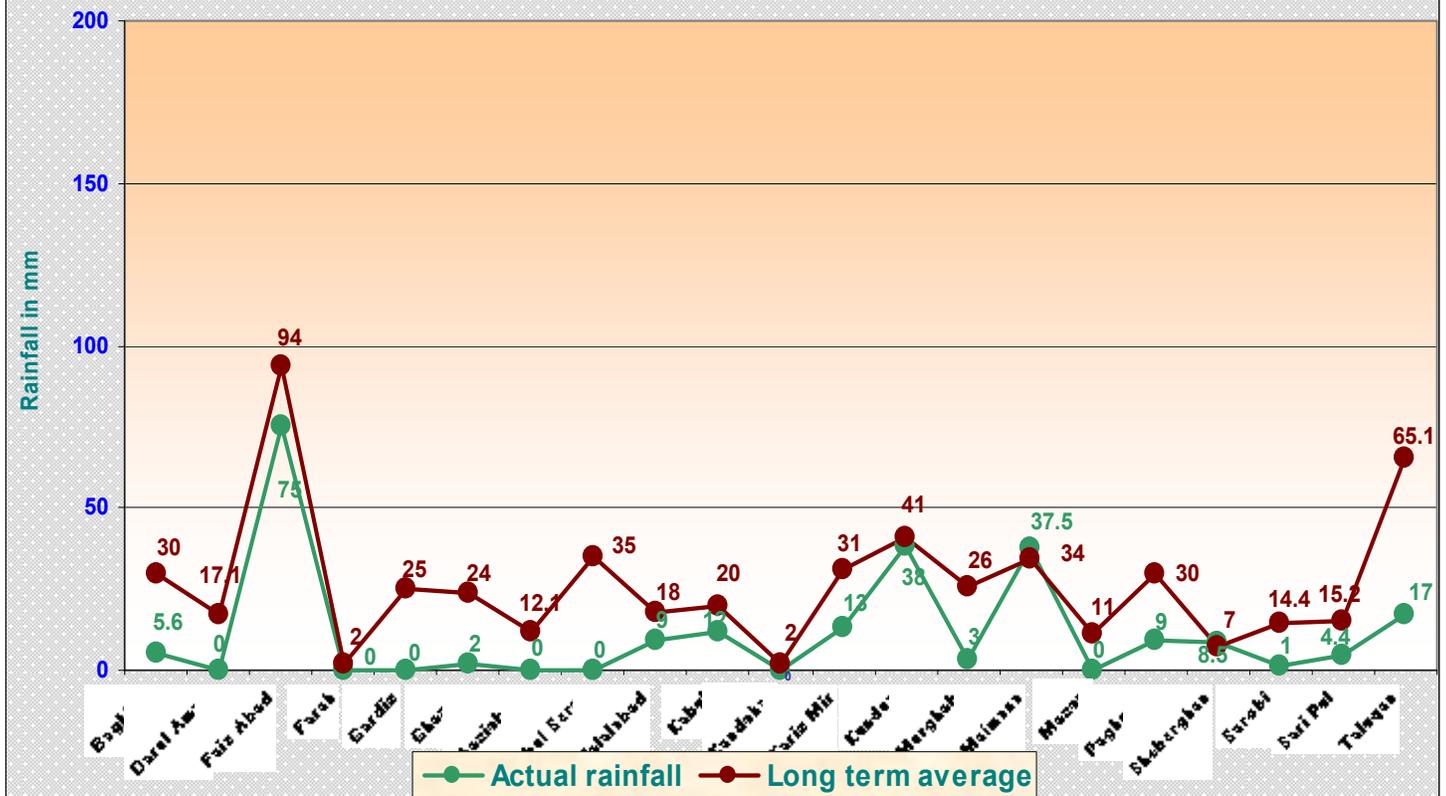
Comparison of Actual and Last Year Monthly Rainfall (May 2007)

Chart 1



Comparison of Actual and Long Term Average Accumulated Rainfall (May 2007)

