

Phytosociological Research Center

www.globalbioclimatics.org

Worldwide Bioclimatic Classification System

Prof.Dr. Salvador Rivas-Martinez

(Adapted to Synoptical Table 30/08/2017)

CONTADORAS -EST. METEO.- (ESP MALAGA) Altitude: 350 m.

Latitude: 36°50'N Longitude: 4°26'W
 Temperature observation period.: 1944-1969 (26)
 Rainfall observation period....: 1944-1969 (26)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPI
Jan.	6.90	10.60	3.20	16.50	-1.20	87.0	17.64
Feb.	7.40	11.20	3.60	17.30	-0.80	92.0	19.23
Mar.	9.00	13.10	5.00	19.90	1.50	106.0	30.65
Apr.	11.00	15.50	6.40	20.80	2.20	57.0	43.36
May.	14.60	19.70	9.60	25.30	4.80	40.0	71.50
Jun.	18.20	23.70	12.80	29.30	8.50	18.0	98.15
Jul.	22.10	27.90	16.30	34.00	12.40	2.0	130.93
Aug.	22.30	28.20	16.50	33.90	12.60	2.0	124.10
Sep.	19.30	24.70	13.90	30.50	8.90	40.0	89.24
Oct.	14.30	18.50	10.10	24.90	5.60	73.0	55.21
Nov.	10.00	13.60	6.40	19.20	2.80	100.0	29.32
Dec.	7.60	11.00	4.20	17.00	0.20	117.0	19.49
Year	13.56	18.14	9.00	24.05	4.79	734	728.81

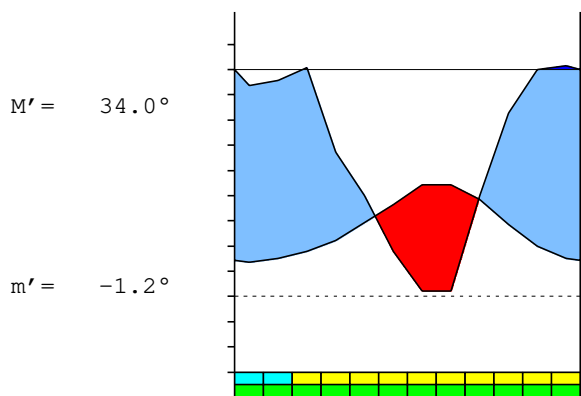
BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	274
Compensated thermicity index.....(Itc):	274
Simple continentality index.....(Ic):	15.4
Diurnality index.....(Id):	11.7
Annual ombrothermic index.....(Io):	4.51
Monthly estival ombrothermic index.....(Ios1):	0.09
Bimonthly estival ombrothermic index.....(Ios2):	0.09
Threemonthly estival ombrothermic index.....(Ios3):	0.35
Fourmonthly estival ombrothermic index.....(Ios4):	0.80
Annual ombro-evaporation index.....(Ioe):	0.31
Annual positive temperature.....(Tp):	1627
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	626
Positive precipitation.....(Pp):	734

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	7	2	0	3	0

Latitudinal Belt...: Low eutemperate
 Continentality.....: Oceanic - Low Euoceanic
 Bioclimate.....: MEDITERRANEAN PLUVISEASONAL-OCEANIC
 Bioclimatic Belt...: UPPER MESOMEDITERRANEAN LOW SUBHUMID

CONTADORAS -EST. METEO.- (ESP MALAGA) 350 m
 P= 734 36° 50'N 4° 26'W 26/26 y.
 T= 13.6° Ic= 15.4 Tp= 1627 Tn= 0
 m= 3.2° M= 10.6° Itc= 274 Io= 4.5



MEDITERRANEAN PLUVISEASONAL-OCEANIC
 UPPER MESOMEDITERRANEAN LOW SUBHUMID

WATER INDEX CARD CONTADORAS -EST. METEO.- (ESP MALAGA)
 Altitude: 350 m. Latitude: 36° 50'N

