

# Phytosociological Research Center

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## Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 14/02/2020)

AGUILAS (ESP MURCIA)

Altitude: 4 m.

Latitude: 37°24'N Longitude: 1°35'W

Temperature observation period.: 1965-1970 (6)

Rainfall observation period....: 1965-1970 (6)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPI
Jan.	13.10	17.40	8.90	21.80	6.00	20.0	27.44
Feb.	13.20	17.60	8.90	22.20	4.70	9.0	27.55
Mar.	15.10	20.00	10.20	25.50	6.00	12.0	43.95
Apr.	17.00	21.60	12.30	26.50	9.50	17.0	59.80
May.	19.40	23.90	15.00	29.30	11.80	18.0	86.89
Jun.	23.10	27.50	18.70	31.30	15.20	15.0	125.19
Jul.	26.40	30.50	22.40	34.40	19.80	0.0	167.18
Aug.	26.70	30.90	22.50	33.80	20.50	2.0	160.41
Sep.	24.20	28.90	19.60	31.50	16.80	15.0	115.30
Oct.	20.70	25.40	16.00	28.40	12.20	33.0	78.89
Nov.	16.70	21.10	12.20	24.70	8.80	22.0	44.56
Dec.	13.40	18.00	8.80	22.40	4.00	14.0	27.74
Year	19.08	23.57	14.63	27.65	11.28	177	964.90

### BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	454
Compensated thermicity index.....(Itc):	454
Simple continentality index.....(Ic):	13.6
Diurnality index.....(Id):	9.8
Annual ombrothermic index.....(Io):	0.77
Monthly estival ombrothermic index.....(Ios1):	No
Bimonthly estival ombrothermic index.....(Ios2):	0.04
Threemonthly estival ombrothermic index.....(Ios3):	0.22
Fourmonthly estival ombrothermic index.....(Ios4):	0.37
Annual ombro-evaporation index.....(Ioe):	0.18
Annual positive temperature.....(Tp):	2290
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	762
Positive precipitation.....(Pp):	177

N. of Months	P>4T	P:2T-4T	PT-2T	P<T	T<0
	0	0	5	7	0

Latitudinal Belt...: Low Eutemperate

Continentality.....: Oceanic - Low Semihyperoceanic

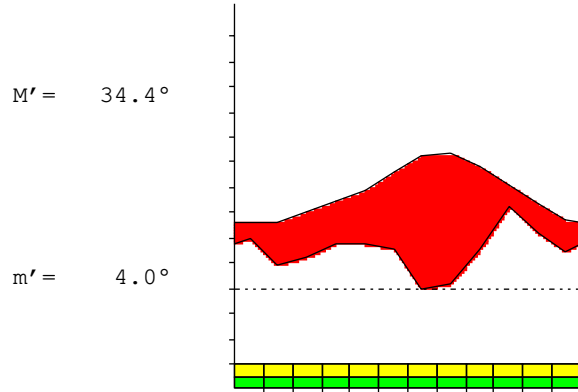
Bioclimate.....: MEDITERRANEAN DESERTIC-OCEANIC

Bioclimatic Belt...: UPPER INFRAMEDITERRANEAN UPPER ARID

AGUILAS (ESP MURCIA)

4 m

P= 177 37° 24'N 1° 35'W 6/6 y.  
 T= 19.1 ° Ic= 13.6 Tp= 2290 Tn= 0  
 m= 8.9 ° M= 17.4 ° Itc= 454 Io= 0.8



MEDITERRANEAN DESERTIC-OCEANIC  
 UPPER INFRAMEDITERRANEAN UPPER ARID

WATER INDEX CARD

AGUILAS (ESP MURCIA)

Altitude: 4 m.

Latitude: 37° 24'N

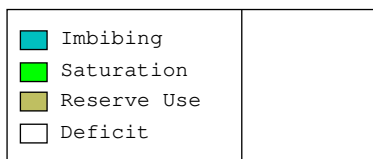
(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	13.1	27	20	0	0	20	7	0	0	-0.2
Feb.	13.2	28	9	0	0	9	19	0	0	-0.6
Mar.	15.1	44	12	0	0	12	32	0	0	-0.7
Apr.	17.0	60	17	0	0	17	43	0	0	-0.7
May.	19.4	87	18	0	0	18	69	0	0	-0.7
Jun.	23.1	125	15	0	0	15	110	0	0	-0.8
Jul.	26.4	167	0	0	0	0	167	0	0	-1.0
Aug.	26.7	160	2	0	0	2	158	0	0	-0.9
Sep.	24.2	115	15	0	0	15	100	0	0	-0.8
Oct.	20.7	79	33	0	0	33	46	0	0	-0.5
Nov.	16.7	45	22	0	0	22	23	0	0	-0.5
Dec.	13.4	28	14	0	0	14	14	0	0	-0.4
Year	19.1	965	177	*	*	177	788	0	0	*

