

Phytosociological Research Center

www.globalbioclimatics.org

Worldwide Bioclimatic Classification System

Prof.Dr. Salvador Rivas-Martinez

(Adapted to Synoptical Table 30/08/2017)

ZAOUIAELKAHLA (ALGERIA)

Altitude: 373 m.

Latitude: 28°6'N Longitude: 6°42'E

Temperature observation period.: 1961-1980 (20)

Rainfall observation period....: 1965-1980 (16)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPi
Jan.	10.80	19.40	3.30	32.80	-7.20	7.0	7.31
Feb.	14.40	22.80	6.10	35.60	-5.00	3.0	17.48
Mar.	19.20	26.70	10.00	41.10	-2.20	2.0	50.61
Apr.	23.40	32.20	15.00	42.20	6.10	4.0	98.01
May.	28.40	36.10	20.00	46.70	9.40	1.0	176.33
Jun.	33.80	41.10	25.00	49.60	15.60	1.0	224.96
Jul.	34.60	43.30	25.60	51.10	20.00	0.0	236.39
Aug.	33.80	42.20	25.00	50.00	17.20	0.0	219.14
Sep.	31.40	38.90	22.80	46.70	15.60	1.0	179.96
Oct.	25.80	33.30	17.20	42.80	5.60	1.0	122.06
Nov.	18.80	26.70	10.00	37.20	0.60	5.0	41.39
Dec.	12.50	21.10	5.00	29.40	-5.60	4.0	11.45
Year	23.91	31.98	15.42	42.10	5.84	29	1385.1

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	466
Compensated thermicity index.....(Itc):	523
Simple continentality index.....(Ic):	23.8
Diurnality index.....(Id):	17.7
Annual ombrothermic index.....(Io):	0.10
Monthly estival ombrothermic index.....(Ios1):	No
Bimonthly estival ombrothermic index.....(Ios2):	No
Threemonthly estival ombrothermic index.....(Ios3):	0.01
Fourmonthly estival ombrothermic index.....(Ios4):	0.02
Annual ombro-evaporation index.....(Ioe):	0.16
Annual positive temperature.....(Tp):	2869
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	1022
Positive precipitation.....(Pp):	29

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	0	0	0	12	0

Latitudinal Belt...: Subtropical

Continentalty.....: Continental - Low Subcontinental

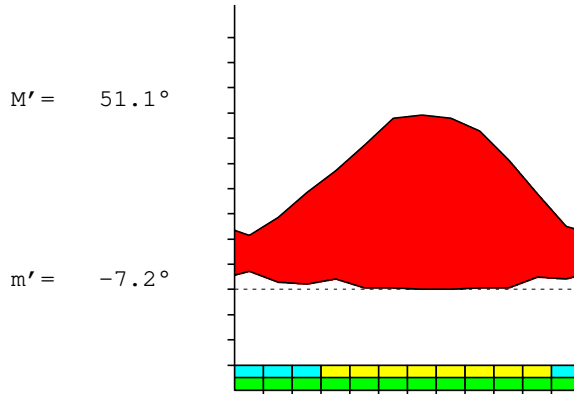
Bioclimate.....: MEDITERRANEAN HYPERDESERTIC CONTINENTAL

Bioclimatic Belt...: LOW INFRAMEDITERRANEAN UPPER ULTRAHYPERARID

ZAOUIAELKAHLA (ALGERIA)

373 m

P= 29 28° 6'N 6° 42'E 20/16 y.
 T= 23.9° Ic= 23.8 Tp= 2869 Tn= 0
 m= 3.3° M= 19.4° Itc= 523 Io= 0.1



MEDITERRANEAN HYPERDESERTIC CONTINENTAL
 LOW INFRAMEDITERRANEAN UPPER ULTRAHYPERARID

WATER INDEX CARD ZAOUIAELKAHLA (ALGERIA)
 Altitude: 373 m. Latitude: 28° 6'N

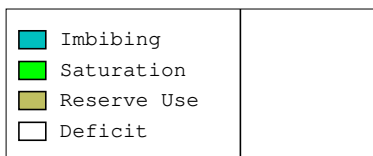
(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	10.8	7	7	0	0	7	0	0	0	0.0
Feb.	14.4	17	3	0	0	3	14	0	0	-0.8
Mar.	19.2	51	2	0	0	2	49	0	0	-0.9
Apr.	23.4	98	4	0	0	4	94	0	0	-0.9
May.	28.4	176	1	0	0	1	175	0	0	-0.9
Jun.	33.8	225	1	0	0	1	224	0	0	-0.9
Jul.	34.6	236	0	0	0	0	236	0	0	-1.0
Aug.	33.8	219	0	0	0	0	219	0	0	-1.0
Sep.	31.4	180	1	0	0	1	179	0	0	-0.9
Oct.	25.8	122	1	0	0	1	121	0	0	-0.9
Nov.	18.8	41	5	0	0	5	36	0	0	-0.8
Dec.	12.5	11	4	0	0	4	7	0	0	-0.6
Year	23.9	1385	29	*	*	29	1356	0	0	*

