

# Phytosociological Research Center

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## Worldwide Bioclimatic Classification System

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(Adapted to Synoptical Table 30/08/2017)

MORATALLA (ESP MURCIA)

Altitude: 1280 m.

Latitude: 38°7'N Longitude: 2°12'W

Temperature observation period.: 1974-1989 (16)

Rainfall observation period....: 1974-1989 (16)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	Epi
Jan.	5.90	11.30	0.60	18.60	-5.70	32.0	15.18
Feb.	5.90	11.10	0.70	19.30	-5.80	35.3	15.00
Mar.	7.90	13.40	2.30	22.30	-4.60	40.1	27.25
Apr.	10.00	15.90	4.10	23.70	-1.70	43.5	39.99
May.	13.40	19.70	7.10	26.80	1.30	57.5	66.33
Jun.	18.20	25.40	11.00	32.40	5.80	39.7	101.02
Jul.	22.80	31.20	14.40	36.70	9.80	19.8	137.97
Aug.	22.60	30.60	14.50	35.90	10.20	20.7	127.62
Sep.	19.00	26.20	11.80	31.70	6.50	32.5	89.79
Oct.	13.50	19.40	7.60	26.30	1.80	51.9	52.29
Nov.	8.80	14.20	3.40	21.60	-2.70	50.9	25.70
Dec.	5.90	10.80	1.00	18.20	-5.30	31.4	14.82
Year	12.82	19.10	6.54	26.13	0.80	455	712.96

### BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	247
Compensated thermicity index.....(Itc):	247
Simple continentality index.....(Ic):	16.9
Diurnality index.....(Id):	16.8
Annual ombrothermic index.....(Io):	2.96
Monthly estival ombrothermic index.....(Ios1):	0.87
Bimonthly estival ombrothermic index.....(Ios2):	0.89
Threemonthly estival ombrothermic index.....(Ios3):	1.26
Fourmonthly estival ombrothermic index.....(Ios4):	1.79
Annual ombro-evaporation index.....(Ioe):	0.95
Annual positive temperature.....(Tp):	1539
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	636
Positive precipitation.....(Pp):	455

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	7	2	1	2	0

Latitudinal Belt...: Low eutemperate

Continentalty.....: Oceanic - Low Euoceanic

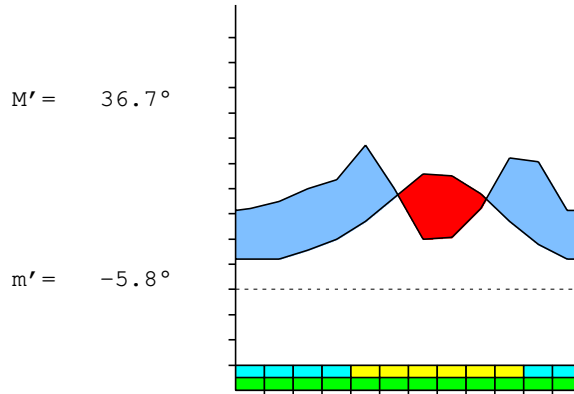
Bioclimate.....: MEDITERRANEAN PLUVISEASONAL-OCEANIC

Bioclimatic Belt...: UPPER MESOMEDITERRANEAN UPPER DRY

MORATALLA (ESP MURCIA)

1280 m

P= 455 38° 7'N 2° 12'W 16/16 y.  
 T= 12.8° Ic= 16.9 Tp= 1539 Tn= 0  
 m= 0.6° M= 11.3° Itc= 247 Io= 3.0



MEDITERRANEAN PLUVISEASONAL-OCEANIC  
 UPPER MESOMEDITERRANEAN UPPER DRY

WATER INDEX CARD MORATALLA (ESP MURCIA)

