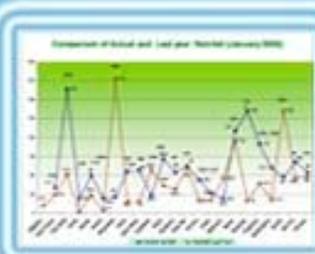


Agrometeorological

Monthly Bulletin

December - 2006

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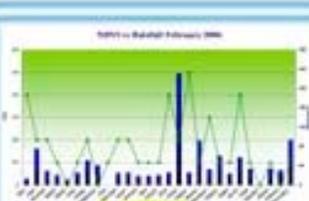
Snow Depth



Agromet Project-Afghanistan

Helping Agriculture to End HUNGER

B-34



Rainfall vs NDVI



NDVI



Comparison of NDVI

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



Agromet Network



Summary

In the Western region as reported from Ghor Province reports are saying that in some areas the crops are in poor condition while, in other areas as Moquar, Badghis and Qala-e- Naw Districts of Badghis Province and Farah Province the crop is in normal condition.

Gazni and Jaghatoo with -27.7°C were the coldest points of the country during the month of December 2006.

In Northern region the adverse factors were shortage of inputs such as tractor, seed cleaner, fertilizers, and chemical drug sprinkler used for control of weeds and diseases. In Sozmaqala District and Center of Saripul Province reports are saying about late planting and sharp frost.

The maximum and minimum temperature for the month of December 2006 shows that the temperature departure has dropped down across the country.

Crop Phenological Stages

Central Region:

Due to cold weather and snow cover on the ground, in most parts of the Central Region the crop is in the dormancy stage, for example in Seya Gerd District of Perwan Province, Gelga, Chak, Siakhak, Jaghtoo Districts of Wardak and Maidan Center of Wardak Province. Also the same situation is in Karizmir District of Kabul Province and Darull Aman research station. But reports showed from Sarobi District of Kabul Province that the crop is in the planting and emergenc stage (the highest is less than 10 cm). In Dara District of Panjshir Province and in Kapisa Province the crop is in the dormancy stage.

East Central Region:

In most parts of this Region the crops are in the dormancy stage (all of the crops have been covered by snow).

North Eastern Region:

In this region the crops are in different stages. As in Imam Sahib, Chahadara, Aqtipa and Qala-e- zal Districts of Kunduz province and center of Kuduz Province the crops are in the emergenc stage (the highest is less than 10 cm). Several reports shows from Baghlan Province that the crop is in the planting and emergencies stages. From Faizabad Center of Badakhshan Province and Bangi District of Takhar Province reports are saying that the crop is in the dormancy stage.

Northern Region:

In this region reports are saying that the crops are in different stages such as: Nahershahi and Dehdadi Districts of Balkh Province and Faryab Province the crops are in the planting and emergence stages, While reports from Shiberghan Center of Jawzjan and Sozmaqala Disrict of Saripul Province are saying that

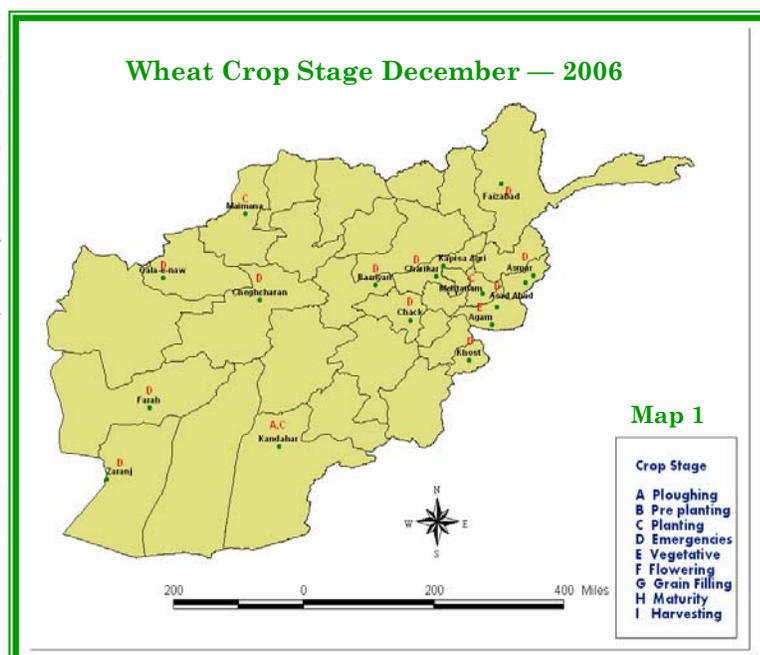
the crops are in dormancy stage. But in Samangan Province the situation is different where the farmers are ploughing and preparing their lands.

Southern Region:

Report shows from most parts of this region that the crops are in the emergence stage (the highest is less than 10 cm) as in Nadiali, Nawa and Garashk Districts of Helmand Province. As found in Urozgan Province, Zabul and Kandahar Provinces the crops are in the planting stage.

Western Region:

In this region the wheat is in the emergency stage (the highest is less than 10cm) as reported from Ghor Province, Farah and Qala-e-New Center of Badghis Province. Reports from Moquar District of Badghis Province are saying that the crop is in the planting stage. In Sardy District of Ghazni Province the crop is in dormancy stage.



Crop Phenological Stage

Eastern Region:

In most parts of this region the crops are in the emergence stage, for example in Asmar and Asadabad Districts of Kuner Province and Mehtherlam Center of Laghman Province.

In some parts of Jalalabad the crops are in the dormancy stage, but in other areas of the same Province the crops are in the emergence stage (the highest is less than 10 cm).

South Eastern Region:

Reports from most parts of this region are saying that the crops are in the dormancy stage (the crop have been covered by snow) for example Urgon, Khaircot and Sharana Districts of Paktika Province, Gardiz Center of Paktya and Tera District of Paktya Province.

In Khost Province the crops are in the emergence stage (the highest less than 10 cm).

Crop Condition

Central Region:

In this region reports are saying that the the crops are in normal condition as in Dara District of Panjshir Porvince, Mahmood Raqee Center of Kapisa Province, Chak and Jaghatoo Districts of Wardak Province and Seya Gerd District of Perwan Province. In Chaharikar Center of Perwan Province the crop is in good condition.

Eastern Region:

In the Eastern region, as reported from Asmar and Asadabad Districts of Kuner Province, Laghman Province, Jalalabad Center of Nangarhar and Agam District of Nangarhar Province the crop is in good condition. But reports from some other areas of Nangarhar Province are saying that the crop is in poor condition.

North East Region:

In this region the crop is in normal condition for example in Imam Sahib, Chahardara and Aqtipa Districts of Kunduz Province. In Faizabad and Eshkashem Districts of Badakhshan Province, Bangi District of Takhar Province and Pulikhomry Center of Baghlan Province the crops are in normal condition.

Northern Region:

In most parts of this region the crops are in normal condition, for example in Shaberghhan Center of Jawzjan Province, Nahershahi and Dehdadi Districts of Balkh , and Samangan Province. In Faryab Province the crop is in poor (under the normal) condition.

Southern Region:

In some parts of this region the crops are in normal condition as reported from Nad Ali, Nawa and Garshk Districts of Helmand Province, Moquar and Sardy Districts of Ghazni Province and Center of

Kandahar Province. In Zabul and Nimroz Provinces the crops are in poor condition .

