

# Phytosociological Research Center

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## Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 14/02/2020)

HORNACHUELOS- EL CARRASCAL (ESP CORDOBA) Altitude: 70 m.

Latitude: 37°44'N Longitude: 5°14'W

Temperature observation period.: 1968-1989 (22)

Rainfall observation period....: 1968-1989 (22)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	Epi
Jan.	8.90	14.80	3.10	19.20	-2.80	119.5	16.14
Feb.	10.40	16.40	4.50	21.50	-1.10	84.5	21.09
Mar.	12.30	19.60	5.00	26.60	-0.30	62.2	34.95
Apr.	15.00	22.60	7.40	29.70	2.00	59.7	53.30
May.	18.10	26.10	10.00	33.00	5.10	33.6	83.51
Jun.	22.70	31.60	13.80	38.30	7.90	27.1	126.41
Jul.	26.70	36.90	16.40	42.60	12.20	5.3	171.38
Aug.	26.70	37.20	16.10	42.80	12.10	10.0	160.41
Sep.	23.50	32.70	14.20	37.80	8.80	19.7	112.82
Oct.	18.30	26.30	10.40	33.30	5.20	78.7	66.47
Nov.	12.50	19.90	5.20	26.30	-0.50	60.8	29.34
Dec.	9.40	15.30	3.60	20.40	-1.90	100.0	17.38
Year	17.04	24.95	9.14	30.96	3.89	661	893.20

### BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	349
Compensated thermicity index.....(Itc):	349
Simple continentality index.....(Ic):	17.8
Diurnality index.....(Id):	21.1
Annual ombrothermic index.....(Io):	3.23
Monthly estival ombrothermic index.....(Ios1):	0.20
Bimonthly estival ombrothermic index.....(Ios2):	0.29
Threemonthly estival ombrothermic index.....(Ios3):	0.56
Fourmonthly estival ombrothermic index.....(Ios4):	0.81
Annual ombro-evaporation index.....(Ioe):	0.74
Annual positive temperature.....(Tp):	2045
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	761
Positive precipitation.....(Pp):	661

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

Latitudinal Belt....: Low Eutemperate

Continentality.....: Oceanic - Low Semicontinental

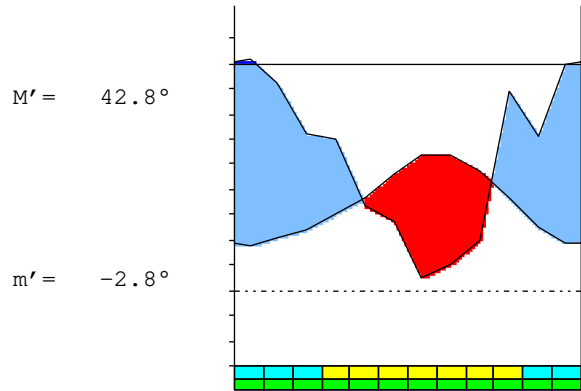
Bioclimate.....: MEDITERRANEAN PLUVISEASONAL-OCEANIC

Bioclimatic Belt....: LOW MESOMEDITERRANEAN UPPER DRY

HORNACHUELOS- EL CARRASCAL (ESP CORDOBA)

70 m

P= 661 37° 44'N 5° 14'W 22/22 y.  
 T= 17.0 ° Ic= 17.8 Tp= 2045 Tn= 0  
 m= 3.1 ° M= 14.8 ° Itc= 349 Io= 3.2



MEDITERRANEAN PLUVISEASONAL-OCEANIC  
 LOW MESOMEDITERRANEAN UPPER DRY

WATER INDEX CARD HORNACHUELOS- EL CARRASCAL (ESP CORDOBA)