Altitude: 1280 m. Latitude: 38° 7'N

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	5.9	15	32	17	59	15	0	0	0	1.1
Feb.	5.9	15	35	20	79	15	0	0	0	1.3
Mar.	7.9	27	40	13	92	27	0	0	0	0.4
Apr.	10.0	40	44	4	95	40	0	0	0	0.0
May.	13.4	66	58	-9	86	66	0	0	0	-0.1
Jun.	18.2	101	40	-61	25	101	0	0	0	-0.6
Jul.	22.8	138	20	-25	0	45	93	0	0	-0.8
Aug.	22.6	128	21	0	0	21	107	0	0	-0.8
Sep.	19.0	90	33	0	0	33	57	0	0	-0.6
Oct.	13.5	52	52	0	0	52	0	0	0	0.0
Nov.	8.8	26	51	25	25	26	0	0	0	0.9
Dec.	5.9	15	31	17	42	15	0	0	0	1.1
Year	12.8	713	455	*	*	455	258	0	0	*

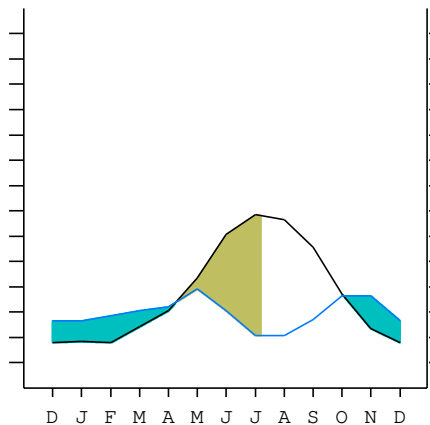
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration  
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

MORATALLA (ESP MURCIA)

38°7'N 2°12'W 1280 m 16/16 y.

T= 12.8 Ic= 16.9 MEDITERRANEAN PLUVISEASONAL-OCEANIC  
 m= 0.6 Tp= 1539 UPPER MESOMEDITERRANEAN  
 M= 11.3 Tn= 0 UPPER DRY  
 M' = 36.7 Itc= 247  
 m' = -5.8 Io= 3.0  
 P= 455 mm  
 PE= 713 mm

Imbibing	1 Oct.
Saturation	9 Apr.
Reserve Use	7 Jul.
Deficit	



MORATALLA (ESP MURCIA)

Latitude: 38°7'N Longitude: 2°12'W Altitude: 1280 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.5a]  
 + Macrobioclimate .....: B. MEDITERRANEAN  
 + Bioclimate .....: 8. PLUVISEASONAL-OCEANIC  
 + Bioclimatic variant ..:  
 + Thermic type.....: 3. MESOMEDITERRANEAN  
 + Thermic subtype.....: a. UPPER  
 + 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): 222  
 Coldest semester of the year.....(Psw): 233  
 Warmest four months period of the year.....(Pcm1): 113  
 Following warmest four months period.....(Pcm2): 166  
 Positive precipitation dryest 3 months.....(Ppd): 73  
 Positive precipitation dryest 2 months.....(Ppd2): 41  
 Positive precipitation dryest 1 month.....(Ppd1): 20  
 Positive precipitation warmest 3 months.....(Pps): 73  
 Positive precipitation warmest 2 months.....(Pps2): 41  
 Positive precipitation warmest 1 month.....(Pps1): 20  
 Positive precipitation coldest 3 months.....(Ppw): 99  
 Positive precipitation coldest 2 months.....(Ppw2): 67  
 Positive precipitation coldest 1 month.....(Ppw1): 32

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	98	141	80	135

Seasonal rainfall rhythms: P > F > W > S

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 22.8  
 Average coldest month [T].....(Tmin): 5.9  
 Maximum temp. warmest month [M].....(Tmmax): 31.2  
 Minimum temp. coldest month [m].....(Tmmin): 0.6  
 Absolute Max.temp. warmest month [M'].....(Tamax): 36.7  
 Absolute Min.temp. coldest month [m'].....(Tamin): -5.8  
 First warmest contrasted month [M].....(Tcmax): 31.2 (7)  
 First coldest contrasted month [m].....(Tcmin): 14.4 (7)  
 Estival temperature.....(Ts): 636  
 Positive temperature dryest 3 months.....(Tpd): 644  
 Positive temperature dryest 2 months.....(Tpd2): 454  
 Positive temperature dryest 1 month.....(Tpd1): 228  
 Positive temperature warmest 3 months.....(Tps): 644  
 Positive temperature warmest 2 months.....(Tps2): 454  
 Positive temperature warmest 1 month.....(Tps1): 228  
 Positive temperature coldest 3 months.....(Tpw): 177  
 Positive temperature coldest 2 months.....(Tpw2): 118  
 Positive temperature coldest 1 month.....(Tpw1): 59

