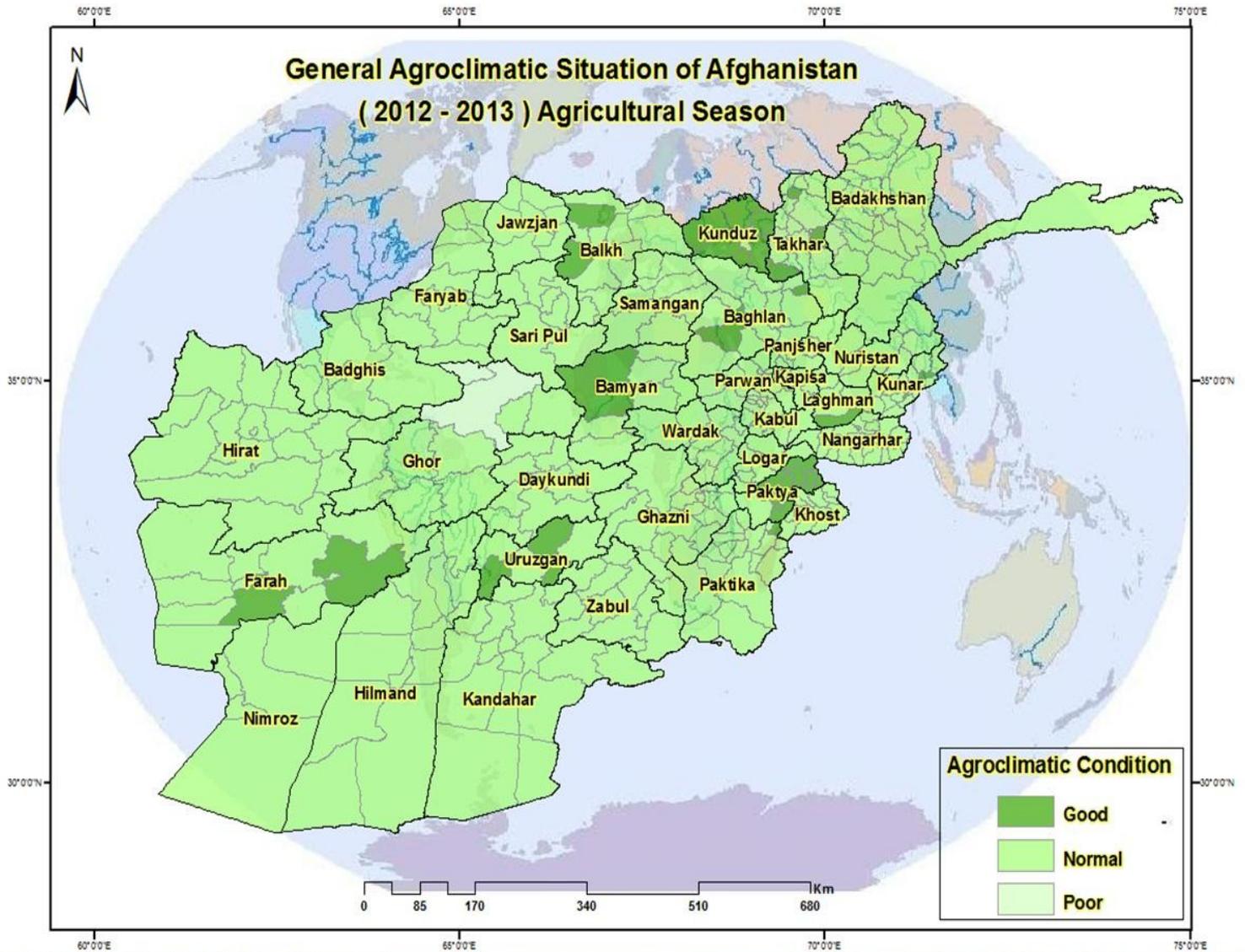




The **fghan**istan Agrometeorological **AS** Seasonal Bulletin

Issue No: 10
2012 - 2013

Topics Crop Information Precipitation Temperature



Adverse Factor

1

Crop Condition

2

Crop Stage

3



The Agromet Project of USGS, is working together with the Ministry of Agriculture, Irrigation and Livestock (MAIL) and the Afghan Meteorological Authority (AMA) of Ministry of Transport (MoT)

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Summary

- The season of precipitation of the period from (2012-2013) started in the Central and Northern regions during the first decade of September 2012 and ended during the third decade of August 2013.
- Rainfall gradually decreased during the (2012-2013) rainfall season with respect to the (2011-2012) rainfall season. Monsoon rainfall occurred in some regions in northeast Afghanistan during the (2012-2013) rainfall season.
- According to the rainfall observations, some parts of Afghanistan experienced a considerable dry spell in the period of 2012-2013.
- There was a large amount of variation in the distribution of rainfall in various regions during the period of (2012-2013). Rainfall maps show that the highest amounts of rainfall occurred in the Central and Northeastern parts of the country. However, there were considerable areas in these regions that received very little rainfall with some periods of seasonal dryness.
- There were considerably fewer rainy days the period of (2012-2013) precipitation season compared to (2011-2012).
- Snow fall in regions such as Central, Northern, Northeast and Northwest areas started in December of 2012 and continued up to the end of March 2013 in some parts of the country. However most snow fall occurred in January and February of 2013 in most parts of the country.
- On the basis of pictures taken and observational data, the snow depth was less in most parts of the country. The observed snow cover was fairly light in some areas of the Central Highlands and higher elevations in the Northeastern areas in the period of (2012-2013).
- And finally snowy days were less in the (2012- 2013) rainfall season compared to the (2011-2012) rainfall season on average over the entire country



Crop Condition

Zone	Province	District	Station	Wheat	
				Crop Condition	Adverse Factor
Center	Kabul	Shakardara	Karizmir	Normal	Weeds
		Paghman	Paghman	Normal	Not Existed
		Kabul	Darulaman	Normal	Not Existed
		Surubi	Surubi	Normal	Weeds, Shortage of inputs
	Panjsher	Dara	Dara	Normal	Past and Diseases
		Dashtak	Dashtak	Normal	Not Existed
	Parwan	Syagerd	Ghorband	Normal	Not Existed
		Charikar	Charikar	Normal	Not Existed
	Kapisa	Mahmoodraqi	Mahmoodraqi	Normal	Weeds
		Kohistan	Kohistan	Normal	Weeds
	Wardak	Maidan shehr	Maidan shehr	Normal	Not Existed
	Logar	Pole Alam	Pole Alam	Normal	Not Existed
	Bamyan	Bamyan	Bamyan	Normal	Not Existed
		Yakawlang	Yakawlang	Good (better than normal)	Not Existed
		Panjab	Panjab	Normal	Weeds
		Shebar	Shebar	Normal	Not Existed
		Kohmard	Kohmard	Normal	Pest and Diseases
	Ghazni	Muqur	Muqur	Normal	Not Existed
		Andar	Bande Sardi	Normal	Not Existed
	Dikondy	Nili	Nili	Normal	Poor Rainfall
Khideer		Khideer	Normal	Poor Rainfall	
East	Nangarhar	Agam	Agam	Normal	Not Existed
		Batikot	Ghaziabad	Normal	Not Existed
		Jalalabad	Farm jaded	Normal	Weeds
	Kunar	Asmar	Asmar	Normal	Not Existed
		Asad Abad	Asad Abad	Good (better than normal)	Not Existed
		Chawkay	Chawkay	Normal	Not Existed
	Laghman	Mihtarlam	Mihtarlam	Normal	Weeds
		Qarghay	Qarghay	Good (better than normal)	Not Existed
		Alengar	Alengar	Normal	Not Existed
	Noristan	Paroon	Paroon	Normal	Not Existed
		Do Ab	Do Ab	Normal	Poor rainfall
		Norgaram	Norgaram	Normal	Pest and Diseases
		Waigal	Waigal	Normal	Not Existed
		Wama	Wama	Normal	Not Existed
	North East	Takhar	Taluqan	Taluqan	Normal
Rostaq			Rostaq	Good (better than normal)	Not Existed
Kunduz		Imam Sahib	Imam Sahib	Normal	Not Existed
		Qaliazal	Aqtipa	Good (better than normal)	Not Existed
		Khan Abad	Khan Abad	Good (better than normal)	Not Existed
		Kunduz	Kunduz	Normal	Not Existed
		Archi	Archi	Normal	Not Existed
		Chardara	Chardara	Normal	Not Existed
		Ali Abad	Ali Abad	Normal	Not Existed
Baghlan		Pulikhomri	Pozashan	Normal	Not Existed
		Doshy	Doshy	Good (better than normal)	Not Existed
Badakhshan		Argo	Argo	Normal	Not Existed
		Baharak	Baharak	Normal	Not Existed
		Ashkashm	Ashkashm	Normal	Not Existed
		Eaftale Sofla	Eaftale Sofla	Normal	Not Existed
	Khash	Khash	Normal	Poor Rainfall	
Faiz Abad	Faiz Abad	Normal	Not Existed		

Crop Condition

Zone	Province	District	Station	Wheat	
				Crop Stage	Crop Stage
South East	Khost	Khost	Khost	Normal	Poor Rainfall
		Khost	Shimal	Normal	Not Existed
		Ali Sher	Ali Sher	Normal	Not Existed
	Paktia	Zormat	Rohani Baba	Good (better than normal)	Not Existed
		Gardiz	Tera	Good (better than normal)	Not Existed
	Paktika	Urgon	Urgon	Normal	Poor Rainfall
		Sharana	Sharana	Normal	Poor Rainfall
		Khair kot	Khair Kot	Normal	Poor Rainfall
	South	Nimroz	Zaranj	Zaranj	Normal
Kandahar		Kandahar	Kandahar	Normal	Not Existed
		Kohkaran	Kohkaran	Normal	Not Existed
Zabul		Qalat	Qalat	Normal	Poor Rainfall and Weeds
Urozgan		Tirin Kot	Tirin Kot	Normal	Not Existed
Hilmand		Nad Ali	Nad Ali	Normal	Not Existed
		Greshk	Greshk	Normal	Not Existed
		Nawa	Nawa	Normal	Not Existed
		Lashkargah	Bolan	Normal	Not Existed
North	Balkh	Takhta pol	Dihdadi	Normal	Not Existed
		Mazar shareef	Mazare shareef	Normal	Not Existed
		Nahrishahi	Nahrishahi	Normal	Not Existed
		Dawlat Abad	Dawlat Abad	Good (better than normal)	Not Existed
	Jawzjan	Sheberghan	Sheberghan	Normal	Not Existed
		Darzab	Darzab	Normal	Not Existed
		Aqcha	Aqcha	Normal	Poor Rainfall
	Saripul	Saripul	Saripul	Normal	Not Existed
		Sancharak	Sancharak	Normal	Not Existed
		Sozmaqala	Sozmaqala	Normal	Not Existed
	Faryab	Maimana	Maimana	Normal	Not Existed
		Andkhoy	Andkhoy	Normal	Not Existed
		Garzeewan	Garzeewan	Normal	Not Existed
	Samangan	Aibak	Aibak	Normal	Not Existed
		Dara Souf	Dara Souf	Normal	Not Existed
Sar bagh		Sarbagh	Normal	Not Existed	
North West	Badghis	Maqur	Maqur	Normal	Pest and diseases
		Qalainow	Qalainow	Normal	Pest and diseases
	Ghor	Chaghcharan	Chaghcharan	Poor	Poor Rainfall
		Dawlat yar	Dawlat yar	Poor	Poor Rainfall
	Hirat	Shindand	Shindand	Normal	Not Existed
		Hirat	Hirat	Normal	Not Existed
		Zindajan	Zindajan	Normal	Not Existed
		Gwazara	Falahat	Good (better than normal)	Not Existed
		Hirat	Farm Urdokhan	Normal	Not Existed
	Farah	Farah	Farah	Normal	Not Existed