Altitude: 70 m. Latitude: 37° 44'N

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	8.9	16	120	0	100	16	0	103	58	6.4
Feb.	10.4	21	85	0	100	21	0	63	61	3.0
Mar.	12.3	35	62	0	100	35	0	27	44	0.7
Apr.	15.0	53	60	0	100	53	0	6	25	0.1
May.	18.1	84	34	-50	50	84	0	0	13	-0.5
Jun.	22.7	126	27	-50	0	77	49	0	6	-0.7
Jul.	26.7	171	5	0	0	5	166	0	3	-0.9
Aug.	26.7	160	10	0	0	10	150	0	2	-0.9
Sep.	23.5	113	20	0	0	20	93	0	1	-0.8
Oct.	18.3	66	79	12	12	66	0	0	0	0.1
Nov.	12.5	29	61	31	44	29	0	0	0	1.0
Dec.	9.4	17	100	56	100	17	0	26	13	4.7
Year	17.0	893	661	*	*	434	459	227	227	*

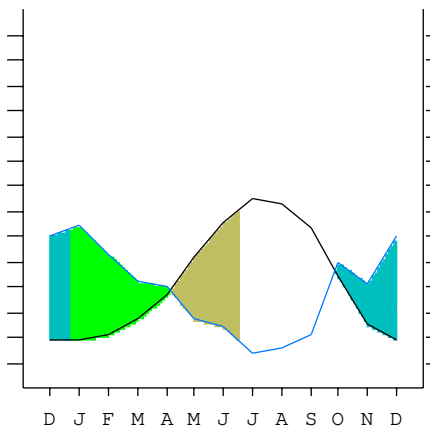
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration  
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

HORNACHUELOS- EL CARRASCAL (ESP CORDOBA)

37°44'N 5°14'W 70 m 22/22 y.

T= 17.0 Ic= 17.8 MEDITERRANEAN PLUVISEASONAL-OCEANIC  
 m= 3.1 Tp= 2045 LOW MESOMEDITERRANEAN  
 M= 14.8 Tn= 0 UPPER DRY  
 M' = 42.8 Itc= 349  
 m' = -2.8 Io= 3.2  
 P= 661 mm  
 PE= 893 mm

Imbibing	27 Sep.
Saturation	21 Dec.
Reserve Use	4 Apr.
Deficit	16 Jun.



HORNACHUELOS- EL CARRASCAL (ESP CORDOBA)

Latitude: 37°44'N Longitude: 5°14'W Altitude: 70 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 [B8.3b.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 .....Mepo.Mme.Dry.Sec

HORNACHUELOS- EL CARRASCAL (ESP CORDOBA)

Latitude: 37°44'N Longitude: 5°14'W Altitude: 70 m

PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 174  
 Coldest semester of the year.....(Psw): 487  
 Warmest four months period of the year.....(Pcm1): 62  
 Following warmest four months period.....(Pcm2): 359  
 Positive precipitation dryest 3 months.....(Ppd): 35  
 Positive precipitation dryest 2 months.....(Ppd2): 15  
 Positive precipitation dryest 1 month.....(Ppd1): 5  
 Positive precipitation warmest 3 months.....(Pps): 35  
 Positive precipitation warmest 2 months.....(Pps2): 15  
 Positive precipitation warmest 1 month.....(Pps1): 5  
 Positive precipitation coldest 3 months.....(Ppw): 304  
 Positive precipitation coldest 2 months.....(Ppw2): 220  
 Positive precipitation coldest 1 month.....(Ppw1): 120

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	304	155	42	159

Seasonal rainfall rhythms: W > F > P > S

HORNACHUELOS- EL CARRASCAL (ESP CORDOBA)

