

Phytosociological Research Center

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Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 30/08/2017)

QANDAHAR (AFGHANISTAN)

Altitude: 1010 m.

Latitude: 31°30'N Longitude: 65°51'E

Temperature observation period.: 1966-1980 (15)

Rainfall observation period....: 1966-1980 (15)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPI
Jan.	4.80	12.10	-0.60	25.00	-12.10	52.0	3.46
Feb.	7.70	14.70	2.10	26.20	-9.10	34.0	8.91
Mar.	14.30	22.40	7.50	32.00	-6.00	26.0	38.59
Apr.	19.90	27.90	12.10	36.80	2.00	14.0	80.35
May.	25.30	34.40	15.30	43.00	5.60	2.0	145.73
Jun.	29.90	39.10	19.10	45.00	8.50	0.0	192.00
Jul.	31.80	40.10	22.20	46.50	13.50	3.0	215.28
Aug.	29.10	38.20	19.30	44.00	9.00	1.0	179.76
Sep.	23.40	34.40	12.90	40.10	5.20	0.0	107.26
Oct.	17.20	28.00	8.20	34.80	-2.20	0.0	53.87
Nov.	10.70	21.10	2.80	31.50	-5.60	6.0	18.06
Dec.	6.70	15.30	0.50	25.20	-11.40	25.0	6.76
Year	18.40	27.31	10.12	35.84	-0.22	163	1050.0

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	299
Compensated thermicity index.....(Itc):	404
Simple continentality index.....(Ic):	27.0
Diurnality index.....(Id):	21.5
Annual ombrothermic index.....(Io):	0.74
Monthly estival ombrothermic index.....(Ios1):	No
Bimonthly estival ombrothermic index.....(Ios2):	0.07
Threemonthly estival ombrothermic index.....(Ios3):	0.04
Fourmonthly estival ombrothermic index.....(Ios4):	0.05
Annual ombro-evaporation index.....(Ioe):	0.14
Annual positive temperature.....(Tp):	2208
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	908
Positive precipitation.....(Pp):	163

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	2	1	1	8	0

Latitudinal Belt...: Subtropical

Continentality.....: Continental - High Subcontinental

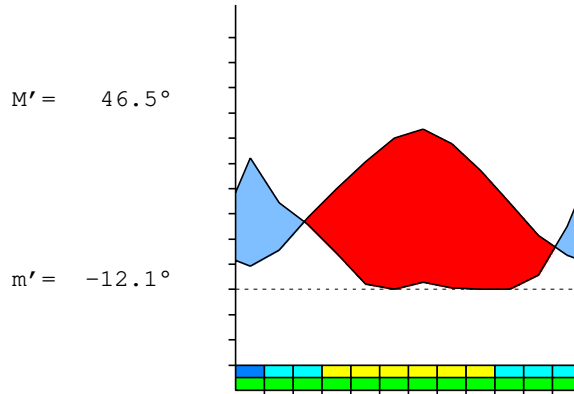
Bioclimate.....: MEDITERRANEAN DESERTIC-CONTINENTAL

Bioclimatic Belt...: UPPER THERMOMEDITERRANEAN UPPER ARID

QANDAHAR (AFGHANISTAN)

1010 m

P= 163 31° 30'N 65° 51'E 15/15 y.
 T= 18.4° Ic= 27.0 Tp= 2208 Tn= 0
 m= -0.6° M= 12.1° Itc= 404 Io= 0.7



MEDITERRANEAN DESERTIC-CONTINENTAL
 UPPER THERMOMEDITERRANEAN UPPER ARID

WATER INDEX CARD QANDAHAR (AFGHANISTAN)
 Altitude: 1010 m. Latitude: 31° 30'N

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	4.8	3	52	49	67	3	0	0	0	14.0
Feb.	7.7	9	34	25	92	9	0	0	0	2.8
Mar.	14.3	39	26	-13	79	39	0	0	0	-0.3
Apr.	19.9	80	14	-66	13	80	0	0	0	-0.8
May.	25.3	146	2	-13	0	15	131	0	0	-0.9
Jun.	29.9	192	0	0	0	0	192	0	0	-1.0
Jul.	31.8	215	3	0	0	3	212	0	0	-0.9
Aug.	29.1	180	1	0	0	1	179	0	0	-0.9
Sep.	23.4	107	0	0	0	0	107	0	0	-1.0
Oct.	17.2	54	0	0	0	0	54	0	0	-1.0
Nov.	10.7	18	6	0	0	6	12	0	0	-0.6
Dec.	6.7	7	25	18	18	7	0	0	0	2.7
Year	18.4	1050	163	*	*	163	887	0	0	*