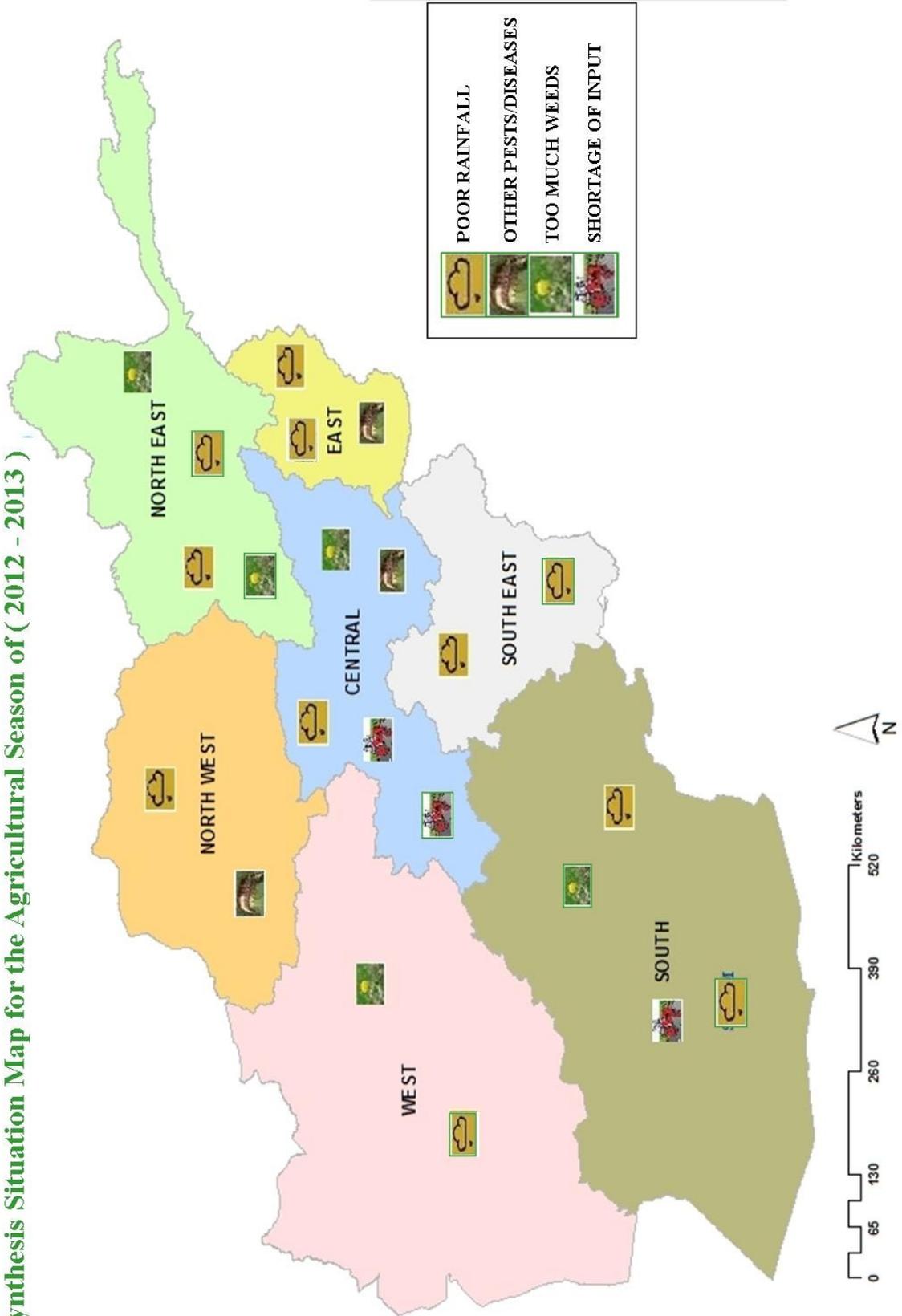
Crop Condition

Zone	Province	District	Station	Maize	
				Crop Condition	Adverse Factor
Center	Kabul	Surubi	Surubi	Normal	Weeds
	Panjsher	Dashtak	Dashtak	Normal	Not Existed
	Parwan	Syagerd	Gorband	Normal	Not Existed
		Charikar	Charikar	Normal	Not Existed
	Kapisa	Mahmoodraqi	Mahmoodraqi	Normal	Not Existed
		Kohistan	Kohistan	Normal	Not Existed
	Logar	Pole Alam	Pole Alam	Normal	Not Existed
	Bamyan	Kohmard	Kohmard	Normal	Not Existed
Ghazni	Muqur	Muqur	Normal	Not Existed	
Dikondy	Khideer	Khideer	Normal	Not Existed	
East	Nangarhar	Agam	Agam	Normal	Not Existed
		Batikot	Ghaziabad	Normal	Not Existed
		Jalalabad	Farm jaded	Normal	Not Existed
	Kunar	Asmar	Asmar	Normal	Not Existed
		Asad Abad	Asad Abad	Normal	Not Existed
		Chawkay	Chawkay	Normal	Not Existed
	Laghman	Qarghay	Qarghay	Normal	Not Existed
		Alengar	Alengar	Normal	Not Existed
	Noristan	Paroon	Paroon	Normal	Not Existed
		Do Ab	Do Ab	Normal	Poor rainfall
Norgaram		Norgaram	Normal	weeds	
Waigal		Waigal	Normal	Poor rainfall	
North East	Kunduz	Kunduz	Kunduz	Normal	Not Existed
		Archi	Archi	Normal	Not Existed
		Ali Abad	Ali Abad	Normal	Not Existed
	Baghlan	Pulikhomri	Pozaishan	Normal	Not Existed
South East	Khost	Khost	Shimal	Normal	Not Existed
		Ali Sher	Ali Sher	Normal	Not Existed
	Paktia	Zormat	Rohani Baba	Normal	Not Existed
		Gardiz	Tera	Normal	Not Existed
	Paktika	Urgon	Urgon	Normal	Not Existed
South	Kandahar	Kohkaran	Kohkaran	Normal	Not Existed
	Urozgan	Tirin Kot	Tirin Kot	Normal	Not Existed
	Hilmand	Nad Ali	Nad Ali	Normal	Not Existed
		Greshk	Greshk	Normal	Not Existed
		Nawa	Nawa	Normal	Not Existed
		Lashkargah	Bolan	Normal	Not Existed
North	Balkh	Takhta pol	Dihdadi	Normal	Not Existed
		Mazar shareef	Mazare shareef	Good (better than normal)	Not Existed
		Nahrishahi	Nahrishahi	Normal	Not Existed
	Saripul	Saripul	Saripul	Normal	Not Existed
	Faryab	Maimana	Maimana	Normal	Not Existed
Samangan	Dara Souf	Dara Souf	Normal	Not Existed	
North West	Hirat	Shindand	Shindand	Normal	Not Existed
		Hirat	Hirat	Normal	Not Existed
	Farah	Farah	Farah	Good (better than normal)	Not Existed

Crop Condition

Zone	Province	District	Station	Rice	
				Crop Condition	Adverse Factor
Center	Kabul	Surubi	Surubi	Normal	Not Existed
East	Nangarhar	Agam	Agam	Normal	Not Existed
		Batikot	Ghaziabad	Normal	Not Existed
		Jalalabad	Farm jaded	Normal	Not Existed
		Behsood	Behsood	Normal	Not Existed
	Kunar	Asmar	Asmar	Normal	Not Existed
		Asad Abad	Asad Abad	Normal	Not Existed
	Laghman	Mihtarlam	Mihtarlam	Normal	Not Existed
		Qarghay	Qarghay	Normal	Not Existed
North East	Takhar	Taluqan	Taluqan	Normal	Not Existed
	Kunduz	Imam Sahib	Imam Sahib	Normal	Not Existed
		Qaliazal	Aqtipa	Normal	Not Existed
		Khan Abad	Khan Abad	Normal	Not Existed
		Kunduz	Kunduz	Normal	Not Existed
		Archi	Archi	Good (better than normal)	Not Existed
		Ali Abad	Ali Abad	Normal	Not Existed
	Baghlan	Pulikhomri	Pozaisan	Normal	Not Existed
Doshy		Doshy	Normal	Not Existed	
South East	Khost	Khost	Khost	Normal	Not Existed
		Khost	Shimal	Normal	Not Existed
		Ali Sher	Ali Sher	Normal	Not Existed
	Paktia	Zormat	Rohani Baba	Normal	Not Existed
South	Urozgan	Tirin Kot	Tirin Kot	Normal	Not Existed

Synthesis Situation Map for the Agricultural Season of (2012 - 2013)



Rainfall Season (2012 – 2013)

Rainfall Seasonal Variations from (2012 to 2013): There are many factors that influence variations of rainfall in all regions of Afghanistan. Afghanistan is located in the sub-tropic zone. The average altitude is about 1,790 m above mean sea level with much of the land area being hilly and mountainous. The central mountains (Pamir Knot and Hindu Kush) extend across the country from the southwest to the northeast. The higher elevations in this region have some snow cover year round with maximum snow coverage occurring in January, February, and March, and minimum snow coverage in June, July, & August. The regions of the Pamir and Hindu Kush Mountains are very high, average elevation about 7,000m above sea level, so most precipitation falls in the form of snow.

The snow pack that accumulates during the winter months is the source for most of the water flowing the river basins of Afghanistan. This flow is critical since it supplies most of the irrigation water during the summer months in rural agricultural areas and small villages. Irrigation is critical to agriculture in most of Afghanistan, particularly during spring, summer and autumn. The months of March and April are usually the rainy in the central highlands, the north, the western, and some regions in the south. However, the eastern and the southeast regions of Afghanistan can be fed by monsoon rainfall which originates from Indian Ocean and occurs from the mid-May up to mid-September. Nooristan and Paktika Provinces are affected by monsoon thermal wind that produce rainfall.

Rainfall Pattern

The comparison of rainfall distribution for the years of 2012-2013: Comparison of the rainfall season from September 2012 through August 2013, with the last season (2011-2012) indicates a significant variation. The analysis for the 2012-2013 period is presented below.

Analysis of the country observational rainfall data (as indicated in Chart 1) showed that the distribution of rainfall in the 2012-2013 rainfall season was different than the distribution during the 2011-2012 rainfall season. As Map 2 shows, the highest amounts of rainfall occurred in some parts of the Eastern regions around Laghman, Asmar, Jalalabad, Ghaziabad, some parts of the Northern regions, and the Central Highland regions during 2012-2013 rainfall season. Other areas in the aforementioned regions benefited from moderate rainfall. Low amounts of rainfall were recorded in the Northeast regions with many areas experiencing seasonal dryness.