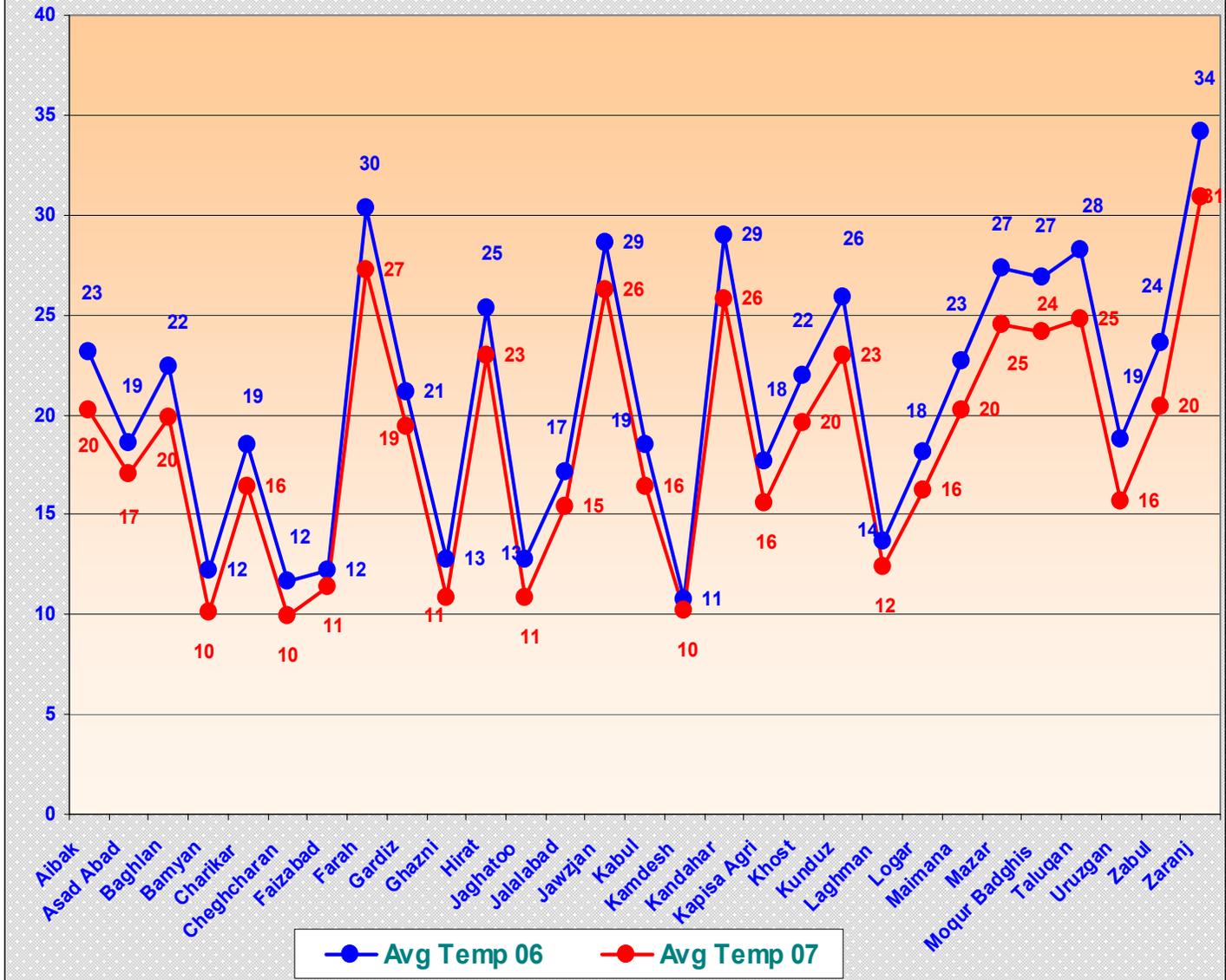
Chart 2



Average Temperature for the Month of May 2007

Average Temperature 2007 Compared with the Same Month of 2006

Chart 3

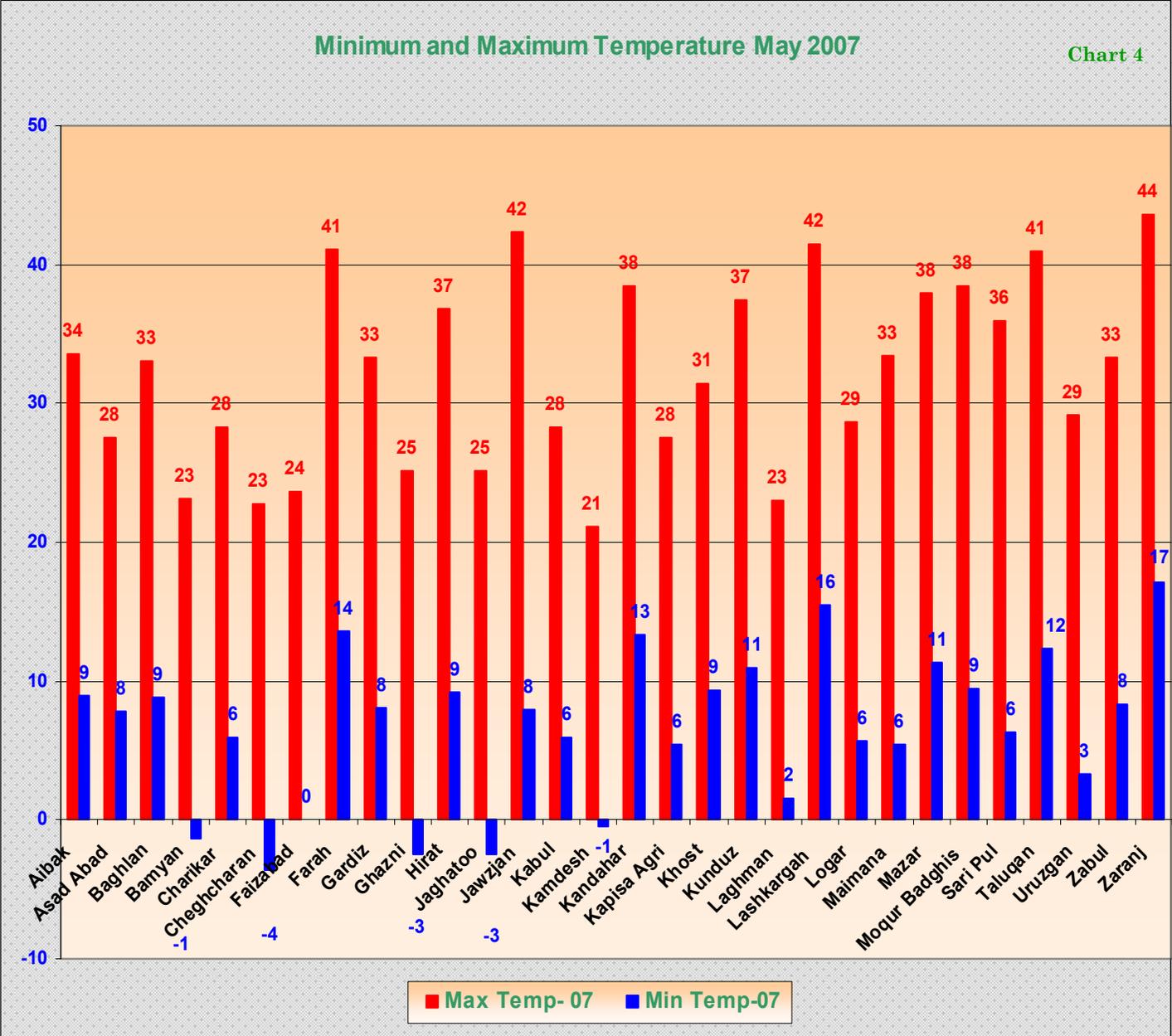


Temperature for the month of May 2007 had decreased as compared to the same month in 2006 across the country.