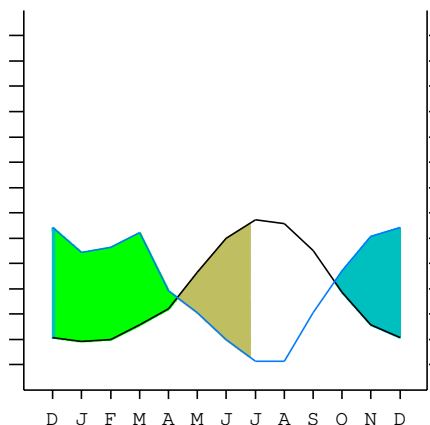
(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	6.9	18	87	0	100	18	0	69	56	3.9
Feb.	7.4	19	92	0	100	19	0	73	65	3.7
Mar.	9.0	31	106	0	100	31	0	75	70	2.4
Apr.	11.0	43	57	0	100	43	0	14	42	0.3
May.	14.6	71	40	-31	69	71	0	0	21	-0.4
Jun.	18.2	98	18	-69	0	87	12	0	10	-0.8
Jul.	22.1	131	2	0	0	2	129	0	5	-0.9
Aug.	22.3	124	2	0	0	2	122	0	3	-0.9
Sep.	19.3	89	40	0	0	40	49	0	1	-0.5
Oct.	14.3	55	73	18	18	55	0	0	1	0.3
Nov.	10.0	29	100	71	88	29	0	0	0	2.4
Dec.	7.6	19	117	12	100	19	0	86	43	5.0
Year	13.6	729	734	*	*	417	312	317	317	*

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

CONTADORAS -EST. METEO.- (ESP MALAGA) 36°50'N 4°26'W 350 m 26/26 y.

T= 13.6 Ic= 15.4 MEDITERRANEAN PLUVISEASONAL-OCEANIC
 m= 3.2 Tp= 1627 UPPER MESOMEDITERRANEAN
 M= 10.6 Tn= 0 LOW SUBHUMID
 M' = 34.0 Itc= 274
 m' = -1.2 Io= 4.5
 P= 734 mm
 PE= 729 mm

Imbibing	23 Sep.
Saturation	4 Dec.
Reserve Use	10 Apr.
Deficit	26 Jun.



CONTADORAS -EST. METEO.- (ESP MALAGA)

Latitude: 36°50'N Longitude: 4°26'W Altitude: 350 m

SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [B2b]
 + Type: B. Oceanic
 + Subtype: 2. Euoceanic
 + Variant: b. Low
 Thermic types [B1.B4]
 + Latitudinal zone: B. Temperate
 + Latitudinal belt: 1. Low eutemperate
 + Thermic type: B. Temperate
 + Thermic subtype: 4. Temperate
 Bioclimatic types [B8.3a.6b]
 + Macrobioclimate: B. MEDITERRANEAN
 + Bioclimate: 8. PLUVISEASONAL-OCEANIC
 + Bioclimatic variant ..:
 + Thermic type.....: 3. MESOMEDITERRANEAN
 + Thermic subtype.....: a. UPPER
 + Ombrothermic type ...: 6. SUBHUMID
 + Ombrothermic subtype : b. LOW
 Bioclimatic Classification: Mehc.Mme.Shu

CONTADORAS -EST. METEO.- (ESP MALAGA)

Latitude: 36°50'N Longitude: 4°26'W Altitude: 350 m

PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 175
 Coldest semester of the year.....(Psw): 559
 Warmest four months period of the year.....(Pcm1): 62
 Following warmest four months period.....(Pcm2): 377
 Positive precipitation dryest 3 months.....(Ppd): 22
 Positive precipitation dryest 2 months.....(Ppd2): 4
 Positive precipitation dryest 1 month.....(Ppd1): 2
 Positive precipitation warmest 3 months.....(Pps): 44
 Positive precipitation warmest 2 months.....(Pps2): 4
 Positive precipitation warmest 1 month.....(Pps1): 2
 Positive precipitation coldest 3 months.....(Ppw): 296
 Positive precipitation coldest 2 months.....(Ppw2): 179
 Positive precipitation coldest 1 month.....(Ppw1): 87

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	296	203	22	213

Seasonal rainfall rhythms: W > F > P > S

CONTADORAS -EST. METEO.- (ESP MALAGA)

Latitude: 36°50'N Longitude: 4°26'W Altitude: 350 m

TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 22.3
 Average coldest month [T].....(Tmin): 6.9
 Maximum temp. warmest month [M].....(Tmmax): 28.2
 Minimum temp. coldest month [m].....(Tmmin): 3.2
 Absolute Max.temp. warmest month [M'].....(Tamax): 34.0
 Absolute Min.temp. coldest month [m'].....(Tamin): -1.2
 First warmest contrasted month [M].....(Tcmax): 28.2 (8)
 First coldest contrasted month [m].....(Tcmin): 16.5 (8)
 Estival temperature.....(Ts): 626
 Positive temperature dryest 3 months.....(Tpd): 626
 Positive temperature dryest 2 months.....(Tpd2): 444
 Positive temperature dryest 1 month.....(Tpd1): 221
 Positive temperature warmest 3 months.....(Tps): 637
 Positive temperature warmest 2 months.....(Tps2): 444
 Positive temperature warmest 1 month.....(Tps1): 223
 Positive temperature coldest 3 months.....(Tpw): 219
 Positive temperature coldest 2 months.....(Tpw2): 143
 Positive temperature coldest 1 month.....(Tpw1): 69