Western Region:

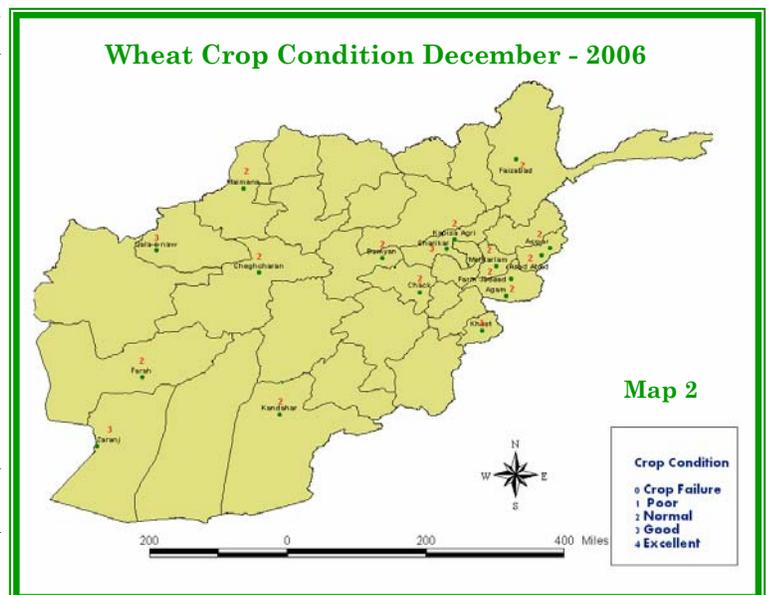
In the Western region as reported from Ghor Province reports are saying that in some areas the crops are in poor condition while, in other areas as Moquar, Badghis and Qala-e- Naw Districts of Badghis Province and Farah Province the crop is in normal condition.

East Central Region:

In this region as reported from Yakawlang and Panjob Districts of Bamyán Province reports are saying that the crops are in normal condition.

South East Region:

In this region as reported from Khairkot, Urgon and Sharana Districts of Paktika Province and Gardiz Center of Paktya Province the crops are in normal condition. In Khost Province as reported from Ali Shir area the crop condition is better then the normal.



Adverse Factors

Central Region:

In this region, during the month of December 2006 the main adverse factors were shortage of inputs such as tractor, seed cleaner and drug sprinkler machine and too much weeds. As reported from Chaharikar Center of Perwan Province, Panjshir Province and Paghman District of Kabul Province sharp frost and heavy snow were the adverse factors. Jaghatoo and Chak Districts of Wardak Province were suffered from severe cold and heavy snow.

East Central Region:

In this region as reported from Yakawlang and Panjob Districts of Bamyán Province and Center of Bamyán the main adverse factors are heavy snow, too much cold, sharp frost and lack of agriculture inputs.

North Eastern Region:

During the month of December 2006 in this region the main problems were lack of agriculture inputs. From Bangi District of Takhar Province reports are saying about late planting and too much rain.

Northern Region:

In Northern region the adverse factors were shortage of inputs such as tractor, seed cleaner, fertilizers, and chemical drug sprinkler used for control of weeds and diseases. In Sozmaqala District and Center of Saripul Province reports are saying about late planting and sharp frost.

Southern Region:

In this region the farmers were complaining from severe cold storms which has damaged agriculture fields and agriculture products. In most parts of this region shortage of inputs such as tractor, thresher, seed cleaner, chemical drug sprinkler used for control of agriculture pest diseases are the main adverse factors. In Sardy District of Ghazni Province the adverse factor was heavy snow and sharp frost.

Western Region:

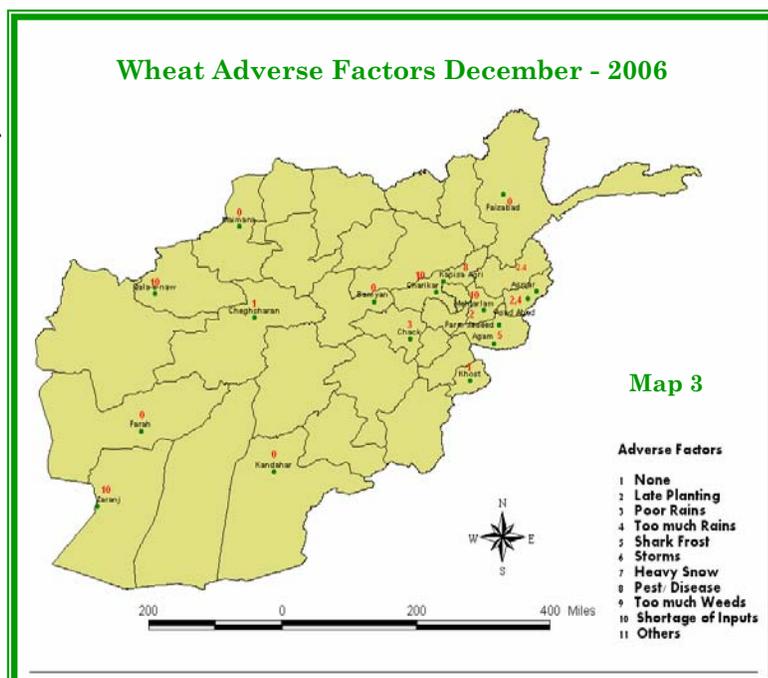
During the month of December 2006 in the Western region, as reported from Ghor Province the main adverse factors were sharp frost and late planting. In Moqur District of Badghis Province and Qala-e-New Center of Badghis Province late planting and heavy rainfall were the main issue.

Eastern Region:

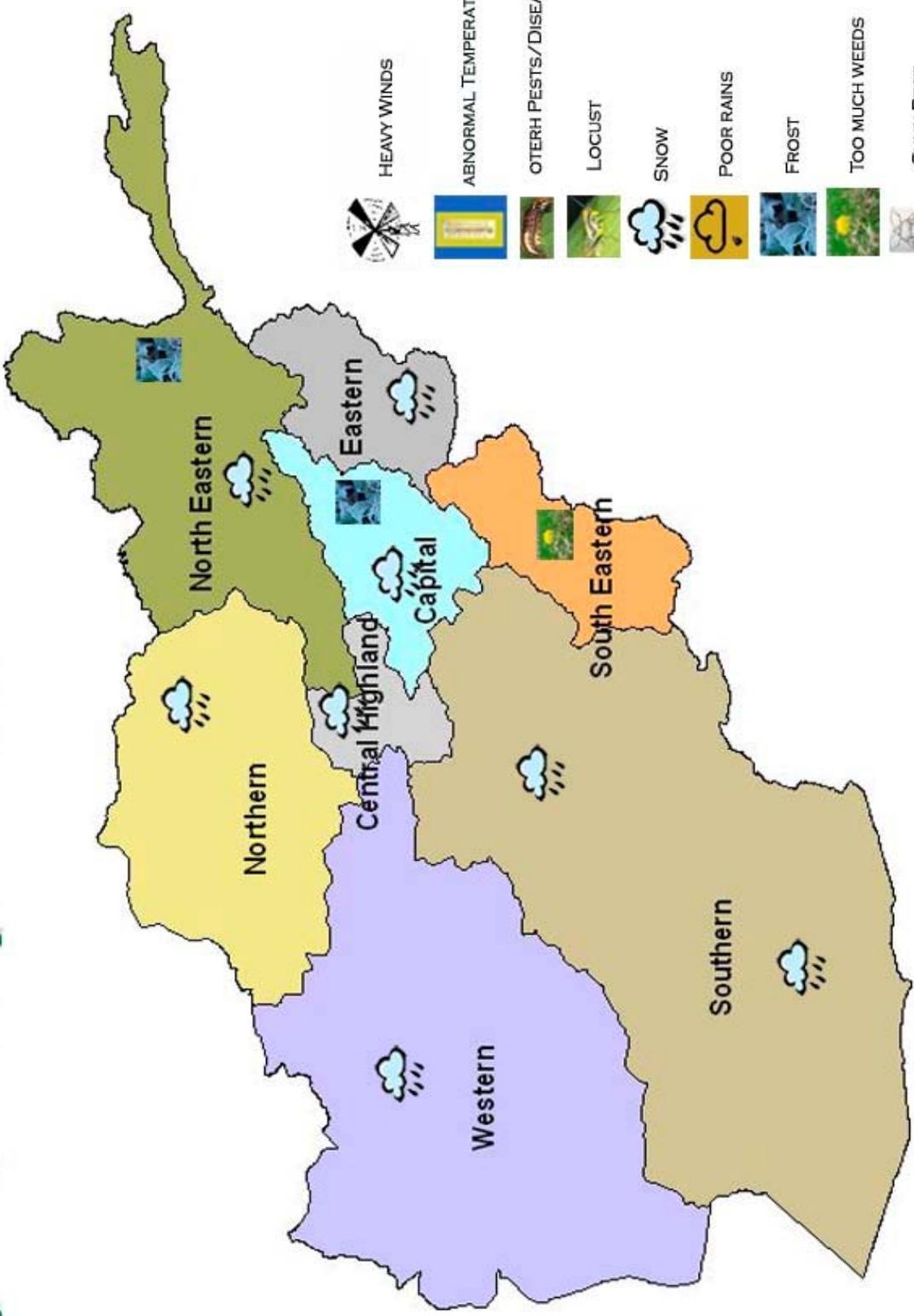
Main adverse factors of this region were late planting and shortage of inputs, as reported from Asmar and Asadabad Districts of Kuner Province. In Agam District of Nangarhar Province the adverse factors were too much weeds and lack of agricultural inputs.

