

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: 420 m.

Latitude: 38°18'N Longitude: 1°47'W

Temperature observation period.: 1953-1989 (37)

Rainfall observation period....: 1953-1989 (37)

(C/mm)	Ti	Mi	mi	M'i	m'i	Pi	EPI
Jan.	8.30	14.10	2.50	20.70	-3.10	24.6	17.05
Feb.	9.40	15.80	3.10	23.20	-2.90	23.4	20.66
Mar.	11.30	18.00	4.70	25.50	-0.90	31.1	34.27
Apr.	13.50	20.30	6.80	26.90	1.30	39.0	49.00
May.	17.30	24.50	10.10	31.10	4.90	39.3	82.30
Jun.	21.00	28.60	13.40	34.90	8.40	25.6	114.03
Jul.	24.60	32.80	16.40	38.90	11.80	10.8	149.01
Aug.	24.80	32.50	17.00	38.50	12.70	13.1	141.34
Sep.	22.00	28.80	15.20	34.30	10.40	29.9	103.22
Oct.	16.80	22.70	10.80	28.70	5.20	51.7	61.22
Nov.	11.90	17.60	6.10	24.10	0.00	33.5	30.43
Dec.	9.00	14.80	3.20	21.20	-2.70	25.5	19.01
Year	15.82	22.54	9.11	29.00	3.76	348	821.54

BIOCLIMATIC INDICES AND DIAGNOSIS

Thermicity index.....(It):	324
Compensated thermicity index.....(Itc):	324
Simple continentality index.....(Ic):	16.5
Diurnality index.....(Id):	16.4
Annual ombrothermic index.....(Io):	1.83
Monthly estival ombrothermic index.....(Ios1):	0.44
Bimonthly estival ombrothermic index.....(Ios2):	0.48
Threemonthly estival ombrothermic index.....(Ios3):	0.70
Fourmonthly estival ombrothermic index.....(Ios4):	1.01
Annual ombro-evaporation index.....(Ioe):	0.96
Annual positive temperature.....(Tp):	1899
Annual negative temperature.....(Tn):	0
Estival temperature.....(Ts):	704
Positive precipitation.....(Pp):	348

N. of	P>4T	P:2T-4T	PT-2T	P<T	T<0
Months	0	8	2	2	0

Latitudinal Belt...: Low eutemperate

Continentalty.....: Oceanic - Low Euoceanic

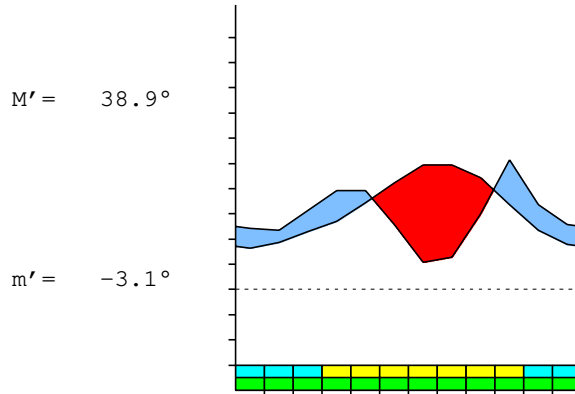
Bioclimate.....: MEDITERRANEAN XERIC-OCEANIC

Bioclimatic Belt...: LOW MESOMEDITERRANEAN UPPER SEMIARID

MORATALLA (ESP MURCIA)

420 m

P= 348 38° 18'N 1° 47'W 37/37 y.
 T= 15.8° Ic= 16.5 Tp= 1899 Tn= 0
 m= 2.5° M= 14.1° Itc= 324 Io= 1.8



MEDITERRANEAN XERIC-OCEANIC
 LOW MESOMEDITERRANEAN UPPER SEMIARID

WATER INDEX CARD MORATALLA (ESP MURCIA)
 Altitude: 420 m. Latitude: 38° 18'N

(C/mm)	T	PE	P	VR	R	RE	DF	SP	DR	HC
Jan.	8.3	17	25	8	17	17	0	0	0	0.4
Feb.	9.4	21	23	3	20	21	0	0	0	0.1
Mar.	11.3	34	31	-3	17	34	0	0	0	0.0
Apr.	13.5	49	39	-10	7	49	0	0	0	-0.2
May.	17.3	82	39	-7	0	46	36	0	0	-0.5
Jun.	21.0	114	26	0	0	26	88	0	0	-0.7
Jul.	24.6	149	11	0	0	11	138	0	0	-0.9
Aug.	24.8	141	13	0	0	13	128	0	0	-0.9
Sep.	22.0	103	30	0	0	30	73	0	0	-0.7
Oct.	16.8	61	52	0	0	52	10	0	0	-0.1
Nov.	11.9	30	34	3	3	30	0	0	0	0.1
Dec.	9.0	19	26	6	10	19	0	0	0	0.3
Year	15.8	822	348	*	*	348	474	0	0	*