In general lower temperature was recorded for the month of May 2007 compared to the same month in 2006 across the country. Comparison of temperature values (Chart 3) shows lower temperature was observed during the month of May 2007 over to the same month in 2006 throughout the country.

Temperature difference for the month of May 2007 compared to the same month in 2006 is 1 – 3 ° C likely lower temperature during the month of May 2007 compared to the same month in 2006.

Temperature for the Month of May 2007



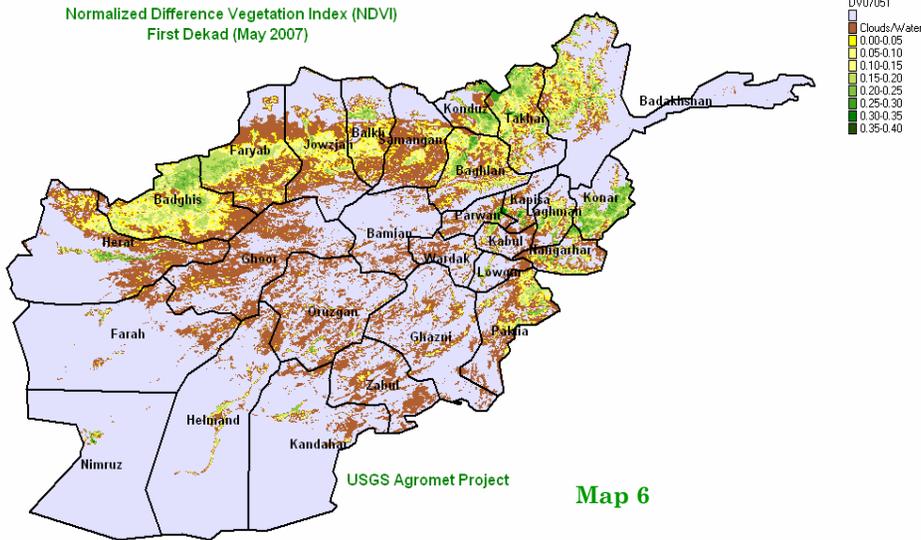
Zaranj center of Nimroz Province with 44 ° C was the warmest spot in the country

Chart (4) shows maximum and minimum temperature for the month of May 2007 where the maximum temperature was above freezing point across the country except Bamyan, Faizabad, Herat, Gazni, Jaghatoo and Kamdesh where the minimum temperature recorded above freezing point during the month of May 2007.

Zaranj central Nimroz Province with 44° C was the warmest spot of the country, Kamdesh with – 4° C experienced cold weather compared to other regions of the country.

Normalized Difference Vegetation Index (NDVI) (May 2007)

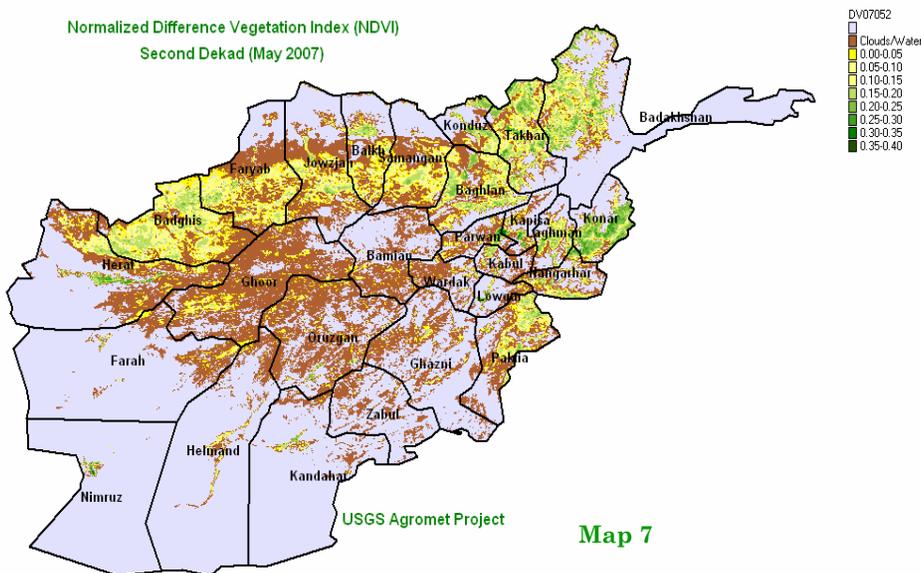
Normalized Difference Vegetation Index (NDVI)
First Dekad (May 2007)



Map 6

Vegetation Index (NDVI) 1st Dekad of May 2007—Afghanistan

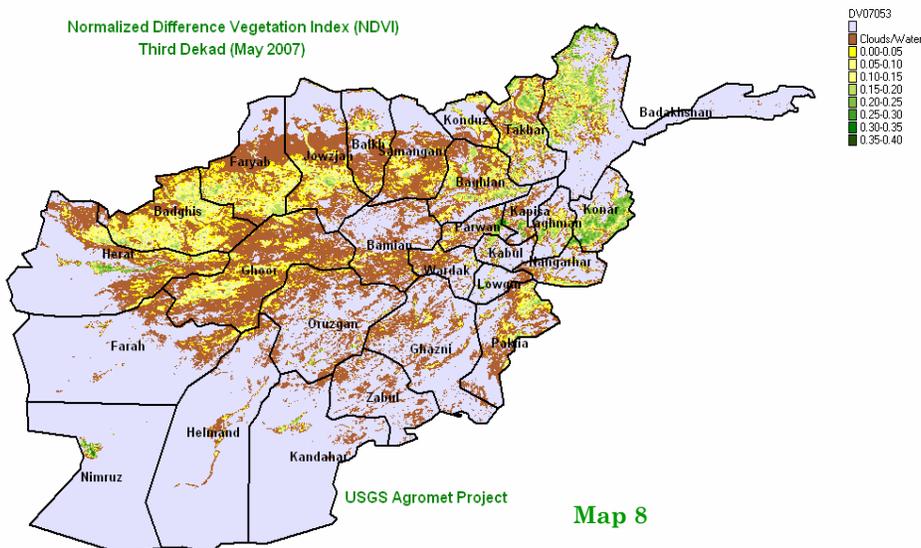
Normalized Difference Vegetation Index (NDVI)
Second Dekad (May 2007)