Dry spell:

It is normal that the atmospheric pressure systems that form due to uniform heating of the earth surface change during September. This time of the year is typically when the threshold of the weather instability and condensation results in the onset of precipitation particularly in the highlands and mountainous areas.

Precipitation continues into the months of October and November with periods of significant rainfall. A comparison of the period of October and November of 2013 with the same period of 2012, shows that the observational stations received less rainfall during 2013. There was also a small decrease in rainfall compared to the same months of the last season (2011-2012) and to the same months for the long-term average. The chart of rainfall indicates there was a decrease in October 2011 compared to an increase in October 2012. In November, there is an increase for both periods in Faizabad. The chart of graphic comparison of actual rainfall for (2011-2012) with (2012-2013) shows there were some fluctuations of rainfall on both sides of normal. For example during September 2013 there is a decrease in rainfall for Baghlan and Charikar in comparison with the (2011-2012) period. There was 266.1 mm of rainfall in Baghlan in September 2012 and 323.2 mm in September 2011.



This section compares rainfall precipitation amounts for the (2012-2013) rainfall season and the (2011-2012) rainfall season. As indicated above, Baghlan is experienced seasonal dryness during the (2012-2013) season. Comparisons of other areas in Afghanistan show that rainfall increased in some areas and decreased in other from the (2011-2012) season to the 2012-2013 season. Charikar had 202 mm of rain during the (2012-2013) season and 337 mm of rain during the (2011-2012) season. The region around Darulaman had 327.5mm in the period of (2012-2013) in comparison with the (2011-2012) season when the region received 278.7 mm of rain, an increase of 48.8 mm. Faizabad had a decrease in rainfall from the (2012-2013) to the (2011-2012) season. In the 2012-2013 season there was 428 mm of rain; in the (2011-2012) season there was 525 mm of rain. The region of Faizabad had a deficit of rainfall in the period of (2012-2013) and is experiencing a dry spell during this period in time. According to the graphic pattern and analysis of data, Farah received 95.5 mm of rain in the period of (2012-2013) and 113 mm in the period of (2011-2012). The decrease of in rainfall in Farah indicated that this region is experiencing a dry period during the 2012-2013 season. Gardiz had 448.9 mm of rain in the period of (2012-2013)and 416.2 mm in the period of (2011-2012) an increase of 32.7 mm of rain. This increase in rain in Gardiz from(2011-2012) to (2012-2013)has prevented drought conditions in this area. The region around Ghaziabad had 381 mm of rain in the period of (2012-2013)and 230 mm in the period of (2011-2012). The large amount of rain in(2012-2013)provided sufficient water so drought conditions were never an issue. Jawzjan received 193.5 mm of rainfall in the period of (2012-2013) and 230.5 mm in the period of (2011-2012) a decrease of 37 mm. This region suffered a deficit of rainfall in the period of (2012-2013) compared to the previous season and was drier than normal especially during the cold season of the year.

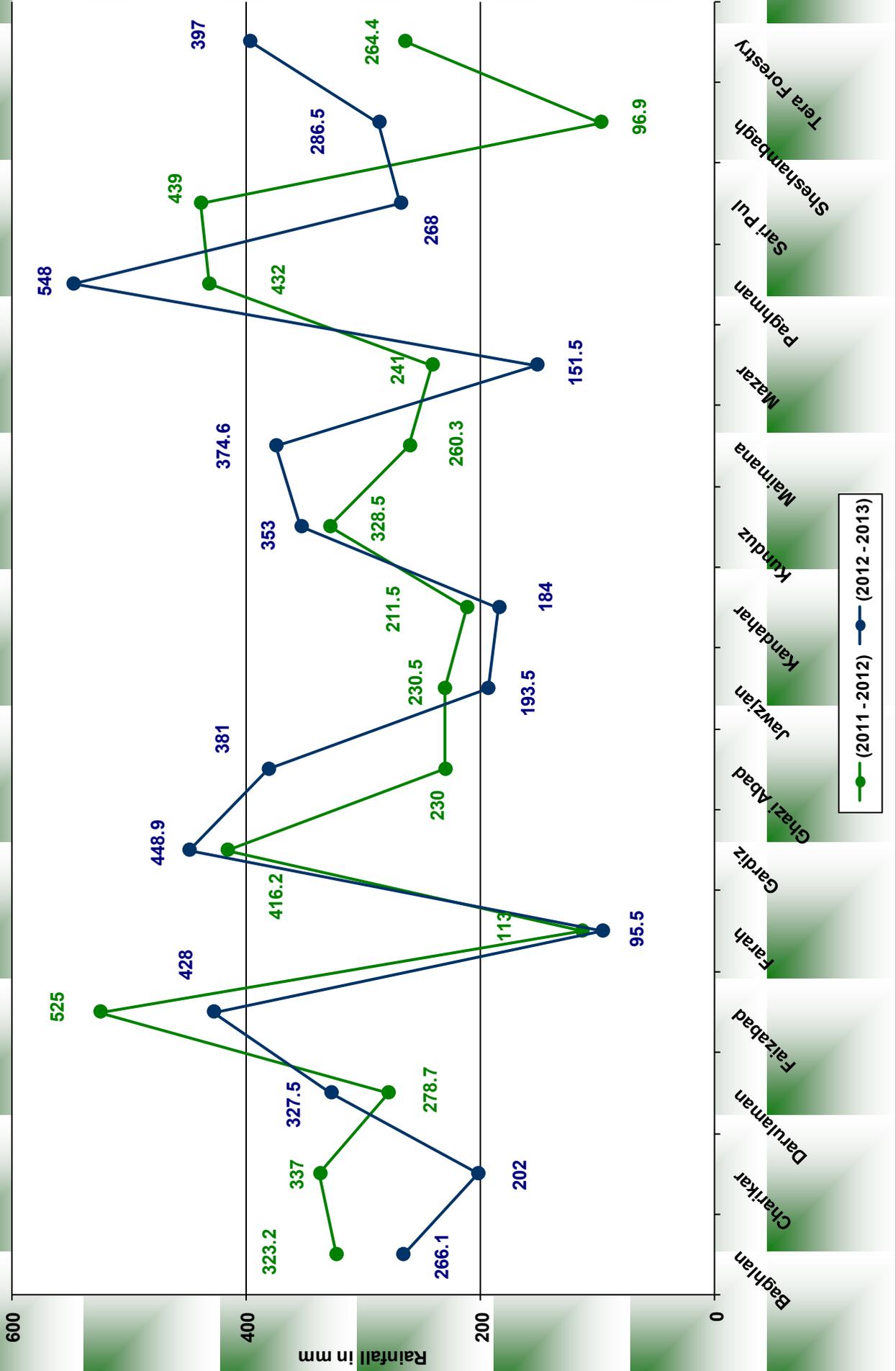
Kandahar had 184 mm of rainfall in the period of (2012-2013) compared to 211.5 mm in the previous period of (2011-2012). Kunduz had 353 mm of rainfall in the period of (2012-2013)and 328.5 mm in the seasonal period of (2011-2012). The increase in rainfall during the (2012-2013) season provided sufficient water and drought conditions did not exist.

The Maimana region along the west to northwest path of the polar air masses entering Afghanistan. This resulted in wet and mild weather conditions in this region during the (2012-2013) rainfall season. The predicted trajectory of these air masses indicates that these weather conditions will continue. Paghman is a region dominated by high altitude with mountainous terrain on the western border. These high altitude areas receive much precipitation as snowfall which accumulates during the winter months. The melting of this snow in the late spring and summer provide runoff that contributes to the flow in the Kabul River. The hydroelectric power plant at Pul-e-Charkhi, that provide electric power to the city of Kabul, are driven by this flow in the Kabul River. The amount of the snow pack in the mountainous regions around Paghman influence the electric power in the city of Kabul. Measuring the snow pack helps predict the output of the hydroelectric power plant at Pul-e-Charkhi. Paghman had 548 mm of precipitation in the (2012-2013) season. In comparison with the period of (2011-2012) which had 432 mm, an increase of 116 mm. According to the data recorded on the graphic-chart, the region of Saripul received considerably less rain in the (2012-2013) season than in the previous season (2011-2012). In the (2012-2013) season, the Sairpul region received 268 mm of rain and in the (2011-2012) season the region received 439 mm of rain. The region had a deficiency of rainfall of 171 mm in the (2012-2013) season.



Rainfall Pattern (2012 - 2013)

Comparison of Actual Rainfall (2011-2012) with (2012-2013)



Rainfall Pattern

The start and ending of the rainfall season in different regions is as follows. In the Capital Region the rainfall started in the first decade of September 2012 and ended in the third decade of August 2013. In the Central Highlands rainfall started in the second decade of October 2012 and ended in the third decade of June 2013. In the Eastern Region, rainfall started in the first decade of September 2012 and ended in the first decade of August 2013.

For the Northern Region, rainfall started in the second decade of October of 2012 and ended in the third decade of May 2013. In the Southern Region, rainfall started at the first decade of September 2012, and ended in the first decade of August 2013.

And in the Western Region, rainfall started in the second decade of October 2012 and ended in the third decade of May 2013.

Length of Rainfall Season by dekad

The length of the rainfall season in different parts of the country is as follows: 28 decades for the Capital Region, 21 decades for the Central Highlands, 28 decades for the East

Region, 24 decades for the Northeast Region, 22 decades for the Northwest Region, 26 decades for the South Region, 24 decades for the Southeast Region, and 19 decades for the West Region.