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

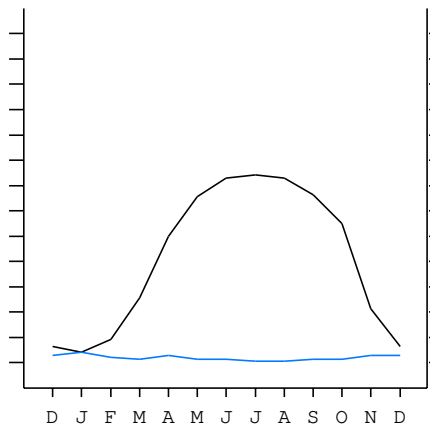
ZAOUIAELKAHLA (ALGERIA)

28°6'N 6°42'E 373 m 20/16 y.

T= 23.9 Ic= 23.8 MEDITERRANEAN HYPERDESERTIC CONTINENTAL
 m= 3.3 Tp= 2869 LOW INFRAMEDITERRANEAN
 M= 19.4 Tn= 0 UPPER ULTRAHYPERARID
 M' = 51.1 Itc= 523
 m' = -7.2 Io= 0.1
 P= 29 mm ———
 PE= 1385 mm ———



All over the year,
 there is hydric deficit



ZAOUIAELKAHLA (ALGERIA)

Latitude: 28°6'N Longitude: 6°42'E Altitude: 373 m

SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [C2a]
 + Type: C. Continental
 + Subtype: 2. Subcontinental
 + Variant: a. Low
 Thermic types [A3.A2]
 + Latitudinal zone: A. Warm
 + Latitudinal belt: 3. Subtropical
 + Thermic type: A. Warm
 + Thermic subtype: 2. Warm
 Bioclimatic types [B1.1b.1a]
 + Macrobioclimate: B. MEDITERRANEAN
 + Bioclimate: 1. HYPERDESERTIC CONTINENTAL
 + Bioclimatic variant ..:
 + Thermic type.....: 1. INFRAMEDITERRANEAN
 + Thermic subtype.....: b. LOW
 + Ombrothermic type ...: 1. ULTRAHYPERARID
 + Ombrothermic subtype : a. UPPER
 Bioclimatic Classification: Mepo.Ime.Uha

ZAOUIAELKAHLA (ALGERIA)

Latitude: 28°6'N Longitude: 6°42'E Altitude: 373 m

PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 4
 Coldest semester of the year.....(Psw): 25
 Warmest four months period of the year.....(Pcm1): 2
 Following warmest four months period.....(Pcm2): 17
 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): 1
 Positive precipitation warmest 2 months.....(Pps2): 1
 Positive precipitation warmest 1 month.....(Pps1): 0
 Positive precipitation coldest 3 months.....(Ppw): 14
 Positive precipitation coldest 2 months.....(Ppw2): 11
 Positive precipitation coldest 1 month.....(Ppw1): 7

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	14	7	1	7

Seasonal rainfall rhythms: W > P > F > S

ZAOUIAELKAHLA (ALGERIA)

Latitude: 28°6'N Longitude: 6°42'E Altitude: 373 m

TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 34.6
 Average coldest month [T].....(Tmin): 10.8
 Maximum temp. warmest month [M].....(Tmmax): 43.3
 Minimum temp. coldest month [m].....(Tmmin): 3.3
 Absolute Max.temp. warmest month [M'].....(Tamax): 51.1
 Absolute Min.temp. coldest month [m'].....(Tamin): -7.2
 First warmest contrasted month [M].....(Tcmax): 43.3 (7)
 First coldest contrasted month [m].....(Tcmin): 25.6 (7)
 Estival temperature.....(Ts): 1022
 Positive temperature dryest 3 months.....(Tpd): 1022
 Positive temperature dryest 2 months.....(Tpd2): 684
 Positive temperature dryest 1 month.....(Tpd1): 346
 Positive temperature warmest 3 months.....(Tps): 1022
 Positive temperature warmest 2 months.....(Tps2): 684
 Positive temperature warmest 1 month.....(Tps1): 346
 Positive temperature coldest 3 months.....(Tpw): 377
 Positive temperature coldest 2 months.....(Tpw2): 233
 Positive temperature coldest 1 month.....(Tpw1): 108