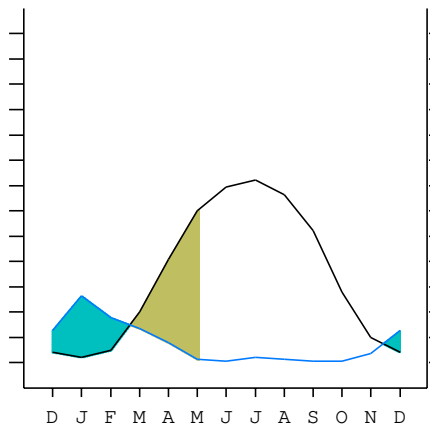
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

QANDAHAR (AFGHANISTAN)

31°30'N 65°51'E 1010 m 15/15 y.

T= 18.4 Ic= 27.0 MEDITERRANEAN DESERTIC-CONTINENTAL
 m= -0.6 Tp= 2208 UPPER THERMOMEDITERRANEAN
 M= 12.1 Tn= 0 UPPER ARID
 M' = 46.5 Itc= 404
 m' = -12.1 Io= 0.7
 P= 163 mm ———
 PE= 1050 mm ———

Imbibing	12 Nov.
Saturation	20 Feb.
Reserve Use	3 May.
Deficit	



QANDAHAR (AFGHANISTAN)

Latitude: 31°30'N Longitude: 65°51'E Altitude: 1010 m

SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [C2b]
 + Type: C. Continental
 + Subtype: 2. Subcontinental
 + Variant: b. High
 Thermic types [A3.A3]
 + Latitudinal zone: A. Warm
 + Latitudinal belt: 3. Subtropical
 + Thermic type: A. Warm
 + Thermic subtype: 3. Subwarm
 Bioclimatic types [B3.2a.3a]
 + Macrobioclimate: B. MEDITERRANEAN
 + Bioclimate: 3. DESERTIC-CONTINENTAL
 + Bioclimatic variant ..:
 + Thermic type.....: 2. THERMOMEDITERRANEAN
 + Thermic subtype.....: a. UPPER
 + Ombrothermic type ...: 3. ARID
 + Ombrothermic subtype : a. UPPER
 Bioclimatic Classification: Mexo.Tme.Ari

QANDAHAR (AFGHANISTAN)

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 20
 Coldest semester of the year.....(Psw): 143
 Warmest four months period of the year.....(Pcm1): 6
 Following warmest four months period.....(Pcm2): 31
 Positive precipitation dryest 3 months.....(Ppd): 1
 Positive precipitation dryest 2 months.....(Ppd2): 0
 Positive precipitation dryest 1 month.....(Ppd1): 0
 Positive precipitation warmest 3 months.....(Pps): 4
 Positive precipitation warmest 2 months.....(Pps2): 3
 Positive precipitation warmest 1 month.....(Pps1): 3
 Positive precipitation coldest 3 months.....(Ppw): 111
 Positive precipitation coldest 2 months.....(Ppw2): 77
 Positive precipitation coldest 1 month.....(Ppw1): 52

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	111	42	4	6

Seasonal rainfall rhythms: W > P > F > S

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 31.8
 Average coldest month [T].....(Tmin): 4.8
 Maximum temp. warmest month [M].....(Tmmax): 40.1
 Minimum temp. coldest month [m].....(Tmmin): -0.6
 Absolute Max.temp. warmest month [M'].....(Tamax): 46.5
 Absolute Min.temp. coldest month [m'].....(Tamin): -12.1
 First warmest contrasted month [M].....(Tcmax): 34.4 (9)
 First coldest contrasted month [m].....(Tcmin): 12.9 (9)
 Estival temperature.....(Ts): 908
 Positive temperature dryest 3 months.....(Tpd): 697
 Positive temperature dryest 2 months.....(Tpd2): 406
 Positive temperature dryest 1 month.....(Tpd1): 299
 Positive temperature warmest 3 months.....(Tps): 908
 Positive temperature warmest 2 months.....(Tps2): 617
 Positive temperature warmest 1 month.....(Tps1): 318
 Positive temperature coldest 3 months.....(Tpw): 192
 Positive temperature coldest 2 months.....(Tpw2): 115
 Positive temperature coldest 1 month.....(Tpw1): 48