South East Region:

In this region the main adverse factors were heavy snow and sharp frost as reported from Khaircot, Urgon and Sharana Districts of Paktika Province. Report shows from Tera District of Paktiya Province that heavy snow and lack of agricultural inputs such as tractor, thresher and seed cleaner are the main adverse factors. In Center of Khost Province the adverse factor is too much weeds.



Synthesis Situation Map December 2006



Flood **FLOOD** **Map 4**

Rainfall Satiation

During the month of December 2006 in most parts of the country rainfall had considerable increase compared to the same month in 2005.

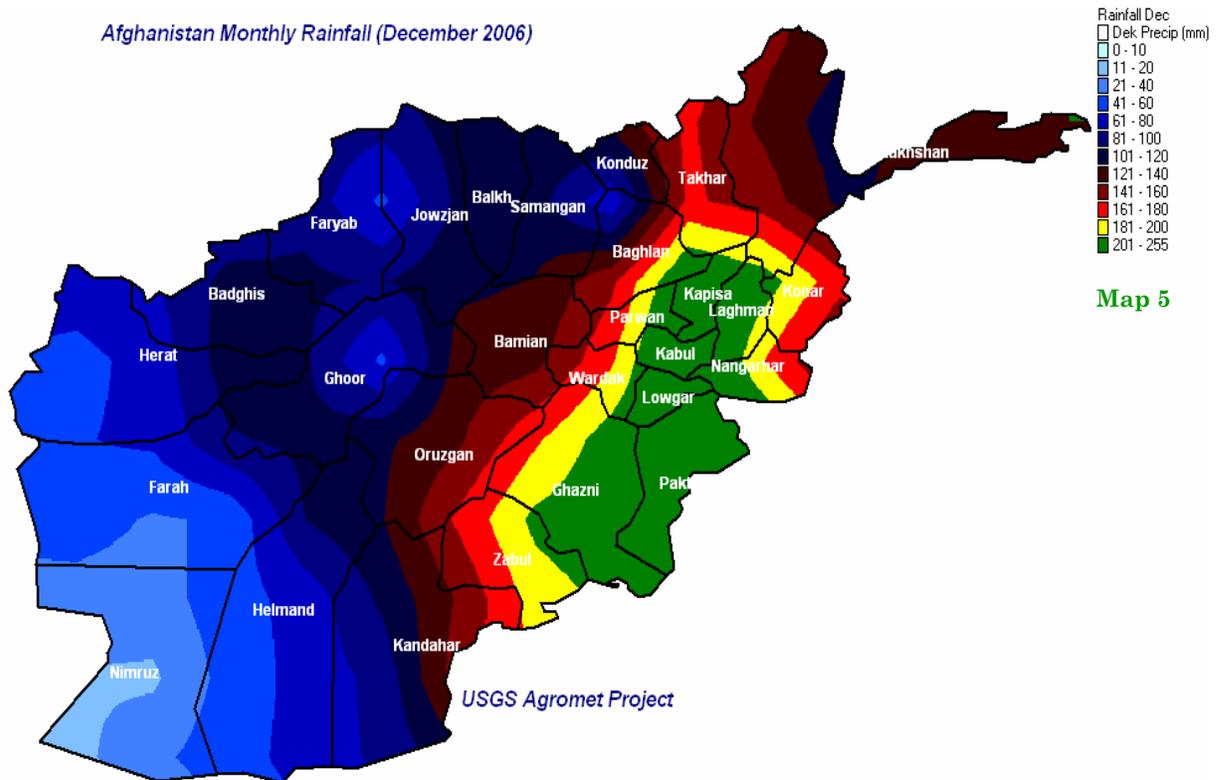
Comparison of rainfall data for the month of December 2006 with the same month in 2005 (chart 1) shows significant increase of rainfall in some of the stations during the month of December 2006 over the same month in 2005. In most parts of the country except Baghlan, Faizabad, and Sari-Pul rainfall had decreased during this month as compared to the same month in 2005. The percentage +/- of rainfall is as following:

In Baghlan – 27 %, Darul Aman 81.8 %, Faiz abad – 62 %, Farah 8.5 %, Gardiz %, Gazni %, Ghaziabad 100 %, Herat 100 %, Jabul Seraj 100 %, Jalalabad 100 %, Logar 100 %, Kabul 100 %, Kandahar %, Kariz Mir 100 %, Mazar %, Paghman 100 %, Sheberghan 55 %, Sarobi 170 %, Sripul – 30 %, Taluqan 45 %.

Comparison of rainfall data for the month of December 2006 to the same month of long term average (chart 2) shows significant increase of rainfall during the month of December 2006 over the same month of long term average in most parts of the country except Baghlan and Faizabad where the rainfall had decreased during this month in 2006 as compared to the same month in 2005 of long term average. The percentage +/- of rainfall is as follow:

In Baghlan – 10 %, Darul Aman 100 %, Faiz abad – 52 %, Farah 183 %, Gardiz %, Gazni %, Ghaziabad 835 %, Herat 138 %, Jabul Seraj 300 %, Jalalabad 88 %, Logar 100 %, Kabul 444 %, Kandahar %, Kariz Mir 357 %, Kunduz 83 %, Logar 465 %, Maimana 42 %, Mazar %, Paghman 165 %, Sheberghan 5 %.

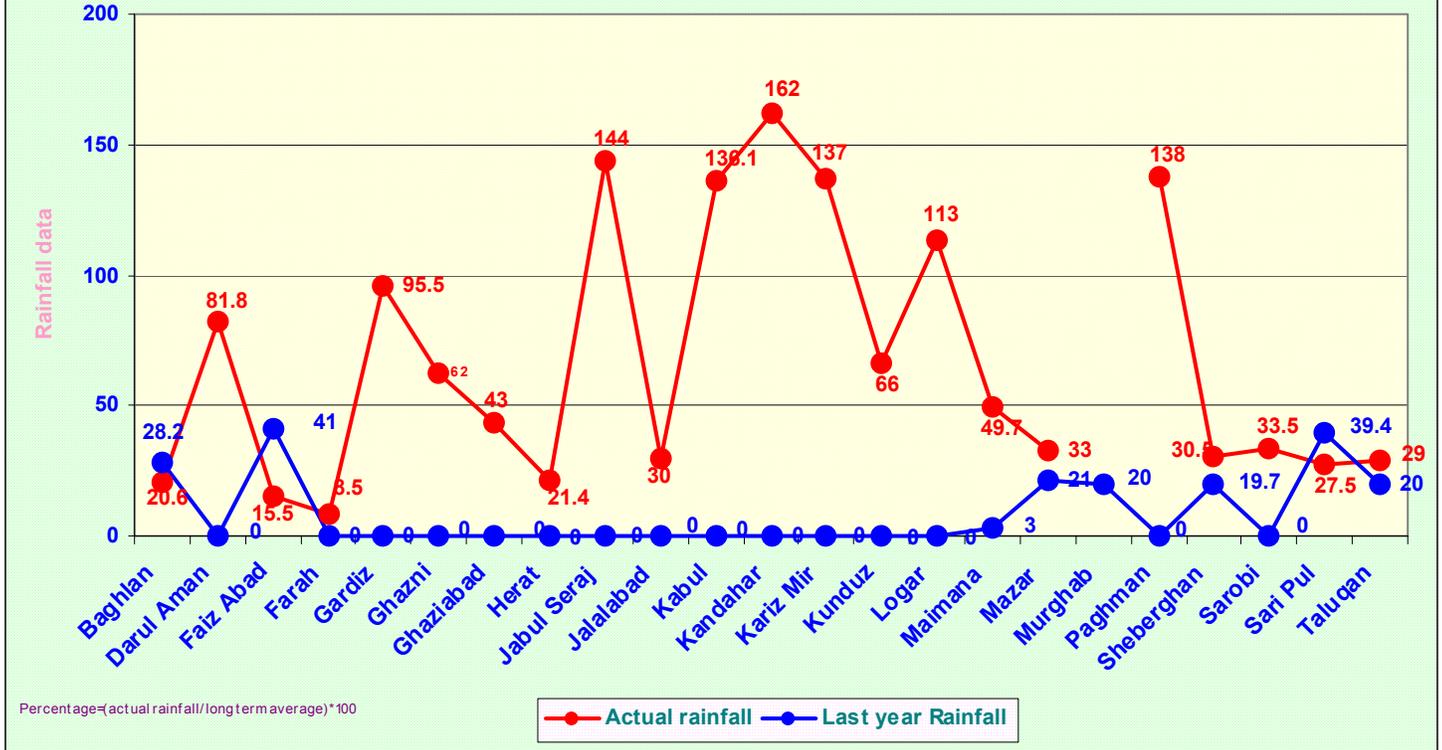
Distribution of rainfall is variable in different regions of the country. Map (5) shows heavy rainfall exists in Southeast Capital and some parts of the Eastern regions. The most parts of Southern regions, Western and Central Highlands experienced less amount of rainfall as compared to other regions during the month of December 2006.