Rainfall Season (2012 - 2013)				
No	Name of Station	Starting Dekad	Ending Dekad	Rainfall season Length in (dekad)
Central				
1	Badam bagh	1st dekad of September	2nd dekad of August	21
2	Charikar	1st dekad of September	3rd dekad of May	19
3	Darulaman	1st dekad of September	2nd dekad of August	22
4	Dara Panjsheer	2nd dekad of September	2nd dekad of May	22
5	Gul Khana	2nd dekad of October	2nd dekad of August	19
7	Kabul	2nd dekad of September	2nd dekad of August	28
8	Kapisa Agri	1st dekad of September	1st dekad of June	17
9	Paghman	1st dekad of September	2nd dekad of August	25
10	Qargha	1st dekad of September	2nd dekad of August	23
11	Sarobi	1st dekad of September	2nd dekad of August	23
12	Seya Gerd	1st dekad of November	2nd dekad of August	20

Length of Rainfall Season by dekad

Rainfall Season (2012 - 2013)

No	Name of Station	Starting Dekad	Ending Dekad	Rainfall season Length in dekad
Central				
13	Bamyan	2nd dekad of September	1st dekad of July	19
14	Panjab	3rd dekad of October	1st dekad of July	18
15	Yakawlang	2nd dekad of October	2nd dekad of August	21
East				
16	Agam	1st dekad of September	2nd dekad of August	24
17	Asmar	1st dekad of September	3rd dekad of August	28
18	Farm Jadeed	1st dekad of September	3rd dekad of April	12
19	Ghazi Abad	1st dekad of September	2nd dekad of August	18
20	Jalalabad	1st dekad of September	3rd dekad of August	26
21	Laghman	1st dekad of September	2nd dekad of August	19
22	Mehtarlam	1st dekad of September	3rd dekad of August	19
23	Sheshambagh	1st dekad of September	3rd dekad of August	14
North East				
24	Chardara	1st dekad of December	3rd dekad of June	14
25	Aaqtepa	2nd dekad of November	3rd dekad of April	15
26	Baghlan	1st dekad of November	3rd dekad of June	20
27	Baharak	1st dekad of November	2nd dekad of August	20
28	Faizabad	3rd dekad of October	3rd dekad of August	24
29	Imam Sahib	1st dekad of November	2nd dekad of August	19
30	Kunduz	2nd dekad of November	3rd dekad of June	15
31	Taluqan	1st dekad of November	3rd dekad of June	20
32	Aibak	1st dekad of November	3rd dekad of June	21

Length of Rainfall Season by dekad

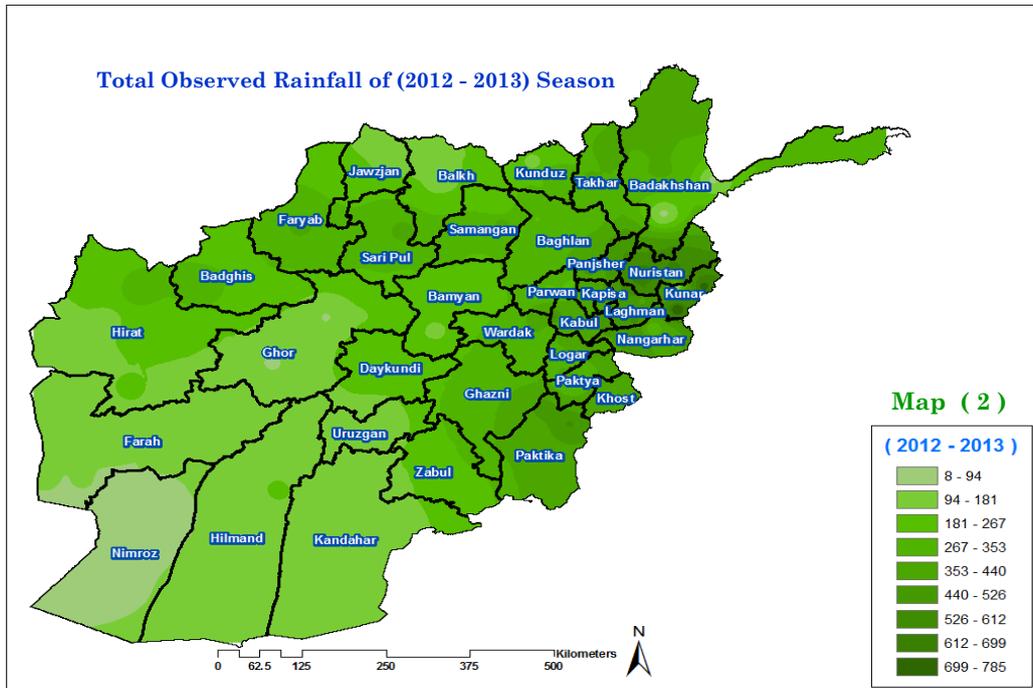
Rainfall Season (2012 - 2013)

No	Name of Station	Starting Dekad	Ending Dekad	Rainfall season Length in dekad
North West				
33	Darzab	3rd dekad of October	3rd dekad of May	19
34	Jawzjan	3rd dekad of October	3rd dekad of May	22
35	Maimana	3rd dekad of October	3rd dekad of April	19
36	Mazar	1st dekad of November	3rd dekad of April	14
37	Sarbagh	2nd dekad of October	3rd dekad of June	21
38	Sari Pul	2nd dekad of October	3rd dekad of April	18
30	Takhta Pul	1st dekad of November	3rd dekad of June	19
South				
40	Greshk	3rd dekad of November	3rd dekad of April	9
41	Kandahar	1st dekad of December	3rd dekad of April	8
42	Lashkargah	3rd dekad of November	3rd dekad of April	9
43	Nad Ali	3rd dekad of November	3rd dekad of April	9
44	Nawa Gorgin	3rd dekad of November	3rd dekad of April	9
45	Uruzgan	3rd dekad of October	3rd dekad of April	15
46	Zabul	2nd dekad of November	2nd deka of May	10
47	Zaranj	2nd dekad of November	2nd dekad of April	9
48	Gardiz	1st dekad of September	3rd dekad of June	26
49	Ghazni	1st dekad of September	2nd dekad of August	21
50	Sarday	1st dekad of September	2nd dekad of August	14
South Eas				
51	Khost	1st dekad of September	3rd dekad of June	18
52	Moqur	2nd dekad of October	2nd dekad of August	14
53	Rohani Baba Farm	1st dekad of September	2nd dekad of August	14
54	Sharana	1st dekad of September	2nd dekad of August	22
55	Tera Forestry	1st dekad of September	2nd dekad of August	24
West				
56	Cheghcharan	3rd dekad of October	2nd dekad of April	13
57	Farah	3rd dekad of October	3rd dekad of March	11
58	Hirat	2nd dekad of November	3rd dekad of April	14
59	Moqur Badghis	3rd dekad of October	3rd dekad of April	15
60	Qala-e-naw	2nd dekad of October	3rd dekad of April	19
61	Shindand	2nd dekad of October	3rd dekad of June	17
62	Zenda jan	3rd dekad of October	2nd dekad of April	12

Recorded Distribution of Rainfall (2012 – 2013) Season

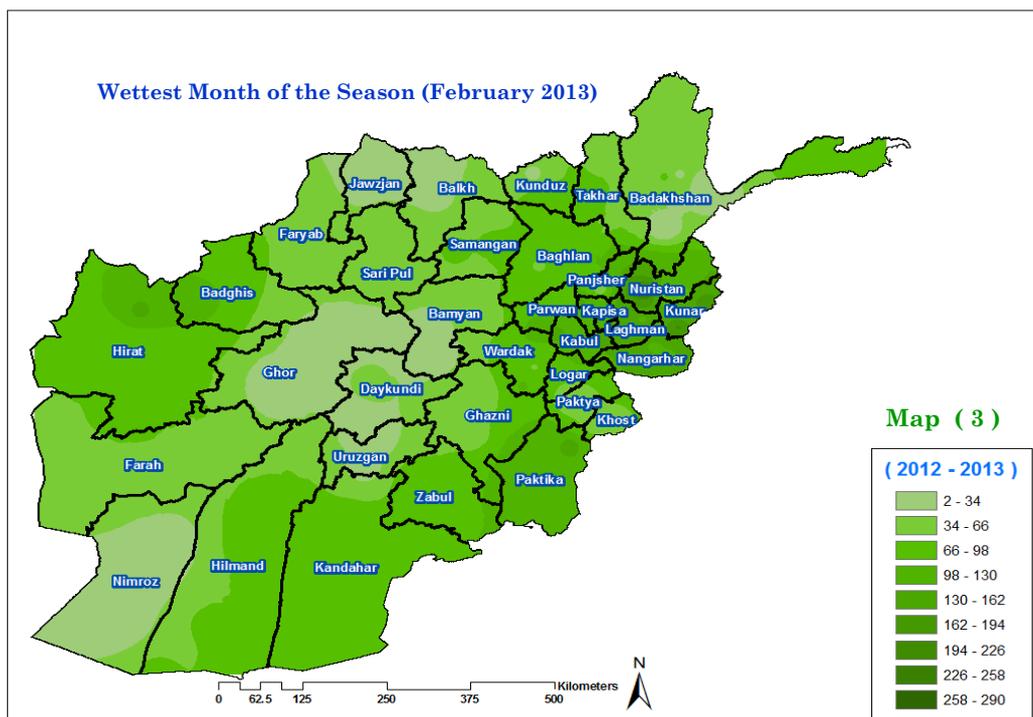
Distribution of rainfall was variable in different regions during the (2012-2013) rainfall season. The Rainfall Distribution Map shows that the highest amounts of rainfall occurred in some parts of the Eastern and Northeastern Regions and in some parts in the Central Highlands during the (2012- 2013) the rainfall season. Major parts of the previously mentioned regions received moderate rainfall. Low amounts of rainfall has been recorded in the West and Southwest Regions of the country.

According to Map 2, on the basis of recorded observational rainfall data, the country received much rainfall during the month of February 2013 and the month of March 2013. April was the wettest month during the (2012-2013) rainfall season **Map 3** shows that the highest amount of rainfall has been recorded in some parts of the Eastern, Southeastern, and Northwestern Regions, but unfortunately there were some dry areas in the Central Region.



On the basis of recorded rainfall observational data, the month of July 2013 was the driest month in the (2012-2013) rainfall season.

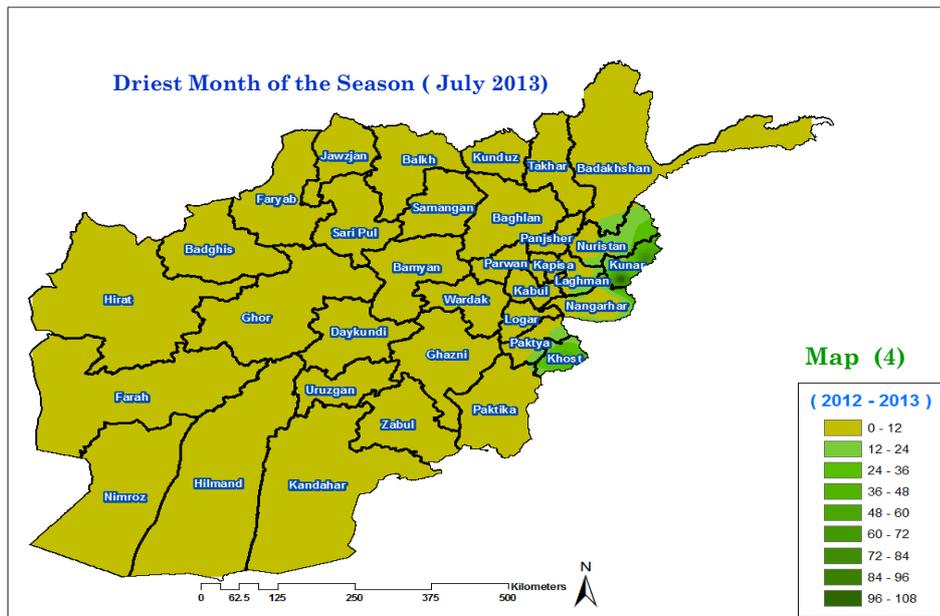
However some parts of the country, such as the Eastern and Southeastern Regions, received only light rainfall during July 2013.



Recorded Distribution of Rainfall (2012 – 2013)

There are meteorological stations located at the following places: Badambagh, Charikar, Darulaman, Panjshir, Gulkhana, Jaghatoo, Kabul, Kapisa, Paghman, Qargha, and Sarobi in the Capital Region. Intense rainfall occurred in February, March, and April in the regions of Gulkhana, Panjshir, Darulaman, Charikar, and Badambagh. Intense rainfall also occurred in December, January, February, March, and April in the regions of like Kabul, Kapise, Paghman, Qargha, and Sarobi.

