

# Phytosociological Research Center

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## Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 14/02/2020)

PUEBLA DEL RIO (ESP SEVILLA)

Altitude: 4 m.

Latitude: 37°11'N Longitude: 6°4'W

Temperature observation period.: 1955-1970 (16)

Rainfall observation period....: 1955-1970 (16)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPI
Jan.	11.60	17.50	5.60	22.80	0.60	109.0	21.47
Feb.	11.90	18.10	5.70	24.40	0.30	74.0	22.35
Mar.	14.60	20.90	8.20	28.00	3.30	83.0	41.12
Apr.	17.40	24.60	10.10	32.10	5.70	44.0	62.82
May.	21.80	29.70	14.00	38.30	9.80	29.0	110.39
Jun.	24.80	32.30	17.50	41.70	12.90	13.0	144.79
Jul.	28.00	36.30	19.80	42.70	15.30	1.0	184.38
Aug.	27.00	35.40	18.60	42.50	14.20	3.0	163.22
Sep.	24.80	31.80	17.70	38.90	12.50	14.0	121.25
Oct.	19.70	25.70	13.70	33.40	7.70	73.0	71.37
Nov.	14.40	19.70	9.00	26.00	2.80	91.0	32.99
Dec.	10.50	15.80	5.20	21.30	0.90	114.0	16.91
Year	18.88	25.65	12.09	32.67	7.17	648	993.07

### BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	399
Compensated thermicity index.....(Itc):	399
Simple continentality index.....(Ic):	17.5
Diurnality index.....(Id):	16.8
Annual ombrothermic index.....(Io):	2.86
Monthly estival ombrothermic index.....(Ios1):	0.04
Bimonthly estival ombrothermic index.....(Ios2):	0.07
Threemonthly estival ombrothermic index.....(Ios3):	0.21
Fourmonthly estival ombrothermic index.....(Ios4):	0.45
Annual ombro-evaporation index.....(Ioe):	0.65
Annual positive temperature.....(Tp):	2265
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	798
Positive precipitation.....(Pp):	648

N. of Months	P>4T	P:2T-4T	PT-2T	P<T	T<0
	5	2	1	4	0

Latitudinal Belt...: Low Eutemperate

Continentality.....: Oceanic - Low Semicontinental

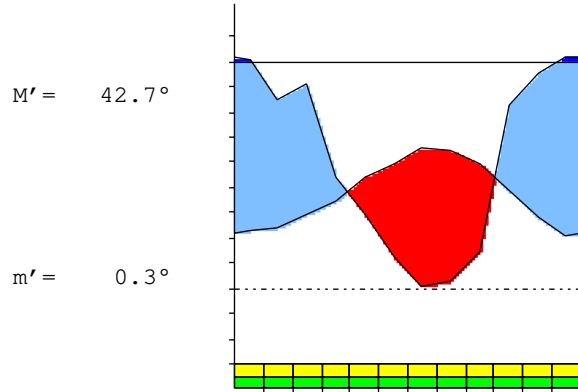
Bioclimate.....: MEDITERRANEAN PLUVISEASONAL-OCEANIC

Bioclimatic Belt...: UPPER THERMOMEDITERRANEAN UPPER DRY

PUEBLA DEL RIO (ESP SEVILLA)

4 m

P= 648      37° 11'N      6° 4'W      16/16 y.  
 T= 18.9 °    Ic= 17.5      Tp= 2265      Tn= 0  
 m= 5.2 °      M= 15.8 °    Itc= 399      Io= 2.9



MEDITERRANEAN PLUVISEASONAL-OCEANIC  
 UPPER THERMOMEDITERRANEAN UPPER DRY

WATER INDEX CARD

PUEBLA DEL RIO (ESP SEVILLA)

Altitude: 4 m.