Map 7

Vegetation Index (NDVI) 2nd Dekad of May 2007—Afghanistan

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

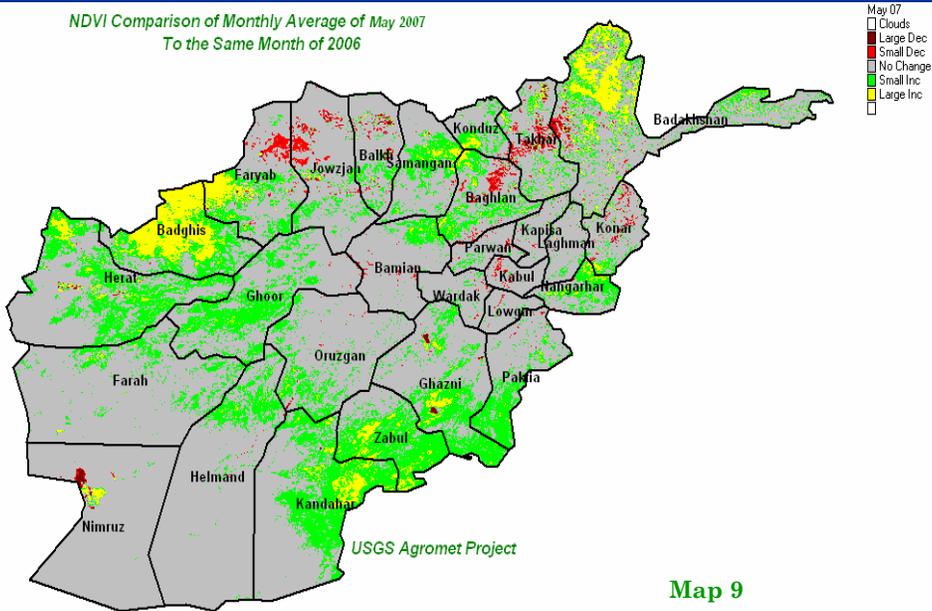


Map 8

Vegetation Index (NDVI) 3rd Dekad of May 2007—Afghanistan

Comparison of NDVI May 2007

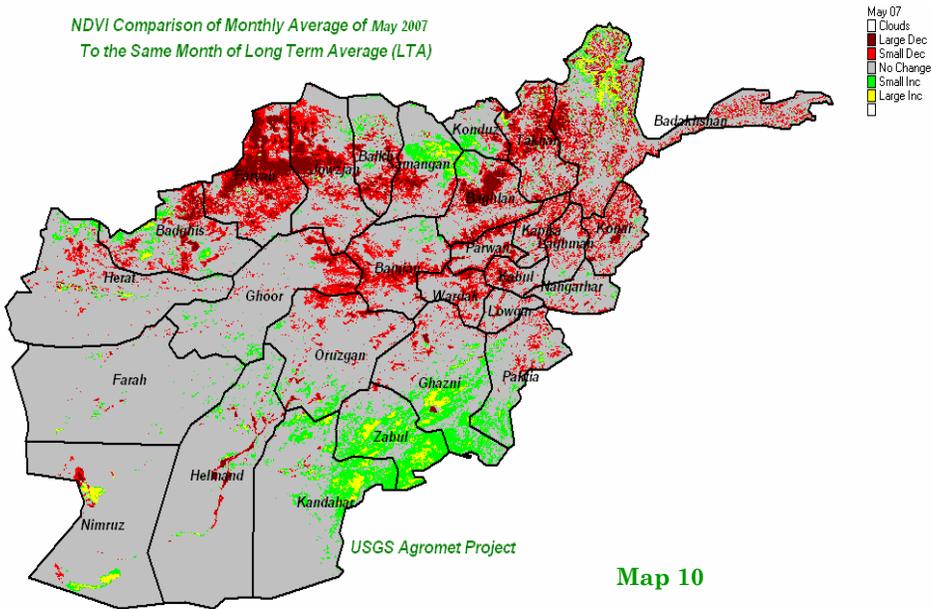
NDVI Comparison of Monthly Average of May 2007
To the Same Month of 2006