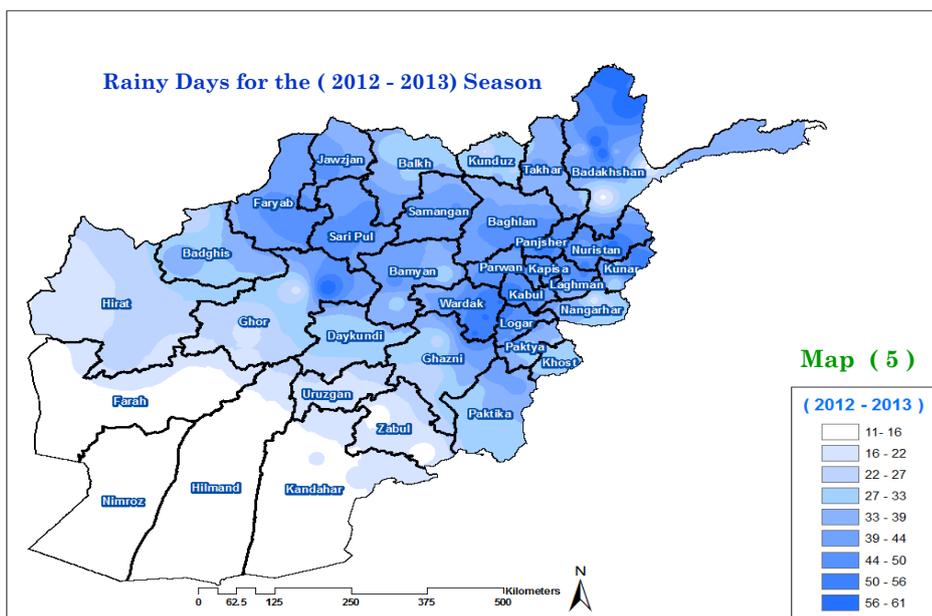
There were dry spells in the regions of Badambagh in September, October, November, May, June, July, and August. Dry spells occurred in Charikar in September, October, November, January, May, June, July, and August. In Darulaman there were dry spells in October, May, June, July, and August. Panjshir had dry spells in October, November, December, January, May, June, July, and August. In Gulkhana there were dry spells in September, October, January, May, June, July, and August.



Rainy Days (2012 – 2013)

Rainy days in the period of 2012-2013 indicate a decrease in number compared with the 2011-2012 rainfall season. The maximum number of rainy days was recorded in Nuristan Province and also in some parts in the Central Highlands area.

The least number of rainy days was recorded in the Northwest in some areas in the Centre and also the South of the country. However, no rainfall was recorded in the areas of the West, Northwest, or Southwest.



Analysis of Recorded Rainfall by Region for the Rainfall Season (2012 – 2013)

Central Region: The Central Region includes Bamyan, Panjab, and Yakawolang stations, where during the (2012-2013) rainfall seasons; April was the month the highest amount of monthly precipitation in the Central Region.

Stations	2012				2013							
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Badambagh				32.8 mm 3rd dekad	26 mm 2nd dekad	68.5 mm 3rd dekad	41.1 mm 3rd dekad	27 mm 3rd dekad				
Chrikar						41 mm 3rd dekad	26 mm 2nd dekad	15.5 mm 3rd dekad				
Darulaman	17 mm 1st dekad		15.4 mm 3rd dekad	20.8 mm 2nd dekad	21.4 mm 2nd dekad	54.4 mm 3rd dekad	15.6 mm 3rd dekad	24.4 mm 3rd dekad				
Panjshir	34.5 mm 1st dekad					25 mm 3rd dekad	103.5 mm 2nd dekad	45 mm 1st dekad				
Gul Khana			17 mm 3rd dekad	15.5 mm 2nd dekad		51 mm 1st dekad	37.1 mm 3rd dekad	25.1 mm 3rd dekad				29.5 mm 2nd dekad
Kabul			30.8 mm 3rd dekad	26 mm 3rd dekad	27mm 2nd dekad	46.1mm 1st dekad	26mm 2nd dekad	30.3mm 1st dekad		16 mm 3rd dekad		18.5 mm 1st dekad
Kapisa	50 mm 1st dekad			37 mm 2nd dekad	22 mm 2nd dekad	77 mm 3rd dekad	39.5 mm 3rd dekad	51mm 3rd dekad				
Paghman	32 mm 1st dekad	21 mm 2nd dekad		48 mm 3rd dekad	27 mm 2nd dekad	86 mm 1st dekad						
Qargha				29 mm 3rd dekad		72.5 mm 1st dekad	38 mm 3rd dekad					17.5 mm 2nd dekad
Sarobi				24 mm 2nd dekad	16 mm 2nd dekad	71 mm 3rd dekad	51 mm 3rd dekad	33 mm 3rd dekad				42 mm 2nd dekad

Analysis of Recorded Rainfall by Region for the Rainfall Season (2012 – 2013)

Central : In Bamyan there is a rainfall period in February of 2013, and also there is a rainfall in two places like Panjab and Yakawolang in December 2012.

Stations	2012				2013							
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Bamyan						30.5 mm 3rd dekad		35.2 mm 3rd dekad				
Panjab				18 mm 2nd dekad				26 mm 3rd dekad				
Yakawlang				18 mm 2nd dekad		18 mm 1st dekad	24 mm 2nd dekad	39 mm 3rd dekad				

East Region: In the Eastern region, rainfall started in the first decade of September 2012 and ended in the second decade of August 2013.

Stations	2012				2013							
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Agam	43 mm 1st dekad			39 mm 2nd dekad		83 mm 2nd dekad	62 mm 3rd dekad					49 mm 2nd dekad
FormJaded	30 mm 1st dekad			18 mm 2nd dekad		51.5 mm 3rd dekad	42.5 mm 3rd dekad					
Ghazi Abad	34 mm 2nd dekad					71 mm 3rd dekad	50 mm 3rd dekad	30 mm 3rd dekad				
Jalabad	21 mm 1st dekad			18 mm 2nd dekad		80 mm 3rd dekad	59 mm 3rd dekad	22 mm 3rd dekad				22 mm 2nd dekad
Laghman	97 mm 1st dekad	38 mm 1st dekad		30.6 mm 2nd dekad		83 mm 3rd dekad	60 mm 3rd dekad			26 mm 3rd dekad	56 mm 2nd dekad	
Mehtarlam	80.4 mm 1st dekad			29.6 mm 2nd dekad		63.4 mm 3rd dekad	50 mm 3rd dekad				60 mm 2nd dekad	
Asmar	19 mm 2nd dekad			30 mm 2nd dekad	16 mm 2nd dekad	110 mm 1st dekad	62 mm 2nd dekad	40 mm 3rd dekad	22 mm 2nd dekad	40 mm 3rd dekad	66 mm 1st dekad	

Analysis of Recorded Rainfall by Region for the Rainfall Season (2012 – 2013)

North East Region: This region includes stations located at Chardara, Aqtepa, Baghlan, Baharak, Faizabad, Imam Sahib, Kunduz-ARF, Taluqan, and Aibak. During the (2012-2013) rainfall season the longest period with measureable amounts of rainfall were at Faizabad, Kunduz, and Taluqan and occurred from November 2012 and continued up to May and June 2013. The shortest periods of measureable rainfall occurred in Imam Sahib and Aibak. In Imam Sahib, the rainy season began in December 2012 and continued until February 2013. In Aibak, the rainy season started in December 2012 and continued intermittently until April 2013.

Stations	2012				2013							
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Chardara				20.5 mm 2nd dekad	22.5 mm 3rd dekad	44.5 mm 1st dekad	28 mm 2nd dekad	27 mm 3rd dekad				
Aqtepa			18.2 mm 3rd dekad		18 mm 1st dekad			24.5 mm 3rd dekad				
Baghlan			15.4 mm 3rd dekad	26 mm 2nd dekad	16.6 mm 1st dekad	48.2 mm 3rd dekad		26.2 mm 3rd dekad				
Baharak				16 mm 2nd dekad	17.5 mm 3rd dekad		29 mm 2nd dekad	39.6 mm 3rd dekad	17 mm 3rd dekad			
Faizabad			42 mm 3rd dekad	29 mm 3rd dekad	29.5 mm 3rd dekad	25.5 mm 1st dekad	31.5 mm 2nd dekad	65 mm 2nd dekad	34 mm 3rd dekad			
Imamsahib				15.9 mm 1st dekad	17.4 mm 3rd dekad	18.8 mm 1st dekad						
Kunduz			33 mm 3rd dekad	64 mm 3rd dekad	22 mm 3rd dekad	47 mm 1st dekad	26 mm 1st dekad	30 mm 3rd dekad				
Taluqan			43 mm 3rd dekad	27 mm 2nd dekad	28 mm 2nd dekad	35 mm 3rd dekad	18 mm 2nd dekad	36.5 mm 2nd dekad				
Aibak				19 mm 2nd dekad		31 mm 3rd dekad		24.5 mm 3rd dekad				

Analysis of Recorded Rainfall by Region for the Rainfall Season (2012 – 2013)

North West Region: Observational stations are located at Jawzjan, Maimana, Mazar, Sarbagh, Saripul, and Takhtapul. According to the observational data, the longest period with measureable rainfall occurred in the region of Sarbagh and started in November 2012 and continued until June 2013. The shortest period of measureable rainfall occurred at Mazar and started in February 2012, and with a one month gap in May 2013, continued until April 2013. All of the other stations in recorded measureable rainfall from November 2012 until April 2013 with the exception on Sarbagh with had measureable rain until June 2013.

Stations	2012				2013							
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Jawzjan					22 mm 2nd dekad	17.6 mm 3rd dekad		24.4 mm 2nd dekad				
Maimana			29 mm 1st dekad	24.5 mm 2nd dekad		59.5 mm 1st dekad	57.4 mm 3rd dekad	23 mm 3rd dekad				
Mazar						18 mm 2nd dekad		27 mm 3rd dekad				
Sarbagh			22 mm 3rd dekad			40 mm 3rd dekad	35 mm 2nd dekad	41 mm 2nd dekad	44 mm 1st dekad	35 mm 3rdde kad		
Sari Pul			18.5 mm 1st dekad	24 mm 2nd dekad		28 mm 2nd dekad	23.5 mm 3rd dekad	31 mm 3rd dekad				
Takhtapul			16 mm 2nd dekad	17 mm 1st dekad				22.5 mm 3rd dekad				

Analysis of Recorded Rainfall by Region for the Rainfall Season (2012 – 2013)

South Region: This area has observational stations at Kandahar, Lashkergah, Nad Ali, Nawa Gorgin, Uruzgan, Zabul, Zaranj, Gardiz, Ghazni, and Sardi. In Gardiz, Ghazni, and Sardi measureable rainfall started in September 2012 and continued until April 2013 with two months that had no measureable rainfall. However, at Kandahar, Lashkerghah, Nad Ali, Nawa Gorgin, Urazgan, Zabul, and Zaranj measureable rainfall started in November and December 2012 and continued until April 2013, except in Sardi where the rainfall started in September 2012 and continued periodically until July 2013.