Latitude: 37° 11'N

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	11.6	21	109	0	100	21	0	88	58	4.0
Feb.	11.9	22	74	0	100	22	0	52	55	2.3
Mar.	14.6	41	83	0	100	41	0	42	48	1.0
Apr.	17.4	63	44	-19	81	63	0	0	24	-0.2
May.	21.8	110	29	-81	0	110	0	0	12	-0.7
Jun.	24.8	145	13	0	0	13	132	0	6	-0.9
Jul.	28.0	184	1	0	0	1	183	0	3	-0.9
Aug.	27.0	163	3	0	0	3	160	0	2	-0.9
Sep.	24.8	121	14	0	0	14	107	0	1	-0.8
Oct.	19.7	71	73	2	2	71	0	0	0	0.0
Nov.	14.4	33	91	58	60	33	0	0	0	1.7
Dec.	10.5	17	114	40	100	17	0	57	28	5.7
Year	18.9	993	648	*	*	410	583	238	238	*

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

PUEBLA DEL RIO (ESP SEVILLA)

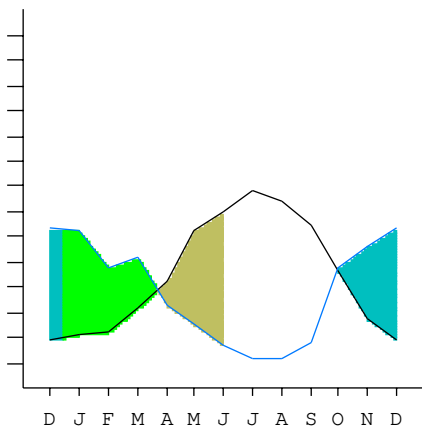
37°11'N

6°4'W

4 m 16/16 y.

T= 18.9    Ic= 17.5    MEDITERRANEAN PLUVISEASONAL-OCEANIC  
 m= 5.2    Tp= 2265    UPPER THERMOMEDITERRANEAN  
 M= 15.8    Tn= 0    UPPER DRY  
 M' = 42.7    Itc= 399  
 m' = 0.3    Io= 2.9  
 P= 648    mm ———  
 PE= 993    mm ———

Imbibing	30 Sep.
Saturation	13 Dec.
Reserve Use	21 Mar.
Deficit	30 May.



PUEBLA DEL RIO (ESP SEVILLA)

Latitude: 37°11'N Longitude: 6°4'W Altitude: 4 m

SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continentality 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 [B8.2a.5a]  
 + Macrobioclimate .....: B. MEDITERRANEAN  
 + Bioclimate .....: 8. PLUVISEASONAL-OCEANIC  
 + Bioclimatic variant .:  
 + Thermic type.....: 2. THERMOMEDITERRANEAN  
 + Thermic subtype.....: a. UPPER  
 + Ombrothermic type ...: 5. DRY  
 + Ombrothermic subtype : a. UPPER

Bioclimatic Classification .....Mepo.Tme.Dry.Sec

PUEBLA DEL RIO (ESP SEVILLA)

Latitude: 37°11'N Longitude: 6°4'W Altitude: 4 m

PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 133  
 Coldest semester of the year.....(Psw): 515  
 Warmest four months period of the year.....(Pcm1): 31  
 Following warmest four months period.....(Pcm2): 387  
 Positive precipitation dryest 3 months.....(Ppd): 17  
 Positive precipitation dryest 2 months.....(Ppd2): 4  
 Positive precipitation dryest 1 month.....(Ppd1): 1  
 Positive precipitation warmest 3 months.....(Pps): 17  
 Positive precipitation warmest 2 months.....(Pps2): 4  
 Positive precipitation warmest 1 month.....(Pps1): 1  
 Positive precipitation coldest 3 months.....(Ppw): 297  
 Positive precipitation coldest 2 months.....(Ppw2): 223  
 Positive precipitation coldest 1 month.....(Ppw1): 114

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	297	156	17	178

Seasonal rainfall rhythms: W > F > P > S

PUEBLA DEL RIO (ESP SEVILLA)

Latitude: 37°11'N Longitude: 6°4'W Altitude: 4 m

TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 28.0  
 Average coldest month [T].....(Tmin): 10.5  
 Maximum temp. warmest month [M].....(Tmax): 36.3  
 Minimum temp. coldest month [m].....(Tmin): 5.2  
 Absolute Max.temp. warmest month [M'].....(Tamax): 42.7  
 Absolute Min.temp. coldest month [m'].....(Tamin): 0.3  
 First warmest contrasted month [M].....(Tcmax): 35.4 (8)  
 First coldest contrasted month [m].....(Tcmin): 18.6 (8)  
 Estival temperature.....(Ts): 798  
 Positive temperature dryest 3 months.....(Tpd): 798  
 Positive temperature dryest 2 months.....(Tpd2): 550  
 Positive temperature dryest 1 month.....(Tpd1): 280  
 Positive temperature warmest 3 months.....(Tps): 798  
 Positive temperature warmest 2 months.....(Tps2): 550  
 Positive temperature warmest 1 month.....(Tps1): 280  
 Positive temperature coldest 3 months.....(Tpw): 340  
 Positive temperature coldest 2 months.....(Tpw2): 221  
 Positive temperature coldest 1 month.....(Tpw1): 105