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

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OMBROTHERMIC PARAMETERS

Annual aridity index.[PE/P].....(Iar): 1.57  
 Mediterranean index of July.[PE/P].....(Im1): 6.97  
 Mediterranean index of July & August.....(Im2): 6.56  
 Mediterranean index of June, July & August....(Im3): 4.57

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	314	320	353	401	435	575	397	198	207	325	519	509
Tp	59	59	59	79	100	134	182	228	226	190	135	88
Io (Iom)	5.32	5.42	5.98	5.08	4.35	4.29	2.18	0.87	0.92	1.71	3.84	5.78
Seasons	Winter			Spring			Summer			Autumn		
Pp(x10)/Tp	987 / 177			1411 / 313			802 / 636			1353 / 413		
Io (Iot)	5.576			4.508			1.261			3.276		
Semesters	December-May						June-November					
Pp(x10)/Tp	2398 / 490						2155 / 1049					
Io (Iosm)	4.894						2.054					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 4553/1539=2.96 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	314	320	353	401	435	575	397	198	207	325	519	509
Tp [T*10]	59	59	59	79	100	134	182	228	226	190	135	88
Iom [Pp/Tp]	532	542	598	508	435	429	218	87	92	171	384	578
Avm [200-Iom]	***	***	***	***	***	***	***	113	108	29	***	***
Seasons	Winter			Spring			Summer			Autumn		
Pp / Tp	987 / 177			1411 / 313			802 / 636			1353 / 413		
Iot [Pp/Tp]	558			451			126			328		
Avs E[Avm<200]	***			***			***			***		
Weak upper arid [2]							Weak upper semiarid [1]					

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin] .....	(Sp): 16.90
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4] .....	26.14
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14] .....	24.59
+ Oceanic (20<CI<40)	
CI of Currey (1974) [CI=Sp/(1+Lat/3)] .....	1.23
+ Subcontinental (1.1<CI<1.7)	
Rainfall Index of Lang (1925) [R=P/T] .....	35.50
+ Steppic (40>R>0)	
Aridity Index of Martonne (1926) [Ia=P/(T+10)] .....	19.95
+ Semiarid -mediterranean- (20>Ia>15)	
I of Emberger (1930) [Q=100*P/(Tmmax <sup>2</sup> -Tmmin <sup>2</sup> )] .....	46.79
+ Semiarid (50>Q>30)	
I of Dantin & Revenga (1940) [DR=100*T/P] .....	2.82
+ Semiarid (3>DR>2)	
Aridity Index of UNEP [I=P/PE] .....	0.64
+ Subhumid - dry (0.65>I>0.5)	
Potential Erosion I of Fournier (1960) [K=Pi <sup>2</sup> /P] .....	7.26
+ Very low (K<60)	

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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	0.18	0.20	0.22	0.22	0.27	0.16	0.06	0.07	0.12	0.24	0.27	0.18
T-E ratio	2.66	2.66	3.56	4.50	6.03	8.19	10.26	10.17	8.55	6.07	3.96	2.66
Precipitation-effectiveness: 21.98						Temperature-efficiency .....						69.26
Moisture Index [MI=100*(P-PE)/PE] .....	-36.14											
+ D.Semiarid (-66.7<MI<-33.3)												
Index of dryness [DI=100*d/PE] .....	36.13											
+ Strong deficit (33.3<DI)												
Index of humidity [HI=100*s/PE] .....	0.00											
+ No surplus (0<HI<10)												
Potential Evapotranspiration PE .....	712.96											
+ Second mesothermic (712<PE<855)												