Stations	2012				2013							
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Kandahar				25 mm 2nd dekad		68 mm 2nd dekad	36 mm 3rd dekad					
Lashkargah				20 mm 2nd dekad		26mm 2nd dekad	17 mm 3rd dekad	27 mm 1st dekad				
Nad Ali				18 mm 2nd dekad		32 mm 2nd dekad	18 mm 3rd dekad	25 mm 1st dekad				
Nawa Gorgin				26 mm 2nd dekad		27.8 mm 2nd dekad	16 mm 3rd dekad	32mm 1st dekad				
Uruzgan						No Rainfall	More than	15 mm				
Zabul			22 mm 2nd dekad			32 mm 3rd dekad	26 mm 3rd dekad	34 mm 1st dekad				
Zaranj						No Rainfall	More than	15 mm				
Gardiz	41.5 mm 1st dekad			34.4 mm 2nd dekad	18 mm 2nd dekad	60.6 mm 1st dekad	49.9 mm 3rd dekad	68 mm 3rd dekad				
Ghazni	15.7 mm 1st dekad			21 mm 2nd dekad		219 mm 3rd dekad		32 mm 1st dekad				
Sardy	40 mm 1st dekad				30 mm 3rd dekad		40 mm 3rd dekad				20 mm 2nd dekad	

Analysis of Recorded Rainfall by Region for the Rainfall Season (2012 – 2013)

South East Region: This region has observational stations at Khost, Muqur, Rohani BaBa, Sharana, and Tera. The topographic setting at these stations varies considerably the amount of rainfall they receive. The station at Khost had 23.6 mm of rainfall during September 2012, but then it did not rain there again until December 2012. There was no rain in January 2013, but rain fell in each month from February 2013 through August 2013. Muqur had 36.4 mm of rainfall which started in February 2013 and continued until April 2013. There was then no rainfall for the next three months and it rained there again in August 2013. Rainfall at the stations at Rohani Baba and Sharana started in November 2012 and continued with some months with no rain gaps until August 2013.

Stations	2012				2013							
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Khost	23.6 mm 1st dekad			46 mm 2nd dekad		44.6 mm 1st dekad	53.2 mm 3rd dekad	24 mm 1st dekad	30.2 mm 2nd dekad	18 mm 2nd dekad	40.4 mm 1st dekad	42.1 mm 1st dekad
Muqur						36.4 mm 1st dekad	54 mm 3rd dekad	47 mm 1st dekad				27 mm 2nd dekad
Rohani Baba							24 mm 3rd dekad	32 mm 3rd dekad				22 mm 2nd dekad
Sharana				21 mm 2nd dekad		62 mm 1st dekad	65 mm 3rd dekad	72 mm 3rd dekad		37 mm 2nd dekad		42 mm 2nd dekad
Tera Forestry	23 mm 1st dekad		19 mm 3rd dekad			43 mm 3rd dekad	44 mm 3rd dekad	53 mm 3rd dekad				36 mm 2nd dekad

West Region: This region has observational stations at Chikhcharan, Farah, Hirat, Muqur, Badghis, Qalaw-e-Naw, Shindand, and Zinda Jan. According to the table of recorded data at Chikhcharan, there is no data because of some technical problem. The station at Farah recorded 27.5 mm of rainfall during the first decade of February 2013. At Muqur-Badghis, there was 19 mm of rain during the second decade of November 2012, 52 mm during the first decade of February 2013, and 24 mm in second decade of April 2013. The stations at Qalaw-e-Naw and Shindand had rainfall that started in November 2012 and continued until April 2013.

Stations	2012				2013							
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Farah						27.5 mm 1st dekad						
Muqur Badghis			19 mm 2nd dekad			52 mm 1st dekad		24 mm 2nd dekad				
Qala – e – Naw			16.5 mm 3rd dekad	50.5 mm 2nd dekad	20 mm 2nd dekad	44 mm 3rd dekad	36 mm 3rd dekad					
Shindand			19 mm 3rd dekad	22 mm 2nd dekad		45 mm 1st dekad	16 mm 2nd 1st dekad	16 mm 1st dekad				

Total Snowy Days (2012 – 2013) Season

The number of days when snow fell was considerably less during the (2012-2013) rainfall season in comparison with the (2011-2012) seasons over the entire country of Afghanistan. This resulted in a decrease in the depth of the snow, especially in the following regions: South, Southeast, West, Central Highlands, and Northeast. According to the snowfall table, there were significant snowfalls in January, February, and March of 2013 in some parts of the Northeast region which resulted snow-covered areas there. There were 26 snow days recorded at Shebar, 20 snow days recorded at Paghman, and 16 snow days recorded at Yakawolang. The fewest number of snow days occurred at Aqatepa and Baharak with 2 days at each station during the (2012-2013) precipitation season. In general, the snow season started in November 2012 and continued until the month of March 2013, a duration of 5 months. The snow-cover maps for (2012-2013) show that the Central Highlands and the mountainous areas in the Northeast region of the country had the largest snow covered areas.

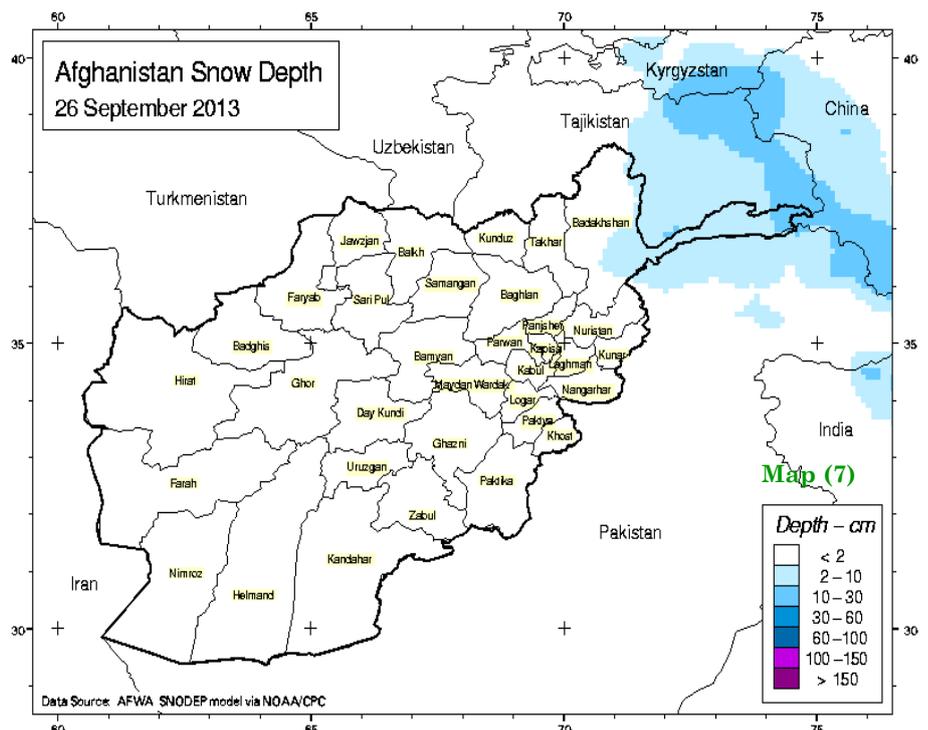
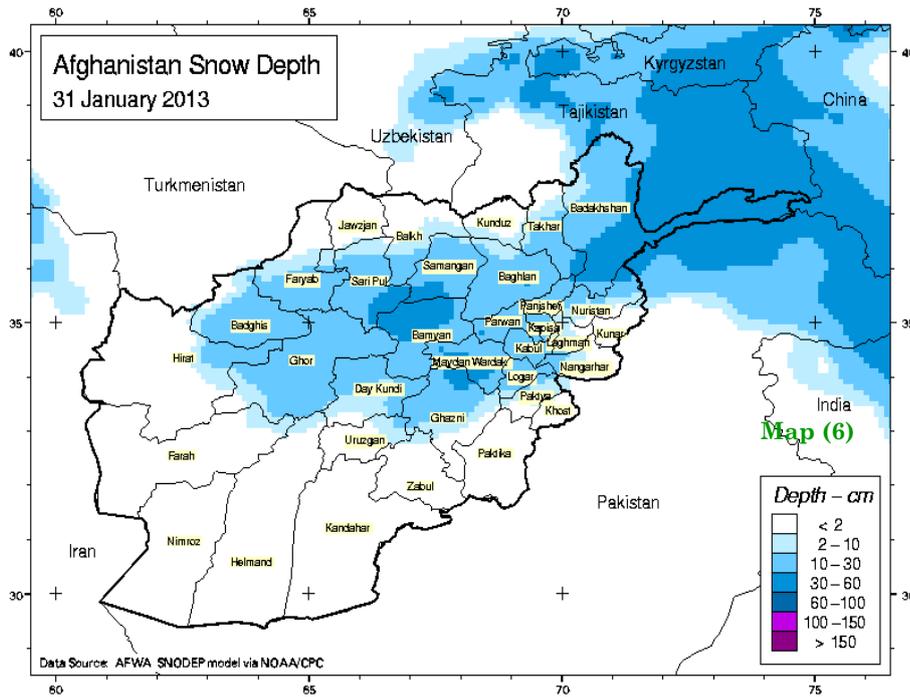
Snow Days of the Season (2012- 2013)														Table (2)
Name	Region	2012				2013								Total Snowy Days
		Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	
Badam bagh	Central	0	0	0	2	3	4	0	0	0	0	0	0	9
Charikar		0	0	0	1	1	3	0	0	0	0	0	0	5
Dara Panjsheer		0	0	0	4	3	7	0	0	0	0	0	0	14
Darulaman		0	0	0	2	2	2	0	0	0	0	0	0	6
Dashtak		0	0	0	4	4	6	1	0	0	0	0	0	15
Gul Khana		0	0	0	2	0	4	0	0	0	0	0	0	6
Kapisa Agri		0	0	0	1	2	0	0	0	0	0	0	0	3
Paghman		0	0	1	6	5	8	0	0	0	0	0	0	20
Qargha		0	0	0	4	2	2	0	0	0	0	0	0	10
Bamyan		0	0	1	2	2	3	0	0	0	0	0	0	8
Panjab		0	0	1	3	3	7	0	0	0	0	0	0	14
Shebar		0	0	4	6	2	10	4	0	0	0	0	0	26
Yakawlang		0	0	0	6	3	6	1	0	0	0	0	0	16
Chardara	North East	0	0	0	2	0	0	1	0	0	0	0	3	
Aaqtepa		0	0	0	1	0	0	1	0	0	0	0	2	
Baharak		0	0	0	1	1	0	0	0	0	0	0	2	
Faizabad		0	0	1	4	5	2	1	0	0	0	0	13	
Kunduz		0	0	0	3	1	0	1	0	0	0	0	5	
Urgo		0	0	2	4	2	2	1	0	0	0	0	11	
Aibak	North West	0	0	0	1	1	1	1	0	0	0	0	4	
Dara-e-Soof		0	0	0	1	0	0	1	0	0	0	0	2	
Darzab		0	0	0	3	3	2	1	0	0	0	0	9	
Jawzjan		0	0	0	3	2	0	1	0	0	0	0	6	
Maimana		0	0	0	3	2	0	0	0	0	0	0	5	
Sari Pul		0	0	0	4	2	0	1	0	0	0	0	7	
Takhta Pul	0	0	0	2	2	0	2	0	0	0	0	6		
Zabul	South	0	0	0	0	0	0	0	0	0	0	0	0	
Moqur	South East	0	0	0	3	0	2	0	0	0	0	0	5	
Rohani Baba		0	0	0	3	1	2	0	0	0	0	0	0	
Sharana		0	0	0	3	1	2	0	0	0	0	0	6	
Tera Forestry		0	0	1	3	3	8	0	0	0	0	0	15	
Cheghcharan	West	0	0	1	3	1	3	0	0	0	0	0	8	
Muqur Badghis		0	0	0	2	2	2	1	0	0	0	0	7	
Qala-e-naw		0	0	0	3	1	0	1	0	0	0	0	5	