Rainfall Graphs for the Month of December 2006

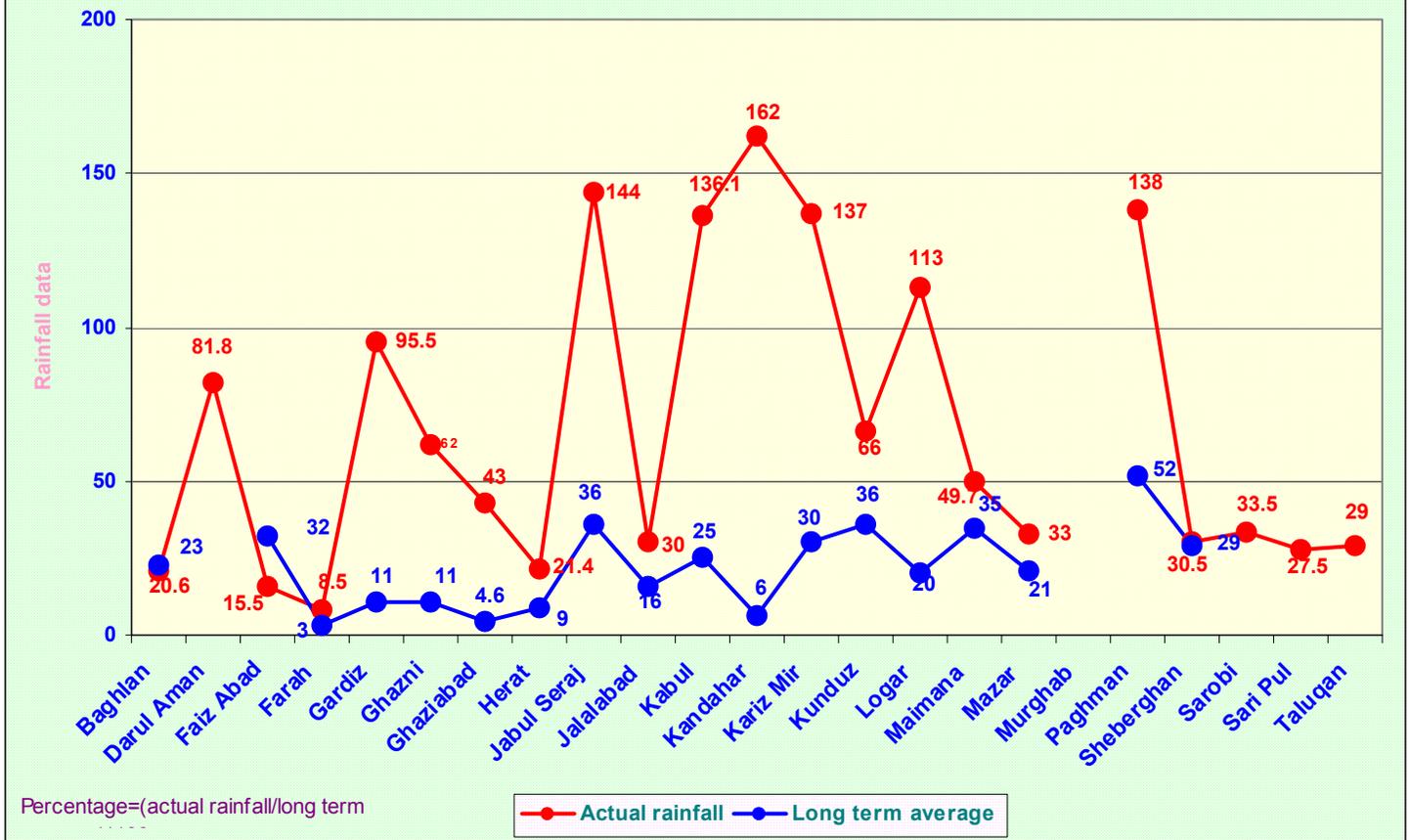
Comparison of Actual and Last year rainfall (December 2006)

Chart 1

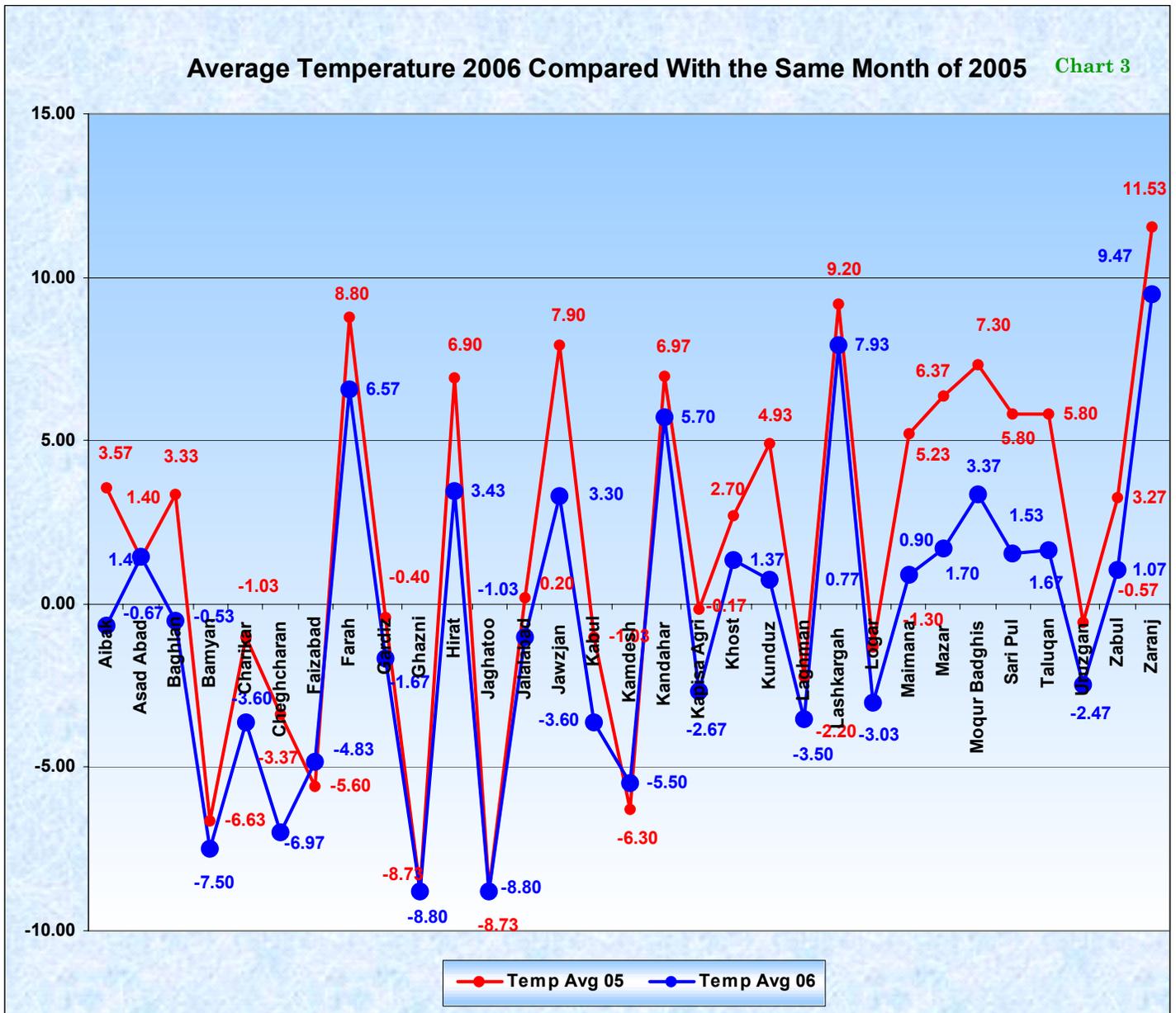


Comparison of Actual and Long term average rainfall (December 2006)

Chart 2



Average Temperature for the Month of December 2006



Temperature for the month of December 2006 had significant decrease compared to the same month in 2005 across the country.