Map 9

Vegetation Index: Comparison to Last Year

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



Map 10

Vegetation Index: Comparison to Long Term Average

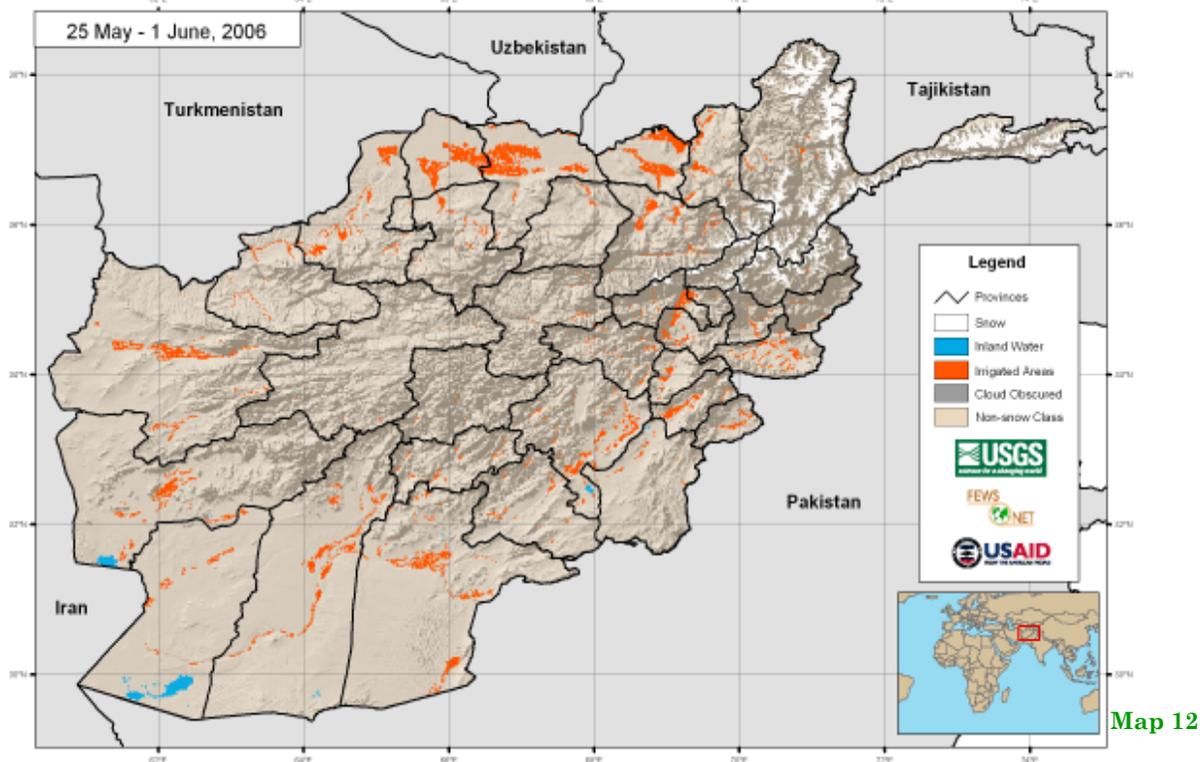
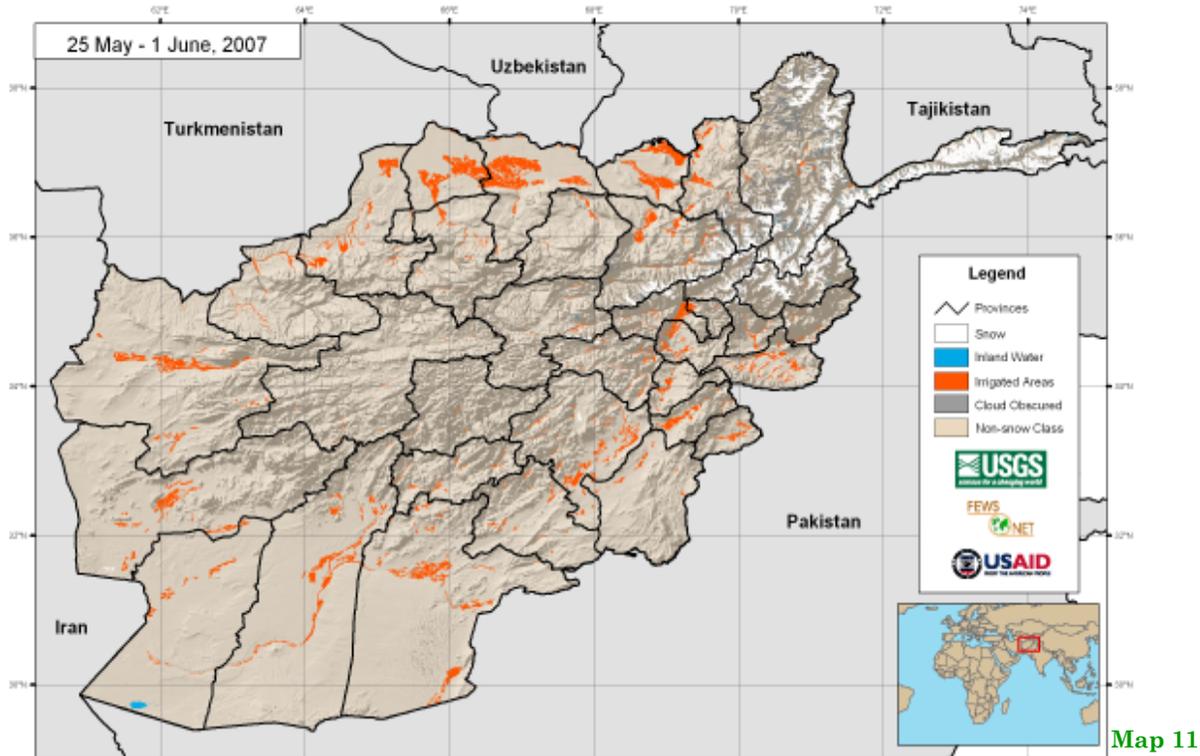
NDVI: March 2007

Comparison of monthly average of NDVI for the month of May 2007 with the same month in 2006 (Map 9) shows large increase in NDVI values occurred in the Northwestern region, and some parts in the Northeastern, small increase of NDVI values occurred in some parts of the Southern, Southeastern, some parts in the Eastern, Western regions and limited area in the Northern flat area. There is no change of NDVI values in the remaining regions in the country.

Comparison of NDVI monthly average for the month of May 2007 with the same month of long term average (Map 10) shows large decrease in NDVI values in some parts of the Northwestern region, some parts in Northeastern, Eastern, Capital and some parts in the Central Highlands, Small increase in NDVI values were noticed in some parts of Southeastern and Western regions across the country.

Comparison of Snow Extent

MODIS 8-day Snow Cover Extent - Current Period 2007 vs 2006



Comparison of snow extent for the period 25 May -1 June 2007 with the same period in 2006 (Maps 11 and 12) shows no significant change has been occurred in snow extent during the month of May 2007 over the same month in 2006 in the snow coverage areas, however small decrease of snow extent occurred in the snow coverage area.