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

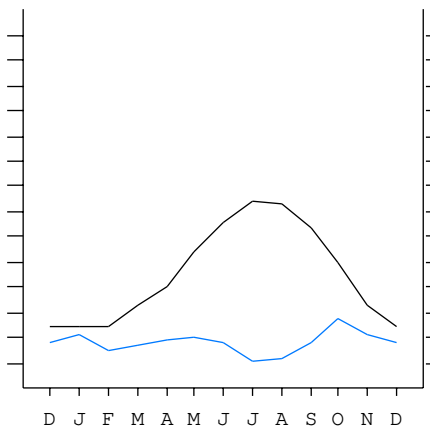
AGUILAS (ESP MURCIA)

37°24'N 1°35'W 4 m 6/6 y.

T= 19.1 Ic= 13.6 MEDITERRANEAN DESERTIC-OCEANIC  
 m= 8.9 Tp= 2290 UPPER INFRAMEDITERRANEAN  
 M= 17.4 Tn= 0 UPPER ARID  
 M' = 34.4 Itc= 454  
 m' = 4.0 Io= 0.8  
 P= 177 mm ———  
 PE= 965 mm ———



All over the year,  
 there is hydic deficit



AGUILAS (ESP MURCIA)

Latitude: 37°24'N Longitude: 1°35'W Altitude: 4 m

SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continentality Index [B1b]  
 + Type .....: B. Oceanic  
 + Subtype .....: 1. Semihyperoceanic  
 + Variant .....: b. Low

Thermic types [B1.A2]  
 + Latitudinal zone ....: B. Temperate  
 + Latitudinal belt ....: 1. Low Eutemperate  
 + Thermic type .....: A. Warm  
 + Thermic subtype .....: 2. Warm

Bioclimatic types [B4.1a.3a]  
 + Macrobioclimate .....: B. MEDITERRANEAN  
 + Bioclimate .....: 4. DESERTIC-OCEANIC  
 + Bioclimatic variant .:  
 + Thermic type.....: 1. INFRAMEDITERRANEAN  
 + Thermic subtype.....: a. UPPER  
 + Ombrothermic type ...: 3. ARID  
 + Ombrothermic subtype : a. UPPER

Bioclimatic Classification .....Medo.Ime.Ari.Seo

AGUILAS (ESP MURCIA)

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 83  
 Coldest semester of the year.....(Psw): 94  
 Warmest four months period of the year.....(Pcm1): 32  
 Following warmest four months period.....(Pcm2): 89  
 Positive precipitation dryest 3 months.....(Ppd): 17  
 Positive precipitation dryest 2 months.....(Ppd2): 2  
 Positive precipitation dryest 1 month.....(Ppd1): 0  
 Positive precipitation warmest 3 months.....(Pps): 17  
 Positive precipitation warmest 2 months.....(Pps2): 2  
 Positive precipitation warmest 1 month.....(Pps1): 2  
 Positive precipitation coldest 3 months.....(Ppw): 43  
 Positive precipitation coldest 2 months.....(Ppw2): 29  
 Positive precipitation coldest 1 month.....(Ppw1): 20

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	43	47	17	70

Seasonal rainfall rhythms: F > P > W > S

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 26.7  
 Average coldest month [T].....(Tmin): 13.1  
 Maximum temp. warmest month [M].....(Tmmax): 30.9  
 Minimum temp. coldest month [m].....(Tmmin): 8.8  
 Absolute Max.temp. warmest month [M'].....(Tamax): 34.4  
 Absolute Min.temp. coldest month [m'].....(Tamin): 4.0  
 First warmest contrasted month [M].....(Tcmax): 20.0 (3)  
 First coldest contrasted month [m].....(Tcmin): 10.2 (3)  
 Estival temperature.....(Ts): 762  
 Positive temperature dryest 3 months.....(Tpd): 762  
 Positive temperature dryest 2 months.....(Tpd2): 531  
 Positive temperature dryest 1 month.....(Tpd1): 264  
 Positive temperature warmest 3 months.....(Tps): 773  
 Positive temperature warmest 2 months.....(Tps2): 531  
 Positive temperature warmest 1 month.....(Tps1): 267  
 Positive temperature coldest 3 months.....(Tpw): 397  
 Positive temperature coldest 2 months.....(Tpw2): 263  
 Positive temperature coldest 1 month.....(Tpw1): 131