Temperature for the month of December 2006 had significant decrease compared to the same month in 2005 across the country. Comparison of the monthly average temperature of December 2006 to the same month in 2005 (chart 3) shows considerable decrease of temperature during the month of December 2006

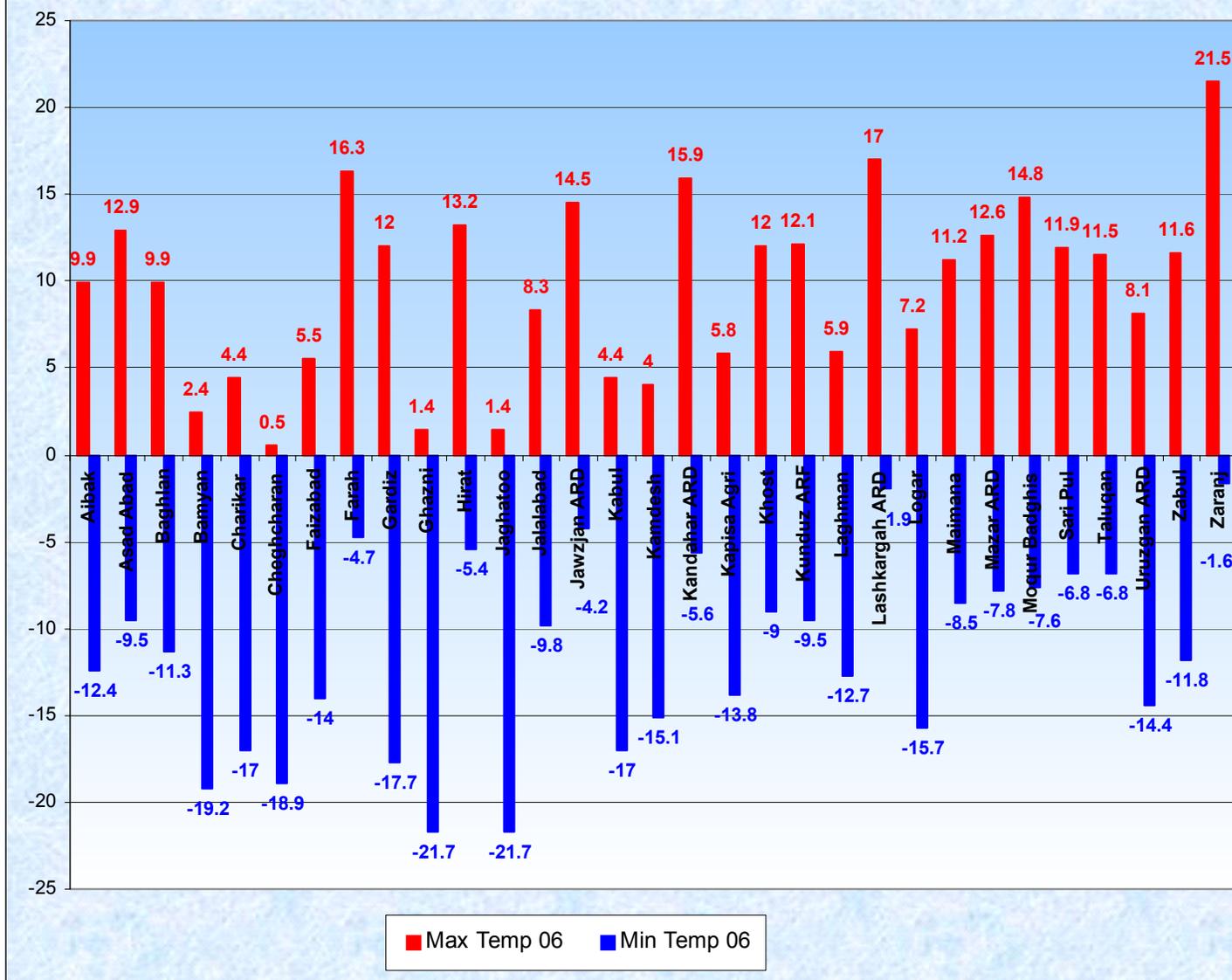
over the same month in 2005, the whole country experienced cold and dry weather which the minimum temperature was below (-18°C).

The monthly average temperature departure in some areas of the country were $1-2^{\circ}\text{C}$ and in some parts $2-6^{\circ}\text{C}$.

Temperature for the Month of December 2006

Minimum and Maximum Temperature December 2006

Chart 4

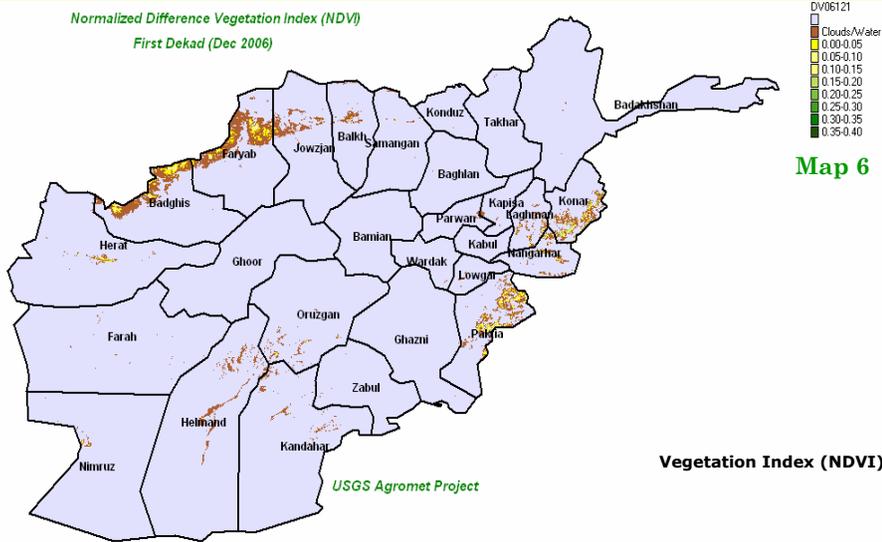


Jaghatoos with -27.7°C was the coldest points during the month of December 2006.

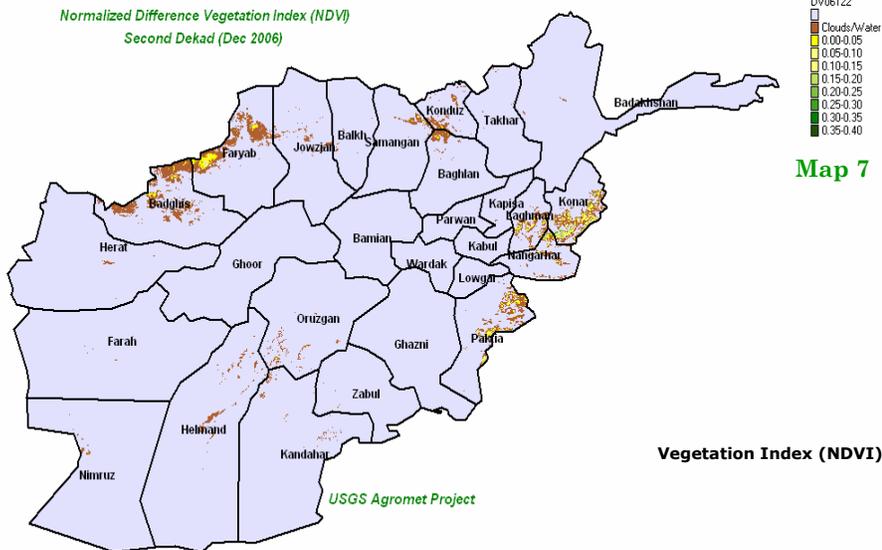
The maximum and minimum temperature for the month of December 2006 (chart 4) shows that the temperature has dropped down across the country.