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SEASONAL PARAMETERS

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Warmest semester...(Sms)				o	o	o	o	o	o			
Dryest semester....(Smd)					o	o	o	o	o	o		
Warmest 4 months...(Cm1)					o	o	o	o				
Dryest 4 months....(Cmd)						o	o	o	o			
Vegetation Activity(Pav)	o	o	o	o	o	o	o	o	o	o	o	o
Ultragelid...[M' <=0] (Pf)												
Hypergelid...[M <=0] (Pf)												
Gelid.....[T <=0] (Pf)												
Subgelid.....[m <=0] (Pf)	o											
Pregelid.....[m' <=0] (Pf)	o	o	o							o	o	o
Agelid.....[m' > 0] (Pf)				o	o	o	o	o	o			
HiperAgelid..[all>0] (Pf)				o	o	o	o	o	o			

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OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 6.44
 Mediterranean index of July.[PE/P].....(Im1): 71.76
 Mediterranean index of July & August.....(Im2): 98.76
 Mediterranean index of June, July & August....(Im3): 146.76

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	250	520	340	260	140	20	0	30	10	0	0	60
Tp	67	48	77	143	199	253	299	318	291	234	172	107
Io (Iom)	3.73	10.8	4.42	1.82	0.70	0.08	0.00	0.09	0.03	0.00	0.00	0.56
Seasons	Winter			Spring			Summer			Autumn		
Pp(x10)/Tp	1110 / 192			420 / 595			40 / 908			60 / 513		
Io (Iot)	5.781			0.706			0.044			0.117		
Semesters	December-May						June-November					
Pp(x10)/Tp	1530 / 787						100 / 1421					
Io (Iosm)	1.944						0.070					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 1630/2208=0.74 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	250	520	340	260	140	20	0	30	10	0	0	60
Tp [T*10]	67	48	77	143	199	253	299	318	291	234	172	107
Iom [Pp/Tp]	373	\$\$\$	442	182	70	8	0	9	3	0	0	56
Avm [200-Iom]	***	***	***	18	130	192	200	191	197	200	200	144
Seasons	Winter			Spring			Summer			Autumn		
Pp / Tp	1110 / 192			420 / 595			40 / 908			60 / 513		
Iot [Pp/Tp]	578			71			4			12		
Avs E[Avm<200]	***			340			587			544		
Lower ultrahyperarid [7]							Upper ultrahyperarid [1]					
Weak lower arid [1]							Strong upper arid [1]					
Weak upper arid [1]							Weak upper semiarid [1]					

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin]	(Sp):	27.00
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]		67.45
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]		55.27
+ Subcontinental (40<CI<60)		
CI of Currey (1974) [CI=Sp/(1+Lat/3)]		2.35
+ Hypercontinental (2.3<CI<5)		
Rainfall Index of Lang (1925) [R=P/T]		8.86
+ Steppic (40>R>0)		
Aridity Index of Martonne (1926) [Ia=P/(T+10)]		5.74
+ Arid -steppic- (15>Ia>5)		
I of Emberger (1930) [Q=100*P/(Tmax ² -Tmin ²)]		10.14
+ Arid (30>Q>0)		
I of Dantin & Revenga (1940) [DR=100*T/P]		11.29
+ Extremely arid (DR>6)		
Aridity Index of UNEP [I=P/PE]		0.16
+ Arid (0.2>Im>0.05)		
Potential Erosion I of Fournier (1960) [K=Pi ² /P]		16.59
+ Very low (K<60)		

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BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)
 + Climate: A. Warm and temperate warm
 + Region

+ Thermic type: 3. Macro-mesothermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.33	0.18	0.11	0.05	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.13
T-E ratio	2.16	3.46	6.44	8.95	11.38	13.45	14.31	13.10	10.53	7.74	4.81	3.01
Precipitation-effectiveness: 8.35						Temperature-efficiency: 99.36						
Moisture Index [MI=100*(P-PE)/PE]												
+ E.Dry (-110<MI<-66.7)												
Index of dryness [DI=100*d/PE]												
+ Strong deficit (33.3<DI)												
Index of humidity [HI=100*s/PE]												
+ No surplus (0<HI<10)												
Potential Evapotranspiration PE												
+ Forth mesothermic (997<PE<1440)												