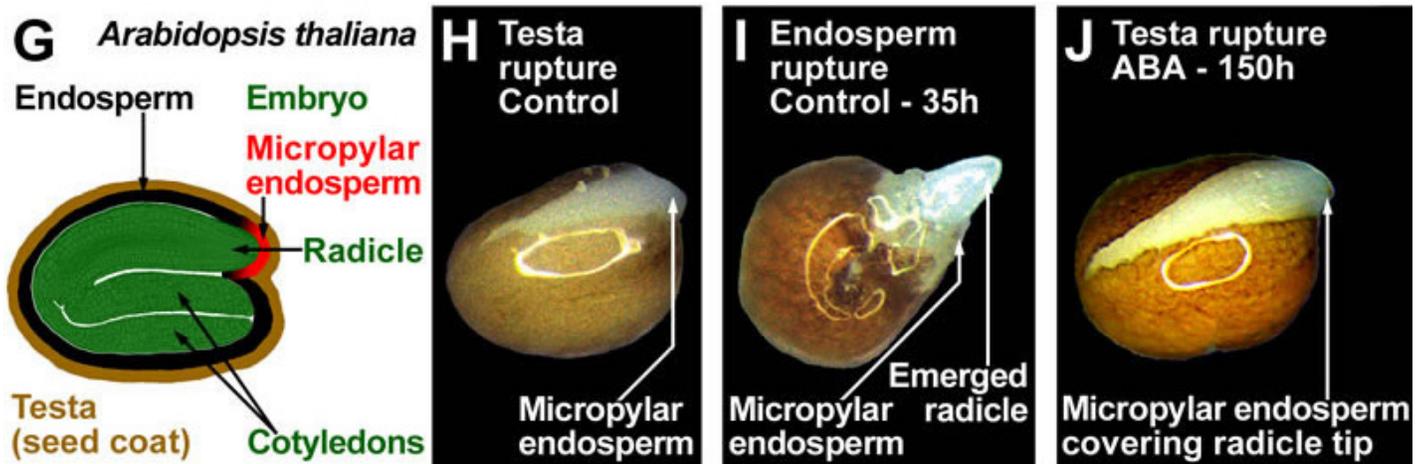
Meteorological condition and its effect on seeds

Research and adaptation has proved that meteorological condition effects on each years cultivation seeds. Meanwhile reciprocal close relation between precipitation and temperature has effect on the growth and maturity of these seeds. However an above mentioned factors affects greatly on parent plants before seed formation. It was proved through research that the temperature lower than 15 °C and rainfall more than 80-100 mm during grain filling stage has negative effect, if the cultivation seed formed in wet weather the plant which generates the production well be 8 % lower than the cultivation seeds formed in dry air. In the high humidity condition the grain formed having more glucose and less amount of sucrose, due to which the germination speed is reduced.

The Germination Condition:

Water:

During the activity and passivity of germination the water absorbed by seed results inflammation (swelling) which is one of its physical sign. The inflammation of grains do not depend on healthy and non healthy grains because it could effect on the dead one even. The water absorption is higher in high temperature than the lower one. The absorption capacity of water depends on the hardness of seeds and on its cover.



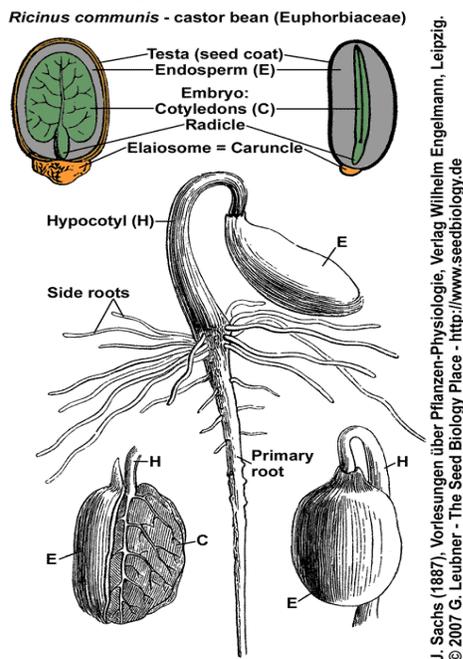
Müller et al. (2006) - © Plant Cell Physiology, Oxford University Press, <http://pcp.oxfordjournals.org>

Seed Germination:

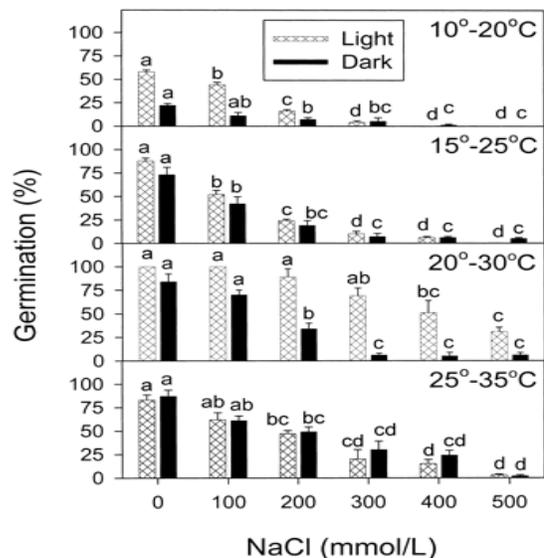
From the definition of seed science it's known that this science discusses about the development and life of the seeds. The first stage of the seed growing is the germination stage for the production of plant.

Temperature:

Any kind of the plant grain needs minimum temperature for their germination. For example wheat, clover, alfalfa and oat need 5-10 °C. Maize, Mellit and Broad Bean need 6-10 °C, squash need 15-20 °C, in some states some of the weeds could germinate in 0 °C and some could not. When the temperature exceeds more than 50 °C all the seeds germination phenomena will be lost.