The minimum temperature was below zero $^{\circ}\text{C}$, Gazni and Jaghatoos with -27.7°C were the coldest points of the country during the month of December 2006.

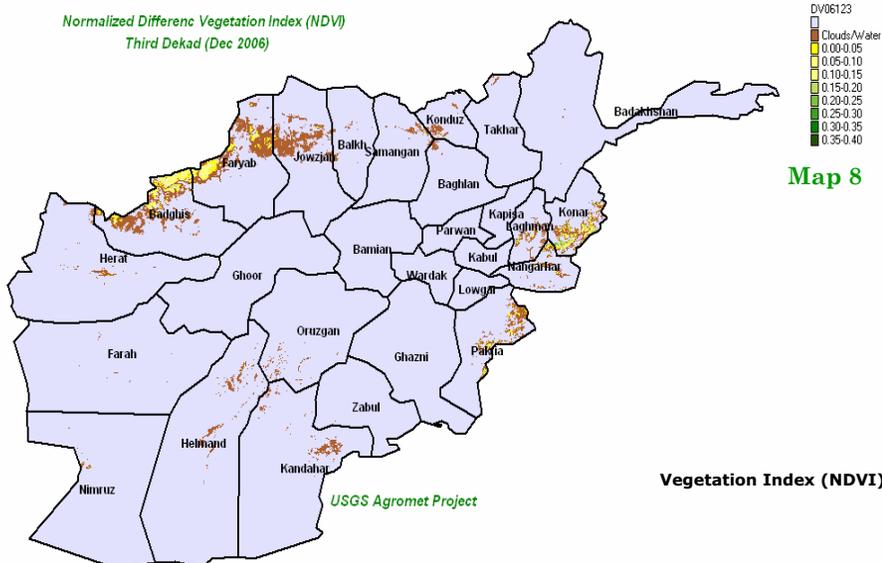
Normalized Difference Vegetation Index (NDVI) (December 2006)



Vegetation Index (NDVI) 1st Dekad of December 2006—Afghanistan



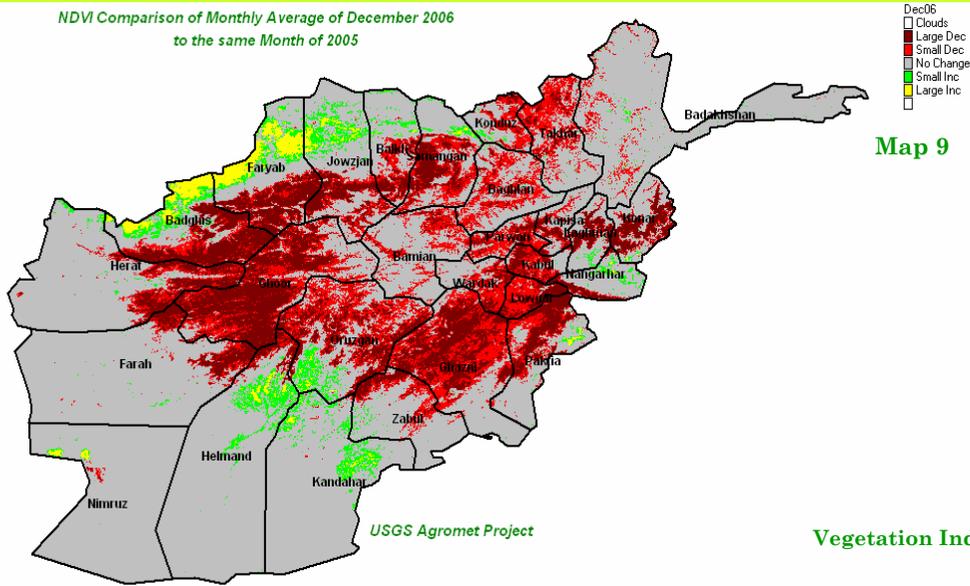
Vegetation Index (NDVI) 2nd Dekad of December 2006—Afghanistan



Vegetation Index (NDVI) 3rd Dekad of December 2006—Afghanistan

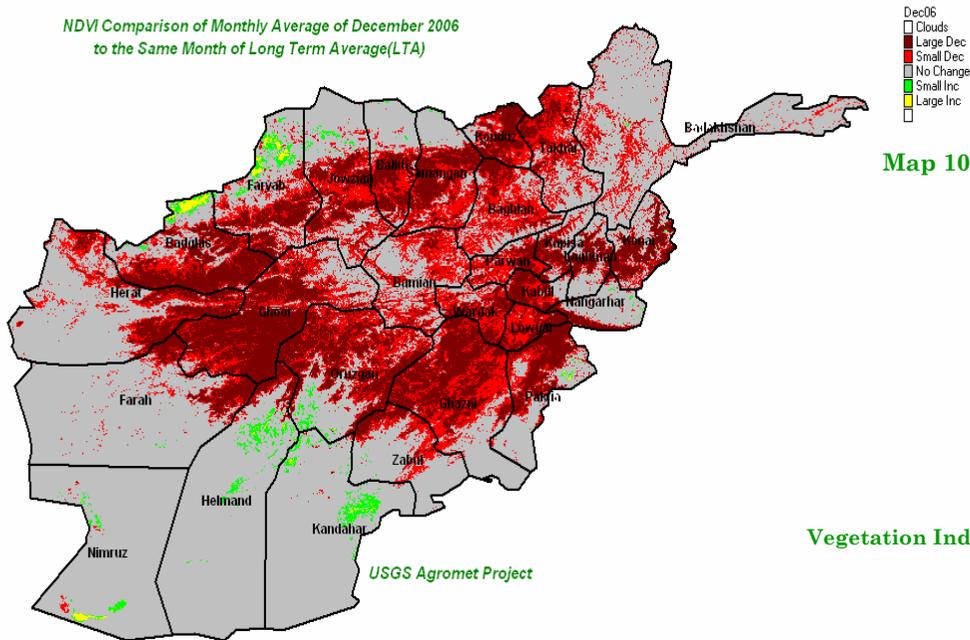
Comparison of NDVI December 2006

NDVI Comparison of Monthly Average of December 2006 to the same Month of 2005



Vegetation Index: Comparison to Last Year

NDVI Comparison of Monthly Average of December 2006 to the Same Month of Long Term Average(LTA)



