

# Phytosociological Research Center

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## Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 30/08/2017)

ANTEQUERA (ESP MALAGA)

Altitude: 477 m.

Latitude: 37°1'N Longitude: 4°33'W

Temperature observation period.: 1965-1969 (5)

Rainfall observation period....: 1965-1969 (5)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPI
Jan.	8.20	13.40	3.00	19.80	-2.80	55.0	17.62
Feb.	9.20	13.80	4.50	19.40	-1.30	63.0	20.95
Mar.	11.00	16.50	5.50	25.00	-1.40	67.0	33.83
Apr.	13.00	19.00	6.90	27.00	2.00	54.0	47.24
May.	16.80	23.60	9.90	30.60	5.20	38.0	79.07
Jun.	21.00	28.30	13.70	35.20	8.60	16.0	114.07
Jul.	25.50	33.70	17.30	40.20	11.20	2.0	158.32
Aug.	24.80	32.80	16.70	38.20	11.80	10.0	141.71
Sep.	20.60	27.40	13.70	33.20	8.80	31.0	92.62
Oct.	16.70	22.20	11.20	27.80	5.20	63.0	62.27
Nov.	10.70	16.00	5.40	20.50	0.00	59.0	26.70
Dec.	8.10	13.00	3.20	20.70	-1.30	93.0	16.68
Year	15.47	21.64	9.25	28.13	3.83	551	811.07

### BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	317
Compensated thermicity index.....(Itc):	317
Simple continentality index.....(Ic):	17.4
Diurnality index.....(Id):	16.4
Annual ombrothermic index.....(Io):	2.97
Monthly estival ombrothermic index.....(Ios1):	0.08
Bimonthly estival ombrothermic index.....(Ios2):	0.24
Threemonthly estival ombrothermic index.....(Ios3):	0.39
Fourmonthly estival ombrothermic index.....(Ios4):	0.75
Annual ombro-evaporation index.....(Ioe):	0.41
Annual positive temperature.....(Tp):	1856
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	713
Positive precipitation.....(Pp):	551

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	6	2	1	3	0

Latitudinal Belt...: Low eutemperate

Continentalty.....: Oceanic - Low Semicontinental

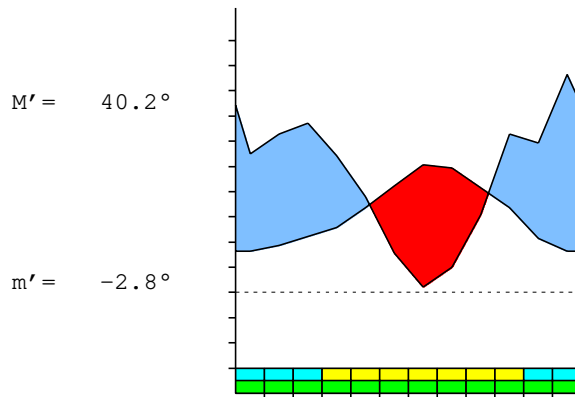
Bioclimate.....: MEDITERRANEAN PLUVISEASONAL-OCEANIC

Bioclimatic Belt...: LOW MESOMEDITERRANEAN UPPER DRY

ANTEQUERA (ESP MALAGA)

477 m

P= 551 37° 1'N 4° 33'W 5/5 y.  
 T= 15.5° Ic= 17.4 Tp= 1856 Tn= 0  
 m= 3.2° M= 13.0° Itc= 317 Io= 3.0



MEDITERRANEAN PLUVISEASONAL-OCEANIC  
 LOW MESOMEDITERRANEAN UPPER DRY

WATER INDEX CARD ANTEQUERA (ESP MALAGA)

Altitude: 477 m. Latitude: 37° 1'N

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	8.2	18	55	0	100	18	0	37	21	2.1
Feb.	9.2	21	63	0	100	21	0	42	32	2.0
Mar.	11.0	34	67	0	100	34	0	33	32	0.9
Apr.	13.0	47	54	0	100	47	0	7	20	0.1
May.	16.8	79	38	-41	59	79	0	0	10	-0.5
Jun.	21.0	114	16	-59	0	75	39	0	5	-0.8
Jul.	25.5	158	2	0	0	2	156	0	2	-0.9
Aug.	24.8	142	10	0	0	10	132	0	1	-0.9
Sep.	20.6	93	31	0	0	31	62	0	1	-0.6
Oct.	16.7	62	63	1	1	62	0	0	0	0.0
Nov.	10.7	27	59	32	33	27	0	0	0	1.2
Dec.	8.1	17	93	67	100	17	0	9	5	4.5
Year	15.5	811	551	*	*	422	389	129	129	*