CONTADORAS -EST. METEO.- (ESP MALAGA)

Latitude: 36°50'N Longitude: 4°26'W Altitude: 350 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										
Agelid.....[m' > 0] (Pf)			o	o	o	o	o	o	o	o	o	o
HiperAgelid..[all>0] (Pf)			o	o	o	o	o	o	o	o	o	o

CONTADORAS -EST. METEO.- (ESP MALAGA)

Latitude: 36°50'N Longitude: 4°26'W Altitude: 350 m

OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 0.99
 Mediterranean index of July.[PE/P].....(Im1): 65.46
 Mediterranean index of July & August.....(Im2): 63.76
 Mediterranean index of June, July & August....(Im3): 16.05

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	1170	870	920	1060	570	400	180	20	20	400	730	1000
Tp	76	69	74	90	110	146	182	221	223	193	143	100
Io (Iom)	15.4	12.6	12.4	11.8	5.18	2.74	0.99	0.09	0.09	2.07	5.10	10.0
Seasons	Winter			Spring			Summer			Autumn		
Pp(x10)/Tp	2960 / 219			2030 / 346			220 / 626			2130 / 436		
Io (Iot)	13.52			5.867			0.351			4.885		
Semesters	December-May						June-November					
Pp(x10)/Tp	4990 / 565						2350 / 1062					
Io (Iosm)	8.832						2.213					

CONTADORAS -EST. METEO.- (ESP MALAGA)

Latitude: 36°50'N Longitude: 4°26'W Altitude: 350 m

Aridity Value Index (AVI)

[10xPP/TP=IO]: 7340/1627=4.51 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	1170	870	920	1060	570	400	180	20	20	400	730	1000
Tp [T*10]	76	69	74	90	110	146	182	221	223	193	143	100
Iom [Pp/Tp]	\$\$	\$\$	\$\$	\$\$	518	274	99	9	9	207	510	\$\$
Avm [200-Iom]	***	***	***	***	***	***	101	191	191	***	***	***
Seasons	Winter			Spring			Summer			Autumn		
Pp / Tp	2960 / 219			2030 / 346			220 / 626			2130 / 436		
Iot [Pp/Tp]	1352			587			35			489		
Avs E[Avm<200]	***			***			483			***		
Lower ultrahyperarid [2]							Upper hyperarid [1]					
Weak upper arid [1]												

CONTADORAS -EST. METEO.- (ESP MALAGA)

Latitude: 36°50'N Longitude: 4°26'W Altitude: 350 m

BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin]	(Sp): 15.40
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]	23.27
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]	21.89
+ Oceanic (20<CI<40)	
CI of Currey (1974) [CI=Sp/(1+Lat/3)]	1.16
+ Subcontinental (1.1<CI<1.7)	
Rainfall Index of Lang (1925) [R=P/T]	54.14
+ Semiarid (60>R>40)	
Aridity Index of Martonne (1926) [Ia=P/(T+10)]	31.16
+ Humid (60>Ia>30)	
I of Emberger (1930) [Q=100*P/(Tmax ² -Tmin ²)]	93.50
+ Humid (Q>90)	
I of Dantin & Revenga (1940) [DR=100*T/P]	1.85
+ Humid (2>DR>0)	
Aridity Index of UNEP [I=P/PE]	1.01
+ Humid (I>0.65)	
Potential Erosion I of Fournier (1960) [K=Pi ² /P]	18.65
+ Very low (K<60)	

CONTADORAS -EST. METEO.- (ESP MALAGA)

Latitude: 36°50'N Longitude: 4°26'W Altitude: 350 m

BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)
 + Climate

- + Climate
- + Region
- + Thermic type: 4. Mesothermic

Thornthwaite (1948)													
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	
P-E ratio	0.53	0.56	0.62	0.29	0.17	0.06	0.01	0.01	0.15	0.34	0.56	0.72	
T-E ratio	3.11	3.33	4.05	4.95	6.57	8.19	9.95	10.03	8.68	6.44	4.50	3.42	
Precipitation-effectiveness:	40.18						Temperature-efficiency						73.22
Moisture Index [MI=100*(P-PE)/PE]												0.71	
+ C2.Subhumid humid (0<MI<20)													
Index of dryness [DI=100*d/PE]												42.80	
+ Strong deficit (33.3<DI)													
Index of humidity [HI=100*s/PE]												43.51	
+ Strong surplus (20<HI)													
Potential Evapotranspiration PE												728.81	
+ Second mesothermic (712<PE<855)													