Vegetation Index: Comparison to Long Term Average

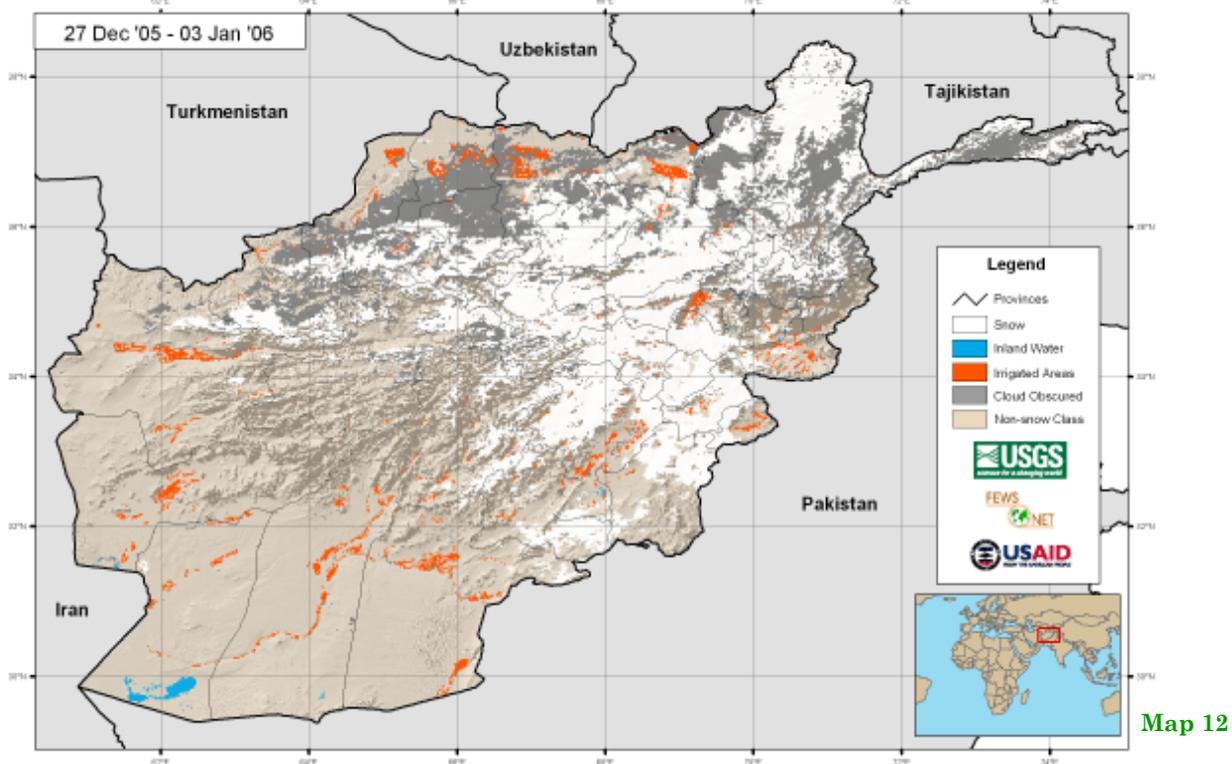
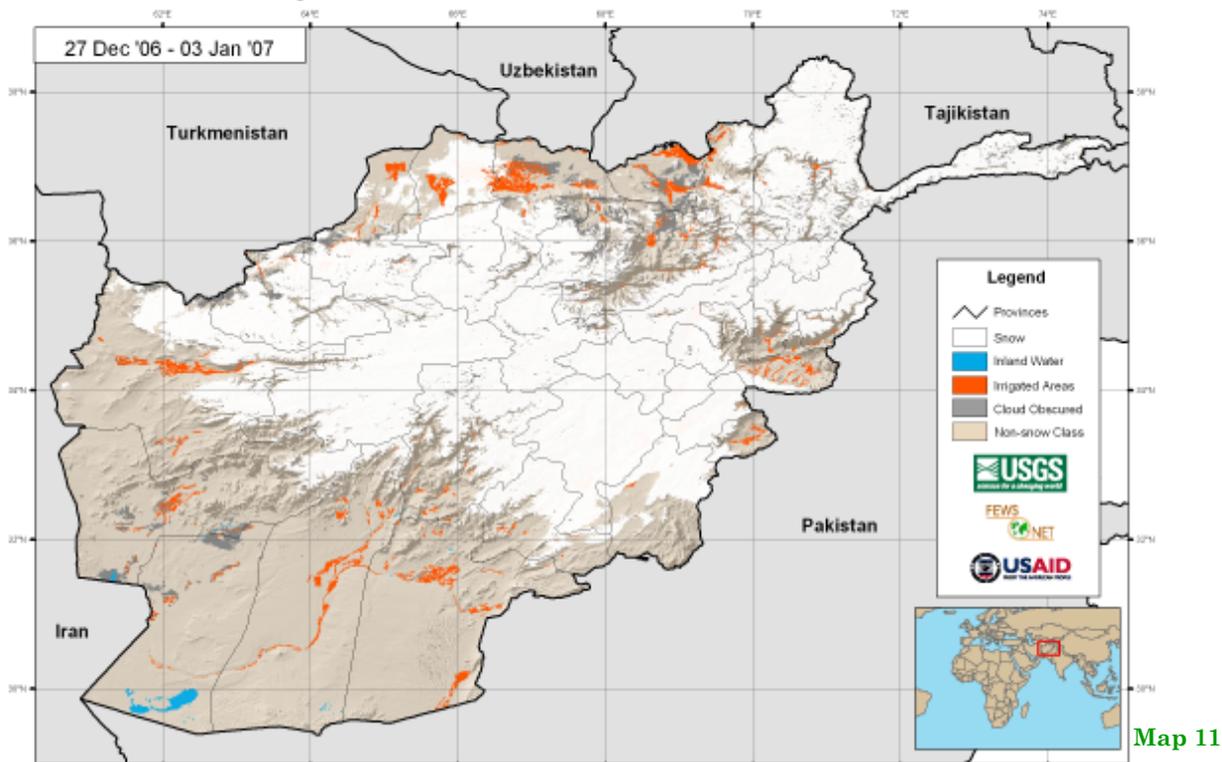
NDVI: December 2006

Comparison of NDVI's monthly average for the month of December 2006 to the same month in 2005 (map 9) shows large increase of NDVI in most parts of the Northern flat areas and some parts of the Western region, a small increase of NDVI occurred in limited area in the Southern region. Large decrease of NDVI occurred in most parts of the Northern, Western, Southeastern, Eastern and some parts of the southern regions during the month of December 2006 over the same month in 2005. There is no change of NDVI in most parts in the Southern and Western regions during the month of December 2006 compared to the same month in 2005.

Comparison of monthly average of NDVI for the month of December 2006 to the same month of long term average (map 10) shows that there is no change of NDVI in most parts of the Western and Southern regions during the month of December 2006 over the same month of long term average. In the remaining regions of the country large decrease of NDVI occurred during the month of December 2006 compared to the same month of long term average in 2005.