Afghanistan Snow Depth (2012 – 2013) Season

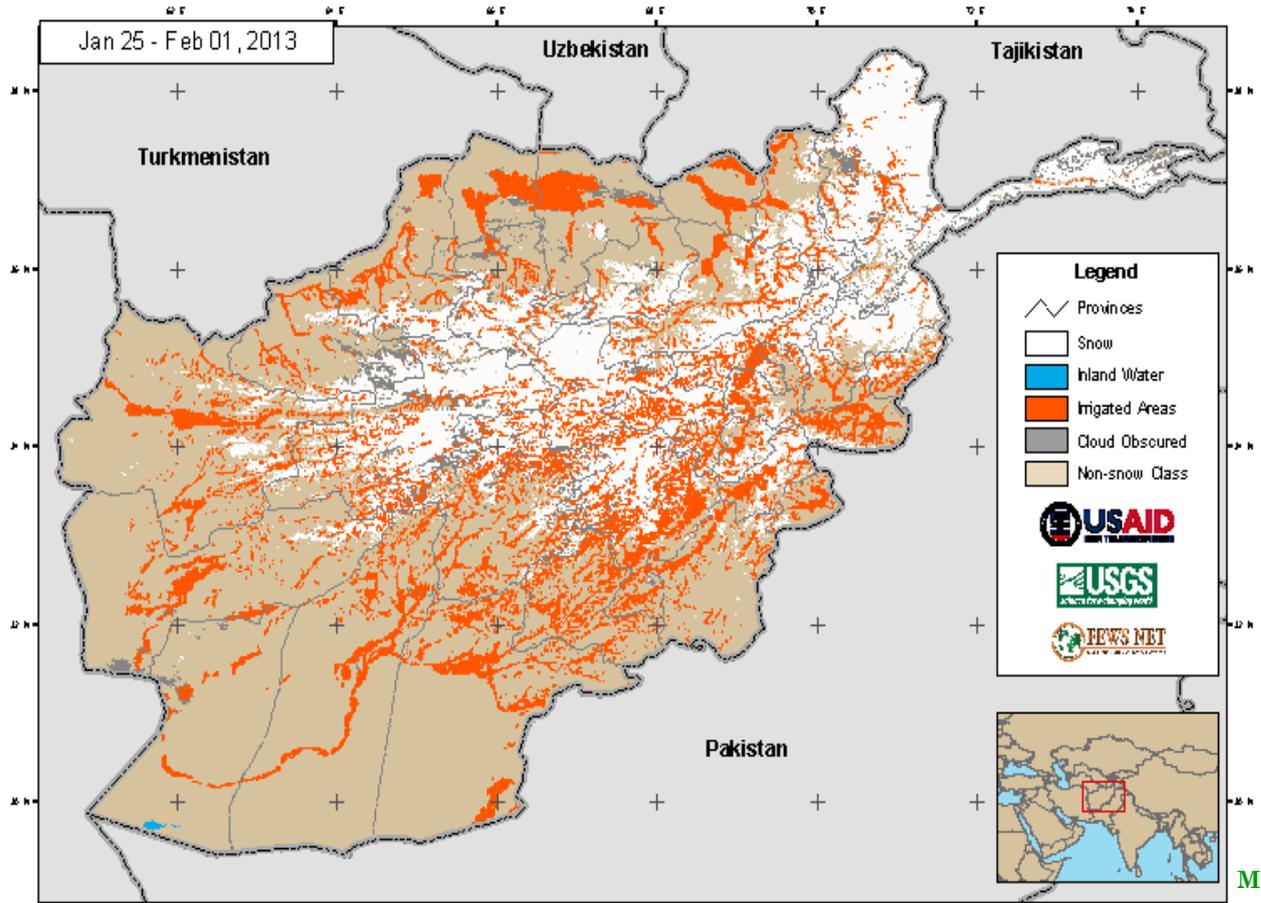
Snowfall occurred in the central areas of the country resulting in snow cover in the areas around Badqis, Ghore, Faryab, Dikundilk, Saripul, Bamyan, Samangan, Maydan Wardak, Ghazni, Logar, Kabul, Parwan, Panjshir, Takhar, Badakhshan, and continued up to the highlands of the Pamir - Knot.

The snow became deeper in the northeast highlands, reaching depths of 80 cm to 100 cm, especially in the Central and Eastern regions.

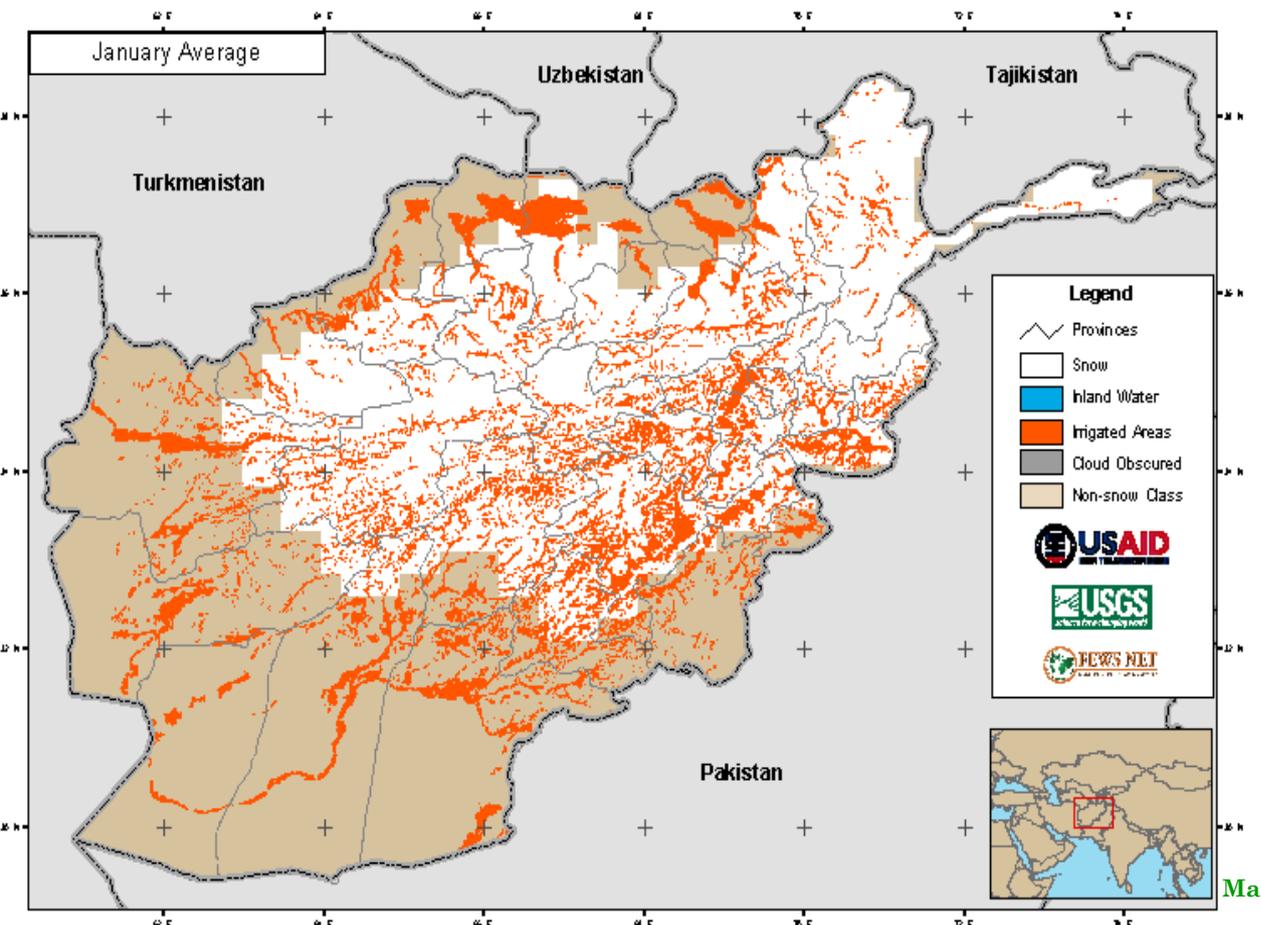
The snowfall at the beginning of the snow season, from the end of January 2013 until the end of February 2013, was somewhat light and scattered. The snowfall gradually lessened and by April 2013, the snowfall had ended. There was very little snow cover by the by the end of August 2013, especially in the central areas of Afghanistan. The only areas that had any snow cover were in the Pamir-Knot highlands and there the snow depth was from 2 cm up to 10cm in depth.