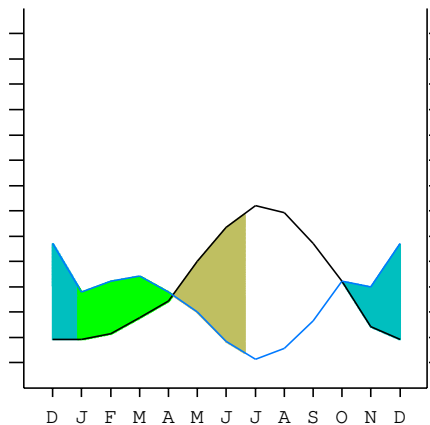
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration  
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

ANTEQUERA (ESP MALAGA)

37°1'N 4°33'W 477 m 5/5 y.

T= 15.5 Ic= 17.4 MEDITERRANEAN PLUVISEASONAL-OCEANIC  
 m= 3.2 Tp= 1856 LOW MESOMEDITERRANEAN  
 M= 13.0 Tn= 0 UPPER DRY  
 M' = 40.2 Itc= 317  
 m' = -2.8 Io= 3.0  
 P= 551 mm  
 PE= 811 mm

Imbibing	30 Sep.
Saturation	27 Dec.
Reserve Use	5 Apr.
Deficit	19 Jun.



ANTEQUERA (ESP MALAGA)

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SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [B1a]  
 + Type .....: B. Oceanic  
 + Subtype .....: 1. Semicontinental  
 + Variant .....: a. Low  
 Thermic types [B1.A3]  
 + Latitudinal zone .....: B. Temperate  
 + Latitudinal belt .....: 1. Low eutemperate  
 + Thermic type .....: A. Warm  
 + Thermic subtype .....: 3. Subwarm  
 Bioclimatic types [B8.3b.5a]  
 + Macrobioclimate .....: B. MEDITERRANEAN  
 + Bioclimate .....: 8. PLUVISEASONAL-OCEANIC  
 + Bioclimatic variant ..:  
 + Thermic type.....: 3. MESOMEDITERRANEAN  
 + Thermic subtype.....: b. LOW  
 + Ombrothermic type ...: 5. DRY  
 + Ombrothermic subtype : a. UPPER  
 Bioclimatic Classification .....: Mehc.Mme.Dry

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 160  
 Coldest semester of the year.....(Psw): 391  
 Warmest four months period of the year.....(Pcm1): 59  
 Following warmest four months period.....(Pcm2): 270  
 Positive precipitation dryest 3 months.....(Ppd): 28  
 Positive precipitation dryest 2 months.....(Ppd2): 12  
 Positive precipitation dryest 1 month.....(Ppd1): 2  
 Positive precipitation warmest 3 months.....(Pps): 28  
 Positive precipitation warmest 2 months.....(Pps2): 12  
 Positive precipitation warmest 1 month.....(Pps1): 2  
 Positive precipitation coldest 3 months.....(Ppw): 211  
 Positive precipitation coldest 2 months.....(Ppw2): 148  
 Positive precipitation coldest 1 month.....(Ppw1): 93

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	211	159	28	153

Seasonal rainfall rhythms: W > P > F > S

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 25.5  
 Average coldest month [T].....(Tmin): 8.1  
 Maximum temp. warmest month [M].....(Tmmax): 33.7  
 Minimum temp. coldest month [m].....(Tmmin): 3.0  
 Absolute Max.temp. warmest month [M'].....(Tamax): 40.2  
 Absolute Min.temp. coldest month [m'].....(Tamin): -2.8  
 First warmest contrasted month [M].....(Tcmax): 33.7 (7)  
 First coldest contrasted month [m].....(Tcmin): 17.3 (7)  
 Estival temperature.....(Ts): 713  
 Positive temperature dryest 3 months.....(Tpd): 713  
 Positive temperature dryest 2 months.....(Tpd2): 503  
 Positive temperature dryest 1 month.....(Tpd1): 255  
 Positive temperature warmest 3 months.....(Tps): 713  
 Positive temperature warmest 2 months.....(Tps2): 503  
 Positive temperature warmest 1 month.....(Tps1): 255  
 Positive temperature coldest 3 months.....(Tpw): 255  
 Positive temperature coldest 2 months.....(Tpw2): 163  
 Positive temperature coldest 1 month.....(Tpw1): 81