Comparison of snow extent and depth

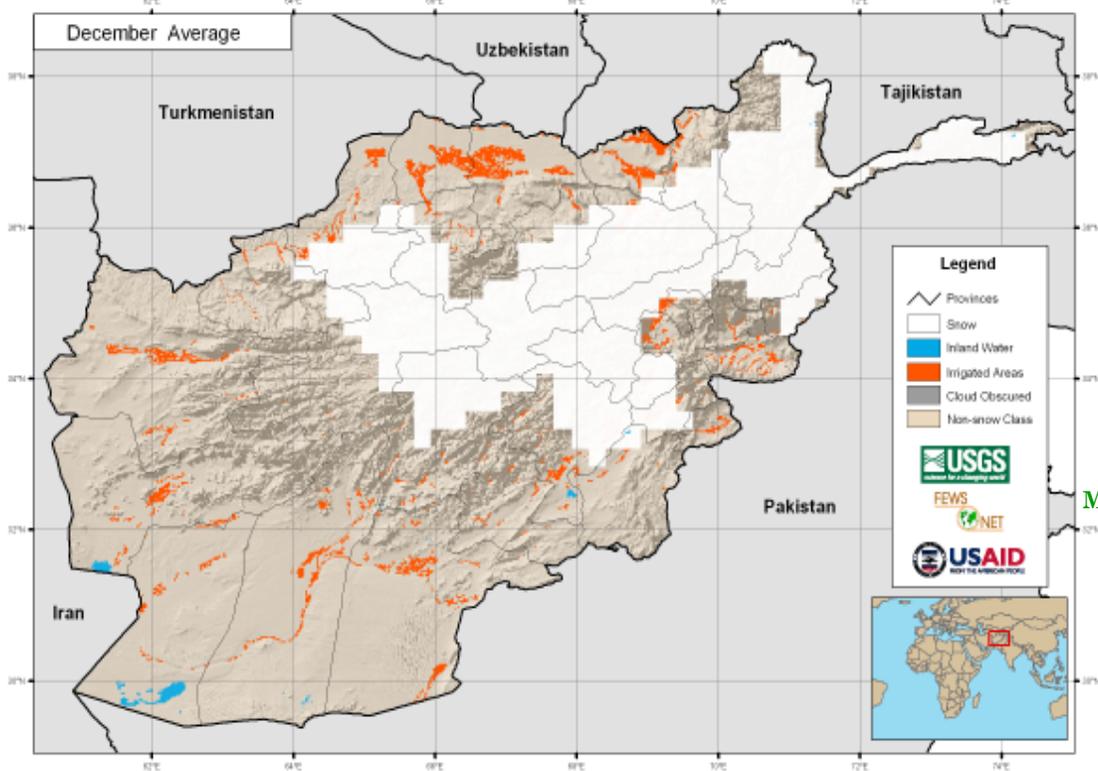
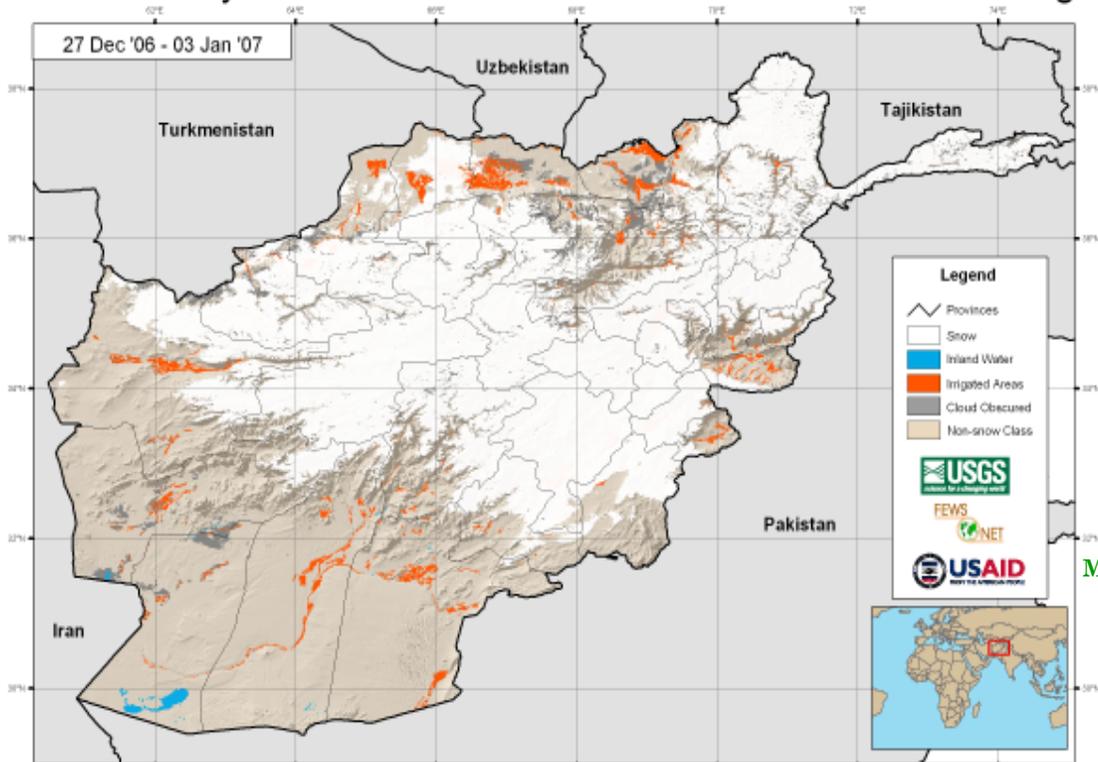
MODIS 8-day Snow Cover Extent - Current Period 2006 vs 2005



Comparison of snow extent during the month of December (19 – 26) 2006 with the same month in 2005 (maps 11, 12) clearly shows considerable increase of snow extent during the month of December (19 - 26) 2006 over the same period in 2005 in the snow covered areas.

Comparison of snow extent and depth

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



Comparison of snow extent during the period 19 – 26 December 2006 with same period of long term average (maps13, 14) show significant increase of snow extent during the month of December 2006 over the same month of long term average in the snow covered areas of the country.

Controllable Factors In Greenhouses

Temperature in greenhouses:

The temperature control in Greenhouse is basic condition for growing of most plants. The necessity of plants for temperature has different frequencies, Some of the warm region plants need higher temperature for there growth and some of them normally grows in less than 20 ° C such of the plants are transferred from cold areas. The temperature control in greenhouses depends upon the heater system which is used in the greenhouses. The heater system should consider two factors, 1-To distribute the heat frequently for all parts of the greenhouse, 2- Not to generate any harmful gasses in the environment.

Lightness:

All the plants has not unique requirement for light some of them need more light for their growth and some need less amount of light. Therefore, plants are categorized in three groups from light aspects:

Long day plants:

This kind of plants need 10 – 14 hours light for there normal growth.

Short day plants:

Types of plants need less than 12 hours light for there normal growth.

Insensitive plants:

Insensitive plants are those plants which are not very sensitive for lightness. The type of plants are very suitable for houses. The lightness controlled in greenhouses by covering black glass, washable colors and electronic covers.

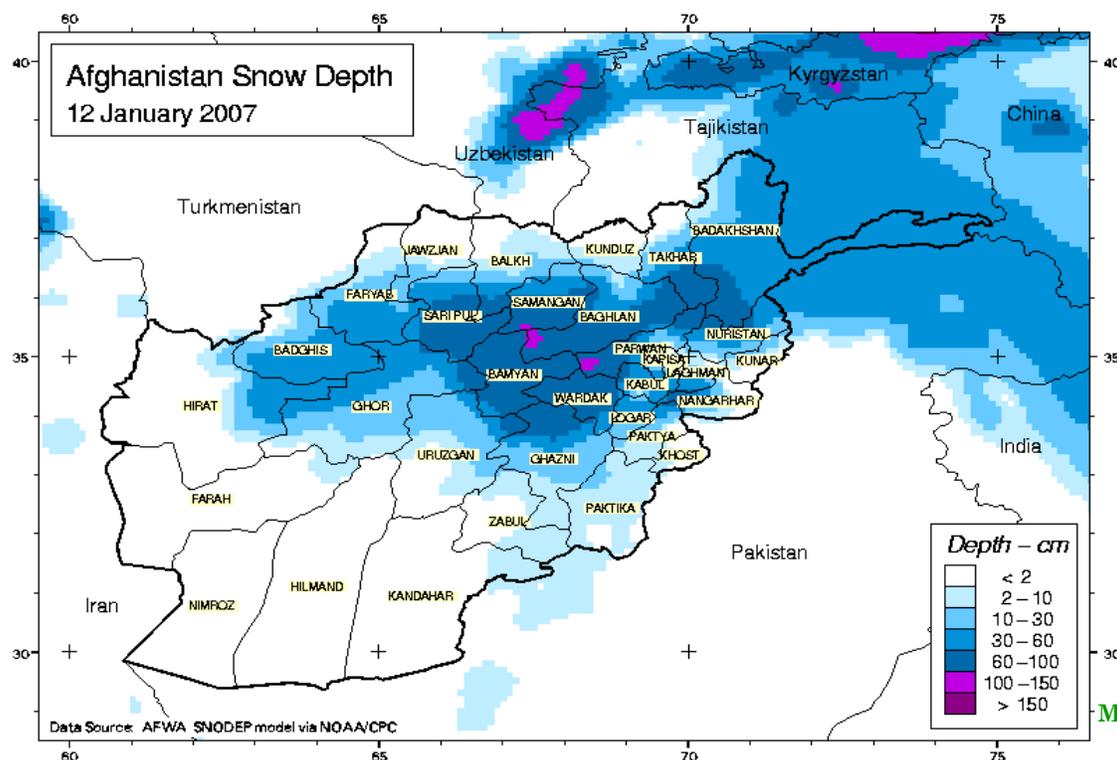
Humidity control in Greenhouses:

The humidity is providing an important parameter in the greenhouses. For normal growth of plants, there must be normal plant humidity . Some of the plants need more humidity and some of them need less for their growth .We grew plants in greenhouses with their known characteristics. All types of plants should not be grown in one greenhouse. Different methods are used for providing humidity in greenhouses such as Irrigation, spraying the water on the roof and walls of greenhouse and generating water vapors by equipments.

CO2 controlling in greenhouses:

The use of carbon dioxide is necessary for plants, our country has suitable lightness conditions we can increase our crops product by using CO2 . CO2 existence is very necessary for photosynthesis, it plays a vital role in this process.

Afghanistan Snow Depth December2006



Map 15

Map (15) shows snow depth in the snow coverage areas, in which the snow depth recorded over 150 cm for the Capital and some parts of the Western regions and the remaining areas from 100 – 150 cm and some parts from 60 – 100 cm has been recorded.