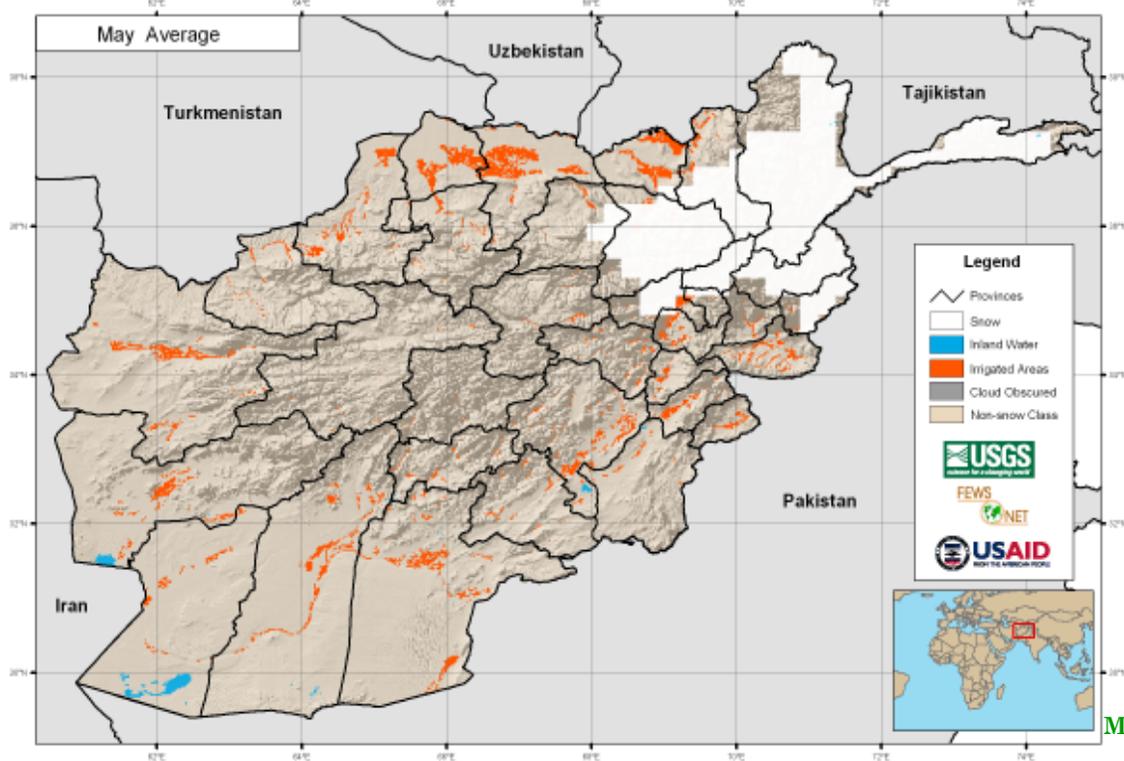
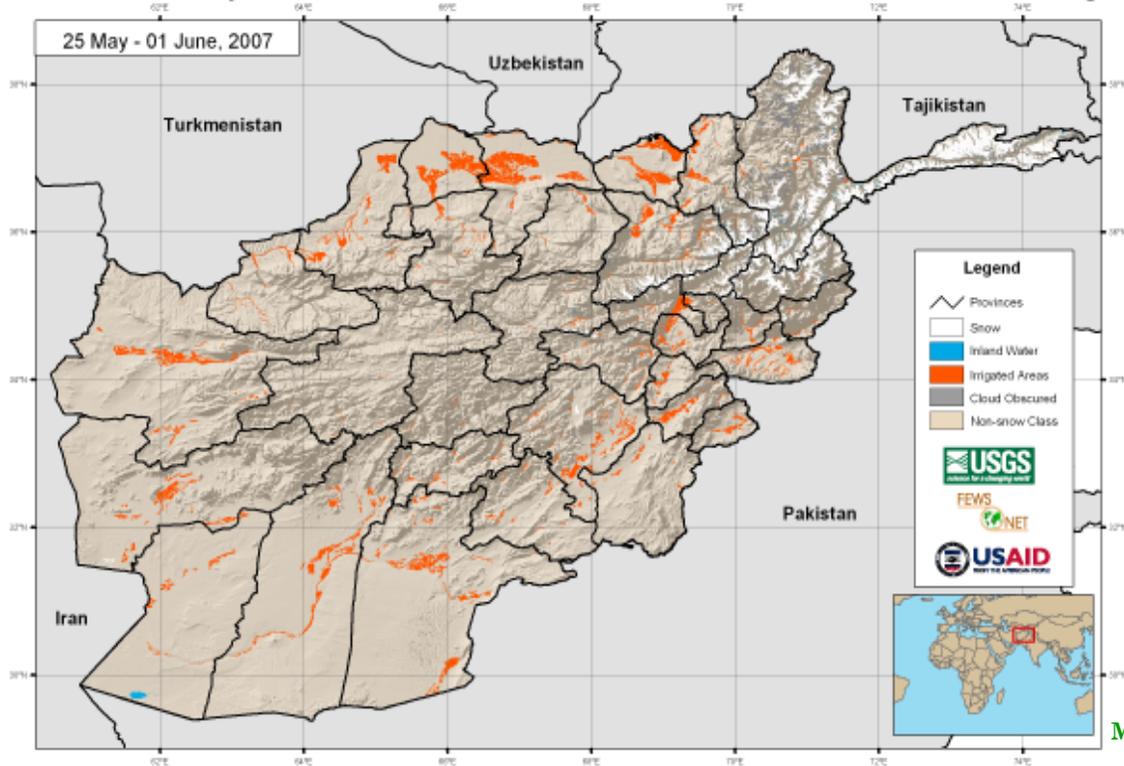


J. Sachs (1887), Vorlesungen über Pflanzen-Physiologie, Verlag Wilhelm Engelmann, Leipzig.
© 2007 G. Leubner - The Seed Biology Place - <http://www.seedbiology.de>



Comparison of Snow Extent

MODIS 8-day Snow Cover Extent - Current vs. Historical Average



Comparison of snow extent for the month of May 2007 with the same month of long term average (Maps 13 and 14) shows significant decrease of snow extent during the month of May 2007 over the same month of long term average in the snow coverage area.