ZAOUIAELKAHLA (ALGERIA)

Latitude: 28°6'N Longitude: 6°42'E Altitude: 373 m

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)												
Pregelid.....[m' <=0] (Pf)	o	o	o									o
Agelid.....[m' > 0] (Pf)				o	o	o	o	o	o	o	o	
HiperAgelid..[all>0] (Pf)				o	o	o	o	o	o	o	o	

ZAOUIAELKAHLA (ALGERIA)

Latitude: 28°6'N Longitude: 6°42'E Altitude: 373 m

OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 47.76
 Mediterranean index of July.[PE/P].....(Im1): No
 Mediterranean index of July & August.....(Im2): No
 Mediterranean index of June, July & August....(Im3): 680.48

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	40	70	30	20	40	10	10	0	0	10	10	50
Tp	125	108	144	192	234	284	338	346	338	314	258	188
Io (Iom)	0.32	0.65	0.21	0.10	0.17	0.04	0.03	0.00	0.00	0.03	0.04	0.27
Seasons	Winter			Spring			Summer			Autumn		
Pp(x10)/Tp	140 / 377			70 / 710			10 / 1022			70 / 760		
Io (Iot)	0.371			0.099			0.010			0.092		
Semesters	December-May						June-November					
Pp(x10)/Tp	210 / 1087						80 / 1782					
Io (Iosm)	0.193						0.045					

ZAOUIAELKAHLA (ALGERIA)

Latitude: 28°6'N Longitude: 6°42'E Altitude: 373 m

Aridity Value Index (AVI)

[10xPP/TP=IO]: 290/2869=0.10 [Upper ultrahyperarid \(2\) \[2215\]](#)

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	40	70	30	20	40	10	10	0	0	10	10	50
Tp [T*10]	125	108	144	192	234	284	338	346	338	314	258	188
Iom [Pp/Tp]	32	65	21	10	17	4	3	0	0	3	4	27
Avm [200-Iom]	168	135	179	190	183	196	197	200	200	197	196	173
Seasons	Winter			Spring			Summer			Autumn		
Pp / Tp	140 / 377			70 / 710			10 / 1022			70 / 760		
Iot [Pp/Tp]	37			10			1			9		
Avs E[Avm<200]	482			569			597			566		
Lower ultrahyperarid [7]							Upper ultrahyperarid [4]					
Lower hyperarid [2]							Upper hyperarid [2]					
Weak lower arid [1]												

ZAOUIAELKAHLA (ALGERIA)

Latitude: 28°6'N Longitude: 6°42'E Altitude: 373 m

BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin]	(Sp):	23.80
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]		65.50
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]		51.57
+ Subcontinental (40<CI<60)		
CI of Currey (1974) [CI=Sp/(1+Lat/3)]		2.30
+ Continental (1.7<CI<2.3)		
Rainfall Index of Lang (1925) [R=P/T]		1.21
+ Steppic (40>R>0)		
Aridity Index of Martonne (1926) [Ia=P/(T+10)]		0.86
+ Extremely arid -desert- (5>Ia>0)		
I of Emberger (1930) [Q=100*P/(Tmmax ² -Tmmin ²)]		1.56
+ Arid (30>Q>0)		
I of Dantin & Revenga (1940) [DR=100*T/P]		82.44
+ Extremely arid (DR>6)		
Aridity Index of UNEP [I=P/PE]		0.02
+ Hyperarid (0.05>Im)		
Potential Erosion I of Fournier (1960) [K=Pi ² /P]		1.69
+ Very low (K<60)		

ZAOUIAELKAHLA (ALGERIA)

Latitude: 28°6'N Longitude: 6°42'E Altitude: 373 m

BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)
 + Climate

- + Climate
- + Region
- + Thermic type: 2. Macrothermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.03	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01
T-E ratio	4.86	6.48	8.64	10.53	12.78	15.21	15.57	15.21	14.13	11.61	8.46	5.63
Precipitation-effectiveness: 0.92						Temperature-efficiency						129.10
Moisture Index [MI=100*(P-PE)/PE]												-97.91
+ E.Dry (-110<MI<-66.7)												
Index of dryness [DI=100*d/PE]												97.90
+ Strong deficit (33.3<DI)												
Index of humidity [HI=100*s/PE]												0.00
+ No surplus (0<HI<10)												
Potential Evapotranspiration PE												1385.08
+ Forth mesothermic (997<PE<1440)												