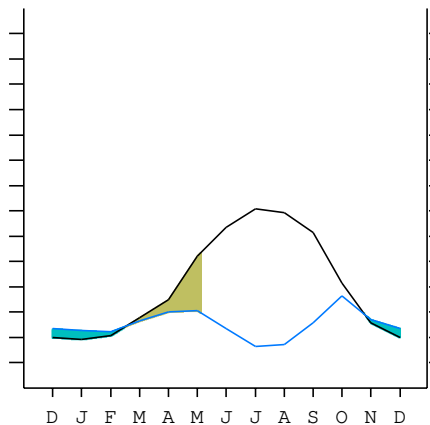
R = Reserve VR = Variation of the reserve RE = Real evapotranspiration
 DR = Drainage HC = Humidity coefficient DF = Deficit SP = Superavit

MORATALLA (ESP MURCIA)

38°18'N 1°47'W 420 m 37/37 y.

T= 15.8 Ic= 16.5 MEDITERRANEAN XERIC-OCEANIC
 m= 2.5 Tp= 1899 LOW MESOMEDITERRANEAN
 M= 14.1 Tn= 0 UPPER SEMIARID
 M' = 38.9 Itc= 324
 m' = -3.1 Io= 1.8
 P= 348 mm ———
 PE= 822 mm ———

Imbibing	23 Oct.
Saturation	14 Feb.
Reserve Use	5 May.
Deficit	



MORATALLA (ESP MURCIA)

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SUMMARY OF RIVAS-MARTINEZ CLASSIFICATION

Continental Index [B2b]
 + Type: B. Oceanic
 + Subtype: 2. Euoceanic
 + Variant: b. Low

Thermic types [B1.A3]
 + Latitudinal zone: B. Temperate
 + Latitudinal belt: 1. Low eutemperate
 + Thermic type: A. Warm
 + Thermic subtype: 3. Subwarm

Bioclimatic types [B6.3b.4a]
 + Macrobioclimate: B. MEDITERRANEAN
 + Bioclimate: 6. XERIC-OCEANIC
 + Bioclimatic variant ..:
 + Thermic type.....: 3. MESOMEDITERRANEAN
 + Thermic subtype.....: b. LOW
 + Ombrothermic type ...: 4. SEMIARID
 + Ombrothermic subtype : a. UPPER

Bioclimatic Classification: MepDC.Mme.Sar

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PRECIPITATION PARAMETERS

Warmest semester of the year.....(Pss): 170
 Coldest semester of the year.....(Psw): 177
 Warmest four months period of the year.....(Pcm1): 79
 Following warmest four months period.....(Pcm2): 135
 Positive precipitation dryest 3 months.....(Ppd): 50
 Positive precipitation dryest 2 months.....(Ppd2): 24
 Positive precipitation dryest 1 month.....(Ppd1): 11
 Positive precipitation warmest 3 months.....(Pps): 54
 Positive precipitation warmest 2 months.....(Pps2): 24
 Positive precipitation warmest 1 month.....(Pps1): 13
 Positive precipitation coldest 3 months.....(Ppw): 74
 Positive precipitation coldest 2 months.....(Ppw2): 50
 Positive precipitation coldest 1 month.....(Ppw1): 25

Seasons	Winter Tr1-W	Spring Tr2-P	Summer Tr3-S	Automn Tr4-F
Rainfall	73	109	49	115