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

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OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 5.45  
 Mediterranean index of July.[PE/P].....(Im1): No  
 Mediterranean index of July & August.....(Im2): 163.79  
 Mediterranean index of June, July & August....(Im3): 26.63

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	140	200	90	120	170	180	150	0	20	150	330	220
Tp	134	131	132	151	170	194	231	264	267	242	207	167
Io (Iom)	1.04	1.53	0.68	0.79	1.00	0.93	0.65	0.00	0.07	0.62	1.59	1.32
Seasons	Winter			Spring			Summer			Autumn		
Pp(x10)/Tp	430 / 397			470 / 515			170 / 762			700 / 616		
Io (Iot)	1.083			0.913			0.223			1.136		
Semesters	December-May						June-November					
Pp(x10)/Tp	900 / 912						870 / 1378					
Io (Iosm)	0.987						0.631					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 1770/2290=0.77 [Weak upper arid \(8\) \[1377\]](#)

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	140	200	90	120	170	180	150	0	20	150	330	220
TP [T*10]	134	131	132	151	170	194	231	264	267	242	207	167
Iom [Pp/TP]	104	153	68	79	100	93	65	0	7	62	159	132
Avm [200-Iom]	96	47	132	121	100	107	135	200	193	138	41	68
Seasons	Winter			Spring			Summer			Autumn		
Pp / Tp	430 / 397			470 / 515			170 / 762			700 / 616		
Iot [Pp/TP]	108			91			22			114		
Avs E[Avm<200]	275			328			528			247		
Lower ultrahyperarid [2]							Lower hyperarid [1]					
Weak lower arid [3]							Strong upper arid [1]					
Weak upper arid [3]							Strong lower semiarid [3]					
Weak lower semiarid [1]							Strong upper semiarid [2]					

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin] .....(Sp): 13.60  
 CI of Gorezinski (1920) [1.7\*Sp/sin(Lat)-20.4] .....: 17.67  
 CI of Conrad (1946) [1.7\*Sp/sin(Lat+10)-14] .....: 17.41  
 + Hyperoceanic (-20<CI<20)  
 CI of Currey (1974) [CI=Sp/(1+Lat/3)] .....: 1.01  
 + Oceanic (0.6<CI<1.1)  
 Rainfall Index of Lang (1925) [R=P/T] .....: 9.28  
 + Steppic (40>R>0)  
 Aridity Index of Martonne (1926) [Ia=P/(T+10)] .....: 6.09  
 + Arid -steppic- (15>Ia>5)  
 I of Emberger (1930) [Q=100\*P/(Tmax<sup>2</sup>-Tmin<sup>2</sup>)] .....: 20.17  
 + Arid (30>Q>0)  
 I of Dantin & Revenga (1940) [DR=100\*T/P] .....: 10.78  
 + Extremely arid (DR>6)  
 Aridity Index of UNEP [I=P/PE] .....: 0.18  
 + Arid (0.2>Im>0.05)  
 Potential Erosion I of Fournier (1960) [K=Pi<sup>2</sup>/P].....: 6.15  
 + Very low (K<60)

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BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)  
 + Climate .....: A. Warm and temperate warm  
 + Region .....: 1. Termoeremic (Desertic warm)  
 + Thermic type: 2. Macrothermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.08	0.03	0.05	0.06	0.06	0.05	0.00	0.00	0.05	0.12	0.08	0.06
T-E ratio	5.90	5.94	6.80	7.65	8.73	10.40	11.88	12.02	10.89	9.32	7.52	6.03
Precipitation-effectiveness: 6.48						Temperature-efficiency .....: 103.05						
Moisture Index [MI=100*(P-PE)/PE] .....: -81.66 + E.Dry (-110<MI<-66.7)												
Index of dryness [DI=100*d/PE] .....: 81.65 + Strong deficit (33.3<DI)												
Index of humidity [HI=100*s/PE] .....: 0.00 + No surplus (0<HI<10)												
Potential Evapotranspiration PE .....: 964.90 + Third mesothermic (855<PE<997)												