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

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OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 1.47  
 Mediterranean index of July.[PE/P].....(Im1): 79.16  
 Mediterranean index of July & August.....(Im2): 25.00  
 Mediterranean index of June, July & August....(Im3): 14.79

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	930	550	630	670	540	380	160	20	100	310	630	590
Tp	81	82	92	110	130	168	210	255	248	206	167	107
Io (Iom)	11.5	6.71	6.85	6.09	4.15	2.26	0.76	0.08	0.40	1.50	3.77	5.51
Seasons	Winter			Spring			Summer			Autumn		
Pp(x10)/Tp	2110 / 255			1590 / 408			280 / 713			1530 / 480		
Io (Iot)	8.275			3.897			0.393			3.187		
Semesters	December-May						June-November					
Pp(x10)/Tp	3700 / 663						1810 / 1193					
Io (Iosm)	5.581						1.517					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 5510/1856=2.97 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	930	550	630	670	540	380	160	20	100	310	630	590
Tp [T*10]	81	82	92	110	130	168	210	255	248	206	167	107
Iom [Pp/Tp]	\$\$	671	685	609	415	226	76	8	40	150	377	551
Avm [200-Iom]	***	***	***	***	***	***	124	192	160	50	***	***
Seasons	Winter			Spring			Summer			Autumn		
Pp / Tp	2110 / 255			1590 / 408			280 / 713			1530 / 480		
Iot [Pp/Tp]	827			390			39			319		
Avs E[Avm<200]	***			***			476			***		
Lower ultrahyperarid [1]							Strong lower arid [2]					
Strong upper arid [1]							Strong upper semiarid [1]					

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin] .....	(Sp): 17.40
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4] .....	28.73
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14] .....	26.43
+ Oceanic (20<CI<40)	
CI of Currey (1974) [CI=Sp/(1+Lat/3)] .....	1.30
+ Subcontinental (1.1<CI<1.7)	
Rainfall Index of Lang (1925) [R=P/T] .....	35.63
+ Steppic (40>R>0)	
Aridity Index of Martonne (1926) [Ia=P/(T+10)] .....	21.64
+ Subhumid (30>Ia>20)	
I of Emberger (1930) [Q=100*P/(Tmax <sup>2</sup> -Tmin <sup>2</sup> )] .....	48.90
+ Semiarid (50>Q>30)	
I of Dantin & Revenga (1940) [DR=100*T/P] .....	2.81
+ Semiarid (3>DR>2)	
Aridity Index of UNEP [I=P/PE] .....	0.68
+ Humid (I>0.65)	
Potential Erosion I of Fournier (1960) [K=Pi <sup>2</sup> /P] .....	15.70
+ Very low (K<60)	

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BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)  
 + Climate .....

- + Climate .....
- + Region .....
- + Thermic type: 3. Macro-mesothermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.31	0.34	0.35	0.26	0.15	0.05	0.00	0.03	0.11	0.27	0.30	0.55
T-E ratio	3.69	4.14	4.95	5.85	7.56	9.45	11.48	11.16	9.27	7.52	4.81	3.65
Precipitation-effectiveness: 27.26						Temperature-efficiency .....						83.52
Moisture Index [MI=100*(P-PE)/PE] .....												-32.07
+ C1.Subhumid dry (-33.3<MI<0)												
Index of dryness [DI=100*d/PE] .....												47.92
+ Strong deficit (33.3<DI)												
Index of humidity [HI=100*s/PE] .....												15.87
+ Moderate surplus (10<HI<20)												
Potential Evapotranspiration PE .....												811.07
+ Second mesothermic (712<PE<855)												