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 26.7  
 Average coldest month [T].....(Tmin): 8.9  
 Maximum temp. warmest month [M].....(Tmmax): 37.2  
 Minimum temp. coldest month [m].....(Tmmin): 3.1  
 Absolute Max.temp. warmest month [M'].....(Tamax): 42.8  
 Absolute Min.temp. coldest month [m'].....(Tamin): -2.8  
 First warmest contrasted month [M].....(Tcmax): 37.2 (8)  
 First coldest contrasted month [m].....(Tcmin): 16.1 (8)  
 Estival temperature.....(Ts): 761  
 Positive temperature dryest 3 months.....(Tpd): 769  
 Positive temperature dryest 2 months.....(Tpd2): 534  
 Positive temperature dryest 1 month.....(Tpd1): 267  
 Positive temperature warmest 3 months.....(Tps): 769  
 Positive temperature warmest 2 months.....(Tps2): 534  
 Positive temperature warmest 1 month.....(Tps1): 267  
 Positive temperature coldest 3 months.....(Tpw): 287  
 Positive temperature coldest 2 months.....(Tpw2): 183  
 Positive temperature coldest 1 month.....(Tpw1): 89

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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		

HORNACHUELOS- EL CARRASCAL (ESP CORDOBA)

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OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 1.35  
 Mediterranean index of July.[PE/P].....(Im1): 32.34  
 Mediterranean index of July & August.....(Im2): 21.69  
 Mediterranean index of June, July & August....(Im3): 10.81

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	1000	1195	845	622	597	336	271	53	100	197	787	608
Tp	94	89	104	123	150	181	227	267	267	235	183	125
Io (Iom)	10.6	13.4	8.13	5.06	3.98	1.86	1.19	0.20	0.37	0.84	4.30	4.86
Seasons	Winter			Spring			Summer			Autumn		
Pp(x10)/Tp	3040 / 287			1555 / 454			424 / 761			1592 / 543		
Io (Iot)	10.59			3.425			0.557			2.932		
Semesters	December-May						June-November					
Pp(x10)/Tp	4595 / 741						2016 / 1304					
Io (Iosm)	6.201						1.546					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 6611/2045=3.23 There is No Yearly Aridity

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	1000	1195	845	622	597	336	271	53	100	197	787	608
Tp [T*10]	94	89	104	123	150	181	227	267	267	235	183	125
Iom [Pp/Tp]	\$\$	\$\$	813	506	398	186	119	20	37	84	430	486
Avm [200-Iom]	***	***	***	***	***	14	81	180	163	116	***	***
Seasons	Winter			Spring			Summer			Autumn		
Pp / Tp	3040 / 287			1555 / 454			424 / 761			1592 / 543		
Iot [Pp/Tp]	1059			343			56			293		
Avs E[Avm<200]	***			***			423			***		
Upper ultrahyperarid [1]							Upper hyperarid [1]					
Weak lower arid [1]							Weak upper arid [1]					
Strong lower semiarid [1]							Weak upper semiarid [1]					

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin] .....	(Sp): 17.80
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4] .....	29.05
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14] .....	26.89
+ 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] .....	38.79
+ Steppic (40>R>0)	
Aridity Index of Martonne (1926) [Ia=P/(T+10)] .....	24.45
+ Subhumid (30>Ia>20)	
I of Emberger (1930) [Q=100*P/(Tmmax <sup>2</sup> -Tmmin <sup>2</sup> )] .....	48.11
+ Semiarid (50>Q>30)	
I of Dantin & Revenga (1940) [DR=100*T/P] .....	2.58
+ Semiarid (3>DR>2)	
Aridity Index of UNEP [I=P/PE] .....	0.74
+ Humid (I>0.65)	
Potencial Erosion I of Fournier (1960) [K=Pi <sup>2</sup> /P].....	21.60
+ 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	0.71	0.46	0.31	0.27	0.13	0.09	0.01	0.03	0.06	0.33	0.30	0.57
T-E ratio	4.00	4.68	5.54	6.75	8.15	10.22	12.02	12.02	10.57	8.23	5.63	4.23
Precipitation-effectiveness: 32.60						Temperature-efficiency .....: 92.03						
Moisture Index [MI=100*(P-PE)/PE] .....												
+ C1.Subhumid dry (-33.3<MI<0)												
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)												