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

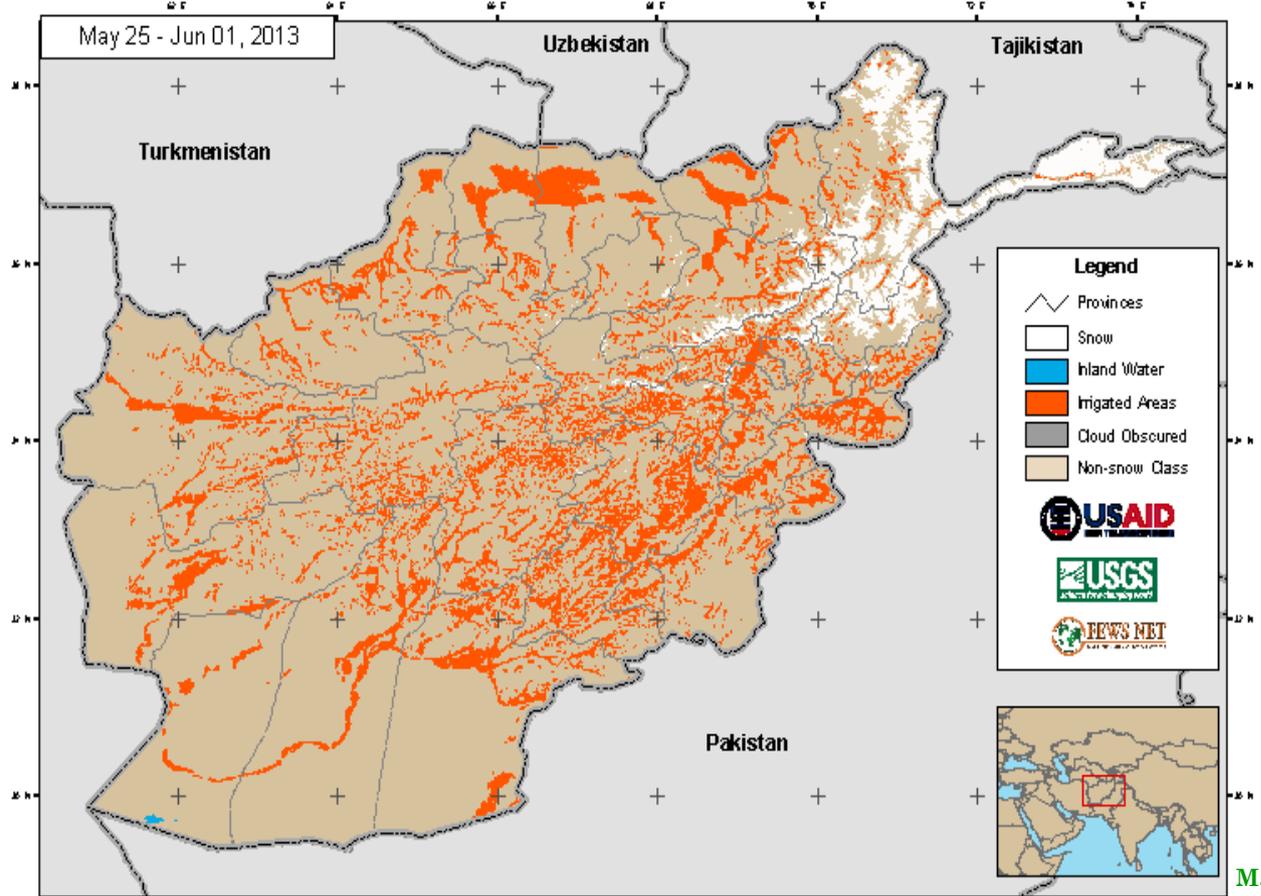


Map (8)

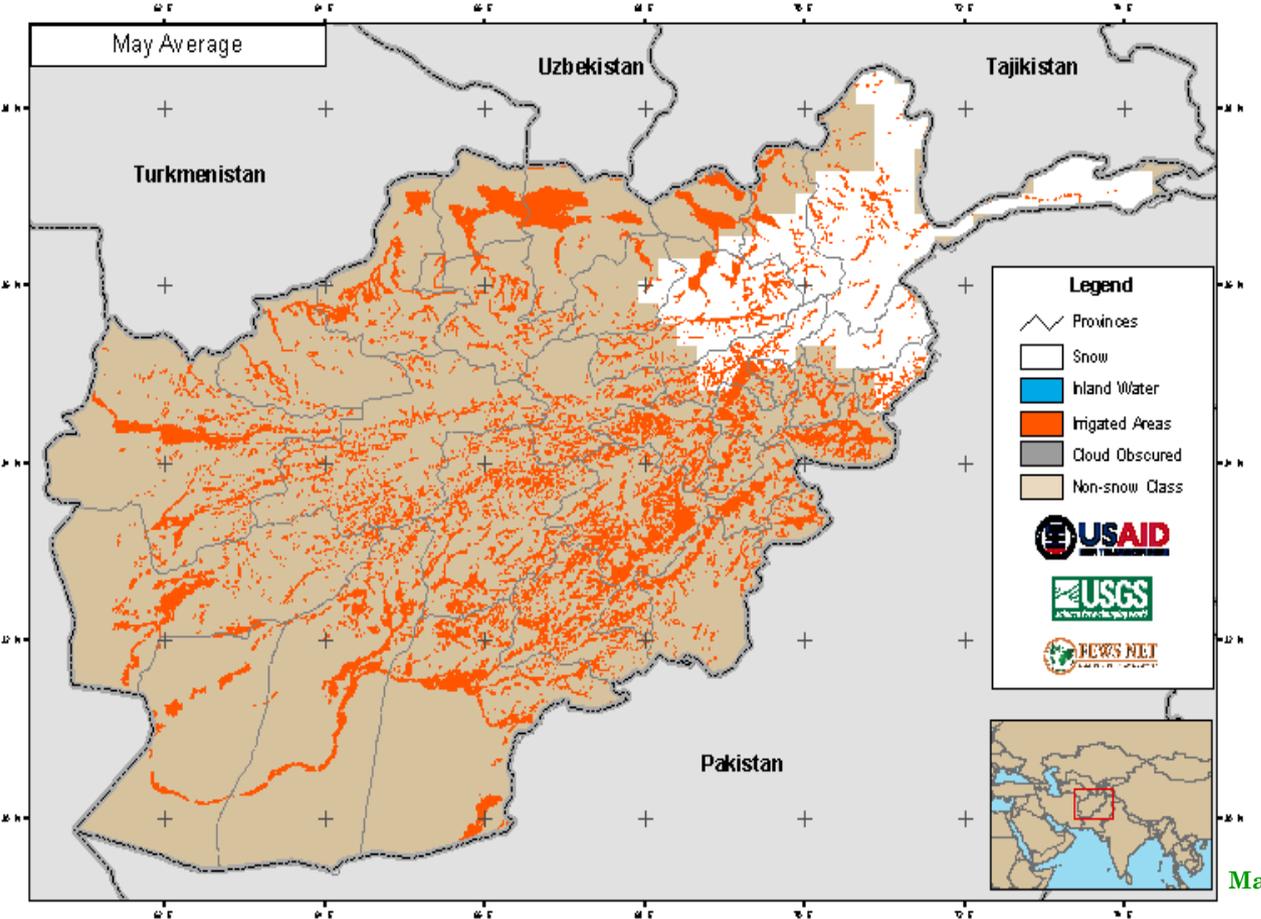


Map (9)

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



Map (10)

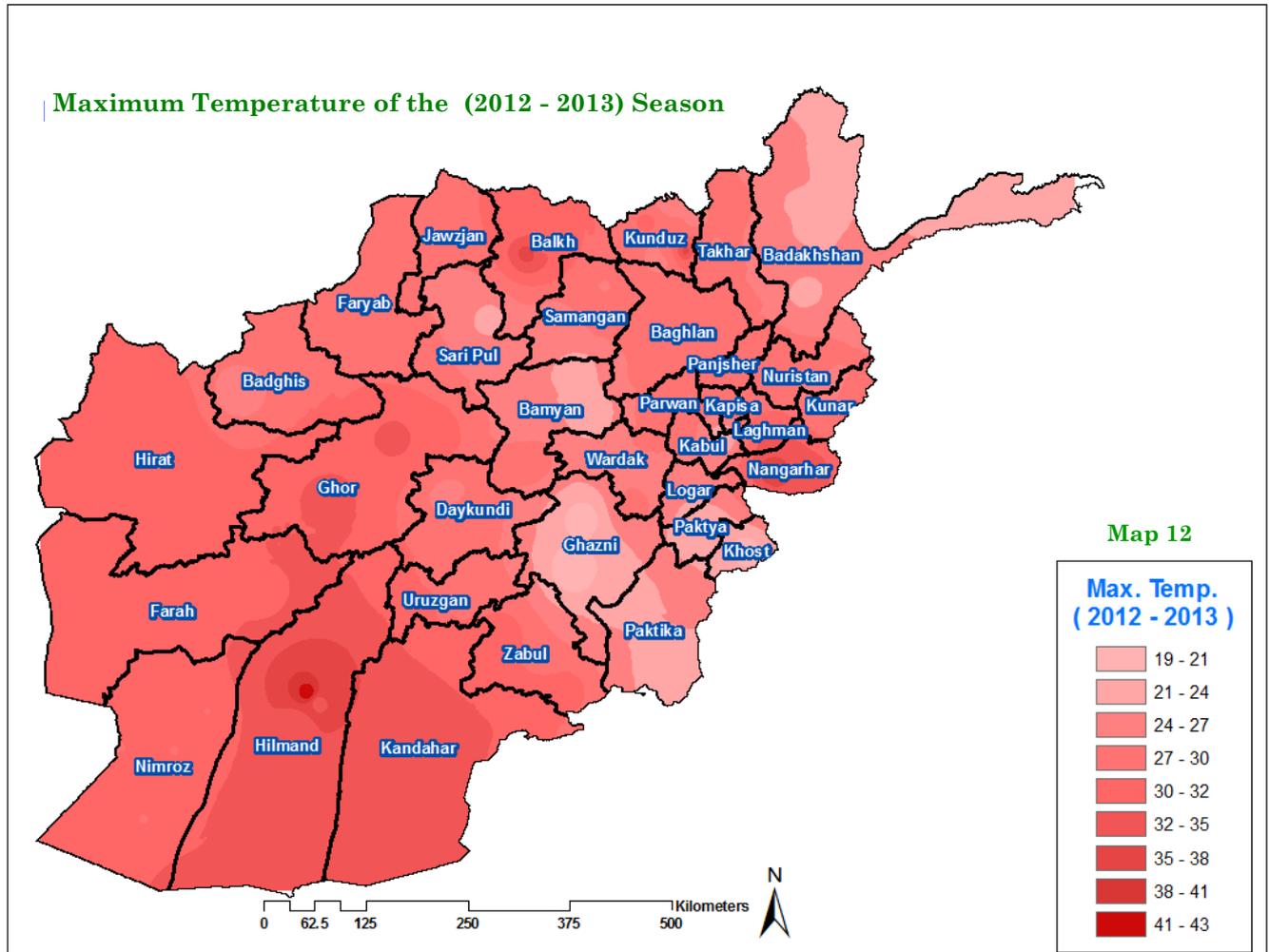


Map (11)

Temperature and its effect (2012-2013) Season

The growing seasons for different types of crops are controlled by the regional temperatures at different times of the year. Based on the temperature measurements at the observational stations and shown on the Temperature Map, the average temperatures in Afghanistan have increased during the (2012-2013) period compared to the previous period in most parts of the country. In six regions, the maximum recorded temperatures were from 19 degrees C to 24 degrees C.

These maximum temperatures occurred at Fayzabad, Ghazni, Paktika, Paktya, Khost, and Bamyan. Hotter temperatures, from 24 degrees C up to 38 degrees C, were recorded in other parts of the country. Maximum temperatures from 35 degrees C to 41 degrees C were recorded in Hilmand, Nangarhar, and Laghman during the (2012-2013) season.



Frost Days Recorded (2012-2013) Season

On the basis of temperature data, the number of days with frost increased during the crop planting and cultivation season over the (2011-2012) season. This increase in frost days occurred over all of Afghanistan. The first day when the temperature dropped below the freezing point was on October 15, 2012 in the Central Highlands Region. However, the threshold of freezing occurred on November 10, 2012.

During the (2012-2013) season, the frost days were intensified in Bamyan, Daykundi, Wardak, Paktika, Logar, and Pakiya and were extended from the 99 up to 132 days. However, frost days were light with a fewer number of days in Badughshan from 82 up to 99 days. In Ghor the number of frost days went from 66 to 82 days. In Hirat and Badghis, in the Northwest Region, the days went from 49 to 66. The rest of the country had estimated frost days from 16 days up to 49 days.