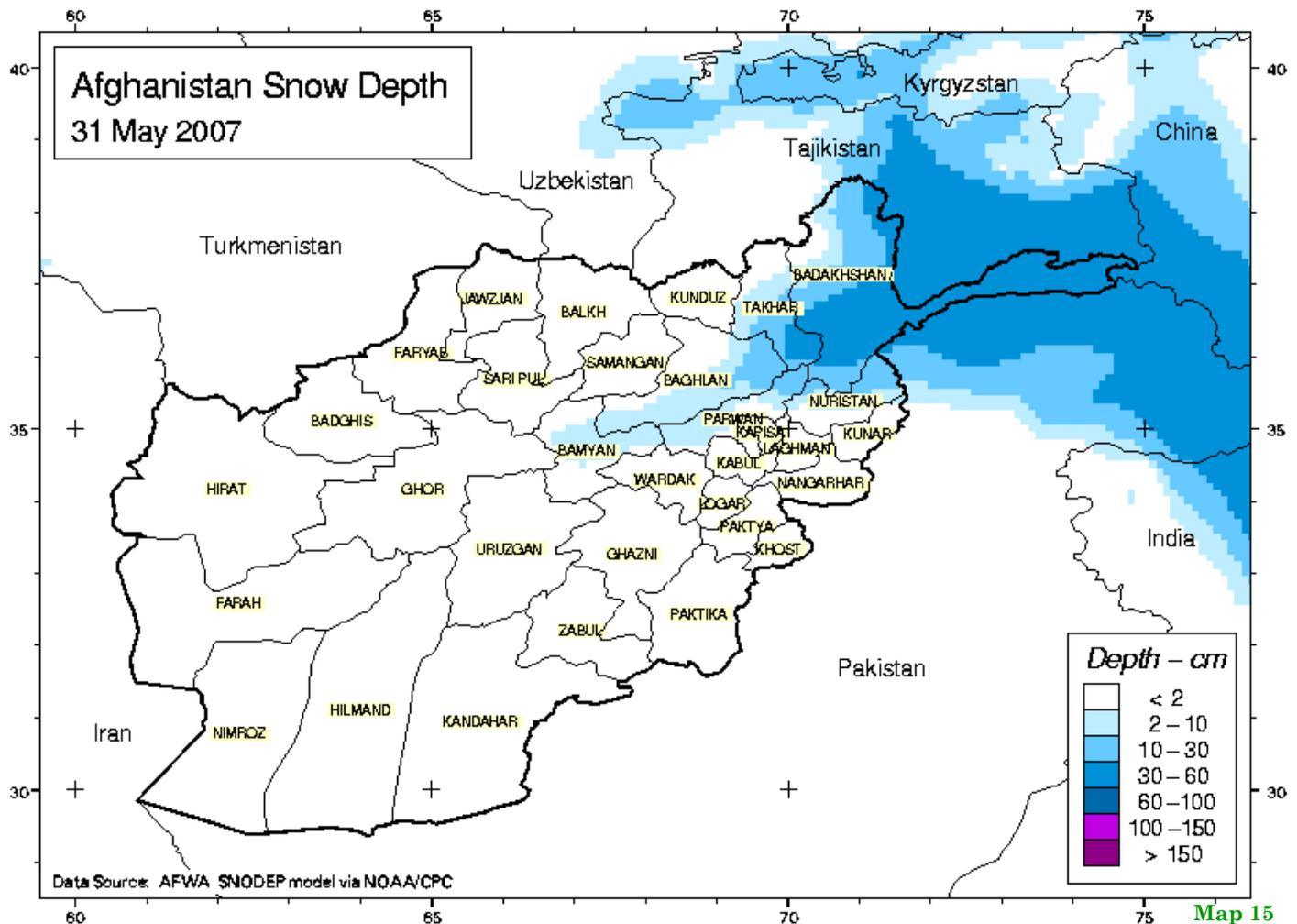
Flood

In the month of May 2007 due to monsoon rainfall several provinces experienced heavy flood. The people and agricultural Productive lands have damaged severely, where the casualties are as follows:

No	Province	Type of Disaster	Casualties		Effected homes		Fruit Trees	Live-stock	Effected Areas	
			killed	injured	Destroyed				Agr.Lan ds in Jirebs	Others
1	Badakhshan	Flood	41		997	32177	3232	10716	4 km road 44 km water canals 2 bridge 5 canals 13 canals 247 gardens 42 shops 36 water dams 61 electric dams 1 school	
2	Takhar	Flood	12	3	760	7230	1146	23791		
3	Baghlan	Flood			26		646	2246		
4	Samangan	Flood	3	6	163			4723		
5	Sari Pul	Flood				1000	8	210		
6	Ghor	Snow Sliding				900	33	60		
7	Khost	Flood						325		
Total			56	9	1946	41307	5065	42071		



Afghanistan Snow Depth May 2007



Map (15) shows snow depth in the country where it has been recorded 30-60 cm in Northeastern region and 2-10 cm in Salang and neighboring areas.

For more information please contact:

Mohammad Fahim Zaheer
fahim.zaheer@agriculture.gov.af
fahimzaheer@gmail.com
Cell: 0772214307, 0799793334

Or

Abdussalam Shinwary
asalam.shinwary@agriculture.gov.af
salam.shinwary@gmail.com
Cell: 070156738

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<http://www.agriculture.gov.af/farsi/weather.htm>

<http://afghanistan.cr.usgs.gov/agro.asp>