PUEBLA DEL RIO (ESP SEVILLA)

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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

PUEBLA DEL RIO (ESP SEVILLA)

Latitude: 37°11'N Longitude: 6°4'W Altitude: 4 m

OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 1.53  
 Mediterranean index of July.[PE/P].....(Im1): 184.38  
 Mediterranean index of July & August.....(Im2): 86.90  
 Mediterranean index of June, July & August....(Im3): 28.96

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	1140	1090	740	830	440	290	130	10	30	140	730	910
Tp	105	116	119	146	174	218	248	280	270	248	197	144
Io (Iom)	10.9	9.40	6.22	5.68	2.53	1.33	0.52	0.04	0.11	0.56	3.71	6.32
Seasons	Winter			Spring			Summer			Autumn		
Pp(x10)/Tp	2970 / 340			1560 / 538			170 / 798			1780 / 589		
Io (Iot)	8.735			2.900			0.213			3.022		
Semesters	December-May						June-November					
Pp(x10)/Tp	4530 / 878						1950 / 1387					
Io (Iosm)	5.159						1.406					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 6480/2265=2.86 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	1140	1090	740	830	440	290	130	10	30	140	730	910
Tp [T*10]	105	116	119	146	174	218	248	280	270	248	197	144
Iom [Pp/Tp]	\$\$	940	622	568	253	133	52	4	11	56	371	632
Avm [200-Iom]	***	***	***	***	***	67	148	196	189	144	***	***
Seasons	Winter			Spring			Summer			Autumn		
Pp / Tp	2970 / 340			1560 / 538			170 / 798			1780 / 589		
Iot [Pp/Tp]	874			290			21			302		
Avs E[Avm<200]	***			***			533			***		
Lower ultrahyperarid [1]							Upper ultrahyperarid [1]					
Lower hyperarid [1]							Weak lower arid [2]					
Weak lower semiarid [1]												

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin] .....	(Sp): 17.50
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4] .....	28.83
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14] .....	26.56
+ Oceanic (20<CI<40)	
CI of Currey (1974) [CI=Sp/(1+Lat/3)] .....	1.31
+ Subcontinental (1.1<CI<1.7)	
Rainfall Index of Lang (1925) [R=P/T] .....	34.33
+ Steppic (40>R>0)	
Aridity Index of Martonne (1926) [Ia=P/(T+10)] .....	22.44
+ Subhumid (30>Ia>20)	
I of Emberger (1930) [Q=100*P/(Tmmax <sup>2</sup> -Tmmin <sup>2</sup> )] .....	50.21
+ Subhumid (90>Q>50)	
I of Dantin & Revenga (1940) [DR=100*T/P] .....	2.91
+ Semiarid (3>DR>2)	
Aridity Index of UNEP [I=P/PE] .....	0.65
+ Humid (I>0.65)	
Potencial Erosion I of Fournier (1960) [K=Pi <sup>2</sup> /P].....	20.06
+ Very low (K<60)	

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BIOCLIMATIC INDICES II

Bioclimatic classification of Gaussen & Bagnouls (1957)  
 + Climate ..... A. Warm and temperate warm  
 + Region ..... 3. Termoxeroteric (Mediterranean warm)  
 + Thermic type: 3. Macro-mesothermic

Thornthwaite (1948)												
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
P-E ratio	0.58	0.38	0.39	0.18	0.10	0.04	0.00	0.01	0.04	0.30	0.44	0.63
T-E ratio	5.22	5.35	6.57	7.83	9.81	11.16	12.60	12.15	11.16	8.87	6.48	4.72
Precipitation-effectiveness: 30.87						Temperature-efficiency .....: 101.92						
Moisture Index [MI=100*(P-PE)/PE] .....												
+ D.Semiarid (-66.7<MI<-33.3)												
Index of dryness [DI=100*d/PE] .....												
+ Strong deficit (33.3<DI)												
Index of humidity [HI=100*s/PE] .....												
+ Strong surplus (20<HI)												
Potential Evapotranspiration PE .....												
+ Third mesothermic (855<PE<997)												