Seasonal rainfall rhythms: F > P > W > S

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TEMPERATURE PARAMETERS

Average warmest month [T].....(Tmax): 24.8
 Average coldest month [T].....(Tmin): 8.3
 Maximum temp. warmest month [M].....(Tmmax): 32.8
 Minimum temp. coldest month [m].....(Tmmin): 2.5
 Absolute Max.temp. warmest month [M'].....(Tamax): 38.9
 Absolute Min.temp. coldest month [m'].....(Tamin): -3.1
 First warmest contrasted month [M].....(Tcmax): 32.8 (7)
 First coldest contrasted month [m].....(Tcmin): 16.4 (7)
 Estival temperature.....(Ts): 704
 Positive temperature dryest 3 months.....(Tpd): 704
 Positive temperature dryest 2 months.....(Tpd2): 494
 Positive temperature dryest 1 month.....(Tpd1): 246
 Positive temperature warmest 3 months.....(Tps): 714
 Positive temperature warmest 2 months.....(Tps2): 494
 Positive temperature warmest 1 month.....(Tps1): 248
 Positive temperature coldest 3 months.....(Tpw): 267
 Positive temperature coldest 2 months.....(Tpw2): 173
 Positive temperature coldest 1 month.....(Tpw1): 83

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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): 2.36
 Mediterranean index of July.[PE/P].....(Im1): 13.80
 Mediterranean index of July & August.....(Im2): 12.15
 Mediterranean index of June, July & August....(Im3): 8.17

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp(x10)	255	246	234	311	390	393	256	108	131	299	517	335
Tp	90	83	94	113	135	173	210	246	248	220	168	119
Io (Iom)	2.83	2.96	2.49	2.75	2.89	2.27	1.22	0.44	0.53	1.36	3.08	2.82
Seasons	Winter			Spring			Summer			Autumn		
Pp(x10)/Tp	735 / 267			1094 / 421			495 / 704			1151 / 507		
Io (Iot)	2.753			2.599			0.703			2.270		
Semesters	December-May						June-November					
Pp(x10)/Tp	1829 / 688						1646 / 1211					
Io (Iosm)	2.658						1.359					

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Aridity Value Index (AVI)

[10xPP/TP=IO]: 3475/1899=1.83 **There is No Yearly Aridity**

Months	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Pp [P*10]	255	246	234	311	390	393	256	108	131	299	517	335
Tp [T*10]	90	83	94	113	135	173	210	246	248	220	168	119
Iom [Pp/Tp]	283	296	249	275	289	227	122	44	53	136	308	282
Avm [200-Iom]	***	***	***	***	***	***	78	156	147	64	***	***
Seasons	Winter			Spring			Summer			Autumn		
Pp / Tp	735 / 267			1094 / 421			495 / 704			1151 / 507		
Iot [Pp/Tp]	275			260			70			227		
Avs E[Avm<200]	***			***			381			***		
Strong lower arid [1]							Weak lower arid [1]					
Strong upper arid [1]							Weak lower semiarid [2]					

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BIOCLIMATIC INDICES I

CI of Supan (1884) [Tmax-Tmin]	(Sp): 16.50
CI of Gorezinski (1920) [1.7*Sp/sin(Lat)-20.4]	24.86
CI of Conrad (1946) [1.7*Sp/sin(Lat+10)-14]	23.57
+ Oceanic (20<CI<40)	
CI of Currey (1974) [CI=Sp/(1+Lat/3)]	1.20
+ Subcontinental (1.1<CI<1.7)	
Rainfall Index of Lang (1925) [R=P/T]	21.96
+ Steppic (40>R>0)	
Aridity Index of Martonne (1926) [Ia=P/(T+10)]	13.46
+ Arid -steppic- (15>Ia>5)	
I of Emberger (1930) [Q=100*P/(Tmax ² -Tmin ²)]	32.49
+ Semiarid (50>Q>30)	
I of Dantin & Revenga (1940) [DR=100*T/P]	4.55
+ Arid (6>DR>3)	
Aridity Index of UNEP [I=P/PE]	0.42
+ Semiarid (0.5>Im>0.2)	
Potential Erosion I of Fournier (1960) [K=Pi ² /P]	7.69
+ 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	0.12	0.11	0.15	0.18	0.16	0.09	0.03	0.04	0.10	0.22	0.16	0.13
T-E ratio	3.74	4.23	5.09	6.07	7.78	9.45	11.07	11.16	9.90	7.56	5.35	4.05
Precipitation-effectiveness: 14.80						Temperature-efficiency						85.45
Moisture Index [MI=100*(P-PE)/PE]												-57.70
+ D.Semiarid (-66.7<MI<-33.3)												
Index of dryness [DI=100*d/PE]												57.70
+ Strong deficit (33.3<DI)												
Index of humidity [HI=100*s/PE]												0.00
+ No surplus (0<HI<10)												
Potential Evapotranspiration PE												821.54
+ Second mesothermic (712<PE<855)												

